

# PART 2B

## OPERATIONAL ANNEX



## Reading guidance

This is Part 2b of the Guide on Environmental Life Cycle Assessment. Part 2b adds operational models and data to the Guidelines formulated in Part 2a. The operational models and data published in this Part have been carefully selected on the basis of a set of criteria, including scientific and technical validity, environmental relevance, etc. (see Part 3). In addition to these criteria, the operational data and models had to be publicly accessible.

The operational models and data are published in a separate document in order to allow them to be regularly updated without updating the other parts of this LCA Guide.

In principle, operational models or data can be provided for each methodological step for which guidelines have been provided in Part 2a. In this edition of the Guide, however, it has not been possible to provide guidelines for each step. More emphasis has been placed here on the impact assessment steps (providing lists of characterisation factors etc.). It is our intention to address the other steps in a similar way should a subsequent updated edition of the Handbook be realised sometime in the future. The steps which have not been addressed in this edition are labelled "to be inserted".

The latest updates of Part 2b, including the models and data referred to in this part, can be found on and downloaded from the following website:

<http://www.leidenuniv.nl/cml/lca2/index.html>

We would encourage the reader to check this site regularly.

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# **1. Management of LCA projects: procedures**

## **1.1 Designing an LCA project**

To be inserted

## **1.2 Context of an LCA project**

To be inserted

## **1.3 Process management in LCA**

To be inserted

## **1.4 Organisation and assignment**

To be inserted

## **1.5 Reporting on an LCA project**

To be inserted



## **2. Goal and scope definition**

### **2.1 Procedures**

To be inserted

### **2.2 Goal definition**

To be inserted

### **2.3 Scope definition**

To be inserted

## 2.4 Function, functional unit, alternatives and reference flows

### SI UNITS

Table 2.4.1: SI and derived units often used in LCA studies.

Quantity	Unit	Symbol
distance, length	meter	m
energy	joule	J = N m
mass	kilogram	kg
radioactivity	becquerel	Bq = s <sup>-1</sup>
temperature	kelvin	K
time	second	s
volume	cubic meter	m <sup>3</sup>
work	joule	J = N m

Table 2.4.2: Units with conversion factors to SI.

unit	symbol	in SI-units
are	a	10 <sup>2</sup> m <sup>2</sup>
day	d	8.640 x 10 <sup>4</sup> s
hour	h	3.6 x 10 <sup>3</sup> s
kilowattuur	kWh	3.6 X 10 <sup>6</sup> J
litre	l	10 <sup>-3</sup> m <sup>3</sup>
minute (time)	min	60 s
tonne	t	10 <sup>3</sup> kg
year	a, y	3.156 x 10 <sup>7</sup> s

Table 2.4.3: Prefixes used in presenting quantitative numbers.

factor	name	symbol
10 <sup>3</sup>	kilo	k
10 <sup>6</sup>	mega	M
10 <sup>9</sup>	giga	G
10 <sup>12</sup>	tera	T
10 <sup>15</sup>	peta	P
10 <sup>-2</sup>	centi	c
10 <sup>-3</sup>	milli	m
10 <sup>-6</sup>	micro	μ
10 <sup>-9</sup>	nano	n
10 <sup>-12</sup>	pico	p

Table 2.4.4: Composite units often used in LCA studies

quantity	units
transport	ton km
functional units	m <sup>2</sup> year; lumen year; etc.

For the conversion of other units to SI units (or SI-based or SI-derived units), see also:

[http://www.df.lth.se/~thanisa/recept/units\\_js.html](http://www.df.lth.se/~thanisa/recept/units_js.html)

### 3. Inventory analysis

#### 3.1 Procedures

To be inserted

#### 3.2 Economy-environment system boundary

To be inserted

#### 3.3 Flow diagram

To be inserted

#### 3.4 Format and data categories

##### THE SPOLD AND SPINE DATA FORMATS FOR LCI DATA

Spold format can be found on:

<http://www.spold.org/>

Spine format can be found on:

[http://deville.tep.chalmers.se/SPINE\\_EIM/iso.html](http://deville.tep.chalmers.se/SPINE_EIM/iso.html)

##### CHOICE OF DATA CATEGORIES

Table 3.4.1: Overview of data categories for collecting and reporting the data of unit processes.

main category	data category
economic flows	inputs and outputs of goods
	inputs and outputs of services (including transport)
	inputs and outputs of materials
	inputs and outputs of energy
	inputs and outputs of waste (for treatment)
environmental interventions	extractions of abiotic resources (including gas)
	extractions of biotic resources
	land transformation
	land occupation
	emissions of chemicals (including radionuclides)
	emissions of sound
	emissions of waste heat
casualties	

### 3.5 Data quality

#### EXAMPLE OF PEDIGREE MATRIX

Table 3.5.1: Adapted version of the so-called pedigree matrix.

pedigree	reliability	completeness	temporal correlation	geographical correlation	further technical correlation
1	verified data based on measured data	representative data from a sufficient sample of sites over an adequate period to even out normal fluctuations	less than 3 years of difference from the year of study	data from area under study	data from enterprises, processes and materials under study
2	verified data based partly on assumptions, or non-verified data based on measurements	representative data from a smaller number of sites but for adequate periods	less than 6 years of difference	average data from larger area that includes area under study	data on processes and materials under study but from different enterprises
3	non-verified data partly based on assumptions	representative data from an adequate number of sites but for shorter periods	less than 10 years of difference	data from area with similar production conditions	data on processes and materials under study but with different technology
4	qualified estimate (e.g. by industrial expert)	representative data but from a smaller number of sites, for shorter periods, or incomplete data for an adequate number of sites and periods	less than 15 years of difference	data from area with slightly similar production conditions	data on related processes or materials but with same technology
5	non-qualified estimate	representativeness unknown, or incomplete data from a smaller number of sites and/or for shorter periods	age of data unknown, or more than 15 years of difference	data from unknown area or area with very different production conditions	data on related processes materials but with different technology

Source: Weidema, 1998b

### 3.6 Data collection and relating data to unit processes

#### BACKGROUND PROCESS DATA

The inventory analysis requires data on the physical inputs and outputs of the processes of the product system, regarding product flows as well as elementary flows. Such data are mostly collected on a case-by-case basis, with the help of the companies involved. In addition, there are a number of public data bases which are used more generally: the ETH database for energy production processes (Frischknecht *et al.*, 1993/1995/1996), the APME database for plastics (Boustead, 1994), the BUWAL/SAEFL database for packaging materials (SAEFL, 1998) and the SIMAPRO database containing data from the above databases and additional data (Pré Consultants, 1997). As stated above, the inventory analysis requires extensive data, and the availability and quality of the data may largely determine the outcome of the study. Therefore there is a great need for more standardised data, particularly about background processes, i.e., processes which are not specific for the given product system.

Source: LINER, 1999



**GENERIC CONVERSION FACTORS FOR BREAKING DOWN GROUP PARAMETERS INTO THEIR INDIVIDUAL CONSTITUENTS**

*NOTE that these data are only ESTIMATES!!*

Table 3.6.1: Estimation factors for converting NMVOC group emissions into individual compounds.

Name	Mass fraction in the UK NMVOC emission inventory
Ethane	0.016821
Propane	0.005324
n-butane	0.064891
i-butane	0.042643
n-pentane	0.020604
i-pentane	0.034201
n-hexane	0.013661
2-methylpentane	0.011779
3-methylpentane	0.008001
2,2-dimethylbutane	0.002695
2,3-dimethylbutane	0.003601
n-heptane	0.003503
2-methylhexane	0.005425
3-methylhexane	0.004652
n-octane	0.002905
2-methylheptane	0.016173
n-nonane	0.010857
2-methyloctane	0.012271
n-decane	0.010938
2-methylnonane	0.011402
n-undecane	0.012351
dodecane	0.003342
cyclohexane	0.000013
methylcyclohexane	0.002054
ethylene	0.037958
propylene	0.016409
1-butene	0.004922
2-butene	0.009375
butylene	0.002279
1-pentene	0.003206
2-pentene	0.006196
2-methylbut-1-ene	0.001243
3-methylbut-1-ene	0.001644
2-methylbut-2-ene	0.002713
styrene	0.003603
acetylene	0.016869
benzene	0.022817
toluene	0.069846
o-xylene	0.026428
m-xylene	0.030537
p-xylene	0.030476
ethylbenzene	0.013297
n-propylbenzene	0.004994
i-propylbenzene	0.004111
1,2,3-trimethylbenzene	0.005409
1,2,4-trimethylbenzene	0.012314

Name	Mass fraction in the UK NMVOC emission inventory
1,3,5-trimethylbenzene	0.006074
o-ethyltoluene	0.005673
m-ethyltoluene	0.007223
p-ethyltoluene	0.007223
3,5-dimethylethylbenzene	0.0049
3,5-diethyltoluene	0.0049
formaldehyde	0.007788
acetaldehyde	0.001468
propionaldehyde	0.001647
butyraldehyde	0.00102
i-butyraldehyde	0.000901
valeraldehyde	0.000159
benzaldehyde	0.000726
acetone	0.008934
methylethylketone	0.007959
methyl-i-butylketone	0.014137
cyclohexanone	0.005441
methanol	0.000173
ethanol	0.042804
i-propanol	0.004108
n-butanol	0.014342
i-butanol	0.010091
s-butanol	0.00872
t-butanol	0.000013
cyclohexanol	0.002054
diacetone alcohol	0.00872
dimethyl ether	0.000013
methyl-t-butylether	0.000013
methoxypropanol	0.00227
butylglycol	0.008576
methylacetate	0.000018
ethylacetate	0.007261
n-propylacetate	0.000013
i-propylacetate	0.000027
n-butylacetate	0.004396
s-butylacetate	0.004396
formic acid	0.000021
acetic acid	0.000021
propionic acid	0.000013
methyl chloride	0.000389
methylene chloride	0.003999
methyl chloroform	0.011243
tetrachloroethylene	0.007927
trichloroethylene	0.010883
1,1-dichloroethylene	0.000013
cis 1,2-dichloroethylene	0.000013
trans dichloroethylene	0.000013
vinylchloride	0.002378

Source: Derwent *et al.*, 1996.

Table 3.6.2: Estimation factors for converting group emissions into individual compounds.

See table on: <http://www.leidenuniv.nl/interfac/cml/lca2/index.html>

**NOTE:** *this table might be regularly updated and only provides rough estimates of the actual contents of emission groups!*

Source:

VRM, Dept. Monitoring and Information Management

Description (in Dutch) : Omstoffentabel registratiejaar 1996

#### CONVERSION OF BQ INTO KG AND OF KG INTO BQ

The relation between radiation  $\rho$  and mass  $m$  is given by

$$r = \frac{1000 \ln 2}{t} \frac{N_A}{M} m \quad (3.6.1)$$

and that between mass  $m$  and radiation  $\rho$  by

$$m = \frac{t}{1000 \ln 2} \frac{M}{N_A} r \quad (3.6.2)$$

where  $\rho$  is the radiation in Bq, while  $m$  is the mass in kg,  $\tau$  is the half life in s,  $M$  is the molecular mass in  $\text{g}\cdot\text{mol}^{-1}$ , and  $N_A$  is Avogadro's number in  $\text{mol}^{-1}$ . Tables with values of molecular mass  $M$  and half life  $\tau$  for a large number of isotopes have been published in, e.g., *The Handbook of Chemistry and Physics*.

For an explanation of the background argumentation, see text box:



Normally, amounts of material are expressed in terms of mass, that is in kg. The amount of a radioactive substance, however, is sometimes expressed in radiation terms, that is, in Bq. The two can be converted into each other. Below is a description of the conversion process.

The equation for radioactive decay is given by

$$\frac{dN}{dt} = -kN(t)$$

where  $N(t)$  is the number of atoms present at time  $t$  and  $k$  the decay constant. This differential equation can be solved for  $N(t)$ :

$$N(t) = N(0)e^{-kt}$$

and also gives an expression for the amount of radiation  $\rho$ , namely the number of decays  $dN$  in the time interval  $dt$ :

$$r(t) = kN(t)$$

This can be elaborated to yield

$$r(t) = kN(0)e^{-kt}$$

The decay constant  $k$  is related to the half life  $t$  via

$$N\left(\frac{t}{2}\right) = N(0)e^{-kt} = \frac{1}{2}N(0)$$

so that

$$t = \frac{\ln 2}{k}$$

The amount of radiation is thus given by

$$r(t) = \frac{\ln 2}{t} N(0)e^{-\ln 2 t/t}$$

It only makes sense to refer to an amount of radiation if this amount is constant over a reasonable time frame. This leads to the assumption that  $t \ll \tau$ . The amount originally present  $N(0)$  can thus be written as  $N$ , and we have:

$$r = \lim_{t/t \rightarrow 0} r(t) = \lim_{t/t \rightarrow 0} \frac{\ln 2}{t} N e^{-\ln 2 t/t} = \frac{\ln 2}{t} N$$

Switching to mass units  $m$  (in kg) only requires the application of the molecular mass  $M$  (in  $\text{g}\cdot\text{mol}^{-1}$ ) and Avogadro's number  $N_A$  (in  $\text{mol}^{-1}$ ). Furthermore, a factor 1000 is needed to convert the molecular mass to  $\text{kg}\cdot\text{mol}^{-1}$ :

$$N = \frac{1000 N_A m}{M}$$

### CONVERSION OF DB INTO $\text{Pa}^2\cdot\text{YR}$

Sound is calculated as a linear additive expression by conversion to an energy-related quantity. For a unit process, producing an annual amount of material of  $M$  kg/yr, of which an amount of  $m$  kg is needed, the inventory entry for sound in  $\text{Pa}^2\cdot\text{yr}$  is found by

$$s = m \times \frac{4 \cdot 10^{-10} \times 10^{p/10}}{M} \quad (3.6.3)$$

where  $p$  is the sound pressure level in dB of the unit process. The constant  $4 \cdot 10^{-10}$  has an implicit dimension.

For an explanation of the background argumentation, see Heijungs *et al.* (1992; Backgrounds, p.37).

### CALCULATION OF OCCUPATION AND TRANSFORMATION IN RELATION TO LAND USE

A unit process which occupies  $a$  m<sup>2</sup> of land and keeps it in state B, with the land being in state A before the activity and in state C after the activity, leads to two inventory entries: one for occupation ( $o$ ) and one for transformation ( $t$ ). If the unit process produces an annual amount of material of  $M$  kg/yr, while  $m$  kg is required, the two inventory entries are:

$$o = m \times \frac{a}{M} \quad (3.6.4)$$

for occupation in m<sup>2</sup>×yr of state B, and

$$t = m \times \frac{1 \times a}{M} \quad (3.6.5)$$

for transformation in m<sup>2</sup> from state A to state C. The constant 1 has an implicit dimension.

### UNITS IN RELATION TO DATA CATEGORIES

Table 3.6.3: Overview of preferred units for collecting and reporting the data of unit processes.

data category	preferred unit
inputs and outputs of goods	–
inputs and outputs of services (excluding transport)	hr, –, etc.
inputs and outputs of transport	tonne×km, person×km, etc.
inputs and outputs of materials	kg
inputs and outputs of energy	MJ or kWh
inputs and outputs of waste (for treatment)	kg
extractions of abiotic resources (including gas)	kg
extractions of biotic resources	–
land occupation	m <sup>2</sup> ×yr
land transformation	m <sup>2</sup>
emissions of chemicals (including radioactive isotopes)	kg
emissions of waste heat	MJ
casualties	–
sound	Pa <sup>2</sup> ×yr

### 3.7 Data validation

To be inserted

### 3.8 Cut-off and data estimation

#### **AVOIDING CUT-OFF BY USING INPUT-OUTPUT MODELING TO ESTIMATE FLOWS FOR WHICH SPECIFIC DATA ARE LACKING**

A hybrid analysis combining a process-based foreground system with an input-output-based background system can be used to simulate full interactions between foreground and background systems (Suh & Huppel, 2000a). Alternatively, a default estimate derived by environmentally extended input-output analysis (envIOA) can be used directly for the missing flows.

The text frame below drafts a stepwise procedure for working with a default US inventory estimation model based on input-output tables, called MIET (Missing Inventory Estimation Tool; available online through <http://www.leidenuniv.nl/interfac/cml/lca2/index.html>). This spreadsheet provides default inventory estimates based on input-output tables, using various data sources, including the 1996 US input-output table and the 1998 US TRI data.

1. Establish prices for the inputs to be estimated by environmental IOA.
2. Deflate the prices to the base year 1996.
3. Convert the price into US \$.
4. Select an appropriate sector from the Bureau of Economic Analysis (BEA) or Standard Industry Classification (SIC) code description.
5. Enter the result of 3 into the corresponding cell in MIET (either producer's price or purchaser's price).
6. Include this result in the corresponding process in your LCA.

Each flow for which process data are lacking must be quantified in money terms, i.e., in US dollars. This can either be done directly by means of company purchasing statistics or expenditure records for the flow at stake (in \$ needed for the functional unit being analysed), or indirectly by means of physical data on the flow at stake (in terms of kg, m<sup>3</sup> etc. needed for the functional unit being analysed) and price data per physical unit. Make sure that the converted money value and the unit of I/O-based inventory are compatible. That is, if the calculated price is the purchaser's price, as is true in most cases, then it is also the purchaser's price which should be used in the I/O account. In most cases, I/O accounts are calculated using the producer's price. The producer's price must then be converted into the consumer's price by adding the retail, wholesale and transportation margins provided with the supply (U) table of input-output accounts. MIET automatically converts consumer's prices into producer's prices. Detailed information can be found in Suh and Huppel (2000a, 2000b). The consumption of durable capital goods can be converted accordingly, using the annual depreciation of capital goods. Note that if the flow in question is capital-intensive, goods or services IOA-based models will yield underestimated data, since the use of capital goods is not regarded as an input in input-output convention. In this case, try to collect more specific data for the flow, or add the proportion of capital goods in the flow using annual depreciation and the corresponding capital goods column in Suh & Huppel (2000b). It should also be recognised that input-output based inventory cannot provide reliable information if the flow in question refers to an aggregated sector such as 020503: Miscellaneous crops, 110900: Other construction, 570300: Other electronic components, etc. (Suh & Huppel, 2000a).

With the growth of e-commerce, price information for most commodities is available by searching on the World Wide Web. Current prices should be converted to US\$ values for 1996 by using an appropriate economic index. A good source of price indices is the Statistical Abstract of the United States, available online(<http://www.census.gov/prod/www/statistical-abstract-us.html>); section 15).

If prices are obtained in Euros, Dutch guilders or any other non-US dollar rate, they have to be converted into US dollars using the following exchange rates (d.d. 2000.11.13).

1 Dfl=0.389 US \$

1 Euro=0.857 US \$

Etc.

Please keep these factors up-to-date, as exchange rates change over time (e.g., consult: <http://www.xe.net/ucc/>).

SIC and BEA code descriptions can be found from the websites <http://www.osha.gov/cgi-bin/sic/sicsr5> and <http://www.bea.doc.gov/bea/dn2/i-o.htm>, respectively.

The estimates made on the basis of IOA have to be evaluated carefully afterwards:

- After entering the results as an inventory process in the LCA, it is useful to conduct a contribution and perturbation analysis (see Section 5.4 and 5.5) to assess the significance of the flow in question for the overall results of the study.
- Based on these analyses, decide whether it is still important to collect specific process data for that flow or not. A rule of thumb could be that if a single flow for which data are lacking contributes more than 5% to the indicator result of the product system analysed, specific process data should be collected for that flow.

*Estimating process data by comparison with similar processes for which data are known*

Most of the options currently known (see Part 3) for "Estimating process data by comparison with similar processes for which data are known" are practical solutions applied by some practitioners, without further documentation. This implies that there is no standard working procedure for this method. Hence, if such an option is applied, the procedure followed for the particular case study must be documented and justified, and the uncertainties related to the approach must be discussed.

However, for the capital good approach developed by Lindeijer (1998), a working procedure has

The environmental profile of capital goods can be estimated at three levels of sophistication:

- 1 Based on an average environmental profile per m<sup>3</sup> building volume, and the ground surface and height of the facility (or the total building volume) and the annual production of the company.
- 2 Based on the environmental profiles for different construction parts, the ground surface, the height, the annual production and the pavement surface of the facility.
- 3 Based on the environmental profiles for different construction parts, and:
  - the total quantity of flooring surface (m<sup>2</sup>);
  - the total quantity of building surface (m<sup>2</sup>);
  - the total building volume (m<sup>3</sup>);
  - the estimated mass of machines and equipment (kg);
  - the quality (brick, concrete, asphalt) and the total quantity of surface pavement (m<sup>2</sup>);
  - the expected lifetime of the building;
  - the annual energy use, if possible; and
  - the annual production of the company.

See Lindeijer (1998) for a detailed description of this procedure.

been drafted, for each level of sophistication distinguished (see text box).

The goal of Lindeijer's study was to provide environmental profiles of the most important parts of capital goods for an average production facility. The study was aimed at buildings and did not include machinery. These environmental profiles allowed a first estimate of the importance of the environmental effects of capital goods to be made, with the aid of only a very limited amount of data such as surface area, height, annual production, lifetime. The result of the study was a relatively simple, three-level method providing a rough indication of the environmental effects of

capital goods. In the first-level method, the environmental effects are calculated on the basis of the volume of the building (V), the annual production (P) and the environmental effect per m<sup>3</sup> (E).

$$S (V/P * Ep) = Etot$$

#### **CUT-OFF BASED ON PREDEFINED CRITERIA**

If the estimation methods discussed above are not applicable, for instance in the use phase and the waste management phase, or if the input data for the estimation methods cannot be obtained, the inputs or outputs for which further data are lacking will have to be cut off after all. However, before the cut-off is actually made, it is recommended to assess the possible significance of the flow cut-off quantitatively and qualitatively.

With respect to quantitative assessment, the following options are available if all process flows are known in either mass or monetary terms, but specific data on preceding processes are lacking for some flows:

- If a flow contributes less than X % (mass/mass) to the total mass inflow of a specific process – or in ISO 14041/14049 terms, if all materials have been included that have a cumulative total of more than 100-X % of the total mass inputs of that process - the flow may be removed from further analysis (see example in ISO 14049; to be included here later).
- If an input contributes less than X % to the total purchase costs of a specific process - or if all materials have been included that represent the cumulative total of more than 100-X % of the total purchase costs of that process - the flow may be removed from further analysis.

Both options may have their own problems. The first option has the problem that it is often impossible to determine what is 100%, since not all flows are known in mass terms. The second option does not have this problem, as the total purchase costs are generally known based on business administration<sup>1</sup>. However, this method has not yet been elaborated and applied in practice and possible drawbacks are as yet unknown. Before this method can be recommended, therefore, it should be investigated in more detail and the definition of purchase costs (e.g., whether it should include pure costs of labour or not) should be established in scientific debate.

Both quantitative assessment options discussed above should be combined with a qualitative assessment of the resource extractions and emissions that may be expected from the flow for which data are lacking (see also ISO 14041). This assessment can again be made by looking at similar flows (see above under the heading “Estimating process data by comparison with similar processes for which data are known”) and discussing the likelihood of, e.g., hazardous emissions occurring somewhere in the life-cycle of that flow.

Finally, the outcomes of the quantitative and the qualitative assessment must be combined, and the choice of whether the use of cut-offs is reasonable or whether specific process data should be gathered after all must be justified and reported.

If both options to assess the quantitative and/or qualitative significance of flows for which process data are lacking fail to work, there is no sensible advice left and an arbitrary choice will have to be made on whether to use cut-offs or not. If a cut-off is made, this has to be reported clearly and it has to be justified that all other options to prevent a cut-off failed to work.

#### **EXAMPLE**

In the example system (see Part 2a), several inputs have been cut off. The cut-offs being made include all production buildings, facilities and machines, and it is assumed that a chemical

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<sup>1</sup> One could even consider using the average environmental burdens per unit of costs of the flows for which process data are known as an indicator of the flows for which such data are lacking. This would make the method an estimation method as well.

catalyst input in the refinery process has also been cut off, since specific process data for that catalyst are lacking.

As an example we now estimate the potential contribution of the refinery facility and a catalyst, e.g., platinum.

At least the following data for the facility are needed to estimate the facility impacts by IO analysis:

- the original investment ( $I_{facility}$ ) in terms of total facility (or specified per material needed for the facility, e.g., concrete, steel, aluminium etc.; a more precise IOA is possible but finding these data will take a lot of time!), corrected if necessary by a correction factor (C) based on the price index rate between 199? and the base year 1996;
- the expected economic lifetime ( $L_{facility}$ ) of the facility (after how many years is the facility expected to be actually substituted?);
- annual average maintenance costs of the facility ( $M_{facility}$ ), corrected if necessary by a correction factor (C) based on the price index rate between 199? and the base year 1996; and
- the annual production ( $P_{naphtha}$ ) of the facility (in terms of the flow analysed, i.e., naphtha).

As the facility is a multi-function facility, the allocation factor for the flow analysed in the example system, i.e., naphtha (allocation factor  $A = 0.3^1$ ; see Section 3.9.1), needs to be known too, but this is produced by the allocation for the impacts of the process itself anyway. So, only the bulleted data above are additional to what was already known. The original investment ( $I_{facility}$ ) and maintenance costs ( $M_{facility}$ ) in monetary terms to be allocated to the 10 kg of naphtha output in the example system ( $O_{naphtha}$ ) can be calculated by:

$$I_{naphtha}(\$ / FU) = \left( \frac{I_{facility} \times C_{priceindexfactor}}{L_{facility}} \right) \times A \times \frac{O_{naphtha}}{P_{naphtha}} \quad (3.8.1)$$

$$M_{naphtha}(\$ / FU) = (M_{facility} \times C_{priceindex}) \times A \times \frac{O_{naphtha}}{P_{naphtha}} \quad (3.8.2)$$

In this example, the following *hypothetical* values have been assumed for the refinery facility:

- Original investment: Euro 2,400,000 (1996)
- Write-off period: 20 years;
- Average annual maintenance cost: Euro 120 per year (at 2000 price level);
- Annual production: 9 kton of naphtha per year.
- 10 kg of naphtha is necessary for the production of 1000 PE disposable bags (= the functional unit)

The maintenance costs (1997 price index) need to be corrected for the base year 1996 by applying a factor of 0.907986 (based on the consumer price index (CPI) for August 2000 and the 1996 annual CPI), but the original investment costs do not need to be corrected for the 1996 base year. This implies that the original investment and maintenance costs of the refinery facility that should be allocated to the naphtha flow amount to:

$\{(2,400,000/20) * 0.3 * (10/9,000,000)\}$ =Euro 0.040 (US\$ 0.047); and  
 $\{(120 * 0.907986) * 0.3 * 10/9,000,000\}$ =Euro 3.6319E-05 (US\$ 4.238E-05).

For the catalyst, the quantity of the input in the refinery process needs to be known in mass terms or in monetary terms. In this example, the following (hypothetical) values have been assumed for platinum:

- Annual input of platinum catalyst into the refinery: 10 kg/year.
- Current platinum price: about \$140,000 per kg.
- Annual production: 6 kg of naphtha per year.

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<sup>1</sup> As the allocation factor depends on the allocation method applied, a sensitivity analysis could be conducted on other possible allocation factors for naphtha. However, this sensitivity analysis is only useful if the allocation factors differ significantly between the different allocation methods, and if the estimated contribution of the facility appears to be potentially significant for the overall results.

The platinum price (1999 price index) needs to be corrected for the base year 1996 by applying a factor of 0.964120 (based on the 1999 and 1996 annual CPI). This implies that the platinum that should be allocated to the naphtha flow amounts to:  
 $\{14000 * 10 * 0.964120 * 0.3 * (10/9,000,000)\} = \text{US } \$ 0.045.$

These monetary values can now be entered into the MIET spreadsheet. Users must specify whether producer's prices or consumer's prices are used. If the price data have been gathered from purchasing records, then the prices will be consumer's prices. Before entering the value, the sectors to which each missing flow belongs must be determined. For the refinery installation, this turns out to be the "SIC 3559 *Special Industry Machinery, Not Elsewhere Classified*", while platinum belongs to "2819 *Industrial Inorganic Chemicals, Not Elsewhere Classified*". After the calculated value has been entered, MIET calculates inventory estimates based on the 1996 US input-output table and environmental data including TRI 98 data. The results of the calculation are shown in Part 2a.

### 3.9 Multifunctionality and allocation

#### 3.9.1 Economic allocation

##### **ECONOMIC VALUE SHARES OF THE DIFFERENT CO-PRODUCTS AS ALLOCATION FACTORS**

For each multiple process, the economic values produced are to be expressed in one monetary unit, like Euros or Dollars, as the proceeds of each type of product sold,  $P_i$ . As ultimately only shares in proceeds are used, not the absolute values, the monetary units may be local ones, avoiding the transformation steps into one common monetary unit for all processes. Hence, the base year for the currency used is not very relevant either. For economic allocation, only a transformation into one common monetary unit is necessary, while different units may be used in different processes. The share of the sales of one product in the total proceeds of the sales of all products is the allocation factor  $F_i$  (see Figure 3.9.1 below). This factor is dimensionless and does not depend on the monetary units used; it is also independent of inflation. The allocation factor applies to all non-function inputs and outputs represented by flow  $V$ . These include resource extractions, emissions, inflows of products and outflows of waste with negative value. Thus, if a certain amount of flow  $V$  enters or leaves the multifunctional (combined/joint) process, we allocate  $F_1$  to product 1 and  $F_2$  to product 2. In cases where economic value shares are not known because of missing or distorted markets, the methods specified in Section 3.9.2 may be applied.

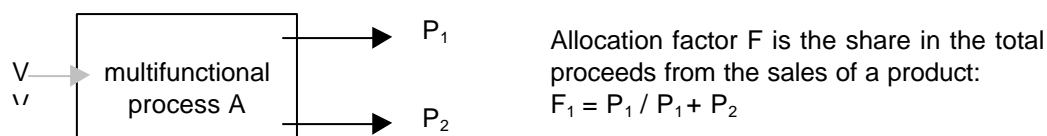


Figure 3.9.1: Shares in total proceeds as allocation factor.

With all allocation factors established, each multiple process in the product system can be split up into single-function processes. Since allocation factors have been set up as product shares in total (adjusted) proceeds, the 100% rule holds at the process level. The system as a whole, as quantified with these made-single processes, will therefore be a single function system as well.

The allocation method applies not only to the situation of co-production but also to situations of recycling and combined waste management, that is, to all situations where the value creation in

a process involves more than one good or service. For instance, processing chlorinated solvent wastes from the plating industry is a waste management service to the plating industry and at the same time part of PVC production and metals production. The process can then be allocated on the basis of the prices the plating industry pays for spent solvent processing, the price the PVC producers pay for the chlorine, and the price that metal producers pay for the metals regenerated. Allocation occurs in the unit process in which the chlorine and metals are stripped from the organic compounds.

### **Simplification**

In many instances, proceeds are known at the level of the entire firm, rather than for the multi-functional process *within* the firm. There is a method available to derive the values at this multi-functional process level, viz., the gross sales value method (see below). If this method cannot be applied for some reason, it can be simplified by applying the allocation at the level of the firm, while checking whether this would lead to substantial differences in allocation at the process level. Though combining several processes, allocation at the firm level is much more technology-specific than allocation at the level of the system as a whole. The latter option should generally not be applied, not even as a simplification.

### **HOW TO MEASURE SALES VALUES?**

The relevant value to measure the sales of a product is the private value to the decision-maker, as he is influenced by the prices he really gets, or expects to get. Hence, regular subsidies and taxes on activities are part of the price; no correction is needed. This is in contrast to the situation where an economic analysis is being made in terms of alternative social costs, as in Cost-Benefit Analysis. In such an analysis, transfer payments like taxes and subsidies do not reflect real cost and are to be subtracted. If the allocation data are used later, not for allocation purposes but for economic analysis in addition to LCA, a correction for transfer payments may be needed. If subsidies are given for a specific performance, this performance may be defined as a product. An example is that of subsidies for nature conservation measures in agriculture, where, for instance, farmers in the Netherlands may be paid for each successful nest of meadow birds. "Meadow birds" is then a co-product sold to the government, with its own clear share in the total proceeds of the farm.

Some specific problems in calculating shares in (adjusted) total proceeds are worked out in Section 3.9.2. These relate to missing markets, including tax-financed processes, and to market distortions. Below, the operational guidelines for solving the multifunctionality problem are worked out, for the simplified, the detailed and the extended version.

### **Simplified version<sup>1</sup>**

The simplified version has three modeling steps and 4 allocation steps.

#### *simplified modeling*

**sm1:** Use single-function databases as a basis

Cradle-to-gate databases like the ETH database (Frischknecht *et al.*, 1993/1995/1996) on energy-related processes and SAEFL (1998) on packaging have already been allocated by the makers. Without going into the details of how exactly the allocation has been brought about, such general databases are accepted for all but a few main processes in the process tree of the product system. Also, environmentally extended input-output models are becoming available as a general dataset. Since links between the sectors are in terms of one single monetary unit, these models are purely single-function. As improved versions of general databases become available, this option can provide practical solutions to many of the allocation problems.

**sm2:** Treat open-loop co-production as closed-loop co-production<sup>2</sup>

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<sup>1</sup> The section on simplified LCA has been prepared together with Erwin Lindeijer, formerly of IVAM BV now of TNO Industry, with adaptations to the format and terminology used in this Guide. See annex C.

<sup>2</sup> Often called open-loop *recycling* but covering all non-recycling co-production as well.



In many instances, wastes emanating from the product system are the used versions of primary production in the product system. If it is incorrectly assumed that the recycling takes place within the product system itself, the open loop is transformed into a closed loop. This will usually lead to too high an amount of primary production being subtracted, as the secondary material or product will be a degraded version of the primary material. To increase the validity of the outcome, a quality factor must then be introduced, indicating the lower value of the recycled material. This recycling comes on top of recycling materials as a realistically modeled input. It is to be specified as a subtraction process, to allow for transparent improvements in system specification. In this sense it is a value-corrected substitution method. A similar problem may occur in situations where the product itself might seem uniform, like electricity. The co-produced electricity in waste incineration has different time-profile characteristics than the electricity obtained from the grid. Hence, its value will be lower (or possibly higher) than that of electricity purchased. In the current liberalised electricity markets, short-term prices may differ by several hundred percent points. In some instances, the quality factor may in fact be near zero, further simplifying the analysis.

**sm3:** Use available physical-causal waste management models (ISO step 2, simplified) Such models have been developed but are not yet available in easily applicable forms<sup>1</sup>. In practice, such models combine modeling and allocation aspects. This is to be accepted, for the time being.

#### *simplified allocation*

**sa1:** Apply economic allocation where easily possible

If data on shares in the proceeds of products from a combined process are easily available, the allocation is quite simple and straightforward. This will often be the case especially for internal studies at firm level. There is then no difference between the simplified and extended versions. If the data for economic allocation are not so easily available at process level, they may be available at systems level. In air transport, for instance, the proceeds from freight and passenger transport are available, avoiding difficult allocation analysis at process level. This step will solve some but usually not all multifunctionality problems.

**sa2:** Use substitution with made-single cradle-to-gate database data

This is not real modeling but a simplified solution to the multifunctionality problem. It only makes sense where single-function cradle-to-gate systems can be used in the substitution, e.g., using the databases indicated under sm1 and the gate-to-grave databases mentioned under sm2.

This will solve the multifunctionality problem in all common types of flows of materials and products, possibly leaving a few case-specific multi-function processes unallocated.

**sa3:** Apply an easy value-indicating parameter common to the various co-products

Depending on the situation, rough parameters for this purpose may be mass, volume or energy content. In a refinery, for instance, these different parameters all roughly co-vary with value. In other cases, like 'penicillin + fodder production', such simple parameters hardly make sense.

**sa4:** Use a quick-and-dirty last resort measure

This is the bag of tricks of last resort. In the penicillin example, penicillin prices and prices of a "similar fodder" might be taken from a financial magazine. In recycling, the 50 – 50 % approach of the Nordic Guidelines might be used (Lindfors *et al.* 1995a,b). For combined waste management, kg share in total waste might be taken. For chemical wastes, this usually will be too coarse a measure, but better than none. A final option is not to split at all, but to allocate all flows to the product investigated. If this product is the main product of a particular process, this yields only a slight overstatement of the environmental interventions.

#### **Detailed version**

The detailed version has two modeling steps and one allocation step.

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<sup>1</sup> We expect operational simplified models to become available very soon.

#### *detailed modeling*

**dm1:** Split up processes that are not really multiple into single ones

In this step, multifunctional processes may be split up. Processes are often described empirically as the sum total at a site. In this case, a closer look may reveal that in fact there are different process lines for the different products produced at the same site. This is always a useful check. Only in exceptional cases will this step solve the multifunctionality problem for a process; it usually states the multifunctional problem more precisely.

In many instances of background processes, the options discussed above under *simplified modeling* will have to be used.

**dm2:** Model long-term technical-physical relations in waste processing

This step applies to mixed waste processing only. It involves subtracting all emissions caused by each of the wastes processed in a long-term model. The (analytically) remaining process will virtually always be a combined one, still requiring some allocation procedure. Conceptually, this situation is very different from dm1, as the processes there were found, upon closer inspection, to be visibly independent. In the present category, processes are in principle combined, but alternatives are modeled as changes against a general background. This modeling method is not yet in common use in LCA, but is being developed.

#### *detailed allocation*

**da1:** Apply economic allocation based on market value or constructed market value

The cost allocation problem in managerial accounting and the allocation problem in LCA for decision support are very similar. In LCA, the same economic principles for solution can be used, which is why this step is named "economic allocation". The allocation is not applied at a systems level, nor at firms level, but at the level of a detailed in-firm view of the processes involved. Some of these processes are really combined or joint, while others function for one of the co-products only. Allocation is only relevant for the combined or joint processes.

In many instances, prices are given at a firm's interface with the outside world, rather than for processes within the firm. This very common situation will be dealt with in some detail here. The method to be applied is the *gross sales value method*, adapted here for use in LCA. This preferred method for deriving operational allocation factors has been worked out in more detail in Part 3 of this Guide. Below, an example of economic allocation is worked out in Section 3.9.3.1. Guidelines on other operational aspects of dealing with distorted markets, missing markets and as yet undeveloped markets are worked out in Part 2a of this Guide.

### **Extended options**

As extended options, two additional modeling options are described, and one additional option for allocation.

#### *extended modeling*

**em1:** Apply market analysis for the main co-products

This is the realistic version of system expansion, in principle taking into account real elasticities of supply and demand. This analysis is quite complicated at the level of detail required for LCA. Therefore, either standardised values for elasticities are to be used, or the analysis is to be restricted to some main flows. As economic relations are not included in the detailed version of inventory modeling, this extended option may be used as a sensitivity analysis of introducing market effects in the model, giving insight into the way market modeling might influence outcomes. In general, however, the multifunctionality problem will not decrease but increase by introducing market mechanisms.

**em2:** Develop a linear programming model for main processes

If main processes are controlled by one organisation, the change in operation can be described using available information on technical relations and the aims of the processes operator. The change induced by having an extra amount of the functional unit can then be indicated involving only environmental interventions. A point of concern, however, is the time horizon of most linear programming models. This tends to be short, while the structural LCA questions treated here

require long-term modeling, including investment functions in the models. Operational versions of such models are still lacking.

*extended allocation*

**ea1:** Apply a 'symmetrical substitution method'

In using a substitution method, the first round of substitution induced would usually lead to substitution by a cradle-to-gate system that itself contains multifunctional processes, thus leading to an endless regress. The symmetrical substitution method avoids this problem of endless regress. How generally applicable this method is, remains an open question. For a fuller description and application in an example, see Section 3.9.3.2 below.

### 3.9.2 Solving problems of missing and distorted market prices for *step da1*

In many situations, an estimate can be made of the values of the various co-products, goods and services, including waste processing services. Market prices are the basic data to be used. If market prices are not known, there are several reliable sources for many product prices, including historical prices, current prices and expected prices in terms of futures. The Worldwide Web is a unique source of price data, increasingly so as web-markets are fast emerging. Hundreds of websites on the most commonly traded products are now available. The relevant price is 'FOB', free on board, at the location of the supplier, without insurance or transport<sup>1</sup>.

In several situations, however, market prices are nevertheless not available or, if available, may not reflect the value intended to be measured. For such problematic situations, a number of solutions are available. Problems and solutions are surveyed in Table 3.9.2.1 below.

Table 3.9.2.1: Prices of products with missing or distorted markets.

problem	solution
1. market prices not known	look for public sources, preferably FOB prices
2. fluctuating prices	use three-year averages, or use prices at futures market
3. inflation	no problem, as long as the same base year is used in each process
4. trends in real prices	no problem, as long as the same base year is used in each process
5. different currencies in different processes	no problem, as long as the same currency is used in each process
6. locally diverging prices	choose prices at relevant process locations or calculate averages for the relevant region
7. market prices available only further downstream	gross sales value method, as worked out under '14'
8. partially missing prices	construct prices from costs and known prices
9. economically based market distortions (e.g., monopolies)	use actual market prices, correct in very exceptional cases only
10. regulations-based market distortions	accept prices as they are, use value or cost of close alternative for missing market prices
11. tax-like financing of activity (e.g., sewer systems)	treat as 'missing market, public provision'
12. taxes and subsidies on products	use the price the seller actually receives
13. taxes and subsidies on activities	do not correct for taxes and subsidies on activities.
14. in-firm prices not known	use gross sales value method

<sup>1</sup> The other price type is 'cif', stating a specific place of delivery like 'cif Paris' for the price of oil delivered in Paris.

15. missing markets with public provision	construct prices based on costs
16. developing markets for recycling products	use current prices of similar products to specify the price of future recycled products
17. markets not yet in existence	use expected future market prices

#### 1. MARKET PRICES NOT KNOWN

If prices are not given in the process data set, providing them is very similar to the methods used for other missing data like some emissions. The only difference is that for most commodities, data on prices are publicly available, in publications and increasingly on the web. 'Fob' prices, at the gate, are more relevant than cif prices. If market prices cannot be found, a best estimate is to be made, e.g., using available prices of slightly lower quality and slightly higher quality alternatives as a reference.

*Solution:* Use public sources on prices; if not available, make informed estimate.

#### 2. FLUCTUATING PRICES

The problem of unstable prices is very similar to that of unstable emissions. Most processes do not emit regularly over time, in that they show daily, weekly, monthly and seasonal variations and long-term trends. Chemical plants, for instance, usually show a tendency for emissions to become lower in the first years after construction, while emissions go up in the last years of their functioning. For prices, similar variations may occur due to the business cycle. Trend-free irregularities can be approximated by some averaging procedure over the base year. For longer-term variations, one may use longer time series for averaging, as a non-default option. This might be relevant for products with a long-term downward trend in their prices, like abiotic virgin materials and energy resources.

*Solution:* Take three consecutive annual averages, or use prices from futures markets.

#### 3. INFLATION

Inflation does not pose a serious problem, as it is not absolute prices but shares in proceeds which are relevant. One should use prices from the same date, especially in times of high inflation rates. It is not necessary to use a specific base year and deflate the prices to this base year, as inflation will influence the prices of all products from the process in the same way; relative prices then remain the same. Base years may differ between processes but should be the same for products from the same process.

*Solution:* For each process use prices at the end of the base year chosen.

#### 4. TRENDS IN REAL PRICES

Apart from inflation, real prices may show a trend, like the downward trend for most primary commodities. Prices may then be deflated (or inflated) to a base year. If such trends are the same for the various products of a process, as may be expected, relative prices are not changed by deflating. As long as the same base year is used for expressing the proceeds per product, the choice of base year does not influence the outcomes.

*Solution:* Use the same base year for each process.

#### 5. DIFFERENT CURRENCIES IN DIFFERENT PROCESSES

This poses no problem for allocation purposes, as long as the same currency is used within one process. For economic analysis, as in market analysis or cost-benefit analysis, one common unit is to be established, after which the various currencies are to be converted into a single one. The currency rate valid for the same year for which the process data are chosen is the most relevant one. Values for currencies used in UN/World Bank national account statistics or by the IMF are to be taken for the base year chosen, and used for conversion. Such conversions may be relevant in extended analysis.

*Solution:* Use the same currency for each process.

#### 6. LOCALLY DIVERGING PRICES

For some products, especially those with low prices in relation to transport costs, prices may vary steeply with location. The local price of the relevant process is then the most adequate price. In many cases it is not a specific process which is sought, but the processes

representative of a region. In this situation, the average for the region is to be used. Transport is to be treated as a separate process.

*Solution:* Use relevant processes or calculate an average value of product prices for processes in the relevant region.

#### **7. MARKET PRICES AVAILABLE ONLY FURTHER DOWNSTREAM**

In some instances, market prices are only available in useful form after some processing of a material flow into a standard form. An example is that of working up metals from mixed waste to standard quality recycled metal. Standard prices are available for the recycled metal, e.g., aluminium ingots. For the price after the multifunctional process of 'collection and sorting', this is often not the case, as these prices may vary with the amounts delivered, transport distances, information on the variability of quality and the like. If the work-up process takes place inside the same firm that does the sorting, the gross sales value method specified under '14' can be used. If this is not the case, market prices can be imputed from the point where prices are available, back to where the multifunctional process produces the flow to be worked up. The method involves using the price per unit (e.g., 1 kg) at the point in the system where it is known and subtracting the costs of the processing that takes place between that point and the multiple process where the price is needed for economic allocation. These costs may be known from experience or may be specified by a specialised cost calculator. They include normal profits. This method is the same as the *gross sales value method* described under '14'.

*Solution:* Use the *gross sales value method* to construct relevant "fob-like" prices.

#### **8. PARTIALLY MISSING PRICES**

In some cases, some of the products of a process are priced while others are not. An example is the public processing of waste, co-producing heat and electricity sold on the market. The value of the co-product 'waste processing' can be derived by subtracting the proceeds of heat and electricity from the total costs.

*Solution:* Reconstruct the value of an unknown good or service by subtracting the known market proceeds of other products from the total costs.

#### **9. ECONOMICALLY BASED MARKET DISTORTIONS (E.G., MONOPOLIES)**

In many situations, there is market failure through normal economic causes. For some products, economies of scale imply a production volume - where costs are minimum - much larger than the demand can absorb. This results in a natural monopoly, as exemplified by many transport systems with high fixed and low short-term marginal costs. Examples include electricity networks, cable TV networks and computer operating systems. Also, markets imply transparency as regards the quality of all products. This often is a serious problem for secondary materials. Different qualities of secondary materials are often not standardised and the costs of measuring quality may be high, for instance in the case of varying compositions of scrap metals. In such situations, markets may not emerge, as investments for secondary application are too risky. Although such circumstances may have effects on prices and hence on allocation shares, the volume of such effects may be limited and will usually affect all products of the oligopolistic or monopolistic firm. Such distortions can therefore be ignored. In cost-benefit analysis, such deviations from "true" market prices are also usually ignored.

*Solution:* Accept prices as they are as a default. For developing markets: see below.

#### **10. REGULATIONS-BASED MARKET DISTORTIONS AND FAILURE**

This is the most complex type of market failure. By way of example, let us assume that there is no market for a discarded house, that recycling has been made obligatory, e.g., by means of prohibitive prices for landfill or through outright prohibition of landfill, and that road building is an allowable route for some non-organic, non-metallic mixed granulate fraction resulting from the demolition process, while other useful applications are effectively forbidden. Clearly, such regulatory activities influence prices and may even create markets. There is nothing unusual in this situation, as virtually all markets are created by public regulations. Although such prices are experienced as 'unnatural', this is merely a matter of getting used to the idea that markets are hardly ever natural. Hence, the resulting prices are to be used. For developing markets, see under '16' below.

Technological routes which have been cut off through regulations or pricing policy, as in waste processing, are irrelevant for the analysis, although they may, of course, be analysed as an alternative, to see if they have been blocked for sound environmental reasons.

*Solution:* Actual prices are to be used. Take the value or cost of a closely related alternative for missing market prices.

#### 11. TAX-LIKE FINANCING OF ACTIVITIES

In many instances a price might appear to be paid for a service, while in fact some sort of tax is being levied for financing purposes. An example is the fee paid for wastewater treatment by households, based on the number of persons or rooms, or some other parameter which only very roughly indicates the volume of sewage water treated. However, if such payments are close to a price per unit of service (e.g., household waste processing paid per binbag or per kg), they can be used as an indication of value. Otherwise, the situation is like that in missing markets with public provision; see under '15' below.

*Solution:* If functioning as a price per unit of service: use as value. If not, treat as missing market with public provision.

#### 12. TAXES AND SUBSIDIES ON MARKETED PRODUCTS

The price the producer of a product receives is what counts in the allocation of the process. The effect of taxes and subsidies on prices and volumes is based on elasticities of supply and demand of the products involved. However, this is not a question of the effect of a tax or subsidy. The simpler question here is what the producer actually receives for his products. In the allocation between gasoline and other refinery products, the refinery receives the price excluding the excise on gasoline.

*Solution:* Use the price the seller actually receives, that is, the price for the purchaser minus taxes or plus subsidies.

#### 13. TAXES AND SUBSIDIES ON ACTIVITIES

Some taxes and subsidies are levied for environmental reasons. Subsidies to the process may be seen as payment for a (collective) service of that process. If paid per unit of service, as in the example where farmers were paid for each successful meadow bird nest, it is not a subsidy on activities but a price for a product. However, in most instances it is not so clear what the environmental consideration is in taxing activities, nor is it possible to link the taxes and subsidies to any specific product. For such taxes on activities, no correction on proceeds is needed.

*Solution:* Do not correct for taxes and subsidies on activities.

#### 14. IN-FIRM PRICES NOT KNOWN

In many cases, the process definition is at a more detailed level than that of firms, while proceeds from sales are measured at the level of the firm. Some processes within the firm may then not be multiple but function for one of the various products only. An example is the compression and storage of chlorine in the combined production of chlorine, caustic and hydrogen. For the purpose of allocation, we need the prices as they would be inside the firm, at the level of the real multiple process. The allocation procedure then starts with setting derived values for the flows inside the firm or business unit. The method used for this purpose is the **gross sales value method**<sup>1</sup> as used for cost allocation in economic management accounting. The contribution of a process to the total proceeds is measured in terms of its share in the total costs, as the total costs of all activities is required to produce the total output that is sold. For each of the processes in the firm, the share in the total cost is used to calculate retrospectively the value of the flows originating from the real multiple process. Thus, **adjusted proceeds, P'**, are constructed for the products as they leave the real multiple process in the firm (process A in Figure 3.9.2.1 below). Computing its share in the total costs is quite straightforward. In disaggregating the operations of the larger business unit, its specific inputs and outputs, that is the flows to be allocated, have to be specified for each process separately. The result again is

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<sup>1</sup> See for an extensive treatment: Bierman, Dyckman and Hilton (1990), Chapter 14 and 15. See for similar methods descriptions: Drury (1992); Horngren and Foster (1991) and Raiborn et al (1993), esp pp 713–23

an allocation factor  $F$ . The procedure starts at the process where each product sold originates, and then goes upstream within the firm, until the real multiple process is reached.

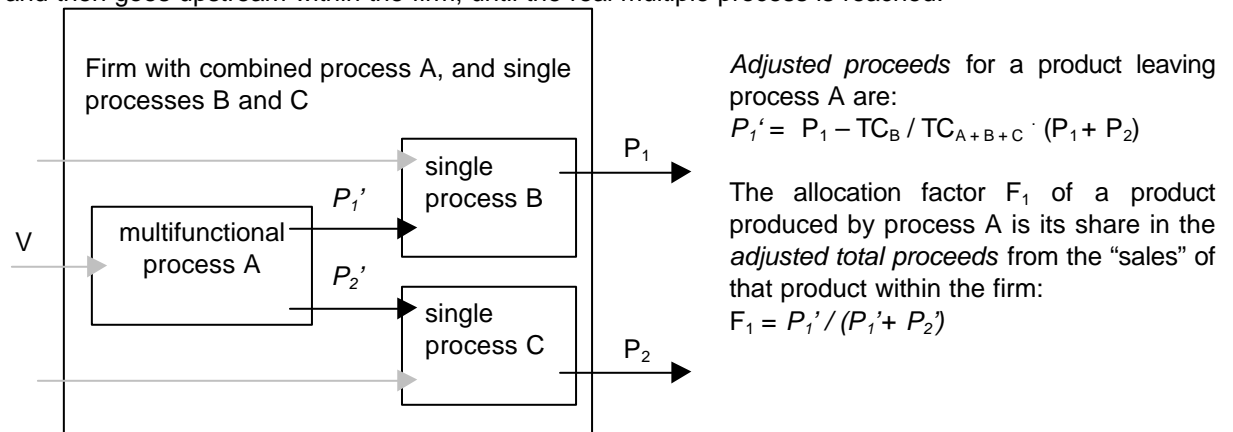


Figure 3.9.2.1: Share in *adjusted total proceeds* used as allocation factor.

*Solution:* Gross sales value method. Total proceeds of the firm are known. For all processes within the firm, compute their share in total costs. This share can be used to compute their shadow contribution to total sales. For a process functioning for one of the firm's products only, subtract the shadow contribution to sales from the total sales of the product. The result is the in-firm shadow proceeds of the in-firm products, as illustrated in Figure 3.9.2.1 for the products of the multifunctional process A.

## 15. MISSING MARKETS WITH PUBLIC PROVISION

Missing markets with public provision are dominant in most of transport infrastructure and in a substantial part of municipal waste processing. (For most specialised waste processing of production wastes, market prices are available.) Ideally, the social value created by the multifunctional facility is to be allocated over the different functions it fulfils, as this value is the driver for the supply of the road or waste incinerator. To reduce the different functions to the same denominator, the value for the user could be used, with the value of the facility being the total of the value for all users. The amount of money people are willing to pay for the service can be estimated, e.g., that for roads can be calculated on the basis of toll road prices.

Combined waste processing financed by retributions or taxes presents a similar problem, and similar solutions can be sought. As there is no question of sales, the value can be estimated by the willingness to pay for the various services. This shadow price can then be used to estimate 'shadow total sales'. Where process parts function for one of the services only, the simplified version of the gross sales value method described under point 14 can be applied to calculate adjusted shadow proceeds.

In some situations, the question may be reformulated in terms of the share in the total cost caused by using the transport infrastructure or having one's household waste processed. In road transport, for example, road damage is to a large extent caused by goods vehicles, especially heavy goods vehicles. A model may be developed specifying the share of the different types of road users in the total costs of maintenance per kilometre. Such a model might rather be regarded as a part of inventory modeling based on physical relations. For the main body of the road (including viaducts, which are multifunctional themselves, etc) this cost approach does not help to solve the multifunctionality problem.

*Solution:* Compute the share of the service in the total value created by the facility for the different kinds of services rendered.

## 16. DEVELOPING MARKETS FOR RECYCLED PRODUCTS

In many long-term functions, like housing, current recycling processes do not yet provide the kind of volume needed for developing regular markets. (This situation is not only a problem for

establishing allocation factors but also for estimating environmental flows.) The first step is the specification of the future recycling process. The price for the recycled product is ideally based on a simulation of the future market, in terms of the price level in the base year chosen. This hardly improves on the simpler approach of using the price of an existing, nearly equivalent product, with or without a quality-related correction.

In comparative assertions disclosed to the public, only proven or guaranteed techniques and current or guaranteed market prices should be used, adding a sensitivity analysis of the reasonably expected future functioning of the processes.

*Solution:* Use current prices of similar products to specify the price of future recycled products.

#### **17. MARKETS NOT YET IN EXISTENCE**

The problem is very similar to that of developing markets, with expected future prices as the ideal. The simple solution of using current prices, as in situation 16, may not be applicable here. In comparative assertions there are no current techniques or current market prices to refer to. This implies great demands on the quality of the analysis for estimating the future technical and market functioning of such processes.

*Solution:* Use expected future market prices.

### **3.9.3 Quantified example of economic allocation and symmetrical substitution**

An example of a process has been worked out, covering the various multifunctionality situations that are usually distinguished: co-production, combined waste processing and recycling of discarded products. This section first works out the economic allocation (Section 3.9.3.1), and then applies the symmetrical substitution method (Section 3.9.3.2) to the same example, a simplified hypothetical refinery (SHR) process.

#### **3.9.3.1 Economic allocation of simplified hypothetical refinery (SHR) process**

We take a hypothetical refinery producing a number of product outputs and non-product outputs, and also functioning as a waste processor for a number of waste flows (see Figure 3.9.3.1). These wastes are processed into main products, without it being visible whether and how recycling takes place. All that is available are totals of inputs being processed into outputs in the installation.



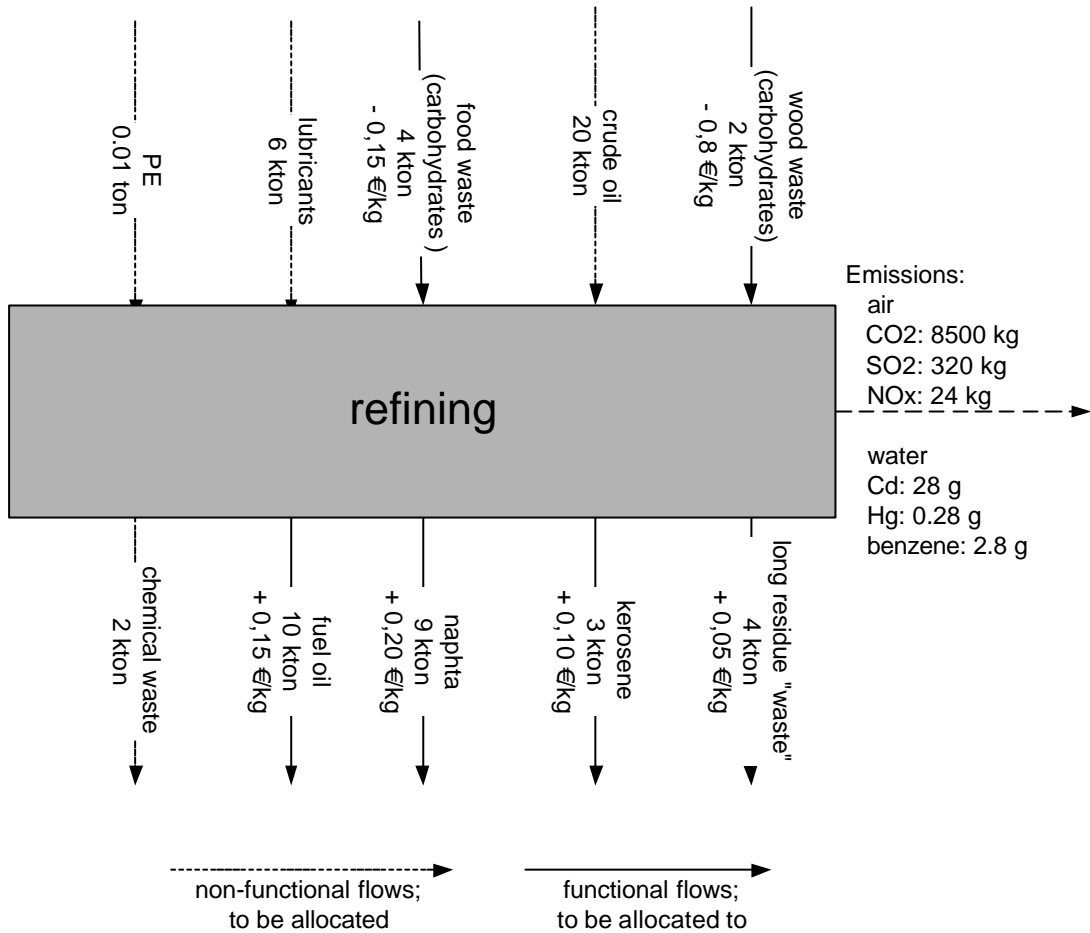


Figure 3.9.3.1: Simplified hypothetical refinery (SHR) process (annual totals).

The proceeds from the six products produced by the installation are summarised in Table 3.9.3.1.1. The share of each product in the total proceeds is the allocation factor  $F_i$ .

Table 3.9.3.1.1: Proceeds from sales and allocation factors for goods and services from an SHR.

product	quantity x price = sales	share in sales = allocation factor $F_i$
1: fuel oil (good)	$10 \cdot 10^6 \cdot 0.15 = 1500 \cdot 10^3$ Euros	0.25
2: naphtha (good)	$9 \cdot 10^6 \cdot 0.20 = 1800 \cdot 10^3$ Euros	0.30
3: kerosene (good)	$3 \cdot 10^6 \cdot 0.10 = 300 \cdot 10^3$ Euros	0.05
4: long residue "waste" (good)	$4 \cdot 10^6 \cdot 0.05 = 200 \cdot 10^3$ Euros	0.03
5: food waste (service)	$4 \cdot 10^6 \cdot 0.15 = 600 \cdot 10^3$ Euros	0.10
6: wood waste (service)	$2 \cdot 10^6 \cdot 0.80 = 1600 \cdot 10^3$ Euros	0.27
Total	$6000 \cdot 10^3$ Euros	1.00 = 100%

Adjoining processes can be treated in the same way. If process 1 is upgraded with two new products, the total proceeds consist of the sum of the proceeds from processing mixed residues and the sales of the upgraded product, a lubricant.

This sum is:  $2 \cdot 10^6 \cdot 0.30 + 1.7 \cdot 10^6 \cdot 0.10 = 600 \cdot 10^3 + 170 \cdot 10^3 = 770$  Euros.

The allocation factors are then 0.779 for processing mixed residue and 0.220 for the lubricant as the upgraded product. All other flows, that is, inputs required, wastes with negative value, and emissions, are allocated to each of the products according to their respective allocation factors.

#### INTERPRETATION

How can this result be used and interpreted? There are now effectively six analytically constructed "independent" single function processes, one for each product. For kerosene, there is an analytically independent process which takes 5% of all flows to be allocated, that is, all the dotted lines. If a product system needs 1 tonne of kerosene, the resulting flows are easily computed, as the process is fully linear. What might seem curious at first is that 'waste lubricants from garages' are also part of the allocated process for kerosene production. In the short term, this may be regarded as illogical, since a change in the amount of kerosene for airplanes does not influence the amount of waste lubricant oil from garages. On second thought, however, a more reasonable interpretation is possible. The fixed input and output coefficients of the unallocated process are determined by technical relations and all the elasticities of supply and demand involved. In using such process data, the assumption is that coefficients remain the same, which then also means that technical relations and elasticities of supply and demand remain the same. Although anybody is of course free to make different assumptions, they may easily fall into the trap of having the inventory model becoming the model of the entire world. Indeed, the actual elasticity of demand and supply for waste lubricant oil from garages makes it probable that methods of processing this flow will change, as well as the cost of waste processing, the volume of waste oil processed, the volume of primary lubricant oil production, car use, etc. Such realism is beyond any operational modeling method. Our models tend to simplify considerably to remain manageable. They do not describe a total reality but give an indication of reasonable expectations about relative consequences of choosing for one or another option. Doing this analysis systematically, without invoking ad hoc adaptations, is essential for comparison. If a real-life mechanism is added, it should be added systematically.

Similar limitations abound. The consequence of this outcome is that a substantial part of the crude oil input to the refinery is allocated to wood preservation, due to the high volume and highly negative price of its contaminated carbo-hydrates waste flow. This is not realistic, as to some extent the calorific value of the waste replaces crude oil as an energy source (and probably not as a material). So one could reason that the energy part of the oil is replaced by the wood preservation waste. However, a disproportionate part of energy use may also be due to the greater separation effort required to separate the toxic components of wood preservation from the product outputs. This would mean that an even greater share of the crude oil input would be required. Of course such things can be known and modeled. It involves looking into the "inner workings" of the process. Progress in this area may be expected in the not too distant future, especially if combined with some form of linear programming technique for the

optimisation of goal functions. For the time being, such sophistication cannot be part of detailed LCAs, and we will have to stick to the relative clumsiness of limited models.

### 3.9.3.2 Symmetrical substitution of simplified hypothetical refinery (SHR) process<sup>1</sup>

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We take the same hypothetical refinery (see Figure 3.9.3.1) but now apply the symmetrical substitution method.

#### IDENTIFICATION OF THE ECONOMIC INPUTS AND CO-PRODUCTS

The refinery has:

- three independently variable economic inputs:
  - waste lubricants from garages;
  - waste hydrocarbons from wood preservation;
  - waste hydrocarbons from food industry.

These inputs are variable in the sense that they are not needed for the process and may therefore be varied depending on supply.
- one dependent economic input:
  - crude oil.

This input is dependent in the sense that its volume depends on the volume of the variable inputs and outputs.
- three independently variable economic outputs:
  - fuel oil;
  - naphtha;
  - kerosene.

Within the technical limits, these outputs are variable, in that they depend on the demand. If technical limits are encountered at the specific refinery investigated, the change in demand will lead to changes in the production of a similar refinery without these technical limits. When studying changes that are so large that the technical boundaries of the entire refinery industry are encountered, it is necessary to regard these outputs as dependent. We assume here that the change being studied is small.
- three dependent economic outputs:
  - long residues;
  - mixed residues for upgrading;
  - mixed residues for incineration.

These outputs are minimised (not more is produced of them than technically necessary) and thus depend solely on the volume of the inputs and the variable outputs.

#### INDEPENDENTLY VARIABLE ECONOMIC INPUTS

For the *independently variable economic inputs* (waste lubricants and other hydrocarbons) the following conditions apply (irrespective of the economic value of the input).

- *Upstream processes*: The volume of these inputs depends on the volume of the upstream processes (processes F, G and H in Figure 3.9.3.2) of which these inputs are wastes, rather than on the volume of the refinery production. The refinery acts as a waste treatment for these inputs. The wastes are assumed to be fully utilised (since they are valuable as inputs to the refinery and the total amount available on the market does not exceed that which can be used by the refinery industry). Thus, the upstream processes are not relevant to the other refinery co-products, i.e., there is a clear cut-off at entry into the refinery.
- *Avoided processes*: The production of the crude oil replaced by the variable inputs (process D in Figure 3.9.3.2) is credited to the main products of the upstream processes of which these inputs are wastes (i.e., the products of the garages, wood preservation processes and food industry).
- *Other effects on the refinery and downstream processes*: If the input causes any changes in the environmental exchanges from the refinery or further downstream processes, compared to the use of crude oil as a raw material, these changes are attributed to the main products of the upstream processes of which these inputs are wastes (i.e., the products of the

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<sup>1</sup> This part has been supplied to the project by Dr B.P. Weidema.

garages, wood preservation processes and food industry). This may for example be due to the nature of the waste (the hydrocarbons from food industry may be vegetable, which may, for example, lead to lower VOC emissions than from comparable fossil raw materials) or due to contamination (e.g., heavy metals from the lubricant use or wood preservation).

To determine the environmental exchanges to be attributed to the products of the garages, wood preservation processes and food industry (products F, G and H in Figure 3.9.3.2) the following information on the system is needed:

- 1) Changes in the economic outputs resulting from changes in the independently variable inputs (waste lubricants and other hydrocarbons): We assume that there is no change in the independently variable outputs (fuel oil, naphtha, kerosene), since such changes would be undesirable for the refinery, and would thus be avoided by reducing the variable inputs accordingly. We assume that the independently variable inputs (waste lubricants and other hydrocarbons) do not give rise to outputs of long residues and mixed residues for incineration, since these inputs have already been processed once.
- 2) The amount of crude oil replaced by the independently variable inputs (waste lubricants and other hydrocarbons): We assume that the hydrocarbon chains of these inputs are of similar composition as those in crude oil, except, as mentioned under 1), that they do not contain the fractions that give rise to outputs of long residues and mixed residues for incineration. This leads to a slightly lower requirement of crude oil per input of waste hydrocarbons: 1 kton waste hydrocarbons yields 0.91 kton of the outputs fuel oil, naphtha, kerosene and mixed residues for upgrading (12 kton waste – 9.375% process loss), while 1 kton crude oil gives only 0.66 kton of these products (20 kton – 9.375% process loss – 5 kton long residues and mixed residues for incineration). Thus, 1 kton waste hydrocarbons replaces 1.38 kton crude oil. As can be seen from this calculation, we have assumed that the process loss (mainly feedstock used for fuel) does not depend on the type of input. If the waste hydrocarbons do not need as much processing as crude oil (or need more processing), this assumption should be changed accordingly, which would also lead to a change in the amount of crude oil replaced.
- 3) Changes in the environmental exchanges from the refinery caused by changes in the independently variable inputs (waste lubricants and other hydrocarbons), compared to the use of crude oil as a raw material: The emissions from the refinery can roughly be divided into emissions from combustion related to the use of process energy, emissions of VOC, and solid and liquid wastes. The combustion emissions depend on the processes required by the different raw materials. We have assumed that there is no change in energy requirement (see point 2), and thus no change in combustion emissions. For VOC emissions from the waste hydrocarbons, it is reasonable to assume that there will be no emissions of methane (compared to 42 kg per kton crude oil) and fewer emissions of the lighter VOCs (we assume a 10% reduction from the 380 kg per kton crude oil), since these inputs have already been processed once. If it is assumed that any contaminants in the waste hydrocarbons are either degraded during processing or left in the product outputs (see point 4), the solid and liquid wastes can also be assumed to be linked to the crude oil only.
- 4f) Changes in the environmental exchanges from downstream processes resulting from changes in the input of waste lubricants from garages, compared to the use of crude oil as a raw material: Heavy metal contaminants (assumed to be 20 kg/kton) will be suspended in proportional amounts in all economic outputs, except the lightest fraction (mixed residues to incinerator). For the fuel fractions (fuel oil and kerosene) this will eventually end up as air pollution from the combustion. Heavy metal contaminants in the naphtha will end up in the products produced from this (plastics) and will be released from waste treatment of these products (we assume combustion). Heavy metal contaminants in the long residues will probably be fixed in the resulting products (asphalts etc.).
- 4g) Changes in the environmental exchanges from downstream processes caused by changes in the input of waste hydrocarbons from wood preservation, compared to the use of crude oil as a raw material: If the waste contains any heavy metals, these will have the same fate as that indicated under 4f). If the contaminants are organic, we assume that they are decomposed during the refinery processing.

4h) Changes in the environmental exchanges from downstream processes caused by changes in the input of waste hydrocarbons from food industry, compared to the use of crude oil as a raw material: We assume that this will not cause any changes in downstream processes.

Furthermore, the following information is needed on the environmental exchanges from each of the processes involved:

Process F, G, H and I<sub>1</sub>: In this context, we do not use real data for these processes.

Process D (crude oil production, incl. transport): Standard literature data can be used (Frischknecht *et al.*, 1993/1995/1996). In this example, we limit the calculation to include the following emissions (per kton crude oil):

CO<sub>2</sub>: 120 ton

Methane: 10 ton

NMVOG: 73 ton

The calculation to be made (normalised to 1 kton of waste hydrocarbon input to the refinery) is as follows: Environmental exchanges to be attributed to products F, G and H, respectively = (Environmental exchanges from process F, G or H, respectively) – (Environmental exchanges from the production of 1.38 kton crude oil) – (Refinery emissions of methane, lighter VOCs, solid and liquid wastes equivalent to 1.38 kton crude oil input) + (Downstream emissions of heavy metals equivalent to the difference in heavy metal content between the waste hydrocarbon and crude oil).

For waste hydrocarbons from wood preservation, the result is presented in Table 3.9.3.2.1 (not including the environmental exchanges from the wood preservation process itself).

Table 3.9.3.2.1: Calculation of selected environmental exchanges to be attributed to waste hydrocarbons from wood preservation (per kton waste hydrocarbon input to the refinery).

Emissions to air	I: Production of 1.38 kton crude oil	II: Refinery VOC emissions per 1.38 kton crude oil	III: Downstream emissions of Cd from contamination	To be attributed to waste hydrocarbon per kton input: III – I – II
Cadmium	-	-	20 kg	20 kg
CO <sub>2</sub>	166 ton	-	-	- 166 ton
Methane	14 ton	42 kg (i.e., negligible)	-	- 14 ton
NMVOG	100 ton	38 kg (i.e., negligible)	-	-100 ton

If more information on the different waste hydrocarbons becomes available, the above assumptions and the calculation result can be refined.

#### INDEPENDENTLY VARIABLE ECONOMIC OUTPUTS

For the *independently variable economic outputs* (fuel oil, naphtha, kerosene), the following conditions apply:

- *Upstream processes*: The dependent input (crude oil) varies according to overall variations in the outputs.
- *Refinery*: The environmental exchanges of the refinery may vary according to the composition of the output, since different processing routes are involved.
- *Residues*: The amounts of residue are mainly determined by the raw material composition, but minor variations may be caused by changes in the output composition. The amounts of residue may thus be calculated individually for each of the variable outputs. The residues are assumed to be fully utilised, so that any intermediate treatment (upgrading and transport) of the residues before they can replace other products are attributed to the independently variable outputs in proportion to the amount of residues caused by each output (irrespective of the economic value of the residues).
- *Avoided processes*: The processes replaced by the residues (processes L, M and N in Figure 3.9.3.2) are credited to the variable outputs in proportion to the amounts of residue caused by each output (irrespective of the economic value of the residues).

To determine the environmental exchanges to be attributed to the independently variable economic outputs (products I, J, and K in Figure 3.9.3.2), the following information on the system is needed:

- 5) The amount of crude oil corresponding to a change in the independently variable economic outputs: We assume the same amount of crude oil input irrespective of the relative composition of the independently variable economic outputs.
- 6) The environmental exchanges of the refinery corresponding to a change in the independently variable economic outputs: Combustion emissions will increase if additional processing is needed to produce more of a fraction than the result of one crude distillation and one cracking of the distillation residue. The processing requirement depends on the composition of the raw material input. The relations given in the ETH data (Frischknecht *et al.*, 1993/1995/1996) can be used to calculate the emissions per type of refinery output, unless more specific data are available.
- 7) The amount of residues caused by a change in the independently variable economic outputs: The amount of residues (especially the lighter residues) will increase slightly if additional processing is needed to produce more of a fraction than the result of one crude distillation and one cracking of the distillation residue. The processing requirement depends on the composition of the raw material input.

Furthermore, the following information is needed on the environmental exchanges from each of the processes involved:

Process D: (as above)

Process I<sub>2</sub>: We assume that upgrading of long and mixed residues will lead to emissions of the order of 20% of the total refinery emissions. For mixed residues for incineration, only the pumping to the incinerator is relevant (but assumed to be negligible).

Process L: The replaced process is either a dedicated bitumen production, or a change in the composition of the raw material input at a refinery having bitumen as an important product, resulting in a similar change in bitumen output. We assume that 0.17 kton of bitumen is replaced per kton of the independently variable economic outputs.

Process M: In parallel to process L, we assume the replacement to be accommodated by a change in the composition of the raw material input at a refinery having the upgraded product as an important product. We assume that 0.09 kton of other refinery products are replaced per kton of the independently variable economic outputs.

Process N: The replaced process is the production and supply of fuel oil or natural gas, depending on the local supply situation. We assume that 0.85 TJ of natural gas is replaced per kton of the independently variable economic outputs.

The calculation to be made (normalised to 1 kton of the independently variable economic outputs, i.e., fuel oil, naphtha, kerosene) is as follows: Environmental exchanges to be attributed to fuel oil, naphtha and kerosene, respectively = (Environmental exchanges from production of 32/29 kton crude oil) + (Refinery emissions related to the output in question, cf. Frischknecht *et al.*, 1993/1995/1996) + (Environmental exchanges from the upgrading of the amount of long and mixed residues that can be related to the output in question, cf. Frischknecht *et al.*, 1993/1995/1996) – (Environmental exchanges of the processes replaced by the residues that can be related to the output in question, cf. Frischknecht *et al.*, 1993/1995/1996).

For kerosene, the result is presented in Table 3.9.3.2.2 (not including the environmental exchanges from the wood preservation process itself).

Table 3.9.3.2.2: Calculation of selected environmental exchanges to be attributed to kerosene (per kton kerosene output from the refinery).

Emissions to air	I: Production of 32/29 kton crude oil	II: Refinery emissions related to kerosene	III: Upgrading of the amount of long and mixed residues that can be related to kerosene	IV: Processes replaced by the residues that can be related to kerosene	To be attributed to kerosene per kton output: I + II + III - IV

CO <sub>2</sub>	132 ton	9 ton	1.8 ton	38 ton	105 ton
Methane	11 ton	0.04 ton	0.004 ton	2.8 ton	8.2 ton
NM VOC	81 ton	0.5 ton	0.05 ton	18 ton	64 ton
NO <sub>x</sub>	-	28 kg	6 kg	25 kg	9 kg
SO <sub>2</sub>	-	470 kg	94 kg	138 kg	425 kg

**DEPENDENT ECONOMIC OUTPUTS**

The *dependent economic outputs* (different residues) are fully utilised in other processes. Thus, a change in demand for these residues will affect the same processes as those replaced by the residues (processes L, M and N). These processes are therefore attributed to the product in which the residues are utilised (irrespective of the economic value of the residues).

To determine the environmental exchanges to be attributed to the products in which the residues are used (products O, P and Q in Figure 3.9.3.2), the environmental exchanges from the following processes must be known:

Process L, M and N: (as above)

Process O, P and Q: In this context, we do not use real data for these processes.

The calculation to be made (normalised to 1 kton of the residue) is as follows: Environmental exchanges to be attributed to the product in which the residue is utilised = (Environmental exchanges from process O, P or Q, respectively) + (Environmental exchanges from process L, M or N, respectively).

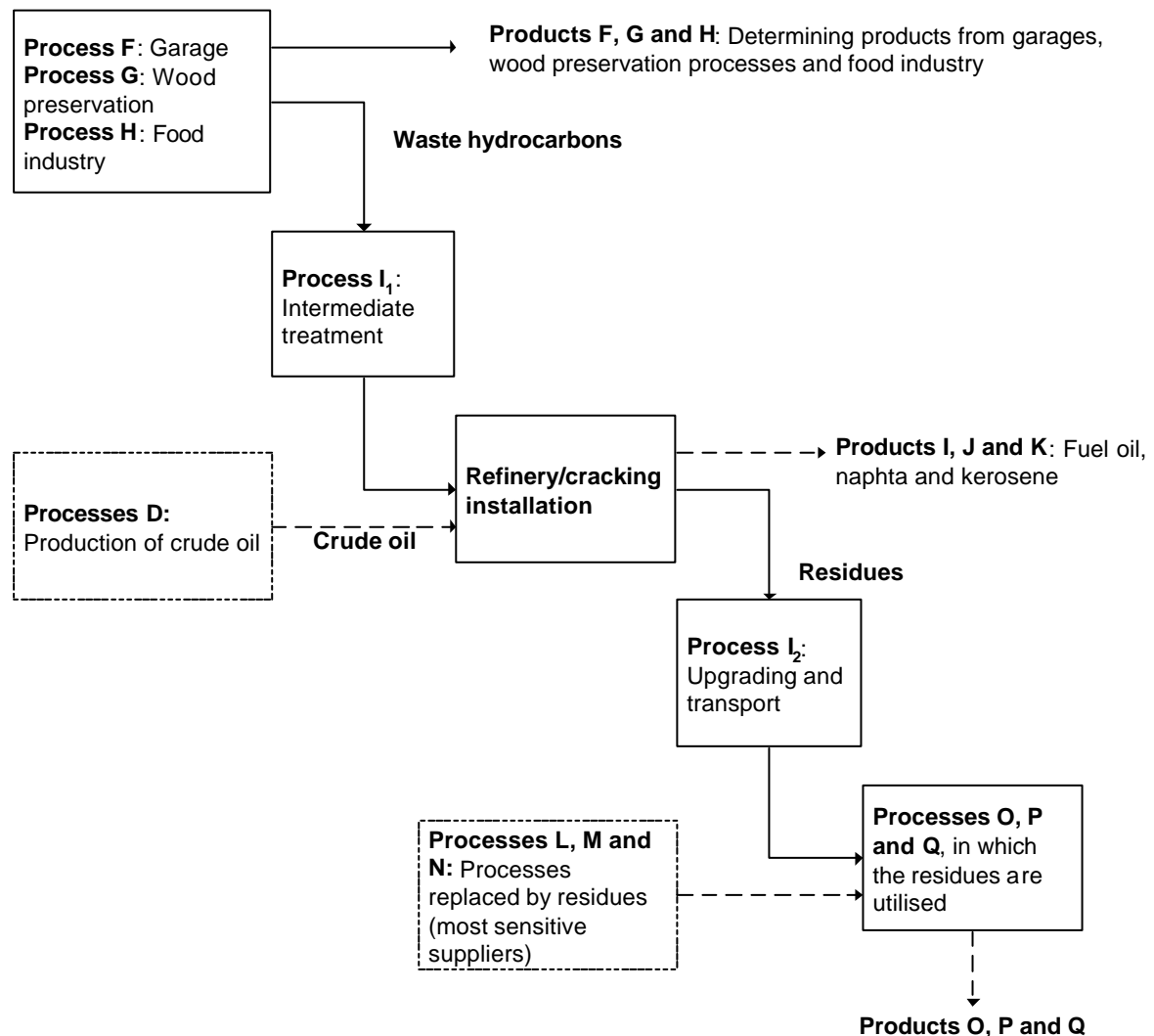




Figure 3.9.3.2: Expanded product systems related to the refinery/cracking installation.

### 3.10 Calculation method

For matrix calculation rules, see Heijungs *et al.* (1992) and Heijungs (1994), and/or use the CMLCA software: <http://www.leidenuniv.nl/interfac/cml/ssp/cmlca.html>

The following form can be used to report an inventory table:

data category	amount	unit
natural resources extracted		
.....	.....	kg
.....	.....	kg
land occupied		
.....	.....	m <sup>2</sup> .yr
.....	.....	m <sup>2</sup> .yr
land transformed		
.....	.....	m <sup>2</sup>
.....	.....	m <sup>2</sup>
emissions to air		
.....	.....	kg
.....	.....	kg
emissions to water		
.....	.....	kg
.....	.....	kg
emissions to soil		
.....	.....	kg
.....	.....	kg
sound		
.....	.....	Pa <sup>2</sup> .yr
ionising radiation		
.....	.....	Bq
.....	.....	Bq
victims		
.....	.....	-
economic flows not followed to system boundary		
.....	.....	...
.....	.....	...
other remarks (including qualitative assessment, 'red flags', etc.)		

## 4. Impact assessment

### 4.1 Procedures

To be inserted

### 4.2 Selection of impact categories

#### DEFAULT LIST OF IMPACT CATEGORIES FOR THIS GUIDE

Table 4.2.1: Default list of impact categories

impact category	single characterisation available in the Guide?	baseline method	other method(s) available in the Guide?	characterisation available in the Guide?
<b>A. Baseline impact categories</b>				
Depletion of abiotic resources	yes		yes	
Impacts of land use				
land competition	yes		yes	
Climate change	yes		yes	
Stratospheric ozone depletion	yes		yes	
Human toxicity	yes		yes	
Ecotoxicity				
freshwater aquatic ecotoxicity	yes		yes	
marine aquatic ecotoxicity	yes		yes	
terrestrial ecotoxicity	yes		yes	
Photo-oxidant formation	yes		yes	
Acidification	yes		yes	
Eutrophication	yes		yes	
<b>B. Study-specific impact categories</b>				
Impacts of land use				
loss of life support function	no		yes	
loss of biodiversity	no		yes	
Ecotoxicity				
freshwater sediment ecotoxicity	yes		yes	
marine sediment ecotoxicity	yes		yes	
Impacts of ionising radiation	yes		yes	
Odour				
malodourous air	yes		no	
Noise	yes		no	
Waste heat	yes		no	
Casualties	yes		no	
<b>C. Other impact categories</b>				
Depletion of biotic resources	no		yes	
Desiccation	no		no	
Odour				
malodourous water	no		no	
...	...		...	

Main sources: Udo de Haes *et al.*, 1999; Udo de Haes *ed.*, 1996

### NEW IMPACT CATEGORIES

If a new impact category is added to the “extended WIA–2 list” the following requirements shall be comprehensively and transparently documented and justified.

Table 4.2.2: Requirements for documenting and justifying new impact categories.

<p><b>General starting point for the framework of impact categories and indicators:</b> a framework shall be developed which is open to further scientific progress and further detailing of information (WIA–2)</p>
<p><b>General starting points for the total of impact categories:</b></p> <ol style="list-style-type: none"><li>1. the categories shall together enable an encompassing assessment of relevant impacts, which are known today (completeness) (ISO/ WIA–2)</li><li>2. the categories should have the least overlap as possible, and should avoid double counting unless required by the goal and scope (ISO/ WIA–2)</li><li>3. the categories should be internationally accepted , i.e. based on an international agreement or approved by a competent international body (ISO)</li><li>4. the total of the impact categories should amount to a not too high number (WIA–2)</li></ol>
<p><b>Starting points for the selection of categories in a specific LCA study:</b></p> <ol style="list-style-type: none"><li>1. the selected impact categories shall be consistent with the goal and scope of the LCA-study (ISO)</li><li>2. the selected impact categories shall form a comprehensive set of environmental issues related to the goal and scope of the LCA-study (ISO)</li></ol>

### ECO-INDICATOR '99

Table 4.2.3: Impact categories in the Eco-indicator '99 approach

Impact category	sub-categories
Damage to human health	<ul style="list-style-type: none"><li>- caused by carcinogenic substances</li><li>- caused by respiratory effects</li><li>- caused by climate change</li><li>- caused by ionising radiation</li><li>- caused by ozone layer depletion</li></ul>
Damage to ecosystem quality	<ul style="list-style-type: none"><li>- caused by ecotoxic substances</li><li>- caused by acidification an eutrophication by airborne emissions</li><li>- caused by land use</li></ul>
Damage to resources	<ul style="list-style-type: none"><li>- caused by depletion of minerals and fossil fuels</li></ul>

Source: Goedkoop & Spriensma, 1999

### 4.3 Selection of characterisation methods: category indicators, characterisation models and factors

#### ECO-INDICATOR '99 FACTORS

Table 4.3.1: Eco-indicator '99 damage factors

See the Excel table of impact assessment methods and data on:

<http://www.leidenuniv.nl/interfac/cml/lca2/index.html>

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Source:	Goedkoop & Spiensma, 1999
Status:	Authors; weighting part not compatible with ISO 14042 comparative assertion requirements.

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#### EPS

Table 4.3.2: Environmental Load Units (ELUs) for natural resources.

Natural resource	Code	Value (in ELU/kg)
aluminium (Al)	7429-90-5	0.42
arsenic (As)	7440-38-2	1900
bismuth (Bi)	7440-69-9	4E5
cadmium (Cd)	7440-43-9	23000
chromium (Cr)	7440-47-3	33
cobalt (Co)	7440-48-4	136
copper (Cu)	15158-11-9	57
gold (Au)	7440-57-5	8.5E5
iron (Fe)	7439-89-6	0.68
lead (Pb)	14280-50-3	240
manganese (Mn)	16397-91-4	3.6
mercury (Hg)	14302-87-5	40000
molybdenum (Mo)	7439-98-7	2800
nickel (Ni)	7440-02-0	40
platinum (Pt)	7440-06-4	6.8E5
rhodium (Rh)	7440-16-6	3.4E6
silver (Ag)	7440-22-4	45000
tin (Sn)	7440-31-5	1480
titanium (Ti)	7440-32-6	0.602
tungsten (W); wolfram	7440-33-7	2720
uranium (U)	7440-61-1	1260
vanadium (V)	7440-62-2	28.3
zinc (Zn)	23713-49-7	49
Zirconium (Zr)	7440-67-7	20.6
coal hard	nvt	0.05
coal soft	nvt	0.05
coal total	nvt	0.05
oil crude	8012-95-1	0.5

---

Source:	Steen, 1996
Status:	not compatible with ISO 14042, because the characterisation and weighting steps have been combined.

Equation: 
$$environmental\ burden = \sum_i Factor_i \times m_i \tag{4.3.1}$$

The total environmental burden is expressed in Environmental Load Units. Factor<sub>*i*</sub> (ELU·kg<sup>-1</sup>) is the valuation weighting factor for the EPS method for resource *i*, while *m<sub>i</sub>* (kg) is the quantity of resource *i* used.

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Table 4.3.3: Environmental Load Units (ELUs) for emissions.

Substance	Compartment	CAS number	Value (in ELU/kg)
anthracene	air	120-12-7	8800
arsenic	air	7440-38-2	10
benzo[a]anthracene	air	56-55-3	8800
benzo[a]pyrene	air	50-32-8	8800
benzo[ghi]perylene	air	191-24-2	8800
benzo[k]fluoranthrene	air	207-08-9	8800
cadmium	air	7440-43-9	21.2
Carbon dioxide	air	124-38-9	0.0636
Carbon Monoxide	air	630-08-0	0.191
CFC-11	air	75-69-4	216
chromium (unspecified)	air	7440-47-3	0.8
chromium III	air	7440-47-3	0.8
chromium VI	air	7440-47-3	0.8
chrysene	air	218-01-9	8800
Dinitrogen oxide	air	10024-97-2	20.3
dust (PM10) <sup>1</sup>	air		0.0071
Ethylene	air	74-85-1	3.4
fluoranthrene	air	206-44-0	8800
hydrogen sulfide	air	7783-06-4	0.142
indeno[1,2,3-cd]pyrene	air	193-39-5	8800
lead	air	14280-50-3	291
mercury	air	14302-87-5	177
Methane	air	74-82-8	1.56
Naphtalene	air	91-20-3	8800
nitrogen dioxide	air	10102-44-0	0.395
nitrogen oxides	air	10102-44-0	0.395
phenanthrene	air	85-01-8	8800
Polycyclic Aromatic Hydrocarbons (PAH) (unspecified)	air	-	8800
Polycyclic Aromatic Hydrocarbons Carcinogenic- (carcinogenic-PAH)	air	-	8800
sulphur dioxide	air	7446-09-5	0.0545
TSP	air	???	0.0071
Biological Oxygen Demand (BOD)	fresh water	-	0.0075
Chemical oxigen demand (COD)	fresh water	-?	0.006
Nitrate	fresh water	7697-37-2	0.00226
Nitrogen	fresh water	7727-37-9	0.01
Phosphate	fresh water	7664-38-2	0.0245
Phosphorus	fresh water	7723-14-0	0.075
Biological Oxygen Demand (BOD)	sea water	alg???	0.0075
Chemical oxigen demand (COD)	sea water	alg???	0.006
Nitrate	sea water	7697-37-2	0.00226
Nitrogen	sea water	7727-37-9	0.01
Phosphate	sea water	7664-38-2	0.0245
Phosphorus	sea water	7723-14-0	0.075

Source: Steen, 1996

Status: not compatible with ISO 14042, because the characterisation and weighting steps have been combined.

Equation: 
$$environmental\ burden = \sum_i Factor_i \times m_i \quad (4.3.2)$$

The total environmental burden is expressed in Environmental Load Units.  $Factor_i$

<sup>1</sup> Including dust besides individual chemicals may imply some double-counting according to recent WHO findings.

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( $\text{ELU}\cdot\text{kg}^{-1}$ ) is the valuation weighting factor for the EPS method for emitted substance  $i$ , while  $m_i$  (kg) is the quantity of  $i$  emitted.

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## REQUIREMENTS FOR DOCUMENTING AND JUSTIFYING NEW IMPACT CATEGORIES

If another category indicator, model or characterisation factor is used than those recommended as best available practice in this Guide, the following requirements shall be comprehensively and transparently documented and justified.

Table 4.3.4: Requirements for documenting and justifying new impact categories.

ISO starting points	WIA-2 starting points	selection criteria for baseline method recommended in this Guide
1 the category indicator should (shall for comparative assertions) be modeled in a scientifically and technically valid way in relation to the environmental interventions, i.e., using a distinct identifiable environmental mechanism and/or reproducible empirical observation	included	included
2 the category indicators and models shall be environmentally relevant, i.e. shall be sufficiently clearly related to the category endpoints, at least qualitatively	included	included
3 the category indicators and models should be internationally accepted, i.e. based on an international agreement or approved by a competent international body	not explicitly included	included
4 value-choices and assumptions should be minimised	included	included
5 category indicators can be chosen anywhere in the environmental mechanism of an impact category, from environmental interventions to category endpoints (focal point in environmental mechanism)	included	included
6 not included	it should be possible to multiply characterisation factors by mass or other units indicating the magnitude of the environmental interventions	modified: the baseline category indicators should be linear (linearity)
7 not included	the preferred time span for fate and effects is eternity, with 100 years as a second option; all effects of the emission/ extraction occurring now and in the future should be taken into account	included
8 not included	the category indicators and models should include the modeling of fate, exposure and effects, as relevant	included
9 not included	the category indicators and models should include effects below thresholds ("less is better" approach)	included
10 not included		it should be possible to

ISO starting points	WIA-2 starting points	selection criteria for baseline method recommended in this Guide
		perform Impact assessment without information on time or location (time- and location-independent)
11. not included		the method should be operational for a sufficient number of environmental interventions
12. not included		the uncertainty margins of the indicator result should be as small as possible

### 4.3.1 Depletion of abiotic resources

Table 4.3.1.1: ADP factors for characterising abiotic resources based on ultimate reserves and extraction rates.

Natural resource	Cas-number	ADP (in kg antimony eq./kg)
actinium (Ac)	7440-34-8	6.33E13
aluminium (Al)	7429-90-5	1E-8
antimony (Sb)	7440-36-0	1
argon (Ar)	7440-37-1	4.71E-7
arsenic (As)	7440-38-2	0.00917
barium (Ba)	7440-39-3	1.06E-10
beryllium (Be)	7440-41-7	3.19E-5
bismuth (Bi)	7440-69-9	0.0731
boron (B)	7440-42-8	0.00467
bromine (Br)	7726-95-6	0.00667
cadmium (Cd)	7440-43-9	0.33
calcium (Ca)	7440-70-2	7.08E-10
cerium (Ce)	7440-45-1	5.32E-9
cesium (Cs)	7440-46-2	1.91E-5
chlorine (Cl)	7782-50-5	4.86E-8
chromium (Cr)	7440-47-3	0.000858
cobalt (Co)	7440-48-4	2.62E-5
copper (Cu)	7440-50-8	0.00194
dysprosium (Dy)	7429-91-6	2.13E-6
erbium (Er)	7440-52-0	2.44E-6
europium (Eu)	7440-53-1	1.33E-5
fluorine (F)	7782-41-4	2.96E-6
gadolinium (Gd)	7440-54-2	6.57E-7
gallium (Ga)	7440-55-3	1.03E-7
germanium (Ge)	7440-56-4	1.47E-6
gold (Au)	7440-57-5	89.5
hafnium (Hf)	7440-58-6	8.67E-7
helium (He)	7440-59-7	148
holmium (Ho)	7440-60-0	1.33E-5
indium (In)	7440-74-6	0.00903
iodine (I)	7553-56-2	0.0427
iridium (Ir)	7439-88-5	32.3
iron (Fe)	7439-89-6	8.43E-8
kalium (K;potassium)	7440-09-7	3.13E-8
krypton (Kr)	7439-90-9	20.9
lanthanum (La)	7439-91-0	2.13E-8
lead (Pb)	7439-92-1	0.0135
lithium (Li)	7439-93-2	9.23E-6
lutetium (Lu)	7439-94-3	7.66E-5
magnesium (Mg)	7439-95-4	3.73E-9
manganese (Mn)	7439-96-5	1.38E-5
mercury (Hg)	7439-97-6	0.495
molybdenum (Mo)	7439-98-7	0.0317
neodymium (Nd)	7440-00-8	1.94E-17
neon (Ne)	7440-01-9	0.325
nickel (Ni)	7440-02-0	0.000108
niobium (Nb)	7440-03-1	2.31E-5
osmium (Os)	7440-04-2	14.4
palladium (Pd)	7440-05-3	0.323
phosphorus (P)	7723-14-0	8.44E-5
platinum (Pt)	7440-06-4	1.29

Natural resource	Cas-number	ADP (in kg antimony eq./kg)
polonium (Po)	7440-08-6	4.79E14
praseodymium (Pr)	7440-10-0	2.85E-7
protactinium (Pa)	??????	9.77E6
radium (Ra)	7440-14-4	2.36E7
radon (Rn)	???	1.2E20
rhenium (Re)	7440-15-5	0.766
rhodium (Rh)	7440-16-6	32.3
rubidium (Rb)	7440-17-7	2.36E-9
ruthenium (Ru)	7440-18-8	32.3
samarium (Sm)	7440-19-9	5.32E-7
scandium (Sc)	7440-20-2	3.96E-8
selenium (Se)	7782-49-2	0.475
silicium (Si; silicon)	7440-21-3	2.99E-11
silver (Ag)	7440-22-4	1.84
Sodium (Na)	7440-23-5	8.24E-11
strontium (Sr)	7440-24-6	1.12E-6
sulfur (S)	7704-34-9	0.000358
tantalum (Ta)	7440-25-7	6.77E-5
tellurium (Te)	13494-80-9	52.8
terbium (Tb)	7440-27-9	2.36E-5
thallium (Tl)	7440-28-0	5.05E-5
thorium (Th)	7440-29-1	2.08E-7
thulium (Tm)	7440-30-4	8.31E-5
tin (Sn)	7440-31-5	0.033
titanium (Ti)	7440-32-6	4.4E-8
tungsten (W); wolfram	7440-33-7	0.0117
uranium (U)	7440-61-1	0.00287
vanadium (V)	7440-62-2	1.16E-6
xenon (Xe)	7440-63-3	17500
ytterbium (Yb)	7440-64-4	2.13E-6
yttrium (Y)	7440-65-5	3.34E-7
zinc (Zn)	7440-66-6	0.000992
Zirconium (Zr)	7440-67-7	1.86E-5
crude oil	8012-95-1	0.0201
natural gas*	nvt	0.0187
hard coal	nvt	0.0134
soft coal	nvt	0.00671
fossil energy**	nvt	4.81e-4

\* In kg antimony/m<sup>3</sup> natural gas!

\*\* In kg antimony/MJ fossil energy!

Source: Guinée, 1995, with modifications for crude oil, natural gas, hard coal and soft coal.

Status: author.

Equation: 
$$abiotic\ depletion = \sum_i ADP_i \times m_i \quad (4.3.1.1)$$

The indicator result is expressed in kg of the reference resource antimony.  $ADP_i$  is the Abiotic Depletion Potential of resource  $i$ , while  $m_i$  (kg, except for natural gas and fossil energy) is the quantity of resource  $i$  used.

**Remark:**

For fossil energy carriers, new ADPs have been calculated to replace those given in Guinée (1995). The reason is that, contrary to what was stated in Guinée (1995), fossil fuels may be assumed to be full substitutes (both as energy carriers and as materials) which means that the ADPs should not be different, at least in terms of total energy reserve. Hence, an overall fossil energy ADP has first been calculated, using the equation:

$$ADP_{fossilenergy} = \frac{DR_{fossilenergy}}{(R_{fossilenergy})^2} \times \frac{(R_{antimony})^2}{DR_{antimony}} \quad (4.3.1.2)$$

ADP = Abiotic Depletion Potential of fossil energy in kg antimony eq./MJ fossil energy;

$R_{fossilenergy}$  = ultimate reserve of fossil fuels in MJ;

$DR_{fossilenergy}$  = de-accumulation, or fossil energy production, in MJ-yr<sup>-1</sup>

$R_{antimony}$  = ultimate reserve of antimony, the reference resource, in kg (according to the data in Table 4.3.1.2);

$DR_{antimony}$  = de-accumulation of antimony, the reference resource, in kg-yr<sup>-1</sup> (according to the data in Table 4.3.1.2).

However, the ultimate reserve of fossil energy has first been derived from the proven reserve (WRI, 1994; Table.9.2, p. 167). A rough estimate of the ultimate reserve of fossil energy can be made on the basis of the fossil carbon content of the earth's crust, which has been estimated by Berner & Lasaga (1989). This C-content can be converted to ultimate reserves for fossil energy (natural gas, crude oil and coal) by calculating  $C\ content_{proven, total}$  (the total C-content in kg of the proven reserves of fossil energy fuels), for which data are available (WRI, 1994), and multiplying the proven reserves of fossil energy by the ratio of  $C\ content_{geological}$  (the total C-content in kg as estimated by Berner & Lasaga) to  $C\ content_{proven, total}$ <sup>1</sup>. This ratio equals  $13.6 \times 10^3$ .

Based on the figures for DR and R given in Table 4.3.1.2 for antimony and fossil energy and the ratio given above (fossil fuel DR data based on WRI, 1994; Table 21.1, p. 332), the ADP of the use of 1 MJ of fossil energy equals:

$$ADP_{fossilfuel} = \frac{3.03 \times 10^{14}}{(4.72 \times 10^{20})^2} \times \frac{(4.63 \times 10^{15})^2}{6.06 \times 10^7} = 4.81 \times 10^{-4} \quad (4.3.1.3)$$

The ADPs for the individual fossil fuel per kg of fossil fuel extracted (as a result of the inventory analysis) can now be calculated as follows:

$$ADP_{oil} = ADP_{fossilenergy} \times HEATINGVALUE_{oil} = 4.81 \times 10^{-4} \times 41.87 = 0.0201$$

$$ADP_{gas} = ADP_{fossilenergy} \times HEATINGVALUE_{gas} = 4.81 \times 10^{-4} \times 38.84 = 0.0187$$

$$ADP_{hardcoal} = ADP_{fossilenergy} \times HEATINGVALUE_{hardcoal} = 4.81 \times 10^{-4} \times 27.91 = 0.0134$$

$$ADP_{softcoal} = ADP_{fossilenergy} \times HEATINGVALUE_{softcoal} = 4.81 \times 10^{-4} \times 13.96 = 0.00671$$

For consistency reasons the same heating values have been used as in WRI (1994). Note, however, that these values may differ from those provided by other sources (see e.g. Table 4.3.1.5). Note also that the ADPs for most of these four fossil fuel types have changed considerably compared to the values published in Guinée (1995), due to the assumption of full substitutability.

<sup>1</sup> For an explanation of these calculations we refer to appendix 2, page 106, of Guinée (1995). Note that in Guinée (1995), the ratio of the total C-content as estimated by Berner & Lasaga to the total C-content of the proven fossil fuel reserves was multiplied by proven reserves in kg. Here it is multiplied by the total proven reserve of fossil fuels in MJ.

Table 4.3.1.2: Values for reserve and de-accumulation rates that can be used to calculate alternative reserve and de-accumulation rate based ADPs.

Natural resource	Cas-number	deaccumulation (kg/yr)	reserve <sub>ultimate</sub> (kg)
actinium (Ac)	7440-34-8	2.90E4	1.27E7
aluminium (Al)	7429-90-5	1.05E11	1.93E21
antimony (Sb)	7440-36-0	6.06E7	4.63E15
argon (Ar)	7440-37-1	2.90E4	1.48E17
arsenic (As)	7440-38-2	4.50E7	4.17E16
barium (Ba)	7440-39-3	2.90E4	9.84E18
beryllium (Be)	7440-41-7	3.79E5	6.48E16
bismuth (Bi)	7440-69-9	3.20E6	3.94E15
boron (B)	7440-42-8	7.45E8	2.38E17
bromine (Br)	7726-95-6	4.00E8	1.46E17
cadmium (Cd)	7440-43-9	2.00E7	4.63E15
calcium (Ca)	7440-70-2	1.85E9	9.61E20
cerium (Ce)	7440-45-1	2.90E4	1.39E18
cesium (Cs)	7440-46-2	2.90E4	2.31E16
chlorine (Cl)	7782-50-5	1.13E8	2.87E19
chromium (Cr)	7440-47-3	2.48E7	5.79E17
cobalt (Co)	7440-48-4	8.90E9	1.27E18
copper (Cu)	7440-50-8	1.30E10	2.31E18
dysprosium (Dy)	7429-91-6	2.90E4	6.94E16
erbium (Er)	7440-52-0	2.90E4	6.48E16
europium (Eu)	7440-53-1	2.90E4	2.78E16
fluorine (F)	7782-41-4	1.75E9	1.45E19
gadolinium (Gd)	7440-54-2	2.90E4	1.25E17
gallium (Ga)	7440-55-3	3.50E4	3.47E17
germanium (Ge)	7440-56-4	6.50E4	1.25E17
gold (Au)	7440-57-5	2.17E6	9.26E13
hafnium (Hf)	7440-58-6	2.90E4	1.09E17
helium (He)	7440-59-7	1.49E7	1.89E14
holmium (Ho)	7440-60-0	2.90E4	2.78E16
indium (In)	7440-74-6	1.40E5	2.34E15
iodine (I)	7553-56-2	1.64E7	1.17E16
iridium (Ir)	7439-88-5	4.90E4	2.31E13
iron (Fe)	7439-89-6	4.05E11	1.30E21
kalium (K;potassium)	7440-09-7	2.08E10	4.84E20
krypton (Kr)	7439-90-9	2.90E4	2.21E13
lanthanum (La)	7439-91-0	2.90E4	6.94E17

Natural resource	Cas-number	deaccumulation (kg/yr)	reserve <sub>ultimate</sub> (kg)
lead (Pb)	7439-92-1	5.60E6	4.63E17
lithium (Li)	7439-93-2	3.20E9	2.89E17
lutetium (Lu)	7439-94-3	2.90E4	1.16E16
magnesium (Mg)	7439-95-4	3.09E9	5.41E20
manganese (Mn)	7439-96-5	1.88E10	2.20E19
mercury (Hg)	7439-97-6	4.80E6	1.85E15
molybdenum (Mo)	7439-98-7	1.08E8	3.47E16
neodymium (Nd)	7440-00-8	2.30E-5	6.48E17
neon (Ne)	7440-01-9	2.90E4	1.78E14
nickel (Ni)	7440-02-0	9.16E8	1.74E18
niobium (Nb)	7440-03-1	1.40E7	4.63E17
osmium (Os)	7440-04-2	4.90E4	3.47E13
palladium (Pd)	7440-05-3	4.90E4	2.31E14
phosphorus (P)	7723-14-0	1.41E11	2.43E19
platinum (Pt)	7440-06-4	4.90E4	1.16E14
polonium (Po)	7440-08-6	2.90E4	4.63E6
praseodymium (Pr)	7440-10-0	2.90E4	1.90E17
protactinium (Pa)	???	2.90E4	3.24E10
radium (Ra)	7440-14-4	2.90E4	2.08E10
radon (Rn)	???	2.90E4	9.26E3
rhenium (Re)	7440-15-5	2.90E4	1.16E14
rhodium (Rh)	7440-16-6	4.90E4	2.31E13
rubidium (Rb)	7440-17-7	2.90E4	2.08E18
ruthenium (Ru)	7440-18-8	4.90E4	2.31E13
samarium (Sm)	7440-19-9	2.90E4	1.39E17
scandium (Sc)	7440-20-2	2.90E4	5.09E17
selenium (Se)	7782-49-2	1.80E6	1.16E15
silicium (Si; silicon)	7440-21-3	3.60E9	6.53E21
silver (Ag)	7440-22-4	1.37E7	1.62E15
Sodium (Na)	7440-23-5	7.32E7	5.60E20
strontium (Sr)	7440-24-6	2.38E8	8.69E18
sulfur (S)	7704-34-9	5.27E10	7.21E18
tantalum (Ta)	7440-25-7	4.10E5	4.63E16
tellurium (Te)	13494-80-9	8.00E4	2.31E13
terbium (Tb)	7440-27-9	2.90E4	2.08E16
thallium (Tl)	7440-28-0	1.55E4	1.04E16
thorium (Th)	7440-29-1	2.90E4	2.22E17
thulium (Tm)	7440-30-4	2.90E4	1.11E16

Natural resource	Cas-number	deaccumulation (kg/yr)	reserve <sub>ultimate</sub> (kg)
tin (Sn)	7440-31-5	2.00E8	4.63E16
titanium (Ti)	7440-32-6	2.16E9	1.32E20
tungsten (W); wolfram	7440-33-7	3.98E7	3.47E16
uranium (U)	7440-61-1	3.17E7	6.25E16
vanadium (V)	7440-62-2	3.21E7	3.13E18
xenon (Xe)	7440-63-3	2.90E4	7.65E11
ytterbium (Yb)	7440-64-4	2.90E4	6.94E16
yttrium (Y)	7440-65-5	5.51E5	7.64E17
zinc (Zn)	7440-66-6	7.37E9	1.62E18
Zirconium (Zr)	7440-67-7	7.65E8	3.82E18
fossil energy	nvt	3.03E14*	4.72E20**

\* In MJ/yr

\*\* In MJ

Source: Guinée, 1995; WRI, 1994; Berner & Lasaga, 1989

Status: Author

Equation: 
$$abiotic\ depletion = \sum_i ADP_i \times m_i \quad (4.3.1.4)$$

$ADP_i = 1/R_i$  or any combination of  $R_i, R_{ref}, DR_i$  and  $DR_{ref}$

The unit of the indicator result depends on that of the ADP.  $ADP_i$  is the Abiotic Depletion Factor of resource  $i$ , while  $m_i$  (kg) is the quantity of resource  $i$  used,  $R_i$  (kg) is the reserve of resource  $i$ , and  $DR_i$  (kg·yr<sup>-1</sup>) is the de-accumulation of resource  $i$ .  $R_{ref}$  (kg) is the reserve of antimony, the reference resource, and  $DR_{ref}$  (kg·yr<sup>-1</sup>) is the deaccumulation of that reference resource

#### Economic reserves

For data on economic reserves, see: <http://minerals.usgs.gov/minerals/>

For energy data, see: <http://www.wri.org/facts/data-tables-energy.html>

and/or

<http://www.iea.org/>

NOTE: If practitioners would like to apply economic reserve data in the ADP approach, they will have to calculate such new ADP factors themselves, including the associated new normalisation factors.



Table 4.3.1.3: Factors for characterising abiotic resources based on exergy content (Finnveden, 1996b).

Material/mineral	Chemical composition	Factor (MJ/kg )
Iron Core	-	0.42
Copper ore, type 1	-	0.63
Copper ore, type 2	-	7.9
Lead ore	-	0.56
Zinc ore	-	1.9
Nickel ore	-	8.8
Gold ore	-	8.3
Aluminium ore	-	1.1
Chromium ore	-	0.51
Platinum ore	-	0.58
Phosphorus ore	-	0.28
Lime	-	0.034
Rock	-	0.32
Sand	-	0.032
Acantite	Ag <sub>2</sub> S	2.863
Adularine	KAlSi <sub>3</sub> O <sub>8</sub>	0.359
Anortite	CaAl <sub>2</sub> SiO <sub>8</sub>	0.983
Aragonite	CaCO <sub>3</sub>	0.01
Barite	BaSO <sub>4</sub>	0.015
Boehmite	AlOOH	1.607
Chalcopyrite	CuFeS <sub>2</sub>	11.19
Chromite	FeCr <sub>2</sub> O <sub>4</sub>	0.557
Covellite	CuS	7.221
Diopside	CaMgSi <sub>2</sub> O <sub>6</sub>	0.037
Dolomite	CaMgCO <sub>3</sub>	0.082
Fayalite	FeSiO <sub>4</sub>	1.159
Fluorite	CaF <sub>2</sub>	0.146
Fluoroapatite	Ca <sub>5</sub> F(PO <sub>4</sub> ) <sub>3</sub>	0.013
Forsterite	MgSiO <sub>4</sub>	0.532
Galena	PbS	23.11
Goethite	FeOOH	0.111
Gold	Au	0.078
Haematite	Fe <sub>2</sub> O <sub>3</sub>	0.103
Hydroxyapatite	Ca <sub>5</sub> OH(PO <sub>4</sub> ) <sub>3</sub>	0.126
Low albite	NaAlSi <sub>3</sub> O <sub>8</sub>	0.402
Magnetite	Fe <sub>3</sub> O <sub>4</sub>	0.525
Microcline	KAlSi <sub>3</sub> O <sub>8</sub>	0.361
Millerite	NiS	8.404

Source: Finnveden, 1996b

Status: author.

Equation: 
$$abiotic\ depletion = \sum_i Factor_i \times m_i \quad (4.3.1.5)$$

The indicator result is expressed in MJ exergy content.  $Factor_i$  (MJ·kg<sup>-1</sup>) is the characterisation factor for abiotic depletion of resource  $i$  based on the exergy content, while  $m_i$  (kg) is the quantity of resource  $i$  used.

Table 4.3.1.4: Factors for characterising abiotic resources based on exergy content (Ayres *et al.*, 1996).

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
INORGANIC COMPOUNDS			
Ag Cl	Silver chloride	143.321	22.2
Ag F	Silver fluoride	126.866	118.5
Ag N O <sub>3</sub>	Silver nitrate	169.873	43.1
Ag <sub>2</sub> C O <sub>3</sub>	Silver carbonate	275.745	115.0
Ag <sub>2</sub> O	Silver oxide	231.735	57.6
Ag <sub>2</sub> O <sub>2</sub>	Silver dioxide	247.735	172.1
Ag <sub>2</sub> O <sub>4</sub> S	Silver sulfate	311.798	139.6
Ag <sub>2</sub> S	Silver sulfide	247.800	709.5
Al Cl <sub>3</sub>	Aluminum chloride	133.341	444.9
Al H <sub>2</sub> NaO <sub>7</sub> Si <sub>2</sub>	Analcime	220.155	104.2
Al K O <sub>8</sub> Si <sub>3</sub>	Potassium aluminosilicate	278.337	99.9
Al Na O <sub>2</sub>	Sodium aluminate	81.970	151.7
Al Na O <sub>8</sub> Si <sub>3</sub>	Sodium aluminosilicate (albite)	262.225	105.5
Al <sub>2</sub> Ca O <sub>4</sub>	Calcium aluminate	158.041	275.4
Al <sub>2</sub> Ca O <sub>8</sub> Si <sub>2</sub>	Calcium aluminosilicate (anortite)	278.210	218.3
Al <sub>2</sub> Ca <sub>3</sub> O <sub>6</sub>	Calcium trialuminate	270.199	500.6
Al <sub>2</sub> H <sub>2</sub> O <sub>4</sub>	Boermite	119.977	195.3
Al <sub>2</sub> H <sub>4</sub> O <sub>9</sub> Si <sub>2</sub>	Kaolinite	258.161	197.8
Al <sub>2</sub> H <sub>6</sub> O <sub>6</sub>	Gibbsite	156.007	209.5
Al <sub>2</sub> Mg O <sub>4</sub>	Magnesium aluminate	142.273	230.3
Al <sub>2</sub> O <sub>3</sub>	Aluminum oxide (corundum)	101.961	200.4
Al <sub>2</sub> O <sub>5a</sub>	Aluminum silicate (andalusite)	162.046	45.1
Al <sub>2</sub> O <sub>5k</sub>	Aluminum silicate (kyanite)	162.046	43.9
Al <sub>2</sub> O <sub>5s</sub>	Aluminum silicate (sillimanite)	162.046	15.4
Al <sub>2</sub> O <sub>12</sub> S <sub>3</sub>	Aluminum sulfate	342.148	529.7
Al <sub>2</sub> S <sub>3</sub>	Aluminum sulfide	150.155	2980.7
Al <sub>4</sub> C <sub>3</sub>	Aluminum carbide	143.959	4588.2
Al <sub>4</sub> Ca O <sub>7</sub>	Calcium trialuminate	260.002	460.4
Al <sub>6</sub> O <sub>13</sub> Si <sub>2</sub>	Aluminum silicate (mullite)	426.053	618.8
Al <sub>14</sub> Ca <sub>12</sub> O <sub>47</sub>	Calcium aluminate	1386.681	2526.8
As <sub>2</sub> O <sub>5</sub>	Arsenic pentoxide	229.840	216.9
Au Cl	Aurous chloride	232.420	62.2
Au Cl <sub>3</sub>	Auric chloride	303.326	155.5
Au F <sub>3</sub>	Auric fluoride	253.962	437.3
Au <sub>2</sub> O <sub>3</sub>	Auric trioxide	441.932	114.7
B Cl <sub>3</sub>	Boron trichloride	117.170	427
B F <sub>3</sub>	Boron fluoride	67.806	209
B H <sub>3</sub> O <sub>3</sub>	Boric acid	61.833	29
B <sub>2</sub> H <sub>6</sub>	Diborane	26.670	873
B <sub>2</sub> O <sub>3</sub>	Boron oxide	69.620	69.4
Ba C O <sub>3</sub>	Barium carbonate (witherite)	197.349	26.3
Ba Cl <sub>2</sub>	Barium chloride	208.246	61.3
Ba F <sub>2</sub>	Barium fluoride	175.337	57.2
Ba H <sub>2</sub> O <sub>2</sub>	Barium hydroxide	171.355	132.9
Ba O	Barium oxide	153.339	224.6
Ba O <sub>2</sub>	Barium peroxide	169.339	169.3
Ba O <sub>4</sub> S	Barium sulfate	233.402	3.4
Ba S	Barium sulfide	169.404	901.9
Bi <sub>2</sub> O <sub>3</sub>	Bismuth trioxide	465.958	61.4
Bi <sub>2</sub> S <sub>3</sub>	Bismuth sulfide	514.152	2237.3
Br H	Hydrogen bromide (aq,400)	80.912	66
Br K	Potassium bromide (aq, 400)	119.006	37
Br Na	Sodium bromide (aq, 400)	102.894	210

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
Br Na O <sub>3</sub>	Sodium bromate	150.892	151
Br <sub>2</sub> Ca	Calcium bromide	199.888	150
Br <sub>3</sub> C H	Tribromomethane	252.731	675
C Ca O <sub>3</sub>	Calcium carbonate	100.089	0
C Cd O <sub>3</sub>	Cadmium carbonate	172.409	40.6
C Cl N	Cyanogen chloride	61.471	603
C Cl <sub>2</sub> F <sub>2</sub>	Dichlorodifluoromethane	120.914	561
C Cl <sub>2</sub> H <sub>2</sub>	Methylene chloride	84.933	700
C Cl <sub>2</sub> O	Carbonyl chloride	98.917	331
C Cl <sub>3</sub> F	Trichlorofluoromethane	137.369	592
C Cl <sub>4</sub>	Carbon tetrachloride	153.823	473.1
C Co O <sub>3</sub>	Cobalt carbonate (spherocobaltite)	118.943	45.8
C Cu O <sub>3</sub>	Cupric carbonate	123.555	31.5
C Fe O <sub>3</sub>	Ferrous carbonate (siderite)	115.856	125.9
C Fe <sub>3</sub>	Cementite	179.552	1560.2
C Hg <sub>2</sub> O <sub>3</sub>	Mercurous carbonate	461.189	179.8
C K <sub>2</sub> O <sub>3</sub>	Potassium carbonate	138.213	85.1
C Li <sub>2</sub> O <sub>3</sub>	Lithium carbonate	73.887	70.1
C Mg O <sub>3</sub>	Magnesium carbonate	84.321	37.9
C Mn O <sub>3</sub>	Manganese carbonate	114.947	81.8
C Mn <sub>3</sub>	Manganese carbide	176.825	1862.3
C Mo <sub>2</sub>	Molybdenum carbide	203.891	1824.6
C N	Cyano	26.018	845.0
C N Na	Sodium cyanide (aq,200)	49.008	671
C Na <sub>2</sub> O <sub>3</sub>	Sodium carbonate	105.989	41.5
C Ni O <sub>3</sub>	Nickel nitrate	118.719	36.4
C Ni <sub>3</sub>	Nickel carbide	188.141	1142.9
C O	Carbon monoxide	28.011	275.0
C O S	Carbonyl sulfide	60.075	853
C O <sub>2</sub>	Carbon dioxide	44.010	19.9
C O <sub>3</sub> Pb	Lead carbonite (cerussite)	267.199	23.5
C O <sub>3</sub> Rb <sub>2</sub>	Rubidium carbonate	230.949	152.4
C O <sub>3</sub> Sr	Strontium carbonate (strontianite)	147.629	6.2
C O <sub>3</sub> Zn	Zinc carbonate	125.379	23.9
C S <sub>2</sub>	Carbon disulfide	76.139	1694.7
C Si	Silicon carbide (cubic)	40.097	1202
C Ti	Titanium carbide	59.911	1136.7
C V	Vanadium carbide	62.953	1032.6
C W	Tungsten carbide	195.861	1199.5
C <sub>2</sub> Ca	Calcium carbonide	64.102	1468.3
C <sub>2</sub> Ca MgO <sub>6</sub>	Dolomite	184.411	15.1
C <sub>2</sub> Cl F <sub>2</sub> H	1-chloro-2,2-difluoroethylene	98.480	1178
C <sub>2</sub> Cl F <sub>3</sub>	Chlorotrifluoroethylene	116.471	1058
C <sub>2</sub> Cl <sub>4</sub>	Tetrachloroethylene	165.834	1071
C <sub>2</sub> Cl <sub>4</sub>	Perchloroethylene	165.834	1088
C <sub>2</sub> Cl <sub>4</sub> F <sub>2</sub>	1,1,1,2-tetrachloro-2,2-difluoroethane	203.831	1127
C <sub>2</sub> Cl <sub>4</sub> O	Trichloroacetyl chloride	181.834	861
C <sub>2</sub> Cr <sub>3</sub>	Chromium dicarbide	180.010	2372.0
C <sub>2</sub> N <sub>2</sub>	Cyanogen	52.036	1118.9
C <sub>3</sub> Cr <sub>7</sub>	Chromium thricarbide	400.005	4874.2
Ca Cl <sub>2</sub>	Calcium chloride	110.986	87.9
Ca F <sub>2</sub>	Calcium fluoride	78.077	11.4
Ca Fe <sub>2</sub> O <sub>4</sub>		215.772	104.0
Ca H <sub>2</sub> O <sub>2</sub>	Calcium hydroxide	74.095	53.7
Ca H <sub>4</sub> O <sub>6</sub> S	Calcium sulfate (gypsum)	172.172	8.6
Ca N <sub>2</sub> O <sub>6</sub>	Calcium nitrate	164.090	-18.1

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
Ca O	Calcium oxide	56.079	110.2
Ca O <sub>3</sub> Si	Calcium silicate (volastonite)	116.164	23.6
Ca O <sub>4</sub> S	Calcium sulphate (anhydrite)	136.142	8.2
Ca S	Calcium sulfide (oldhamite)	72.144	844.6
Ca <sub>2</sub> Fe <sub>2</sub> O <sub>4</sub>		255.852	194.7
Ca <sub>2</sub> H <sub>2</sub> Mg <sub>5</sub> O <sub>24</sub> Si <sub>8</sub>	Tremolite	812.410	81.6
Ca <sub>2</sub> O <sub>4</sub> Si	Calcium di-orthosilicate	172.244	95.7
Ca <sub>3</sub> O <sub>5</sub> Si	Calcium trisilicate	228.323	219.8
Ca <sub>3</sub> O <sub>6</sub> P <sub>2</sub>	Calcium phosphate	278.184	19.4
Cd H <sub>2</sub> O <sub>2</sub>	Cadmium hydroxide	146.415	59.5
Cd H <sub>2</sub> O <sub>5</sub> S	Cadmium sulfate	226.477	80.6
Cd O	Cadmium oxide	128.399	67.3
Cd O <sub>4</sub> S	Cadmium sulfate	208.462	88.6
Cd S	Cadmium sulfide	144.464	746.9
Cl Cs	Cesium chlorine	168.358	51.5
Cl Cu	Cuprous chlorine	98.999	76.2
Cl F O <sub>3</sub>	Perchloryl fluoride	102.450	349
Cl H	Hydrogen chloride	36.461	84.6
Cl H O	Hydrochlorous acid (aq,400)	52.460	102
Cl H O <sub>4</sub>	Perchloric acid (aq, 660)	100.459	143
Cl H <sub>4</sub> N	Ammonium chloride	53.492	331.3
Cl H <sub>4</sub> N	Ammonium chloride	53.492	331.3
Cl K	Potassium chloride	74.555	19.6
Cl K O <sub>4</sub>	Potassium perchlorate	138.553	136.0
Cl Li	Lithium chloride	42.392	70.7
Cl N O	Nitrosyl chloride	65.459	130
Cl Na	Sodium chloride	58.443	14.3
Cl Na O <sub>3</sub>	Sodium chlorate (aq,400)	106.441	142
Cl Na O <sub>4</sub>	Sodium perchlorate (aq,476)	122.440	151
Cl O <sub>2</sub>	Chlorine dioxide	67.452	186
Cl Rb	Rubidium chloride	120.923	48.6
Cl <sub>2</sub> Cd	Cadmium chloride	183.306	73.4
Cl <sub>2</sub> Co	Cobaltic chloride	129.839	118.8
Cl <sub>2</sub> Cr	Chromous chloride	122.902	311.9
Cl <sub>2</sub> Cu	Cupric chloride	134.452	82.1
Cl <sub>2</sub> Fe	Ferrous chloride (lawrencite)	126.753	197.6
Cl <sub>2</sub> Hg	Mercuric chloride	271.496	60.8
Cl <sub>2</sub> Hg <sub>2</sub>	Mercurous chloride	472.086	144.5
Cl <sub>2</sub> Mg	Magnesium chloride	95.218	165.9
Cl <sub>2</sub> Mn	Manganese chlorine	125.844	165.4
Cl <sub>2</sub> Ni	Nickel choride	129.616	97.2
Cl <sub>2</sub> O S	Thionyl chloride	118.969	537
Cl <sub>2</sub> O <sub>2</sub> S	Sulfuryl chloride	134.969	423
Cl <sub>2</sub> Pb	Lead chloride (cotunnite)	278.096	42.3
Cl <sub>2</sub> S <sub>2</sub>	Sulfur monochloride	135.034	1318
Cl <sub>2</sub> Sn	Stannous chloride	189.596	386.4
Cl <sub>2</sub> Sr	Strontium chloride	158.526	72.6
Cl <sub>2</sub> Zn	Zinc chlorine	136.276	93.4
Cl <sub>3</sub> Cr	Chromic chloride	158.355	261.6
Cl <sub>3</sub> Fe	Ferric chloride (molysite)	162.206	230.2
Cl <sub>3</sub> H Si	Trichlorosilane	135.453	676
Cl <sub>3</sub> O P	Phosphorus oxychloride	153.332	542
Cl <sub>3</sub> P	Phosphorus trichloride	137.333	789
Cl <sub>3</sub> U	Uranium trichlorine	344.389	550.1
Cl <sub>4</sub> Si	Silicon tetrachloride	169.898	482
Cl <sub>4</sub> U	Uranium tetrachlorine	379.842	475.2

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
Cl5 P	Phosphorus pentachloride	208.239	880
Cl5 U	Uranium pentachlorine	415.295	513.6
Co H <sub>2</sub> O <sub>2</sub>	Cobaltous hydroxide	92.948	50.7
Co O	Cobaltous oxide	74.933	52.8
Co O <sub>4</sub> S	Cobaltic sulfate	154.995	99.8
Co S	Cobaltous sulfide (syeporite)	90.997	792.2
Co <sub>3</sub> O <sub>4</sub>	Cobaltic oxide	240.797	38.2
Cr <sub>2</sub> Fe O <sub>4</sub>	Ferrous chromate	223.837	129.1
Cr <sub>2</sub> O <sub>3</sub>	Chromium oxide	151.990	36.5
Cs N O <sub>3</sub>	Cesium nitrate	194.910	18.2
Cs <sub>2</sub> O	Cesium oxide	281.809	521.8
Cs <sub>2</sub> O <sub>4</sub> S	Cesium sulfate	361.872	127.0
Cu Fe <sub>2</sub> O <sub>4</sub>		239.238	36.1
Cu H <sub>2</sub> O <sub>2</sub>	Cupric hydroxide	97.561	15.3
Cu O	Cuprix oxide	79.545	6.5
Cu O <sub>4</sub> S	Cupric sulfate	159.608	89.8
Cu S	Cupric sulfide (covellite)	95.610	690.3
Cu <sub>2</sub> O	Cuprous oxide	143.091	124
Cu <sub>2</sub> O <sub>4</sub> S	Cuprous sulfate	223.154	253.6
Cu <sub>2</sub> S	Cuprous sulfide	159.156	791.8
F H	Hydrogen fluoride	20.006	80.0
F K	Potassium fluoride	58.100	62.2
F <sub>2</sub>	Fluorine	37.997	466.3
F <sub>4</sub> Si	Silicon tetrafluoride	104.080	281
F <sub>6</sub> S	Sulfur hexafluoride	146.054	1017
Fe H <sub>3</sub> O <sub>3</sub>	Ferric hydroxide	106.869	39.6
Fe O	Ferrous oxide	71.846	127.0
Fe O <sub>3</sub> Si	Ferrous silicate	131.931	161.7
Fe O <sub>3</sub> Ti	Ferric titanate	151.745	131.4
Fe O <sub>4</sub> S	Ferrous sultate	151.909	173.0
Fe O-a	Wustite	68.887	113.3
Fe S	Ferrous sulfide	87.911	885.6
Fe S <sub>2</sub>	Pyrites	119.975	1429
Fe Si	Iron silicide	83.933	1157.3
Fe <sub>2</sub> Mg O <sub>4</sub>	Magnesium ferrate	200.004	77.9
Fe <sub>2</sub> Mn O <sub>4</sub>	Manganese ferrate	230.630	121.4
Fe <sub>2</sub> O <sub>3</sub>	Ferric oxide	159.692	17
Fe <sub>2</sub> O <sub>4</sub> Si	Ferrous silicate (fayalite)	203.778	236.2
Fe <sub>2</sub> O <sub>4</sub> Zn	Zince ferrate	241.062	36.4
Fe <sub>3</sub> O <sub>4</sub>	Ferrous oxide (magnetite)	231.539	121.6
H I	Hydrogen iodide (aq,400)	127.912	154
H K O	Potassium hydroxide	56.109	107.6
H Li O	Lithium hydroxide	23.146	74.1
H N O <sub>3</sub>	Nitric Acid	63.013	43.5
H Na O	Sodium hydroxide	39.997	74.9
H <sub>2</sub> Mg O <sub>2</sub>	Magnesium hydroxide	58.327	40.9
H <sub>2</sub> Mg <sub>3</sub> O <sub>12</sub> Si <sub>4</sub>	Talc	379.289	36.5
H <sub>2</sub> Mn O <sub>2</sub>	Manganeous hydroxide	88.953	107.3
H <sub>2</sub> Ni O <sub>2</sub>	Nickel hydroxide	92.725	25.5
H <sub>2</sub> Ni O <sub>5</sub> S	Nickel sulfate	262.864	53.6
H <sub>2</sub> O	Water	18.015	9.5
H <sub>2</sub> O	Water	18.015	0.9
H <sub>2</sub> O <sub>2</sub>	Hydrogen peroxide (aq,200)	34.015	134
H <sub>2</sub> O <sub>2</sub> Pb	Lead hydroxide	241.205	20.6
H <sub>2</sub> O <sub>2</sub> Zn	Zinc hydroxide	99.385	25.7
H <sub>2</sub> O <sub>4</sub> S	Sulfuric acid	98.078	163.4

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
H <sub>2</sub> S	Hydrogen sulfide	34.080	812.0
H <sub>3</sub> N	Ammonia	17.031	337.9
H <sub>3</sub> O <sub>4</sub> P	Phosphoric acid	97.995	104.0
H <sub>3</sub> P	Phosphine	33.998	1243
H <sub>4</sub> Mg <sub>3</sub> O <sub>9</sub> Si <sub>2</sub>	Chrysolite	277.134	61.3
H <sub>4</sub> N <sub>2</sub>	Hydrazine	32.045	622
H <sub>4</sub> N <sub>2</sub> O <sub>3</sub>	Ammonium nitrate	80.043	294.8
H <sub>4</sub> Si	Silane	32.118	1384
H <sub>6</sub> Si <sub>2</sub>	Disilane	62.220	2545
H <sub>8</sub> N <sub>2</sub> O <sub>4</sub> S	Ammonium sulfate	132.139	660.6
Hg O	Mercuric oxide (montroydite)	216.589	57.3
Hg O <sub>4</sub> S	Mercuric sulfate	296.652	146.0
Hg S	Mercuric sulfide	232.654	674.8
Hg <sub>2</sub> O 4S	Mercurous sulfate	497.242	223.4
I K	Potassium iodide (aq,500)	166.006	129
I Na	Sodium iodide	149.894	136.1
K N O <sub>3</sub>	Potassium nitrate	101.107	-19.4
K <sub>2</sub> O	Potassium oxide	94.203	413.1
K <sub>2</sub> O <sub>3</sub> S	Potassium sulfite	158.266	302.6
K <sub>2</sub> O <sub>3</sub> Si	Potassium silicate	154.288	137.9
K <sub>2</sub> O <sub>4</sub> S	Potassium sulfate	174.266	35.0
K <sub>2</sub> S	Potassium sulfide	110.268	943.0
Li <sub>2</sub> O	Lithium oxide	29.877	225.7
Li <sub>2</sub> O <sub>4</sub> S	Lithium sulfate	109.940	204.3
Mg N <sub>2</sub> O <sub>6</sub>	Magnesium nitrate	148.322	57.4
Mg O	Magnesium oxide	40.311	66
Mg O <sub>3</sub> Si	Magnesium silicate	100.396	22.0
Mg O <sub>4</sub> S	Magnesium sulfate	120.374	80.7
Mg S	Magnesium sulfide	56.376	901.6
Mg <sub>2</sub> O <sub>4</sub> Si	Magnesium orthosilicate	140.708	74.9
Mg <sub>2</sub> O <sub>4</sub> Ti	Magnesium titanate	160.522	134.3
Mg <sub>3</sub> O <sub>8</sub> P <sub>2</sub>	Magnesium phosphate	262.879	130.0
Mn O	Manganeoseous oxide	70.937	119.4
Mn O <sub>2</sub>	Manganese oxide	86.937	21
Mn O <sub>3</sub> Si	Manganeous silicate	131.022	102.3
Mn O <sub>4</sub> S	Manganeous sulfate	151.000	142.4
Mn S	Manganese sulfide	87.002	873.5
Mn <sub>2</sub> O <sub>3</sub>	Manganesic oxide	157.874	89.4
Mn <sub>3</sub> O <sub>4</sub>	Manganese oxide (hausmannite)	228.812	171.6
Mo O <sub>2</sub>	Molybdenum dioxide	127.939	201.2
Mo O <sub>3</sub>	Molybdenum trioxide	143.938	68.2
Mo S <sub>2</sub>	Molybdenum disulfide (molybdenite)	160.068	1723.1
Mo <sub>2</sub> S <sub>3</sub>	Molybdenum sulfide	288.072	2891.2
N Na O <sub>3</sub>	Sodium nitrate	84.995	-22.7
N O	Nitric oxide	30.006	88.9
N O <sub>2</sub>	Nitrogen dioxide	46.006	55.6
N <sub>2</sub> O	Nitrous oxide	44.013	106.9
N <sub>2</sub> O <sub>3</sub>	Nitrogen trioxide	76.012	146
N <sub>2</sub> O <sub>4</sub>	Nitrogen tetroxide	92.011	106.6
N <sub>2</sub> O <sub>5</sub>	Nitrogen pentoxide	108.010	125.7
Na <sub>2</sub> O	Sodium oxide	61.979	296.2
Na <sub>2</sub> O <sub>3</sub> S	Sodium sulfite	126.042	287.5
Na <sub>2</sub> O <sub>3</sub> Si	Sodium metasilicate	122.064	66.1
Na <sub>2</sub> O <sub>4</sub> S	Sodium sulfate	142.041	21.4
Na <sub>2</sub> O <sub>5</sub> Si <sub>2</sub>	Sodium silicate	182.149	67.6
Na <sub>2</sub> S	Sodium sulfide	78.044	921.4

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
Na <sub>4</sub> O <sub>4</sub> Si	Sodium orthosilicate	184.043	256.6
Ni O	Nickel monoxide (bunsenite)	74.709	23.0
Ni O <sub>4</sub> S	Nickel sulfate	154.772	90.4
Ni S	Nickel sulfide	90.774	762.8
Ni <sub>3</sub> S <sub>2</sub>	Nickel sulfide	240.258	1720.2
O Pb	Lead monoxide	223.189	47
O Pb	Yellow lead oxide	223.189	47
O Pb	Litharge	223.189	47
O Rb <sub>2</sub>	Rubidium oxide	186.939	491.3
O Sn	Stannous oxide	134.689	289.9
O Sr	Strontium oxide (strontia)	103.619	170.2
O Ti	Titanium oxide	63.899	418.5
O V	Vanadium oxide	66.941	318.9
O Zn	Zinc oxide	81.369	21
O <sub>2</sub> Pb	Lead dioxide (plattnerite)	239.189	19.4
O <sub>2</sub> S	Sulfur dioxide	64.063	313.5
O <sub>2</sub> Si	Silicon dioxide	60.085	2
O <sub>2</sub> Si-a	Silicon dioxide (amorphous)	60.085	7.9
O <sub>2</sub> Si-c	Silicon dioxide (cristobalite)	60.085	2.8
O <sub>2</sub> Si-q	Silicon dioxide (quartz)	60.085	1.9
O <sub>2</sub> Sn	Stannic oxide	150.689	29.1
O <sub>2</sub> Sr	Strontium peroxide	119.619	140.4
O <sub>2</sub> Ti	Titanium dioxide	79.899	22
O <sub>2</sub> Ti	Titanium dioxide (rutile)	79.899	21.4
O <sub>2</sub> U	Uranium dioxide (uraninite)	270.029	162.9
O <sub>2</sub> V	Vanadium dioxide	82.941	61.9
O <sub>2</sub> W	Tungsten dioxide	215.849	297.5
O <sub>3</sub>	Ozone	47.998	169.2
O <sub>3</sub> Pb Si	Lead silicate	283.274	31.2
O <sub>3</sub> S	Sulfur trioxide	80.062	249.1
O <sub>3</sub> Sb <sub>2</sub>	Antimony trioxide	291.498	251.2
O <sub>3</sub> Ti <sub>2</sub>	Titanium trioxide	143.798	385.5
O <sub>3</sub> U	Uranium trioxide	286.028	43.9
O <sub>3</sub> V <sub>2</sub>	Vanadium trioxide	149.882	299.7
O <sub>3</sub> W	Tungsten trioxide	231.848	69.3
O <sub>4</sub> Pb <sub>3</sub>	Lead red oxide (minium)	685.568	105.2
O <sub>4</sub> Pb S	Lead sulfate	303.252	37.2
O <sub>4</sub> Pb <sub>2</sub> Si	Lead silicate	506.464	75.5
O <sub>4</sub> S Sr	Strontium sulfate (celestite)	183.682	7.1
O <sub>4</sub> S Zn	Zinc sulfate	161.432	82.3
O <sub>4</sub> Sb <sub>2</sub>	Antimony tetroxide	307.498	83.7
O <sub>4</sub> Si Zn <sub>2</sub>	Zinc silicate	222.824	17.8
O <sub>5</sub> Sb <sub>2</sub>	Antimony pentoxide	323.497	52.3
O <sub>5</sub> Ti <sub>3</sub>	Titanium pentoxide	223.697	413.2
O <sub>5</sub> V <sub>2</sub>	Vanadium pentoxide	181.881	32.5
O <sub>8</sub> U <sub>3</sub>	Uranium oxide (pitchblende)	842.085	218.5
O <sub>10</sub> P <sub>4</sub>	Phosphorus decaoxide	283.889	825.3
Pb S	Lead sulfide	239.254	743.7
S Si <sub>2</sub>	Silicon sulfide	88.236	1866.3
S Sn	Stannous sulfide	150.754	1056.1
S Sr	Strontium sulfide	119.684	891.8
S Zn	Zinc sulfide (sphalerite)	97.434	747
S <sub>2</sub> Sn	Stannic sulfide	182.818	1604.6
S <sub>2</sub> Ti	Titanium sulfide	112.028	1875.9
S <sub>2</sub> W	Tungsten sulfide	247.978	1796.6
	HYDROCARBONS		



Alpha elements	Name	Mole weight	exergy (in kJ/mol)
CH <sub>2</sub>	Methylene	14.027	1030.5
CH <sub>3</sub>	Methyl	15.035	900.5
CH <sub>4</sub>	Methane	16.043	831.7
C <sub>2</sub> H <sub>2</sub>	Acetylene	26.038	1265.8
C <sub>2</sub> H <sub>4</sub>	Ethylene	28.054	1361.1
C <sub>2</sub> H <sub>6</sub>	Ethane	30.070	1495.8
C <sub>3</sub> H <sub>4</sub>	Methyl acetylene	40.065	1899.5
C <sub>3</sub> H <sub>4</sub>	Propadiene	40.065	1523.8
C <sub>3</sub> H <sub>6</sub>	Propylene	42.081	2003.9
C <sub>3</sub> H <sub>6</sub>	Cyclopropane	42.081	2043.2
C <sub>3</sub> H <sub>8</sub>	Propane	44.097	2154.0
C <sub>4</sub> H <sub>6</sub>	1,3-butadiene	54.092	2500
C <sub>4</sub> H <sub>6</sub>	1-butyne	54.092	2552.3
C <sub>4</sub> H <sub>6</sub>	2-butyne	54.092	2536
C <sub>4</sub> H <sub>8</sub>	Cyclobutane	56.108	2516.2
C <sub>4</sub> H <sub>8</sub>	2-methyl-2-propene	56.108	2646
C <sub>4</sub> H <sub>8</sub>	cis-2-butene	56.108	2652
C <sub>4</sub> H <sub>8</sub>	1-butylene	56.108	2659.7
C <sub>4</sub> H <sub>8</sub>	trans-2-butene	56.108	2650
C <sub>4</sub> H <sub>8</sub>	1-butene	56.108	2657
C <sub>4</sub> H <sub>10</sub>	Isobutane	58.124	2804
C <sub>4</sub> H <sub>10</sub>	n-butane	58.124	2805.8
C <sub>5</sub> H <sub>8</sub>	3-methyl-1-butyne	68.120	3201
C <sub>5</sub> H <sub>8</sub>	1-pentyne	68.120	3206
C <sub>5</sub> H <sub>8</sub>	Pentadiene	68.120	2914.8
C <sub>5</sub> H <sub>8</sub>	2-pentyne	68.120	3190
C <sub>5</sub> H <sub>10</sub>	cis-2-pentene	70.135	3304
C <sub>5</sub> H <sub>10</sub>	trans-2-pentene	70.135	3301
C <sub>5</sub> H <sub>10</sub>	3-methyl-1-butene	70.135	3307
C <sub>5</sub> H <sub>10</sub>	Cyclopentane	70.135	3268
C <sub>5</sub> H <sub>10</sub>	2-methyl-1-butene	70.135	3297
C <sub>5</sub> H <sub>10</sub>	2-methyl-2-butene	70.135	3291
C <sub>5</sub> H <sub>10</sub>	1-pentene	70.135	3310
C <sub>5</sub> H <sub>12</sub>	n-pentane	72.151	3461.8
C <sub>5</sub> H <sub>12</sub>	2,2-dimethyl propane	72.151	3453
C <sub>5</sub> H <sub>12</sub>	2-methyl butane	72.151	3453
C <sub>6</sub> H <sub>6</sub>	Benzol	78.115	3294
C <sub>6</sub> H <sub>6</sub>	Benzene	78.115	3303.6
C <sub>6</sub> H <sub>10</sub>	1-hexyne	82.147	3865.1
C <sub>6</sub> H <sub>12</sub>	1-hexylene	84.163	3967.9
C <sub>6</sub> H <sub>12</sub>	Methyl cyclopentane	84.163	3910.8
C <sub>6</sub> H <sub>12</sub>	Cyclohexane	84.163	3909.2
C <sub>6</sub> H <sub>12</sub>	Hexahydrobenzene	84.163	3878
C <sub>6</sub> H <sub>14</sub>	2-methylpentane	86.178	4107
C <sub>6</sub> H <sub>14</sub>	3-methylpentane	86.178	4110
C <sub>6</sub> H <sub>14</sub>	2,3-dimethylbutane	86.178	4108
C <sub>6</sub> H <sub>14</sub>	n-hexane	86.178	4114.5
C <sub>6</sub> H <sub>14</sub>	2,2-demethylbutane	86.178	4102
C <sub>7</sub> H <sub>8</sub>	Toluene	92.142	3931.0
C <sub>7</sub> H <sub>8</sub>	Methylbenzene	92.142	3938
C <sub>7</sub> H <sub>12</sub>	1-heptyne	96.174	4520.5
C <sub>7</sub> H <sub>14</sub>	Methyl cyclohexane	98.190	4556.9
C <sub>7</sub> H <sub>14</sub>	1-heptene	98.190	4604.6
C <sub>7</sub> H <sub>14</sub>	Ethylcyclopentane	98.190	4561
C <sub>7</sub> H <sub>16</sub>	2,2-dimethylpentane	100.206	4756
C <sub>7</sub> H <sub>16</sub>	2,3-dimethylpentane	100.206	4755



Alpha elements	Name	Mole weight	exergy (in kJ/mol)
C <sub>7</sub> H <sub>16</sub>	2,4-dimethylpentane	100.206	4758
C <sub>7</sub> H <sub>16</sub>	3-methylhexane	100.206	4759
C <sub>7</sub> H <sub>16</sub>	3-ethylpentane	100.206	4765
C <sub>7</sub> H <sub>16</sub>	2,2,3-trimethylbutane	100.206	4759
C <sub>7</sub> H <sub>16</sub>	3,3-dimethylpentane	100.206	4758
C <sub>7</sub> H <sub>16</sub>	n-heptane	100.206	4761.7
C <sub>7</sub> H <sub>16</sub>	2-methylhexane	100.206	4759
C <sub>8</sub> H <sub>10</sub>	p-xylene	106.169	4573
C <sub>8</sub> H <sub>10</sub>	Xylene	106.169	4581
C <sub>8</sub> H <sub>10</sub>	Ethylbenzene	106.169	4587.9
C <sub>8</sub> H <sub>10</sub>	m-xylene	106.169	4570
C <sub>8</sub> H <sub>10</sub>	o-xylene	106.169	4573.1
C <sub>8</sub> H <sub>14</sub>	1-octyne	110.201	5170.3
C <sub>8</sub> H <sub>16</sub>	Ethylcyclohexane	112.217	5205.9
C <sub>8</sub> H <sub>18</sub>	2,2,4-trimethylpentane	114.233	5413
C <sub>8</sub> H <sub>18</sub>	4-methylheptane	114.233	5415
C <sub>8</sub> H <sub>18</sub>	3,3-dimethylhexane	114.233	5412
C <sub>8</sub> H <sub>18</sub>	3,4-dimethylhexane	114.233	5419
C <sub>8</sub> H <sub>18</sub>	2,2-dimethylhexane	114.233	5404
C <sub>8</sub> H <sub>18</sub>	3-ethylhexane	114.233	5414
C <sub>8</sub> H <sub>18</sub>	2,3,4-trimethylpentane	114.233	5417
C <sub>8</sub> H <sub>18</sub>	3-methylheptane	114.233	5412
C <sub>8</sub> H <sub>18</sub>	2,4-dimethylhexane	114.233	5411
C <sub>8</sub> H <sub>18</sub>	3-methyl-3-ethylpentane	114.233	5418
C <sub>8</sub> H <sub>18</sub>	2-methylheptane	114.233	5411
C <sub>8</sub> H <sub>18</sub>	2,2,3,3-tetramethylbutane	114.233	5427
C <sub>8</sub> H <sub>18</sub>	2,3,3-trimethylpentane	114.233	5418
C <sub>8</sub> H <sub>18</sub>	2,2,3-trimethylpentane	114.233	5416
C <sub>8</sub> H <sub>18</sub>	n-octane	114.233	5413.1
C <sub>8</sub> H <sub>18</sub>	2,5-dimethylhexane	114.233	5409
C <sub>8</sub> H <sub>18</sub>	2,3-dimethylhexane	114.233	5416
C <sub>8</sub> H <sub>18</sub>	2-methyl-3-ethylpentane	114.233	5420
C <sub>9</sub> H <sub>12</sub>	Cumene	120.196	5233
C <sub>9</sub> H <sub>12</sub>	1,3,5-trimethylbenzene	120.196	5213
C <sub>9</sub> H <sub>12</sub>	n-propylbenzene	120.196	5249.1
C <sub>9</sub> H <sub>12</sub>	1-methyl-2-ethylbenzene	120.196	5226
C <sub>9</sub> H <sub>12</sub>	1,2,3-trimethylbenzene	120.196	5216
C <sub>9</sub> H <sub>12</sub>	1-methyl-4-ethylbenzene	120.196	5222
C <sub>9</sub> H <sub>12</sub>	Isopropylbenzene	120.196	5233
C <sub>9</sub> H <sub>12</sub>	1,2,4-trimethylbenzene	120.196	5211
C <sub>9</sub> H <sub>12</sub>	1-methyl-3-ethylbenzene	120.196	5222
C <sub>9</sub> H <sub>16</sub>	1-nonyne	124.228	5825.1
C <sub>9</sub> H <sub>18</sub>	n-propylcyclohexane	126.244	5857.7
C <sub>9</sub> H <sub>20</sub>	n-nonane	128.260	6064.9
C <sub>10</sub> H <sub>8</sub>	Naphthalene	128.175	5255.0
C <sub>10</sub> H <sub>14</sub>	1,2,4,5-tetramethylbenzene	134.223	5880.0
C <sub>10</sub> H <sub>14</sub>	n-butylbenzene	134.223	5892.0
C <sub>10</sub> H <sub>20</sub>	n-butylcyclohexane	140.271	6511.5
C <sub>10</sub> H <sub>22</sub>	n-decane	142.287	6716.8
C <sub>11</sub> H <sub>10</sub>	2-methylnaphtalene	142.202	5881.4
C <sub>11</sub> H <sub>16</sub>	Pentamethylbenzene	148.250	6516.0
C <sub>11</sub> H <sub>24</sub>	n-undecane	156.314	7376.9
C <sub>12</sub> H <sub>18</sub>	Hexamethylbenzene	162.277	7171.0
C <sub>12</sub> H <sub>26</sub>	n-dodecane	170.341	8029.4
C <sub>13</sub> H <sub>28</sub>	n-tridecane	184.368	8682.0
C <sub>14</sub> H <sub>10</sub>	Phenanthrene	178.236	7201.8

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
C <sub>14</sub> H <sub>10</sub>	Anthracene	178.236	7218.1
C <sub>14</sub> H <sub>14</sub>	1,1-diphenylethane	182.268	7665.9
C <sub>14</sub> H <sub>30</sub>	n-tetradecane	198.395	9334.5
C <sub>15</sub> H <sub>32</sub>	n-pentadecane	212.422	9984.8
C <sub>16</sub> H <sub>26</sub>	n-decylbenzene	218.386	9700.8
C <sub>16</sub> H <sub>34</sub>	n-hexadecane	226.449	10639.7
C <sub>18</sub> H <sub>38</sub>	n-octadecane	254.504	11937.4
C <sub>19</sub> H <sub>16</sub>	Triphenylmethane	244.339	10109.2
OTHER ORGANIC COMPOUNDS			
Br C H <sub>3</sub>	Methyl bromide (bromoethane)	94.93	789
Br C <sub>2</sub> H <sub>3</sub>	Vinyl bromide	106.950	1307
Br C <sub>2</sub> H <sub>5</sub>	Ethyl bromide (bromoethane)	108.966	1436
C Cl H <sub>3</sub>	Monochloromethane	50.488	763
C Cl <sub>3</sub> H	Chloroform (trichloromethane)	119.378	640
C H KO <sub>3</sub>	Potassium bicarbonate	100.119	37
C H N	Hydrogen cyanide	27.026	654
C H NaO <sub>3</sub>	Sodium bicarbonate	84.007	21.6
C H <sub>2</sub> I <sub>2</sub>	Diiodomethane	267.836	911
C H <sub>2</sub> N <sub>2</sub>	Cyanamide	42.040	748
C H <sub>2</sub> O	Formaldehyde	30.026	546
C H <sub>2</sub> O <sub>2</sub>	Formic acid	46.026	289
C H <sub>3</sub> NO	Formamide	45.041	614
C H <sub>3</sub> NO <sub>2</sub>	Nitromethane	61.041	754
C H <sub>4</sub> N <sub>2</sub> O	Urea	60.056	688
C H <sub>4</sub> N <sub>2</sub> S	Thiourea [aq]	76.120	1511
C H <sub>4</sub> O	Methanol	32.042	718
C H <sub>4</sub> S	Methanethiol (methyl mercaptan)	48.107	1484
C H <sub>5</sub> N	Methylamine	31.058	1028
C H <sub>5</sub> NO <sub>3</sub>	Ammonium bicarbonate	79.056	341
C H <sub>6</sub> N <sub>2</sub>	Methyl hydrazine	46.072	1299
C <sub>2</sub> Cl H <sub>3</sub>	Chloroethylene	62.499	1290
C <sub>2</sub> Cl H <sub>3</sub>	Vinyl chloride monomer	62.499	1288
C <sub>2</sub> Cl H <sub>3</sub> O	Acetyl chloride	78.499	1030
C <sub>2</sub> Cl H <sub>3</sub> O	Chloroacetaldehyde	78.499	1029
C <sub>2</sub> Cl H <sub>5</sub>	Ethyl chloride (chloroethane)	64.515	1413
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub>	cis-1,2-dichloroethylene	96.944	1205
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub>	trans-1,2-dichloroethylene	96.944	1208
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub>	1,1-dichloroethylene	96.944	1204
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub>	Vinylidene chloride	96.944	1205
C <sub>2</sub> Cl <sub>2</sub> H <sub>4</sub>	1,1-dichloroethane	98.960	1343
C <sub>2</sub> Cl <sub>2</sub> H <sub>4</sub>	1,2-dichloroethane	98.960	1343
C <sub>2</sub> Cl <sub>3</sub> H	Trichloroethylene	131.389	1144
C <sub>2</sub> Cl <sub>3</sub> H <sub>3</sub>	Trichloroethane	133.405	1283
C <sub>2</sub> Cl <sub>3</sub> HO	Dichloroacetyl chloride	147.389	920
C <sub>2</sub> Cl <sub>4</sub> H <sub>2</sub>	1,1,2,2-tetrachloroethane	167.850	1218
C <sub>2</sub> H <sub>2</sub> O	Ketene	42.038	1003
C <sub>2</sub> H <sub>2</sub> O <sub>4</sub>	Oxalic acid	90.036	368.7
C <sub>2</sub> H <sub>3</sub> KO <sub>2</sub>	Potassium acetate [aq.400]	98.147	889
C <sub>2</sub> H <sub>3</sub> N	Isocyanomethane (ethanenitrile)	41.053	1335
C <sub>2</sub> H <sub>3</sub> N	Acetonitrile	41.053	1252
C <sub>2</sub> H <sub>3</sub> NaO <sub>2</sub>	Sodium acetate	82.035	908
C <sub>2</sub> H <sub>4</sub> O	Acetaldehyde	44.054	1163.3
C <sub>2</sub> H <sub>4</sub> O	Ethylene oxide	44.054	1284.4
C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	Acetic acid	60.053	919.0
C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	Methyl formate	60.053	997
C <sub>2</sub> H <sub>4</sub> O <sub>3</sub>	Glycolic (hydroxacetic) acid	76.052	773

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
C <sub>2</sub> H <sub>5</sub> I	Ethyl iodide (iodoethane)	155.967	1513
C <sub>2</sub> H <sub>6</sub> O	Dimethyl ether	46.070	1419.5
C <sub>2</sub> H <sub>6</sub> O	Ethanol	46.070	1357.7
C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>	Ethylene glycol	62.069	1207.3
C <sub>2</sub> H <sub>6</sub> OS	Dimethyl sulfoxide	78.134	2040
C <sub>2</sub> H <sub>6</sub> S	Ethanethiol (ethyl mercaptan)	62.134	2134.0
C <sub>2</sub> H <sub>6</sub> S	Dimethyl sulfide	62.134	2145.4
C <sub>2</sub> H <sub>7</sub> N	Dimethylamine	45.085	1717
C <sub>2</sub> H <sub>7</sub> N	Ethylamine	45.085	1683
C <sub>2</sub> H <sub>7</sub> NO	Ethanolamine	61.084	1764
C <sub>2</sub> H <sub>7</sub> NO <sub>2</sub>	Ammonium acetate [aq.400]	77.084	1198
C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>	Ethylenediamine	60.099	1891
C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>	1,1-dimethylhydrazine	60.099	1972
C <sub>2</sub> H <sub>8</sub> N <sub>2</sub> O <sub>4</sub>	Ammonium oxalate [aq]	124.097	953
C <sub>3</sub> H <sub>3</sub> N	Acrylonitrile	53.064	1781
C <sub>3</sub> H <sub>4</sub> O	Acrolein	56.065	1637
C <sub>3</sub> H <sub>6</sub> N <sub>6</sub>	Melamine	126.121	2120.5
C <sub>3</sub> H <sub>6</sub> O	Propionaldehyde	58.081	1799
C <sub>3</sub> H <sub>6</sub> O	Acetone	58.081	1788.5
C <sub>3</sub> H <sub>6</sub> O	Propylene oxide	58.081	1914
C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	Propionic acid	74.080	1560
C <sub>3</sub> H <sub>8</sub> O	Isopropanol	60.097	2004
C <sub>3</sub> H <sub>8</sub> O	n-propanol	60.097	2010
C <sub>3</sub> H <sub>8</sub> O	Propanol-2	60.097	1998.6
C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	Propylene glycol	76.096	1803
C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	Glycerol	92.095	1706
C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	Glycerine	92.095	1704
C <sub>3</sub> H <sub>8</sub> S	Propyl mercaptan	76.161	2794.7
C <sub>3</sub> H <sub>8</sub> S	Isopropylmercaptan (methylethylsulfide)	76.161	2795.0
C <sub>3</sub> H <sub>9</sub> N	Propylamine	59.112	2354
C <sub>4</sub> H <sub>2</sub> O <sub>3</sub>	Maleic anhydride	98.059	1507
C <sub>4</sub> H <sub>4</sub> O	Furan	68.076	2118.2
C <sub>4</sub> H <sub>4</sub> O <sub>2</sub>	Diketene	84.075	1908
C <sub>4</sub> H <sub>4</sub> O <sub>4</sub>	Maleic acid	116.074	1495.7
C <sub>4</sub> H <sub>4</sub> O <sub>4</sub>	Fumaric acid	116.074	1471.5
C <sub>4</sub> H <sub>4</sub> S	Thiophene	84.140	2847.0
C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	Methyl acrylate	86.091	2110
C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	Acetic anhydride	102.091	1846
C <sub>4</sub> H <sub>6</sub> O <sub>4</sub>	Succinic acid	118.090	1609.4
C <sub>4</sub> H <sub>8</sub> O	Methyl ethyl ketone (2-butanone)	72.108	2432.6
C <sub>4</sub> H <sub>8</sub> O	Butyraldehyde (butanal)	72.108	2281
C <sub>4</sub> H <sub>8</sub> O	Isobutyraldehyde	72.108	2463.3
C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	Ethyl acetate	88.107	2269.6
C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	Butyric acid	88.107	2215.8
C <sub>4</sub> H <sub>10</sub> O	n-butanol	74.124	2655
C <sub>4</sub> H <sub>10</sub> O	Isobutanol	74.124	2659
C <sub>4</sub> H <sub>10</sub> O	Ether	74.124	2661
C <sub>4</sub> H <sub>10</sub> O	2-butanol	74.124	2673
C <sub>4</sub> H <sub>10</sub> O	Diethyl ether	74.124	2707
C <sub>4</sub> H <sub>10</sub> S	Butyl mercaptan	90.188	3438.7
C <sub>4</sub> H <sub>10</sub> S	2-methylpropyl mercaptan	90.188	3434.3
C <sub>4</sub> H <sub>10</sub> S	Diethyl sulfide	90.188	3446.3
C <sub>4</sub> H <sub>10</sub> S	Methylpropyl sulfide	90.188	3442.6
C <sub>4</sub> H <sub>10</sub> S <sub>2</sub>	Ethylbutyl disulfide	122.252	4055.4
C <sub>4</sub> H <sub>11</sub> N	Butylamine	73.139	3021
C <sub>4</sub> H <sub>11</sub> Si	Tetramethylsilane	88.226	3812

Alpha elements	Name	Mole weight	exergy (in kJ/mol)
C <sub>5</sub> H <sub>6</sub> O <sub>2</sub>	Furfuryl alcohol	98.102	2687.7
C <sub>5</sub> H <sub>10</sub> O	Cyclopentanol	86.135	3109.7
C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	Ethyl propionate	102.134	2905
C <sub>5</sub> H <sub>12</sub> O	3-methyl-1-butanol (amyl alcohol)	88.151	3311.7
C <sub>5</sub> H <sub>12</sub> O	2-methyl-1-butanol	88.151	3093
C <sub>5</sub> H <sub>12</sub> O	2-methyl-2-butanol	88.151	3275.7
C <sub>5</sub> H <sub>12</sub> S	1-pentanethiol (amyl mercaptan)	104.215	4091.3
C <sub>6</sub> Cl H <sub>5</sub>	Chlorobenzene	112.560	3203
C <sub>6</sub> Cl <sub>2</sub> H <sub>4</sub>	m-dichlorobenzene	147.005	3136
C <sub>6</sub> Cl <sub>2</sub> H <sub>4</sub>	o-dichlorobenzene	147.005	3140
C <sub>6</sub> Cl <sub>2</sub> H <sub>4</sub>	p-dichlorobenzene	147.005	3134
C <sub>6</sub> Cl <sub>3</sub> H <sub>3</sub>	1,2,4-trichlorobenzene	181.450	3064
C <sub>6</sub> H <sub>5</sub> NO <sub>2</sub>	Nitrobenzene	123.112	3202
C <sub>6</sub> H <sub>6</sub> O	Phenol	14.114	3128.5
C <sub>6</sub> H <sub>6</sub> O	Carbolic acid	94.114	3139
C <sub>6</sub> H <sub>6</sub> S	Thiophenol (mercaptobenzene)	110.179	3916.1
C <sub>6</sub> H <sub>7</sub> N	Aniline	93.129	3281
C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	Adiponitrile	108.144	3635
C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	Propionic anhydride	130.145	3172
C <sub>6</sub> H <sub>10</sub> O <sub>4</sub>	Adipic acid	146.144	2909
C <sub>6</sub> H <sub>12</sub> O	Cyclohexanol	100.162	3750.8
C <sub>6</sub> H <sub>12</sub> O	Methyl isobutyl ketone	100.162	3763
C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	l-sorbose	180.159	2939.0
C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	alpha-d-galactose	180.159	2928.8
C <sub>6</sub> H <sub>13</sub> N	Hexamethyleneimine	99.177	4117
C <sub>6</sub> H <sub>14</sub> O	l-hexanol	102.178	3961.1
C <sub>6</sub> H <sub>14</sub> O <sub>6</sub>	Sorbitol	182.175	3204.8
C <sub>6</sub> H <sub>16</sub> N <sub>2</sub>	Hexamethylenediamine	116.208	4472
C <sub>7</sub> Cl H <sub>7</sub>	alpha-chlorotoluene	126.587	3844
C <sub>7</sub> Cl H <sub>7</sub>	Benzyl chloride	126.587	3901
C <sub>7</sub> H <sub>6</sub> O	Benzaldehyde	106.125	3591
C <sub>7</sub> H <sub>6</sub> O <sub>2</sub>	Benzoic acid	122.125	3343.5
C <sub>7</sub> H <sub>6</sub> O <sub>3</sub>	Salicylic acid	138.124	3151.2
C <sub>7</sub> H <sub>8</sub> O	Benzyl alcohol	108.141	3795.8
C <sub>7</sub> H <sub>8</sub> O	Cresol	108.141	3763
C <sub>7</sub> H <sub>9</sub> N	p-toluidine (methyl aniline)	107.156	4102
C <sub>7</sub> H <sub>9</sub> N	m-toluidine (methyl aniline)	107.156	4100
C <sub>7</sub> H <sub>9</sub> N	o-toluidine (methyl aniline)	107.156	4102
C <sub>7</sub> H <sub>10</sub> N <sub>2</sub>	Toluenediamine	122.171	4011
C <sub>7</sub> H <sub>16</sub> O	l-heptanol	116.205	4619.2
C <sub>8</sub> H <sub>4</sub> O <sub>3</sub>	Phthalic anhydride	148.119	3434.8
C <sub>8</sub> H <sub>6</sub> O <sub>4</sub>	Phthalic acid	166.135	3412.6
C <sub>8</sub> H <sub>8</sub> O	p-toluic aldehyde	120.152	4232
C <sub>8</sub> H <sub>18</sub> O	2-ethylhexanol	130.232	5304

Source: Ayres *et al.*, 1996.

Status: authors.

$$\text{Equation: } \text{abiotic depletion} = \sum_i \text{Factor}_i \times m_i \quad (4.3.1.6)$$

$$\text{Factor}_i = \frac{Ex_i}{\text{molew}_i}$$

The indicator result is expressed in MJ exergy content.  $\text{Factor}_i$  (MJ·kg<sup>-1</sup>) is the characterisation factor for abiotic depletion of resource  $i$  based on the exergy content, while  $m_i$  (kg) is the quantity of resource  $i$  used,  $Ex_i$  is the exergy content of one mole of resource  $i$  and  $\text{molew}_i$  is the mole weight of resource  $i$ .



Table 4.3.1.5: Upper (and middle) heating values.

	Upper heating value raw material	Middle heating value**
hard coal	28.9 MJ/kg*	16.8–32.4 MJ/kg
soft coal	-	8.4 MJ/kg
natural gas (acid)	41 MJ/m <sup>3</sup>	-
natural gas (sweet)	38 MJ/m <sup>3</sup>	-
crude oil	45.6 MJ/kg	-

\*: This is a value for a mixture of industrial coal used as a calculation value in the scenarios of ETH.

\*\* : ETH did not give upper heating values for raw coal but middle heating values. The range is caused by the wide variety of coal types.

Source: Frischknecht *et al.*, 1993/1995/1996

## 4.3.2 Depletion of biotic resources

To be inserted

## 4.3.3 Impacts of land use

### 4.3.3.1 Land competition

Aggregation of inventory data by multiplying the surface area used by the occupation time; characterisation factor equals 1 for all land-use types.

Status: -

Equation:

$$\textit{increase of land competition} = a \times t \times 1 \quad (4.3.3.1.1)$$

$a$  is the area used and  $t$  the occupation time. The indicator result is expressed in  $\text{m}^2\cdot\text{yr}$ .

### 4.3.3.2 Loss of biodiversity and life support function

See Lindeijer *et al.* (1998) and Köllner (2000) for examples of existing methods for this impact category.

## 4.3.4 Desiccation

To be inserted

### 4.3.5 Climate change

Table 4.3.5.1: GWP<sub>100</sub> factors for characterising climate gases.

Substance	Comp.	CAS number	GWP <sub>100</sub> (in kg CO <sub>2</sub> eq./kg)
1,1,1-trichloroethane*	air	71-55-6	110
Carbon dioxide	air	124-38-9	1
CFC-11*	air	75-69-4	4000
CFC-113*	air	26523-64-8	5000
CFC-114*	air	1320-37-2	9300
CFC-115*	air	76-15-3	9300
CFC-12*	air	75-71-8	8500
CFC-13*	air	75-72-9	11700
Dichloromethane	air	75-09-2	9
Dinitrogen oxide	air	10024-97-2	310
HALON-1301*	air	75-63-8	5600
HCFC-123*	air	306-83-2	93
HCFC-124*	air	63938-10-3	480
HCFC-141b*	air	27156-03-2	630
HCFC-142b*	air	75-68-3	2000
HCFC-22*	air	75-45-6	1700
HCFC-225ca*	air	422-56-0	170
HCFC-225cb*	air	507-55-1	530
HFC-125	air	354-33-6	2800
HFC-134	air	811-97-2	1000
HFC-134a	air	811-97-2	1300
HFC-143	air	430-66-0	300
HFC-143a	air	420-46-2	3800
HFC-152a	air	75-37-6	140
HFC-227ea	air	431-89-0	2900
HFC-23	air	75-46-7	11700
HFC-236fa	air	690-39-1	6300
HFC-245ca	air	679-86-7	560
HFC-32	air	75-10-5	650
HFC-41	air	593-53-3	150
HFC-43-10mee	air	138495-42	1300
Methane	air	74-82-8	21
Perfluorobutane	air	355-25-9	7000
Perfluorocyclobutane	air	115-25-3	8700
Perfluoroethane	air	76-16-4	9200
Perfluorohexane	air	355-42-0	7400
Perfluoromethane	air	75-73-0	6500
Perfluoropentane	air	678-26-2	7500
Perfluoropropane	air	76-19-7	7000
Sulphur hexafluoride	air	2551-62-4	23900
Tetrachloromethane*	air	56-23-5	1400
Trichloromethane	air	67-66-3	4

Source: Houghton *et al.*, 1994 & 1996; GWP values for the substances marked with \* are from 1994.

Status: IPCC

Equation: 
$$climate\ change = \sum_i GWP_{a,i} \times m_i \quad (4.3.5.1)$$

The indicator result is expressed in kg of the reference substance, CO<sub>2</sub>.  $GWP_{a,i}$  is the Global Warming Potential for substance  $i$  integrated over a years, while  $m_i$  (kg) is the quantity of substance  $i$  emitted.



Remark: SO<sub>2</sub> has a conjectured negative influence on the enhanced climate forcing effect, but no (negative) GWP value is as yet known for this chemical.

Table 4.3.5.2: GWP<sub>20</sub> and GWP<sub>500</sub> factors for characterising climate gases.

Substance	Comp.	CAS number	GWP <sub>20</sub> (in kg CO <sub>2</sub> eq./kg )	GWP <sub>500</sub> (in kg CO <sub>2</sub> eq./kg)
1,1,1-trichloroethane*	air	71-55-6	360	35
Carbon dioxide	air	124-38-9	1	1
CFC-11*	air	75-69-4	5000	1400
CFC-113*	air	26523-64-8	5000	2300
CFC-114*	air	1320-37-2	6900	8300
CFC-115*	air	76-15-3	6200	13000
CFC-12*	air	75-71-8	7900	4200
CFC-13*	air	75-72-9	8100	13600
Dichloromethane	air	75-09-2	31	3
Dinitrogen oxide	air	10024-97-2	280	170
HALON-1301*	air	75-63-8	6200	2200
HCFC-123*	air	306-83-2	300	29
HCFC-124*	air	63938-10-3	1500	150
HCFC-141b*	air	27156-03-2	1800	200
HCFC-142b*	air	75-68-3	4200	630
HCFC-22*	air	75-45-6	4300	520
HCFC-225ca*	air	422-56-0	550	52
HCFC-225cb*	air	507-55-1	1700	170
HFC-125	air	354-33-6	4600	920
HFC-134	air	811-97-2	2900	310
HFC-134a	air	811-97-2	3400	420
HFC-143	air	430-66-0	1000	94
HFC-143a	air	420-46-2	5000	1400
HFC-152a	air	75-37-6	460	42
HFC-227ea	air	431-89-0	4300	950
HFC-23	air	75-46-7	9100	9800
HFC-236fa	air	690-39-1	5100	4700
HFC-245ca	air	679-86-7	1800	170
HFC-32	air	75-10-5	2100	200
HFC-41	air	593-53-3	490	45
HFC-43-10mee	air	138495-42	3000	400
Methane	air	74-82-8	56	6.5
Perfluorobutane	air	355-25-9	4800	10100
Perfluorocyclobutane	air	115-25-3	6000	12700
Perfluoroethane	air	76-16-4	6200	14000
Perfluorohexane	air	355-42-0	5000	10700
Perfluoromethane	air	75-73-0	4400	10000
Perfluoropentane	air	678-26-2	5100	11000
Perfluoropropane	air	76-19-7	4800	10100
Sulphur hexafluoride	air	2551-62-4	16300	34900
Tetrachloromethane*	air	56-23-5	2000	500
Trichloromethane	air	67-66-3	14	1

Source: Houghton *et al.*, 1994 & 1996; GWP values for the substances marked with \* are from 1994.

Status: IPCC

Equation: 
$$climate\ change = \sum_i GWP_{a,i} \times m_i \quad (4.3.5.2)$$

The indicator result is expressed in kg of the reference substance, CO<sub>2</sub>.  $GWP_{a,i}$  is the Global Warming Potential for substance  $i$  integrated over  $a$  years, while  $m_i$  (kg) is the quantity of substance  $i$  emitted.

Remark: SO<sub>2</sub> has a conjectured negative influence on the enhanced climate forcing effect, but no (negative) GWP value is as yet known for this chemical.

Table 4.3.5.3: Upper and lower limits of the uncertainty range of net GWPs for a few ozone depleting gases.

Substance	Comp.	CAS number	net GWP <sub>100</sub>	
			min kg CO <sub>2</sub> eq./kg	max kg CO <sub>2</sub> eq./kg
1,1,1-trichloroethane	air	71-55-6	-320	-130
CFC-11	air	75-69-4	540	2100
CFC-113	air	26523-64-8	2600	3600
CFC-12	air	75-71-8	6200	7100
HALON-1301	air	75-63-8	-854000	-141000
HCFC-123	air	306-83-2	20	50
HCFC-124	air	63938-10-3	390	430
HCFC-141b	air	27156-03-2	170	370
HCFC-142b	air	75-68-3	1600	1700
HCFC-22	air	75-45-6	1300	1400
Tetrachloromethane	air	56-23-5	-2400	-650

Source: Houghton *et al.*, 1996

Status: IPCC

Equation: 
$$climate\ change = \sum_i net\ GWP_{100,i} \times m_i \quad (4.3.5.3)$$

The indicator result is expressed in kg of the reference substance, CO<sub>2</sub>.  $net\ GWP_{100,i}$  is the net Global Warming Potential for substance  $i$  integrated over 100 years, with minimum and maximum values are given; while  $m_i$  (kg) is the quantity of substance  $i$  emitted.

### 4.3.6 Stratospheric ozone depletion

Table 4.3.6.1: ODP<sub>∞</sub> factors for characterising ozone depleting gases.

Substance	Compartment	CAS number	ODP (in kg CFC-11 eq./kg)
1,1,1-trichloroethane	air	71-55-6	0.11
CFC-11	air	75-69-4	1.0
CFC-113	air	26523-64-8	0.90
CFC-114	air	1320-37-2	0.85
CFC-115	air	76-15-3	0.40
CFC-12	air	75-71-8	0.82
HBFC-2401*	air	-	0.25
HBFC-1201*	air	-	1.4
HALON-1202*	air	75-61-6	1.25
HALON-1211	air	353-59-3	5.1
HALON-1301	air	75-63-8	12
HBFC-2311*	air	-	0.14
HALON-2402*	air	25497-30-7	7
HCFC-123	air	306-83-2	0.012
HCFC-124	air	63938-10-3	0.026
HCFC-141b	air	27156-03-2	0.086
HCFC-142b	air	75-68-3	0.043
HCFC-22	air	75-45-6	0.034
HCFC-225ca	air	422-56-0	0.017
HCFC-225cb	air	507-55-1	0.017
Methyl Bromide	air	74-83-9	0.37
Methyl Chloride	air	74-87-3	0.02
Tetrachloromethane	air	56-23-5	1.2

Source: WMO, 1999; \* WMO, 1992<sup>1</sup>

Status: WMO

Equation: 
$$\text{ozone depletion} = \sum_i ODP_{\infty,i} \times m_i \quad (4.3.6.1)$$

The indicator result is expressed in kg of the reference substance, CFC-11.  $ODP_{\infty,i}$  is the steady-state Ozone Depletion Potential for substance  $i$ , while  $m_i$  (kg) is the quantity of substance  $i$  emitted.

<sup>1</sup> Emissions and concentrations of Halon 2402 and Halon 1202 are much lower than those of the other halons (although the air concentration of Halon 1202 is growing exponentially, see figures in WMO, 1999). Therefore they are not included in the 1999 update of model-derived ODPs. The same is probably true for the three HBFCs (HBFC 2401, HBFC 1201 and HBFC 2311). This table includes the ODP values from WMO (1992) published for these substances. These values are still valid. Although in most cases their emission and therefore their contribution to ozone depletion will very low, they might be important in individual cases.

Table 4.3.6.2: Time-dependent ODP factors for characterising ozone depleting gases.

Substance	Comp.	CAS-number	time dependant ODPs							
			5 years	10 years	15 years	20 years	25 years	30 years	40 years	
1,1,1-trichloroethane	air	71-55-6	1.03	0.75	0.57	0.45	0.38	0.32	0.26	
CFC-113	air	26523-64-8	0.55	0.56	0.58	0.59	0.60	0.62	0.64	
HALON-1211	air	353-59-3	11.3	10.5	9.7	9.0	8.5	8.0	7.1	
HALON-1301	air	75-63-8	10.3	10.4	10.5	10.5	10.6	10.7	10.8	
HALON-2402	air	25497-30-7	12.8	12.2	11.6	11.0	10.6	10.1	9.4	
HCFC-123	air	306-83-2	0.51	0.19	0.11	0.08	0.07	0.06	0.04	
HCFC-124	air	63938-10-3	0.17	0.12	0.10	0.08	0.07	0.06	0.05	
HCFC-141b	air	27156-03-2	0.54	0.45	0.38	0.33	0.30	0.26	0.22	
HCFC-142b	air	75-68-3	0.17	0.16	0.15	0.14	0.13	0.13	0.12	
HCFC-22	air	75-45-6	0.19	0.17	0.15	0.14	0.13	0.12	0.10	
HCFC-225ca	air	422-56-0	0.42	0.21	0.14	0.10	0.08	0.07	0.05	
HCFC-225cb	air	507-55-1	0.21	0.17	0.14	0.11	0.10	0.09	0.07	
Methyl Bromide	air	74-83-9	15.3	5.4	3.1	2.3	1.8	1.5	1.2	
Tetrachloromethane	air	56-23-5	1.26	1.25	1.23	1.22	1.22	1.20	1.14	

Source: Solomon & Albritton, 1992

Status: authors.

Equation: 
$$\text{ozone depletion} = \sum_i \text{time dependent } ODP_i \times m_i \quad (4.3.6.2)$$

The indicator result is expressed in kg of the reference substance, CFC-11. *Time-dependent ODP<sub>i</sub>* is the time-dependent Ozone Depletion Potential for substance *i*, while *m<sub>i</sub>* (kg) is the quantity of substance *i* emitted.

### 4.3.7 Human toxicity

Table 4.3.7.1: HTP factors for characterising human toxic releases, for infinite and 100-year time horizons and global scale.

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	1.6E+01 <sup>1</sup>	1.6E+01
1,2,3,4-tetrachlorobenzene	air	634-66-2	5.0E+01	5.0E+01
1,2,3,5-tetrachlorobenzene	air	634-90-2	4.6E+01	4.6E+01
1,2,3-trichlorobenzene	air	87-61-6	1.3E+02	1.3E+02
1,2,4,5-tetrachlorobenzene	air	95-94-3	3.5E+01	3.5E+01
1,2,4-trichlorobenzene	air	120-82-1	1.2E+02	1.2E+02
1,2-dichlorobenzene	air	95-50-1	9.1E+00	9.1E+00
1,2-dichloroethane	air	107-06-2	6.8E+00	6.8E+00
1,3,5-trichlorobenzene	air	108-70-3	1.2E+02	1.2E+02
1,3-Butadiene	air	106-99-0	2.2E+03	2.2E+03
1,3-dichlorobenzene	air	541-73-1	6.2E+01	6.2E+01
1,4-dichlorobenzene	air	106-46-7	1.0E+00	1.0E+00
1-chloro-4-nitrobenzene	air	100-00-5	1.2E+03	1.2E+03
2,3,4,6-tetrachlorophenol	air	58-90-2	2.9E+02	2.9E+02
2,3,7,8-TCDD	air	1746-01-6	1.9E+09	1.9E+09
2,4,5-T	air	93-76-5	8.9E-01	8.9E-01
2,4,5-trichlorophenol	air	95-95-4	8.3E+00	8.3E+00
2,4,6-trichlorophenol	air	88-06-2	1.4E+04	1.4E+04
2,4-D	air	94-75-7	6.6E+00	6.6E+00
2,4-dichlorophenol	air	120-83-2	9.5E+01	9.5E+01
2-chlorophenol	air	95-57-8	2.2E+01	2.2E+01
3,4-dichloroaniline	air	95-76-1	2.2E+02	2.2E+02
3-chloroaniline	air	108-42-9	1.7E+04	1.7E+04
4-chloroaniline	air	106-47-8	2.6E+02	2.6E+02
acephate	air	30560-19-1	3.1E+00	3.1E+00
Acrolein	air	107-02-8	5.7E+01	5.7E+01
Acrylonitrile	air	107-13-1	3.4E+03	3.4E+03
aldicarb	air	116-06-3	7.2E+01	7.2E+01
aldrin	air	309-00-2	1.9E+01	1.9E+01
ammonia	air	7664-41-7	1.0E-01	1.0E-01
anilazine	air	101-05-3	7.2E-02	7.2E-02
anthracene	air	120-12-7	5.2E-01	5.2E-01
antimony	air	7440-36-0	6.7E+03	2.5E+02
arsenic	air	7440-38-2	3.5E+05	3.5E+05
atrazine	air	1912-24-9	4.5E+00	4.5E+00
azinphos-ethyl	air	2642-71-9	2.0E+02	2.0E+02
azinphos-methyl	air	86-50-0	1.4E+01	1.4E+01
barium	air	7440-39-3	7.6E+02	1.7E+02
benomyl	air	17804-35-2	2.1E-02	2.1E-02
bentazone	air	25057-89-0	2.1E+00	2.1E+00
Benzene	air	71-43-2	1.9E+03	1.9E+03
benzo[a]anthracene	air	56-55-3	x	x
benzo[a]pyrene	air	50-32-8	x	x
benzo[ghi]perylene	air	191-24-2	x	x
benzo[k]fluoranthrene	air	207-08-9	x	x
beryllium	air	100-44-7	3.5E+03	3.5E+03
beryllium	air	7440-41-7	2.3E+05	2.3E+05

<sup>1</sup> Means  $1.6 \times 10^1$ .

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
bifenthrin	air	82657-04-3	1.9E+01	1.9E+01
Butylbenzylphtalate	air	85-68-7	1.0E+01	1.0E+01
cadmium	air	22537-48-0	1.5E+05	1.5E+05
captafol	air	2425-06-1	8.7E+01	8.7E+01
captan	air	133-06-2	5.9E-01	5.9E-01
carbaryl	air	63-25-2	3.2E+00	3.2E+00
carbendazim	air	10605-21-7	1.9E+01	1.9E+01
carbofuran	air	1563-66-2	2.0E+02	2.0E+02
carbon disulfide	air	75-15-0	2.4E+00	2.4E+00
Carcinogenic PAHs	air		5.7E+05	5.7E+05
chlordane	air	57-74-9	6.7E+03	6.7E+03
chlorfenvinphos	air	470-90-6	2.7E+02	2.7E+02
chloridazon	air	1698-60-8	1.3E-02	1.3E-02
chlorobenzene	air	108-90-7	9.2E+00	9.2E+00
chlorothalonil	air	1897-45-6	8.4E+00	8.4E+00
chlorpropham	air	101-21-3	3.4E-01	3.4E-01
chlorpyriphos	air	2921-88-2	2.1E+01	2.1E+01
chromium III	air	16056-83-1	6.5E+02	3.7E+01
chromium VI	air	18540-29-9	3.4E+06	3.4E+06
chrysene	air	218-01-9	x	x
cobalt	air	7440-48-4	1.7E+04	1.7E+04
copper	air	15158-11-9	4.3E+03	4.3E+03
coumaphos	air	56-72-4	7.8E+02	7.8E+02
cyanazine	air	21725-46-2	3.5E+00	3.5E+00
cypermethrin	air	52315-07-8	1.7E+02	1.7E+02
cyromazine	air	66215-27-8	3.8E+01	3.8E+01
DDT	air	50-29-3	1.1E+02	1.1E+02
deltamethrin	air	52918-63-5	1.6E+00	1.6E+00
demeton	air	8065-48-3	7.1E+01	7.1E+01
desmetryn	air	1014-69-3	9.5E+01	9.5E+01
Di(2-ethylhexyl)phtalate	air	117-81-7	2.6E+00	2.6E+00
diazinon	air	333-41-5	5.9E+01	5.9E+01
Dibutylphtalate	air	84-74-2	2.5E+01	2.5E+01
Dichloromethane	air	75-09-2	2.0E+00	2.0E+00
dichlorprop	air	120-36-5	1.1E+00	1.1E+00
dichlorvos	air	62-73-7	1.0E+02	1.0E+02
dieldrin	air	60-57-1	1.3E+04	1.3E+04
Diethylphtalate	air	84-66-2	3.2E-01	3.2E-01
Dihexylphtalate	air	84-75-3	7.0E+03	7.0E+03
Diisodecylphtalate	air	26761-40-0	4.6E+01	4.6E+01
Diisooctylphtalate	air	27554-26-3	3.1E+02	3.1E+02
dimethoate	air	60-51-5	4.4E+01	4.4E+01
Dimethylphtalate	air	133-11-3	2.1E+02	2.1E+02
dinoseb	air	88-85-7	3.6E+03	3.6E+03
dinoterb	air	1420-07-1	1.7E+02	1.7E+02
Diocetylphthalate	air	117-84-0	1.9E+01	1.9E+01
disulfothon	air	298-04-4	2.9E+02	2.9E+02
diuron	air	330-54-1	2.1E+02	2.1E+02
DNOC	air	534-52-1	1.6E+02	1.6E+02
endosulfan	air	115-29-7	6.7E+00	6.7E+00
endrin	air	72-20-8	1.2E+03	1.2E+03
ethoprophos	air	13194-48-4	1.1E+03	1.1E+03
Ethylbenzene	air	100-41-4	9.7E-01	9.7E-01
Ethylene	air	74-85-1	6.4E-01	6.4E-01
fenitrothion	air	122-14-5	5.9E+00	5.9E+00

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
fenthion	air	55-38-9	6.3E+01	6.3E+01
fentin acetate	air	900-95-8	2.2E+03	2.2E+03
fentin chloride	air	639-58-7	8.4E+02	8.4E+02
fentin hydroxide	air	76-87-9	8.5E+02	8.5E+02
fluoranthrene	air	206-44-0	x	x
folpet	air	133-07-3	2.0E+00	2.0E+00
Formaldehyde	air	50-00-0	8.3E-01	8.3E-01
glyphosate	air	1071-83-6	3.1E-03	3.1E-03
heptachlor	air	76-44-8	4.0E+01	4.0E+01
heptenophos	air	23560-59-0	2.3E+01	2.3E+01
hexachloro-1,3-butadiene	air	87-68-3	7.9E+04	7.9E+04
hexachlorobenzene	air	118-74-1	3.2E+06	3.2E+06
hydrogen chloride	air	7647-01-0	5.0E-01	5.0E-01
hydrogen sulfide	air	7783-06-4	2.2E-01	2.2E-01
indeno[1,2,3-cd]pyrene	air	193-39-5	x	x
iprodione	air	36734-19-7	2.8E-01	2.8E-01
isoprotruron	air	34123-59-6	1.3E+02	1.3E+02
lead	air	14280-50-3	4.7E+02	2.9E+01
lindane	air	58-89-9	6.1E+02	6.1E+02
linuron	air	330-55-2	1.4E+01	1.4E+01
malathion	air	121-75-5	3.5E-02	3.5E-02
MCPA	air	94-74-6	1.5E+01	1.5E+01
mecoprop	air	7085-19-0	1.2E+02	1.2E+02
mercury	air	14302-87-5	6.0E+03	2.6E+02
metamitron	air	41394-05-2	8.8E-01	8.8E-01
metazachlor	air	67129-08-2	6.8E+00	6.8E+00
methabenzthiazuron	air	18691-97-9	7.1E+00	7.1E+00
methomyl	air	16752-77-5	6.2E+00	6.2E+00
methylbromide	air	74-83-9	3.5E+02	3.5E+02
methyl-mercury	air	22967-92-6	5.8E+04	3.9E+03
metobromuron	air	3060-89-7	5.5E+01	5.5E+01
metolachlor	air	51218-45-2	2.6E+00	2.6E+00
mevinphos	air	7786-34-7	1.0E+00	1.0E+00
molybdenum	air	7439-98-7	5.4E+03	1.9E+01
meta-Xylene	air	108-38-3	2.7E-02	2.7E-02
Naphtalene	air	91-20-3	8.1E+00	8.1E+00
nickel	air	7440-02-0	3.5E+04	3.5E+04
nitrogen dioxide	air	10102-44-0	1.2E+00	1.2E+00
oxamyl	air	23135-22-0	1.4E+00	1.4E+00
oxydemethon-methyl	air	301-12-2	1.2E+02	1.2E+02
ortho-Xylene	air	95-47-6	1.2E-01	1.2E-01
parathion-ethyl	air	56-38-2	3.3E+00	3.3E+00
parathion-methyl	air	298-00-0	5.3E+01	5.3E+01
pentachlorobenzene	air	608-93-5	4.1E+02	4.1E+02
pentachloronitrobenzene	air	82-68-8	1.9E+02	1.9E+02
pentachlorophenol	air	87-86-5	5.1E+00	5.1E+00
permethrin	air	52645-53-1	8.5E-01	8.5E-01
phenanthrene	air	85-01-8	x	x
Phenol	air	108-95-2	5.2E-01	5.2E-01
phoxim	air	14816-18-3	9.7E-01	9.7E-01
Phtalic anhydride	air	85-44-9	4.1E-01	4.1E-01

Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
pirimicarb	air	23103-98-2	3.4E+00	3.4E+00
dust (PM10) <sup>1</sup>	air	PM10	8.2E-01	8.2E-01
propachlor	air	1918-16-7	1.2E+01	1.2E+01
propoxur	air	114-26-1	3.7E+01	3.7E+01
Propylene Oxide	air	75-56-9	1.3E+03	1.3E+03
para-Xylene	air	106-42-3	4.3E-02	4.3E-02
pyrazophos	air	13457-18-6	2.5E+01	2.5E+01
selenium	air	7782-49-2	4.8E+04	1.2E+03
simazine	air	122-34-9	3.3E+01	3.3E+01
styrene	air	100-42-5	4.7E-02	4.7E-02
sulphur dioxide	air	7446-09-5	9.6E-02	9.6E-02
Tetrachloroethylene	air	127-18-4	5.5E+00	5.5E+00
Tetrachloromethane	air	56-23-5	2.2E+02	2.2E+02
thallium	air	7440-28-0	4.3E+05	1.6E+04
Thiram	air	137-26-8	1.9E+01	1.9E+01
tin	air	7440-31-5	1.7E+00	1.4E-01
tolclophos-methyl	air	57018-04-9	6.0E-02	6.0E-02
Toluene	air	108-88-3	3.3E-01	3.3E-01
tri-allate	air	2303-17-5	9.7E+00	9.7E+00
triazophos	air	24017-47-8	2.1E+02	2.1E+02
tributyltinoxide	air	56-35-9	7.5E+03	7.5E+03
trichlorfon	air	52-68-6	4.4E+00	4.4E+00
Trichloroethylene	air	79-01-6	3.4E+01	3.4E+01
Trichloromethane	air	67-66-3	1.3E+01	1.3E+01
trifluarin	air	1582-09-8	1.7E+00	1.7E+00
vanadium	air	7440-62-2	6.2E+03	2.6E+02
Vinyl Chloride	air	75-01-4	8.4E+01	8.4E+01
zinc	air	23713-49-7	1.0E+02	9.6E+01
zineb	air	12122-67-7	4.8E+00	4.8E+00
chlormequat-chloride	air	999-81-5	2.1E-01	2.1E-01
fenpropimorph	air	67306-03-0	2.6E+01	2.6E+01
fluroxypyr	air	69377-81-7	1.1E-01	1.1E-01
epoxiconazole	air	??	2.9E+01	2.9E+01
ethylene oxide	air	75-21-8	1.4E+04	1.4E+04
hydrogen fluoride	air	7664-39-3	2.9E+03	9.4E+01
1,1,1-trichloroethane	fresh water	71-55-6	1.6E+01	1.6E+01
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.6E+02	1.6E+02
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	9.2E+01	9.2E+01
1,2,3-trichlorobenzene	fresh water	87-61-6	1.3E+02	1.3E+02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	1.8E+02	1.8E+02
1,2,4-trichlorobenzene	fresh water	120-82-1	1.2E+02	1.2E+02
1,2-dichlorobenzene	fresh water	95-50-1	8.9E+00	8.9E+00
1,2-dichloroethane	fresh water	107-06-2	2.8E+01	2.8E+01
1,3,5-trichlorobenzene	fresh water	108-70-3	1.2E+02	1.2E+02
1,3-Butadiene	fresh water	106-99-0	7.0E+03	7.0E+03
1,3-dichlorobenzene	fresh water	541-73-1	7.4E+01	7.4E+01
1,4-dichlorobenzene	fresh water	106-46-7	1.1E+00	1.1E+00
1-chloro-4-nitrobenzene	fresh water	100-00-5	1.7E+03	1.7E+03
2,3,4,6-tetrachlorophenol	fresh water	58-90-2	3.5E+01	3.5E+01
2,3,7,8-TCDD	fresh water	1746-01-6	8.6E+08	8.6E+08
2,4,5-T	fresh water	93-76-5	1.9E+00	1.9E+00
2,4,5-trichlorophenol	fresh water	95-95-4	4.5E+01	4.5E+01

<sup>1</sup> Including dust besides individual chemicals may imply some double-counting according to recent WHO findings.



Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
2,4,6-trichlorophenol	fresh water	88-06-2	9.1E+03	9.1E+03
2,4-D	fresh water	94-75-7	3.5E+00	3.5E+00
2,4-dichlorophenol	fresh water	120-83-2	1.6E+01	1.6E+01
2-chlorophenol	fresh water	95-57-8	7.0E+01	7.0E+01
3,4-dichloroaniline	fresh water	95-76-1	1.3E+02	1.3E+02
3-chloroaniline	fresh water	108-42-9	3.5E+03	3.5E+03
4-chloroaniline	fresh water	106-47-8	2.9E+03	2.9E+03
acephate	fresh water	30560-19-1	2.1E+00	2.1E+00
Acrolein	fresh water	107-02-8	5.9E+01	5.9E+01
Acrylonitrile	fresh water	107-13-1	7.1E+03	7.1E+03
aldicarb	fresh water	116-06-3	6.1E+01	6.1E+01
aldrin	fresh water	309-00-2	6.0E+03	6.0E+03
ammonia	fresh water	7664-41-7	x	x
anilazine	fresh water	101-05-3	2.4E-01	2.4E-01
anthracene	fresh water	120-12-7	2.1E+00	2.1E+00
antimony	fresh water	7440-36-0	5.1E+03	3.6E+02
arsenic	fresh water	7440-38-2	9.5E+02	1.3E+02
atrazine	fresh water	1912-24-9	4.6E+00	4.6E+00
aziphos-ethyl	fresh water	2642-71-9	4.6E+02	4.6E+02
aziphos-methyl	fresh water	86-50-0	2.5E+00	2.5E+00
barium	fresh water	7440-39-3	6.3E+02	1.5E+01
benomyl	fresh water	17804-35-2	1.4E-01	1.4E-01
bentazone	fresh water	25057-89-0	7.3E-01	7.3E-01
Benzene	fresh water	71-43-2	1.8E+03	1.8E+03
benzo[a]anthracene	fresh water	56-55-3	x	x
benzo[a]pyrene	fresh water	50-32-8	x	x
benzo[ghi]perylene	fresh water	191-24-2	x	x
benzo[k]fluoranthrene	fresh water	207-08-9	x	x
benzylchloride	fresh water	100-44-7	2.4E+03	2.4E+03
beryllium	fresh water	7440-41-7	1.4E+04	4.3E+02
bifenthrin	fresh water	82657-04-3	9.8E+01	9.8E+01
Butylbenzylphtalate	fresh water	85-68-7	8.6E-02	8.6E-02
cadmium	fresh water	22537-48-0	2.3E+01	1.1E+01
captafol	fresh water	2425-06-1	5.0E+02	5.0E+02
captan	fresh water	133-06-2	5.3E-03	5.3E-03
carbaryl	fresh water	63-25-2	4.7E+00	4.7E+00
carbendazim	fresh water	10605-21-7	2.5E+00	2.5E+00
carbofuran	fresh water	1563-66-2	5.6E+01	5.6E+01
carbon disulfide	fresh water	75-15-0	2.4E+00	2.4E+00
Carcinogenic PAHs	fresh water		2.8E+05	2.8E+05
chlordane	fresh water	57-74-9	7.4E+02	7.4E+02
chlorfenvinphos	fresh water	470-90-6	8.1E+02	8.1E+02
chloridazon	fresh water	1698-60-8	1.4E-01	1.4E-01
chlorobenzene	fresh water	108-90-7	9.1E+00	9.1E+00
chlorothalonil	fresh water	1897-45-6	6.7E+00	6.7E+00
chlorpropham	fresh water	101-21-3	1.0E+00	1.0E+00
chlorpyriphos	fresh water	2921-88-2	4.4E+01	4.4E+01
chromium III	fresh water	16056-83-1	2.1E+00	1.1E+00
chromium VI	fresh water	18540-29-9	3.4E+00	1.8E+00
chrysene	fresh water	218-01-9	x	x
cobalt	fresh water	7440-48-4	9.7E+01	6.4E+01
copper	fresh water	15158-11-9	1.3E+00	4.5E-01
coumaphos	fresh water	56-72-4	1.0E+04	1.0E+04
cyanazine	fresh water	21725-46-2	6.0E+00	6.0E+00
cypermethrin	fresh water	52315-07-8	5.5E+00	5.5E+00

Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
cyromazine	fresh water	66215-27-8	5.4E+00	5.4E+00
DDT	fresh water	50-29-3	3.7E+01	3.7E+01
deltamethrin	fresh water	52918-63-5	2.8E+00	2.8E+00
demeton	fresh water	8065-48-3	7.2E+02	7.2E+02
desmetryn	fresh water	1014-69-3	5.0E+01	5.0E+01
Di(2-ethylhexyl)phtalate	fresh water	117-81-7	9.1E-01	9.1E-01
diazinon	fresh water	333-41-5	6.6E+01	6.6E+01
Dibutylphtalate	fresh water	84-74-2	5.4E-01	5.4E-01
Dichloromethane	fresh water	75-09-2	1.8E+00	1.8E+00
dichlorprop	fresh water	120-36-5	2.4E+01	2.4E+01
dichlorvos	fresh water	62-73-7	3.4E-01	3.4E-01
dieldrin	fresh water	60-57-1	4.5E+04	4.5E+04
Diethylphtalate	fresh water	84-66-2	1.4E-01	1.4E-01
Dihexylphtalate	fresh water	84-75-3	1.4E+04	1.4E+04
Diisodecylphtalate	fresh water	26761-40-0	1.9E+01	1.9E+01
Diisooctylphtalate	fresh water	27554-26-3	1.8E+01	1.8E+01
dimethoate	fresh water	60-51-5	1.8E+01	1.8E+01
Dimethylphtalate	fresh water	133-11-3	7.2E+00	7.2E+00
dinoseb	fresh water	88-85-7	1.6E+02	1.6E+02
dinoterb	fresh water	1420-07-1	2.5E+00	2.5E+00
Diocetylphthalate	fresh water	117-84-0	6.3E+00	6.3E+00
disulfothon	fresh water	298-04-4	3.4E+02	3.4E+02
diuron	fresh water	330-54-1	5.3E+01	5.3E+01
DNOC	fresh water	534-52-1	5.9E+01	5.9E+01
endosulfan	fresh water	115-29-7	1.7E+01	1.7E+01
endrin	fresh water	72-20-8	6.0E+03	6.0E+03
ethoprophos	fresh water	13194-48-4	1.8E+03	1.8E+03
Ethylbenzene	fresh water	100-41-4	8.3E-01	8.3E-01
Ethylene	fresh water	74-85-1	6.5E-01	6.5E-01
fenitrothion	fresh water	122-14-5	2.2E+01	2.2E+01
fenthion	fresh water	55-38-9	9.3E+01	9.3E+01
fentin acetate	fresh water	900-95-8	8.8E+02	8.8E+02
fentin chloride	fresh water	639-58-7	8.6E+02	8.6E+02
fentin hydroxide	fresh water	76-87-9	8.7E+02	8.7E+02
fluoranthrene	fresh water	206-44-0	x	x
folpet	fresh water	133-07-3	8.6E+00	8.6E+00
Formaldehyde	fresh water	50-00-0	3.7E-02	3.7E-02
glyphosate	fresh water	1071-83-6	6.6E-02	6.6E-02
heptachlor	fresh water	76-44-8	3.4E+03	3.4E+03
heptenophos	fresh water	23560-59-0	1.3E+00	1.3E+00
hexachloro-1,3-butadiene	fresh water	87-68-3	8.0E+04	8.0E+04
hexachlorobenzene	fresh water	118-74-1	5.6E+06	5.6E+06
hydrogen chloride	fresh water	7647-01-0	x	x
hydrogen sulfide	fresh water	7783-06-4	x	x
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	x	x
iprodione	fresh water	36734-19-7	1.8E-01	1.8E-01
isoproturon	fresh water	34123-59-6	1.3E+01	1.3E+01
lead	fresh water	14280-50-3	1.2E+01	5.2E+00
lindane	fresh water	58-89-9	8.3E+02	8.3E+02
linuron	fresh water	330-55-2	1.1E+02	1.1E+02
malathion	fresh water	121-75-5	2.4E-01	2.4E-01
MCPA	fresh water	94-74-6	1.5E+01	1.5E+01
mecoprop	fresh water	7085-19-0	2.0E+02	2.0E+02
mercury	fresh water	14302-87-5	1.4E+03	1.0E+02
metamitron	fresh water	41394-05-2	1.6E-01	1.6E-01

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
metazachlor	fresh water	67129-08-2	1.7E+00	1.7E+00
methabenzthiazuron	fresh water	18691-97-9	2.6E+00	2.6E+00
methomyl	fresh water	16752-77-5	3.3E+00	3.3E+00
methylbromide	fresh water	74-83-9	3.0E+02	3.0E+02
methyl-mercury	fresh water	22967-92-6	1.5E+04	6.0E+03
metobromuron	fresh water	3060-89-7	8.0E+00	8.0E+00
metolachlor	fresh water	51218-45-2	5.5E-01	5.5E-01
mevinphos	fresh water	7786-34-7	1.1E+01	1.1E+01
molybdenum	fresh water	7439-98-7	5.5E+03	1.1E+02
meta-Xylene	fresh water	108-38-3	3.4E-01	3.4E-01
Naphtalene	fresh water	91-20-3	5.6E+00	5.6E+00
nickel	fresh water	7440-02-0	3.3E+02	4.3E+01
nitrogen dioxide	fresh water	10102-44-0	x	x
oxamyl	fresh water	23135-22-0	3.6E-01	3.6E-01
oxydemethon-methyl	fresh water	301-12-2	7.4E+01	7.4E+01
ortho-Xylene	fresh water	95-47-6	4.2E-01	4.2E-01
parathion-ethyl	fresh water	56-38-2	3.1E+01	3.1E+01
parathion-methyl	fresh water	298-00-0	1.0E+02	1.0E+02
pentachlorobenzene	fresh water	608-93-5	1.2E+03	1.2E+03
pentachloronitrobenzene	fresh water	82-68-8	9.1E+01	9.1E+01
pentachlorophenol	fresh water	87-86-5	7.2E+00	7.2E+00
permethrin	fresh water	52645-53-1	2.3E+01	2.3E+01
phenanthrene	fresh water	85-01-8	x	x
Phenol	fresh water	108-95-2	4.9E-02	4.9E-02
phoxim	fresh water	14816-18-3	1.2E+01	1.2E+01
Phtalic anhydride	fresh water	85-44-9	1.1E-04	1.1E-04
pirimicarb	fresh water	23103-98-2	1.7E+00	1.7E+00
dust (PM10)	fresh water	PM10	x	x
propachlor	fresh water	1918-16-7	1.6E+00	1.6E+00
propoxur	fresh water	114-26-1	1.3E+00	1.3E+00
Propylene Oxide	fresh water	75-56-9	2.6E+03	2.6E+03
para-Xylene	fresh water	106-42-3	3.5E-01	3.5E-01
pyrazophos	fresh water	13457-18-6	5.3E+01	5.3E+01
selenium	fresh water	7782-49-2	5.6E+04	5.3E+02
simazine	fresh water	122-34-9	9.7E+00	9.7E+00
styrene	fresh water	100-42-5	8.5E-02	8.5E-02
sulphur dioxide	fresh water	7446-09-5	x	x
Tetrachloroethylene	fresh water	127-18-4	5.7E+00	5.7E+00
Tetrachloromethane	fresh water	56-23-5	2.2E+02	2.2E+02
thallium	fresh water	7440-28-0	2.3E+05	5.7E+03
Thiram	fresh water	137-26-8	3.3E+00	3.3E+00
tin	fresh water	7440-31-5	1.7E-02	7.4E-03
tolclophos-methyl	fresh water	57018-04-9	1.0E+00	1.0E+00
Toluene	fresh water	108-88-3	3.0E-01	3.0E-01
tri-allate	fresh water	2303-17-5	8.3E+01	8.3E+01
triazophos	fresh water	24017-47-8	3.2E+02	3.2E+02
tributyltinoxide	fresh water	56-35-9	3.4E+03	3.4E+03
trichlorfon	fresh water	52-68-6	3.7E-01	3.7E-01
Trichloroethylene	fresh water	79-01-6	3.3E+01	3.3E+01
Trichloromethane	fresh water	67-66-3	1.3E+01	1.3E+01
trifluarin	fresh water	1582-09-8	9.7E+01	9.7E+01
vanadium	fresh water	7440-62-2	3.2E+03	2.7E+02
Vinyl Chloride	fresh water	75-01-4	1.4E+02	1.4E+02
zinc	fresh water	23713-49-7	5.8E-01	2.1E-01
zineb	fresh water	12122-67-7	1.7E+00	1.7E+00

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
chlormequat-chloride	fresh water	999-81-5	8.3E-01	8.3E-01
fenpropimorph	fresh water	67306-03-0	1.1E+03	1.1E+03
fluroxypyr	fresh water	69377-81-7	5.0E-02	5.0E-02
epoxiconazole	fresh water	??	1.0E+02	1.0E+02
ethylene oxide	fresh water	75-21-8	1.1E+04	1.1E+04
hydrogen fluoride	fresh water	7664-39-3	3.6E+03	9.4E+00
1,1,1-trichloroethane	seawater	71-55-6	9.6E+00	9.6E+00
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	3.0E+01	3.0E+01
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	2.5E+01	2.5E+01
1,2,3-trichlorobenzene	seawater	87-61-6	6.2E+01	6.2E+01
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	3.0E+01	3.0E+01
1,2,4-trichlorobenzene	seawater	120-82-1	5.6E+01	5.6E+01
1,2-dichlorobenzene	seawater	95-50-1	4.1E+00	4.1E+00
1,2-dichloroethane	seawater	107-06-2	5.5E+00	5.5E+00
1,3,5-trichlorobenzene	seawater	108-70-3	5.4E+01	5.4E+01
1,3-Butadiene	seawater	106-99-0	4.5E+02	4.5E+02
1,3-dichlorobenzene	seawater	541-73-1	3.0E+01	3.0E+01
1,4-dichlorobenzene	seawater	106-46-7	4.7E-01	4.7E-01
1-chloro-4-nitrobenzene	seawater	100-00-5	2.2E+02	2.2E+02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	2.6E-01	2.6E-01
2,3,7,8-TCDD	seawater	1746-01-6	4.2E+08	4.2E+08
2,4,5-T	seawater	93-76-5	5.4E-03	5.4E-03
2,4,5-trichlorophenol	seawater	95-95-4	6.1E-01	6.1E-01
2,4,6-trichlorophenol	seawater	88-06-2	4.7E+01	4.7E+01
2,4-D	seawater	94-75-7	6.7E-05	6.7E-05
2,4-dichlorophenol	seawater	120-83-2	6.5E-02	6.5E-02
2-chlorophenol	seawater	95-57-8	3.5E-01	3.5E-01
3,4-dichloroaniline	seawater	95-76-1	1.5E+00	1.5E+00
3-chloroaniline	seawater	108-42-9	2.1E+00	2.1E+00
4-chloroaniline	seawater	106-47-8	4.0E+00	4.0E+00
acephate	seawater	30560-19-1	5.1E-04	5.1E-04
Acrolein	seawater	107-02-8	8.0E-01	8.0E-01
Acrylonitrile	seawater	107-13-1	5.1E+01	5.1E+01
aldicarb	seawater	116-06-3	2.4E-01	2.4E-01
aldrin	seawater	309-00-2	7.8E+02	7.8E+02
ammonia	seawater	7664-41-7	x	x
anilazine	seawater	101-05-3	8.2E-04	8.2E-04
anthracene	seawater	120-12-7	1.6E-01	1.6E-01
antimony	seawater	7440-36-0	8.6E+03	4.4E+01
arsenic	seawater	7440-38-2	2.4E+03	3.1E+01
atrazine	seawater	1912-24-9	1.8E-02	1.8E-02
aziphos-ethyl	seawater	2642-71-9	1.6E+00	1.6E+00
aziphos-methyl	seawater	86-50-0	5.7E-03	5.7E-03
barium	seawater	7440-39-3	8.0E+02	1.5E+00
benomyl	seawater	17804-35-2	2.4E-04	2.4E-04
bentazone	seawater	25057-89-0	2.2E-03	2.2E-03
Benzene	seawater	71-43-2	2.1E+02	2.1E+02
benzo[a]anthracene	seawater	56-55-3	x	x
benzo[a]pyrene	seawater	50-32-8	x	x
benzo[ghi]perylene	seawater	191-24-2	x	x
benzo[k]fluoranthrene	seawater	207-08-9	x	x
benzylchloride	seawater	100-44-7	5.5E+01	5.5E+01
beryllium	seawater	7440-41-7	1.6E+04	1.9E+01
bifenthrin	seawater	82657-04-3	7.5E-01	7.5E-01
Butylbenzylphtalate	seawater	85-68-7	8.5E-04	8.5E-04

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
cadmium	seawater	22537-48-0	1.0E+02	6.9E+00
captafol	seawater	2425-06-1	9.7E+00	9.7E+00
captan	seawater	133-06-2	5.4E-06	5.4E-06
carbaryl	seawater	63-25-2	1.9E-03	1.9E-03
carbendazim	seawater	10605-21-7	2.0E-03	2.0E-03
carbofuran	seawater	1563-66-2	2.1E-01	2.1E-01
carbon disulfide	seawater	75-15-0	4.8E-01	4.8E-01
Carcinogenic PAHs	seawater		2.9E+04	2.9E+04
chlordane	seawater	57-74-9	1.2E+03	1.2E+03
chlorfenvinphos	seawater	470-90-6	3.8E+00	3.8E+00
chloridazon	seawater	1698-60-8	2.1E-03	2.1E-03
chlorobenzene	seawater	108-90-7	5.2E+00	5.2E+00
chlorothalonil	seawater	1897-45-6	4.5E-01	4.5E-01
chlorpropham	seawater	101-21-3	4.3E-03	4.3E-03
chlorpyrifos	seawater	2921-88-2	3.8E-02	3.8E-02
chromium III	seawater	16056-83-1	1.0E+01	8.2E-01
chromium VI	seawater	18540-29-9	1.7E+01	1.4E+00
chrysene	seawater	218-01-9	x	x
cobalt	seawater	7440-48-4	6.0E+01	3.3E-01
copper	seawater	15158-11-9	5.9E+00	2.5E-01
coumaphos	seawater	56-72-4	2.2E+02	2.2E+02
cyanazine	seawater	21725-46-2	9.6E-03	9.6E-03
cypermethrin	seawater	52315-07-8	2.6E-02	2.6E-02
cyromazine	seawater	66215-27-8	2.6E-03	2.6E-03
DDT	seawater	50-29-3	3.4E+01	3.4E+01
deltamethrin	seawater	52918-63-5	3.3E-02	3.3E-02
demeton	seawater	8065-48-3	3.0E-01	3.0E-01
desmetryn	seawater	1014-69-3	1.2E-01	1.2E-01
Di(2-ethylhexyl)phtalate	seawater	117-81-7	4.0E-02	4.0E-02
diazinon	seawater	333-41-5	2.7E-01	2.7E-01
Dibutylphtalate	seawater	84-74-2	3.0E-03	3.0E-03
Dichloromethane	seawater	75-09-2	3.0E-01	3.0E-01
dichlorprop	seawater	120-36-5	9.7E-02	9.7E-02
dichlorvos	seawater	62-73-7	2.3E-03	2.3E-03
dieldrin	seawater	60-57-1	5.5E+03	5.5E+03
Diethylphtalate	seawater	84-66-2	5.7E-04	5.7E-04
Dihexylphtalate	seawater	84-75-3	3.7E+02	3.7E+02
Diisodecylphtalate	seawater	26761-40-0	3.2E+00	3.2E+00
Diisooctylphtalate	seawater	27554-26-3	9.7E+00	9.7E+00
dimethoate	seawater	60-51-5	3.3E-03	3.3E-03
Dimethylphtalate	seawater	133-11-3	8.4E-03	8.4E-03
dinoseb	seawater	88-85-7	6.3E-01	6.3E-01
dinoterb	seawater	1420-07-1	2.9E-03	2.9E-03
Diocetylphthalate	seawater	117-84-0	1.3E+00	1.3E+00
disulfothion	seawater	298-04-4	1.5E+00	1.5E+00
diuron	seawater	330-54-1	1.9E-01	1.9E-01
DNOC	seawater	534-52-1	1.5E-03	1.5E-03
endosulfan	seawater	115-29-7	4.2E-02	4.2E-02
endrin	seawater	72-20-8	1.6E+03	1.6E+03
ethoprophos	seawater	13194-48-4	1.3E+01	1.3E+01
Ethylbenzene	seawater	100-41-4	7.0E-02	7.0E-02
Ethylene	seawater	74-85-1	4.7E-02	4.7E-02
fenitrothion	seawater	122-14-5	9.0E-02	9.0E-02
fenthion	seawater	55-38-9	4.6E-01	4.6E-01
fentin acetate	seawater	900-95-8	4.1E+00	4.1E+00

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
fentin chloride	seawater	639-58-7	1.2E+01	1.2E+01
fentin hydroxide	seawater	76-87-9	4.1E+00	4.1E+00
fluoranthrene	seawater	206-44-0	x	x
folpet	seawater	133-07-3	3.1E-01	3.1E-01
Formaldehyde	seawater	50-00-0	2.8E-05	2.8E-05
glyphosate	seawater	1071-83-6	1.5E-05	1.5E-05
heptachlor	seawater	76-44-8	4.3E+01	4.3E+01
heptenophos	seawater	23560-59-0	2.3E-03	2.3E-03
hexachloro-1,3-butadiene	seawater	87-68-3	3.9E+04	3.9E+04
hexachlorobenzene	seawater	118-74-1	3.4E+06	3.4E+06
hydrogen chloride	seawater	7647-01-0	x	x
hydrogen sulfide	seawater	7783-06-4	x	x
indeno[1,2,3-cd]pyrene	seawater	193-39-5	x	x
iprodione	seawater	36734-19-7	1.2E-04	1.2E-04
isoproturon	seawater	34123-59-6	2.9E-02	2.9E-02
lead	seawater	14280-50-3	7.9E+01	7.1E+00
lindane	seawater	58-89-9	6.1E+00	6.1E+00
linuron	seawater	330-55-2	6.5E-01	6.5E-01
malathion	seawater	121-75-5	8.4E-04	8.4E-04
MCPA	seawater	94-74-6	3.7E-02	3.7E-02
mecoprop	seawater	7085-19-0	8.4E-01	8.4E-01
mercury	seawater	14302-87-5	8.2E+03	1.2E+02
metamitron	seawater	41394-05-2	3.2E-05	3.2E-05
metazachlor	seawater	67129-08-2	2.4E-03	2.4E-03
methabenzthiazuron	seawater	18691-97-9	8.2E-03	8.2E-03
methomyl	seawater	16752-77-5	1.4E-03	1.4E-03
methylbromide	seawater	74-83-9	2.5E+01	2.5E+01
methyl-mercury	seawater	22967-92-6	8.8E+04	6.9E+03
metobromuron	seawater	3060-89-7	7.6E-02	7.6E-02
metolachlor	seawater	51218-45-2	8.5E-04	8.5E-04
mevinphos	seawater	7786-34-7	1.8E-03	1.8E-03
molybdenum	seawater	7439-98-7	6.8E+03	1.1E+01
meta-Xylene	seawater	108-38-3	1.0E-02	1.0E-02
Naphtalene	seawater	91-20-3	1.9E-01	1.9E-01
nickel	seawater	7440-02-0	7.5E+02	7.8E+00
nitrogen dioxide	seawater	10102-44-0	x	x
oxamyl	seawater	23135-22-0	1.4E-05	1.4E-05
oxydemethon-methyl	seawater	301-12-2	1.0E-02	1.0E-02
ortho-Xylene	seawater	95-47-6	2.6E-02	2.6E-02
parathion-ethyl	seawater	56-38-2	1.8E-01	1.8E-01
parathion-methyl	seawater	298-00-0	5.4E-01	5.4E-01
pentachlorobenzene	seawater	608-93-5	4.1E+02	4.1E+02
pentachloronitrobenzene	seawater	82-68-8	4.6E+01	4.6E+01
pentachlorophenol	seawater	87-86-5	1.4E-01	1.4E-01
permethrin	seawater	52645-53-1	2.6E-01	2.6E-01
phenanthrene	seawater	85-01-8	x	x
Phenol	seawater	108-95-2	8.0E-05	8.0E-05
phoxim	seawater	14816-18-3	2.9E-01	2.9E-01
Phtalic anhydride	seawater	85-44-9	1.0E-07	1.0E-07
pirimicarb	seawater	23103-98-2	1.3E-03	1.3E-03
dust (PM10)	seawater	PM10	x	x
propachlor	seawater	1918-16-7	2.6E-03	2.6E-03
propoxur	seawater	114-26-1	3.9E-04	3.9E-04
Propylene Oxide	seawater	75-56-9	1.6E+01	1.6E+01
para-Xylene	seawater	106-42-3	1.3E-02	1.3E-02

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
pyrazophos	seawater	13457-18-6	2.3E-01	2.3E-01
selenium	seawater	7782-49-2	6.3E+04	5.0E+01
simazine	seawater	122-34-9	1.6E-02	1.6E-02
styrene	seawater	100-42-5	1.0E-02	1.0E-02
sulphur dioxide	seawater	7446-09-5	x	x
Tetrachloroethylene	seawater	127-18-4	2.8E+00	2.8E+00
Tetrachloromethane	seawater	56-23-5	1.7E+02	1.7E+02
thallium	seawater	7440-28-0	2.9E+05	6.1E+02
Thiram	seawater	137-26-8	6.6E-04	6.6E-04
tin	seawater	7440-31-5	1.1E-01	9.0E-03
tolclophos-methyl	seawater	57018-04-9	6.5E-02	6.5E-02
Toluene	seawater	108-88-3	3.9E-02	3.9E-02
tri-allate	seawater	2303-17-5	1.2E+00	1.2E+00
triazophos	seawater	24017-47-8	1.6E+00	1.6E+00
tributyltinoxide	seawater	56-35-9	5.5E+01	5.5E+01
trichlorfon	seawater	52-68-6	3.1E-05	3.1E-05
Trichloroethylene	seawater	79-01-6	1.4E+01	1.4E+01
Trichloromethane	seawater	67-66-3	6.0E+00	6.0E+00
trifluarin	seawater	1582-09-8	6.0E+00	6.0E+00
vanadium	seawater	7440-62-2	6.2E+03	4.6E+01
Vinyl Chloride	seawater	75-01-4	4.3E+01	4.3E+01
zinc	seawater	23713-49-7	3.2E+00	2.0E-01
zineb	seawater	12122-67-7	8.2E-04	8.2E-04
chlormequat-chloride	seawater	999-81-5	2.1E-04	2.1E-04
fenpropimorph	seawater	67306-03-0	6.0E+00	6.0E+00
fluroxypyr	seawater	69377-81-7	1.6E-05	1.6E-05
epoxiconazole	seawater	??	2.3E+00	2.3E+00
ethylene oxide	seawater	75-21-8	5.4E+02	5.4E+02
hydrogen fluoride	seawater	7664-39-3	3.6E+03	8.7E-03
1,1,1-trichloroethane	agri. soil	71-55-6	1.6E+01	1.6E+01
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	8.0E+01	8.0E+01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	1.8E+02	1.8E+02
1,2,3-trichlorobenzene	agri. soil	87-61-6	5.6E+01	5.6E+01
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	8.4E+01	8.4E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	4.2E+01	4.2E+01
1,2-dichlorobenzene	agri. soil	95-50-1	7.3E+00	7.3E+00
1,2-dichloroethane	agri. soil	107-06-2	1.3E+03	1.3E+03
1,3,5-trichlorobenzene	agri. soil	108-70-3	6.9E+01	6.9E+01
1,3-Butadiene	agri. soil	106-99-0	3.1E+03	3.1E+03
1,3-dichlorobenzene	agri. soil	541-73-1	2.5E+02	2.5E+02
1,4-dichlorobenzene	agri. soil	106-46-7	2.9E+00	2.9E+00
1-chloro-4-nitrobenzene	agri. soil	100-00-5	2.2E+04	2.2E+04
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	3.1E+01	3.1E+01
2,3,7,8-TCDD	agri. soil	1746-01-6	1.3E+09	1.3E+09
2,4,5-T	agri. soil	93-76-5	5.8E+00	5.8E+00
2,4,5-trichlorophenol	agri. soil	95-95-4	5.3E+00	5.3E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	1.8E+03	1.8E+03
2,4-D	agri. soil	94-75-7	4.7E+01	4.7E+01
2,4-dichlorophenol	agri. soil	120-83-2	7.4E+02	7.4E+02
2-chlorophenol	agri. soil	95-57-8	8.3E+00	8.3E+00
3,4-dichloroaniline	agri. soil	95-76-1	1.7E+03	1.7E+03
3-chloroaniline	agri. soil	108-42-9	3.0E+04	3.0E+04
4-chloroaniline	agri. soil	106-47-8	3.5E+04	3.5E+04
acephate	agri. soil	30560-19-1	2.2E+01	2.2E+01
Acrolein	agri. soil	107-02-8	2.3E+02	2.3E+02



Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
Acrylonitrile	agri. soil	107-13-1	4.9E+05	4.9E+05
aldicarb	agri. soil	116-06-3	5.1E+02	5.1E+02
aldrin	agri. soil	309-00-2	4.7E+03	4.7E+03
ammonia	agri. soil	7664-41-7	x	x
anilazine	agri. soil	101-05-3	8.0E-02	8.0E-02
anthracene	agri. soil	120-12-7	5.1E-01	5.1E-01
antimony	agri. soil	7440-36-0	8.9E+03	1.6E+03
arsenic	agri. soil	7440-38-2	3.2E+04	3.1E+02
atrazine	agri. soil	1912-24-9	2.1E+01	2.1E+01
azinphos-ethyl	agri. soil	2642-71-9	7.6E+02	7.6E+02
azinphos-methyl	agri. soil	86-50-0	3.9E+01	3.9E+01
barium	agri. soil	7440-39-3	3.6E+02	1.7E+01
benomyl	agri. soil	17804-35-2	4.3E-01	4.3E-01
bentazone	agri. soil	25057-89-0	1.5E+01	1.5E+01
Benzene	agri. soil	71-43-2	1.5E+04	1.5E+04
benzo[a]anthracene	agri. soil	56-55-3	x	x
benzo[a]pyrene	agri. soil	50-32-8	x	x
benzo[ghi]perylene	agri. soil	191-24-2	x	x
benzo[k]fluoranthrene	agri. soil	207-08-9	x	x
benzylchloride	agri. soil	100-44-7	5.5E+03	5.5E+03
beryllium	agri. soil	7440-41-7	1.3E+04	2.7E+03
bifenthrin	agri. soil	82657-04-3	2.9E+01	2.9E+01
Butylbenzylphtalate	agri. soil	85-68-7	3.1E-01	3.1E-01
cadmium	agri. soil	22537-48-0	2.0E+04	2.8E+03
captafol	agri. soil	2425-06-1	9.6E+02	9.6E+02
captan	agri. soil	133-06-2	9.7E-02	9.7E-02
carbaryl	agri. soil	63-25-2	2.1E+01	2.1E+01
carbendazim	agri. soil	10605-21-7	1.4E+02	1.4E+02
carbofuran	agri. soil	1563-66-2	1.4E+03	1.4E+03
carbon disulfide	agri. soil	75-15-0	3.6E+00	3.6E+00
Carcinogenic PAHs	agri. soil		7.1E+04	7.1E+04
chlordane	agri. soil	57-74-9	2.8E+03	2.8E+03
chlorfenvinphos	agri. soil	470-90-6	1.2E+03	1.2E+03
chloridazon	agri. soil	1698-60-8	2.2E+00	2.2E+00
chlorobenzene	agri. soil	108-90-7	7.1E+00	7.1E+00
chlorothalonil	agri. soil	1897-45-6	9.4E-01	9.4E-01
chlorpropham	agri. soil	101-21-3	2.1E+00	2.1E+00
chlorpyriphos	agri. soil	2921-88-2	1.4E+01	1.4E+01
chromium III	agri. soil	16056-83-1	5.1E+03	3.0E+01
chromium VI	agri. soil	18540-29-9	8.5E+03	4.9E+01
chrysene	agri. soil	218-01-9	x	x
cobalt	agri. soil	7440-48-4	2.4E+03	1.1E+03
copper	agri. soil	15158-11-9	9.4E+01	9.6E+00
coumaphos	agri. soil	56-72-4	1.1E+04	1.1E+04
cyazazine	agri. soil	21725-46-2	2.4E+01	2.4E+01
cypermethrin	agri. soil	52315-07-8	5.2E+03	5.2E+03
cyromazine	agri. soil	66215-27-8	2.8E+02	2.8E+02
DDT	agri. soil	50-29-3	2.7E+02	2.7E+02
deltamethrin	agri. soil	52918-63-5	1.6E-01	1.6E-01
demeton	agri. soil	8065-48-3	5.7E+03	5.7E+03
desmetryn	agri. soil	1014-69-3	6.5E+02	6.5E+02
Di(2-ethylhexyl)phtalate	agri. soil	117-81-7	1.8E+00	1.8E+00
diazinon	agri. soil	333-41-5	1.2E+02	1.2E+02
Dibutylphtalate	agri. soil	84-74-2	1.3E+00	1.3E+00
Dichloromethane	agri. soil	75-09-2	2.4E+00	2.4E+00



Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
dichlorprop	agri. soil	120-36-5	4.5E+00	4.5E+00
dichlorvos	agri. soil	62-73-7	9.7E-01	9.7E-01
dieldrin	agri. soil	60-57-1	7.6E+03	7.6E+03
Diethylphtalate	agri. soil	84-66-2	5.7E-02	5.7E-02
Dihexylphtalate	agri. soil	84-75-3	1.2E+03	1.2E+03
Diisodecylphtalate	agri. soil	26761-40-0	1.1E+02	1.1E+02
Diisooctylphtalate	agri. soil	27554-26-3	3.2E+01	3.2E+01
dimethoate	agri. soil	60-51-5	3.2E+02	3.2E+02
Dimethylphtalate	agri. soil	133-11-3	2.8E+01	2.8E+01
dinoseb	agri. soil	88-85-7	5.6E+02	5.6E+02
dinoterb	agri. soil	1420-07-1	3.6E-01	3.6E-01
Diocetylphthalate	agri. soil	117-84-0	8.6E+00	8.6E+00
disulfothon	agri. soil	298-04-4	1.7E+02	1.7E+02
diuron	agri. soil	330-54-1	1.3E+03	1.3E+03
DNOC	agri. soil	534-52-1	2.8E+02	2.8E+02
endosulfan	agri. soil	115-29-7	2.6E-01	2.6E-01
endrin	agri. soil	72-20-8	8.4E+03	8.4E+03
ethoprophos	agri. soil	13194-48-4	5.7E+03	5.7E+03
Ethylbenzene	agri. soil	100-41-4	7.5E-01	7.5E-01
Ethylene	agri. soil	74-85-1	7.8E-01	7.8E-01
fenitrothion	agri. soil	122-14-5	1.2E+01	1.2E+01
fenthion	agri. soil	55-38-9	3.0E+01	3.0E+01
fentin acetate	agri. soil	900-95-8	7.2E+01	7.2E+01
fentin chloride	agri. soil	639-58-7	1.3E+02	1.3E+02
fentin hydroxide	agri. soil	76-87-9	8.8E+01	8.8E+01
fluoranthrene	agri. soil	206-44-0	x	x
folpet	agri. soil	133-07-3	1.3E+01	1.3E+01
Formaldehyde	agri. soil	50-00-0	2.3E+00	2.3E+00
glyphosate	agri. soil	1071-83-6	1.5E-02	1.5E-02
heptachlor	agri. soil	76-44-8	6.7E+02	6.7E+02
heptenophos	agri. soil	23560-59-0	3.4E+00	3.4E+00
hexachloro-1,3-butadiene	agri. soil	87-68-3	3.0E+04	3.0E+04
hexachlorobenzene	agri. soil	118-74-1	3.3E+07	3.3E+07
hydrogen chloride	agri. soil	7647-01-0	x	x
hydrogen sulfide	agri. soil	7783-06-4	x	x
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	x	x
iprodione	agri. soil	36734-19-7	1.8E+00	1.8E+00
isoproturon	agri. soil	34123-59-6	9.6E+02	9.6E+02
lead	agri. soil	14280-50-3	3.3E+03	2.7E+01
lindane	agri. soil	58-89-9	4.9E+02	4.9E+02
linuron	agri. soil	330-55-2	1.7E+02	1.7E+02
malathion	agri. soil	121-75-5	2.6E-02	2.6E-02
MCPA	agri. soil	94-74-6	1.0E+02	1.0E+02
mecoprop	agri. soil	7085-19-0	7.4E+02	7.4E+02
mercury	agri. soil	14302-87-5	5.9E+03	1.3E+02
metamitron	agri. soil	41394-05-2	6.5E+00	6.5E+00
metazachlor	agri. soil	67129-08-2	4.9E+01	4.9E+01
methabenzthiazuron	agri. soil	18691-97-9	5.1E+01	5.1E+01
methomyl	agri. soil	16752-77-5	4.3E+01	4.3E+01
methylbromide	agri. soil	74-83-9	2.6E+02	2.6E+02
methyl-mercury	agri. soil	22967-92-6	2.0E+04	1.7E+03
metobromuron	agri. soil	3060-89-7	4.1E+02	4.1E+02
metolachlor	agri. soil	51218-45-2	1.1E+01	1.1E+01
mevinphos	agri. soil	7786-34-7	5.7E+00	5.7E+00
molybdenum	agri. soil	7439-98-7	6.2E+03	9.4E+01

Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
meta-Xylene	agri. soil	108-38-3	3.8E+00	3.8E+00
Naphtalene	agri. soil	91-20-3	4.8E+00	4.8E+00
nickel	agri. soil	7440-02-0	2.7E+03	1.7E+02
nitrogen dioxide	agri. soil	10102-44-0	x	x
oxamyl	agri. soil	23135-22-0	1.0E+01	1.0E+01
oxydemethon-methyl	agri. soil	301-12-2	6.1E+02	6.1E+02
ortho-Xylene	agri. soil	95-47-6	5.0E+00	5.0E+00
parathion-ethyl	agri. soil	56-38-2	2.9E+00	2.9E+00
parathion-methyl	agri. soil	298-00-0	2.4E+01	2.4E+01
pentachlorobenzene	agri. soil	608-93-5	4.5E+03	4.5E+03
pentachloronitrobenzene	agri. soil	82-68-8	7.2E+01	7.2E+01
pentachlorophenol	agri. soil	87-86-5	1.5E-01	1.5E-01
permethrin	agri. soil	52645-53-1	1.1E+01	1.1E+01
phenanthrene	agri. soil	85-01-8	x	x
Phenol	agri. soil	108-95-2	1.9E+00	1.9E+00
phoxim	agri. soil	14816-18-3	2.5E+01	2.5E+01
Phtalic anhydride	agri. soil	85-44-9	1.0E-02	1.0E-02
pirimicarb	agri. soil	23103-98-2	2.6E+01	2.6E+01
dust (PM10)	agri. soil	PM10	x	x
propachlor	agri. soil	1918-16-7	1.5E+01	1.5E+01
propoxur	agri. soil	114-26-1	2.7E+02	2.7E+02
Propylene Oxide	agri. soil	75-56-9	2.2E+05	2.2E+05
para-Xylene	agri. soil	106-42-3	3.0E+00	3.0E+00
pyrazophos	agri. soil	13457-18-6	5.1E+01	5.1E+01
selenium	agri. soil	7782-49-2	2.9E+04	7.2E+02
simazine	agri. soil	122-34-9	2.1E+02	2.1E+02
styrene	agri. soil	100-42-5	4.8E-01	4.8E-01
sulphur dioxide	agri. soil	7446-09-5	x	x
Tetrachloroethylene	agri. soil	127-18-4	6.4E+00	6.4E+00
Tetrachloromethane	agri. soil	56-23-5	2.2E+02	2.2E+02
thallium	agri. soil	7440-28-0	2.0E+06	1.3E+05
Thiram	agri. soil	137-26-8	7.9E+00	7.9E+00
tin	agri. soil	7440-31-5	1.3E+01	1.1E-01
tolclophos-methyl	agri. soil	57018-04-9	1.1E+01	1.1E+01
Toluene	agri. soil	108-88-3	3.5E-01	3.5E-01
tri-allate	agri. soil	2303-17-5	5.8E+00	5.8E+00
triazophos	agri. soil	24017-47-8	1.2E+03	1.2E+03
tributyltinoxide	agri. soil	56-35-9	2.9E+02	2.9E+02
trichlorfon	agri. soil	52-68-6	3.3E+01	3.3E+01
Trichloroethylene	agri. soil	79-01-6	3.2E+01	3.2E+01
Trichloromethane	agri. soil	67-66-3	1.4E+01	1.4E+01
trifluarin	agri. soil	1582-09-8	1.2E+02	1.2E+02
vanadium	agri. soil	7440-62-2	1.9E+04	1.3E+03
Vinyl Chloride	agri. soil	75-01-4	5.2E+02	5.2E+02
zinc	agri. soil	23713-49-7	6.4E+01	4.5E+00
zineb	agri. soil	12122-67-7	2.0E+01	2.0E+01
chlormequat-chloride	agri. soil	999-81-5	1.4E+00	1.4E+00
fenpropimorph	agri. soil	67306-03-0	4.7E+02	4.7E+02
fluroxypyr	agri. soil	69377-81-7	8.2E-01	8.2E-01
epoxiconazole	agri. soil	??	1.7E+02	1.7E+02
ethylene oxide	agri. soil	75-21-8	1.1E+05	1.1E+05
hydrogen fluoride	agri. soil	7664-39-3	1.8E+03	3.2E+01
1,1,1-trichloroethane	indus. soil	71-55-6	1.6E+01	1.6E+01
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	5.2E+00	5.2E+00
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	1.4E+01	1.4E+01

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
1,2,3-trichlorobenzene	indus. soil	87-61-6	5.4E+01	5.4E+01
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	5.4E+00	5.4E+00
1,2,4-trichlorobenzene	indus. soil	120-82-1	4.3E+01	4.3E+01
1,2-dichlorobenzene	indus. soil	95-50-1	6.9E+00	6.9E+00
1,2-dichloroethane	indus. soil	107-06-2	5.7E+00	5.7E+00
1,3,5-trichlorobenzene	indus. soil	108-70-3	5.2E+01	5.2E+01
1,3-Butadiene	indus. soil	106-99-0	2.2E+03	2.2E+03
1,3-dichlorobenzene	indus. soil	541-73-1	5.0E+01	5.0E+01
1,4-dichlorobenzene	indus. soil	106-46-7	7.4E-01	7.4E-01
1-chloro-4-nitrobenzene	indus. soil	100-00-5	4.6E+02	4.6E+02
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	1.6E+00	1.6E+00
2,3,7,8-TCDD	indus. soil	1746-01-6	1.0E+07	1.0E+07
2,4,5-T	indus. soil	93-76-5	1.8E-01	1.8E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	2.9E+00	2.9E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	1.7E+02	1.7E+02
2,4-D	indus. soil	94-75-7	7.2E-01	7.2E-01
2,4-dichlorophenol	indus. soil	120-83-2	1.9E+00	1.9E+00
2-chlorophenol	indus. soil	95-57-8	1.4E+00	1.4E+00
3,4-dichloroaniline	indus. soil	95-76-1	3.1E+01	3.1E+01
3-chloroaniline	indus. soil	108-42-9	4.6E+02	4.6E+02
4-chloroaniline	indus. soil	106-47-8	5.1E+02	5.1E+02
acephate	indus. soil	30560-19-1	3.1E-01	3.1E-01
Acrolein	indus. soil	107-02-8	1.7E+01	1.7E+01
Acrylonitrile	indus. soil	107-13-1	1.5E+03	1.5E+03
aldicarb	indus. soil	116-06-3	1.3E+01	1.3E+01
aldrin	indus. soil	309-00-2	1.6E+02	1.6E+02
ammonia	indus. soil	7664-41-7	x	x
anilazine	indus. soil	101-05-3	3.0E-04	3.0E-04
anthracene	indus. soil	120-12-7	2.0E-02	2.0E-02
antimony	indus. soil	7440-36-0	2.6E+03	5.0E+01
arsenic	indus. soil	7440-38-2	1.0E+03	4.8E+00
atrazine	indus. soil	1912-24-9	8.8E-01	8.8E-01
azinphos-ethyl	indus. soil	2642-71-9	6.9E+00	6.9E+00
azinphos-methyl	indus. soil	86-50-0	9.9E-02	9.9E-02
barium	indus. soil	7440-39-3	3.2E+02	2.4E+00
benomyl	indus. soil	17804-35-2	1.1E-03	1.1E-03
bentazone	indus. soil	25057-89-0	1.6E-01	1.6E-01
Benzene	indus. soil	71-43-2	1.6E+03	1.6E+03
benzo[a]anthracene	indus. soil	56-55-3	x	x
benzo[a]pyrene	indus. soil	50-32-8	x	x
benzo[ghi]perylene	indus. soil	191-24-2	x	x
benzo[k]fluoranthrene	indus. soil	207-08-9	x	x
benzylchloride	indus. soil	100-44-7	4.9E+02	4.9E+02
beryllium	indus. soil	7440-41-7	7.0E+03	1.1E+02
bifenthrin	indus. soil	82657-04-3	3.0E-01	3.0E-01
Butylbenzylphtalate	indus. soil	85-68-7	1.8E-03	1.8E-03
cadmium	indus. soil	22537-48-0	6.7E+01	8.7E+00
captafol	indus. soil	2425-06-1	7.9E+01	7.9E+01
captan	indus. soil	133-06-2	1.1E-04	1.1E-04
carbaryl	indus. soil	63-25-2	1.5E-01	1.5E-01
carbendazim	indus. soil	10605-21-7	4.3E-01	4.3E-01
carbofuran	indus. soil	1563-66-2	8.0E+00	8.0E+00
carbon disulfide	indus. soil	75-15-0	2.2E+00	2.2E+00
Carcinogenic PAHs	indus. soil		2.7E+03	2.7E+03
chlordane	indus. soil	57-74-9	2.7E+01	2.7E+01

Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
chlorfenvinphos	indus. soil	470-90-6	4.4E+01	4.4E+01
chloridazon	indus. soil	1698-60-8	2.0E-02	2.0E-02
chlorobenzene	indus. soil	108-90-7	6.8E+00	6.8E+00
chlorothalonil	indus. soil	1897-45-6	1.0E+00	1.0E+00
chlorpropham	indus. soil	101-21-3	8.1E-02	8.1E-02
chlorpyriphos	indus. soil	2921-88-2	1.4E-01	1.4E-01
chromium III	indus. soil	16056-83-1	3.0E+02	1.7E+00
chromium VI	indus. soil	18540-29-9	5.0E+02	2.9E+00
chrysene	indus. soil	218-01-9	x	x
cobalt	indus. soil	7440-48-4	5.9E+01	1.8E+01
copper	indus. soil	15158-11-9	1.3E+00	7.9E-02
coumaphos	indus. soil	56-72-4	1.6E+03	1.6E+03
cyanazine	indus. soil	21725-46-2	3.5E-01	3.5E-01
cypermethrin	indus. soil	52315-07-8	1.8E+00	1.8E+00
cyromazine	indus. soil	66215-27-8	1.3E+00	1.3E+00
DDT	indus. soil	50-29-3	1.8E+00	1.8E+00
deltamethrin	indus. soil	52918-63-5	3.0E-02	3.0E-02
demeton	indus. soil	8065-48-3	8.9E+01	8.9E+01
desmetryn	indus. soil	1014-69-3	2.9E+00	2.9E+00
Di(2-ethylhexyl)phtalate	indus. soil	117-81-7	5.2E-03	5.2E-03
diazinon	indus. soil	333-41-5	3.2E+00	3.2E+00
Dibutylphtalate	indus. soil	84-74-2	1.3E-02	1.3E-02
Dichloromethane	indus. soil	75-09-2	1.3E+00	1.3E+00
dichlorprop	indus. soil	120-36-5	2.6E-01	2.6E-01
dichlorvos	indus. soil	62-73-7	3.6E-02	3.6E-02
dieldrin	indus. soil	60-57-1	1.5E+03	1.5E+03
Diethylphtalate	indus. soil	84-66-2	3.3E-03	3.3E-03
Dihexylphtalate	indus. soil	84-75-3	1.4E+01	1.4E+01
Diisodecylphtalate	indus. soil	26761-40-0	3.8E-02	3.8E-02
Diisooctylphtalate	indus. soil	27554-26-3	5.2E-02	5.2E-02
dimethoate	indus. soil	60-51-5	3.0E+00	3.0E+00
Dimethylphtalate	indus. soil	133-11-3	2.7E-01	2.7E-01
dinoseb	indus. soil	88-85-7	9.7E+01	9.7E+01
dinoterb	indus. soil	1420-07-1	1.2E-01	1.2E-01
Diocetylphthalate	indus. soil	117-84-0	8.8E-03	8.8E-03
disulfothon	indus. soil	298-04-4	2.0E+00	2.0E+00
diuron	indus. soil	330-54-1	7.2E+00	7.2E+00
DNOC	indus. soil	534-52-1	2.8E+00	2.8E+00
endosulfan	indus. soil	115-29-7	1.6E-02	1.6E-02
endrin	indus. soil	72-20-8	7.5E+02	7.5E+02
ethoprophos	indus. soil	13194-48-4	3.8E+02	3.8E+02
Ethylbenzene	indus. soil	100-41-4	5.0E-01	5.0E-01
Ethylene	indus. soil	74-85-1	6.2E-01	6.2E-01
fenitrothion	indus. soil	122-14-5	3.2E-01	3.2E-01
fenthion	indus. soil	55-38-9	1.5E+00	1.5E+00
fentin acetate	indus. soil	900-95-8	9.2E+00	9.2E+00
fentin chloride	indus. soil	639-58-7	1.3E+01	1.3E+01
fentin hydroxide	indus. soil	76-87-9	8.5E+00	8.5E+00
fluoranthrene	indus. soil	206-44-0	x	x
folpet	indus. soil	133-07-3	1.5E+00	1.5E+00
Formaldehyde	indus. soil	50-00-0	1.9E-02	1.9E-02
glyphosate	indus. soil	1071-83-6	6.5E-04	6.5E-04
heptachlor	indus. soil	76-44-8	4.4E+00	4.4E+00
heptenophos	indus. soil	23560-59-0	2.0E-02	2.0E-02
hexachloro-1,3-butadiene	indus. soil	87-68-3	3.5E+04	3.5E+04

Substance	Comp.	CAS number	HTP	HTP
			(inf) (kg 1,4- DCB eq./kg)	(100 yr) (kg 1,4- DCB eq./kg)
hexachlorobenzene	indus. soil	118-74-1	1.3E+06	1.3E+06
hydrogen chloride	indus. soil	7647-01-0	x	x
hydrogen sulfide	indus. soil	7783-06-4	x	x
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	x	x
iprodione	indus. soil	36734-19-7	3.2E-03	3.2E-03
isoproturon	indus. soil	34123-59-6	2.8E+00	2.8E+00
lead	indus. soil	14280-50-3	2.9E+02	2.4E+00
lindane	indus. soil	58-89-9	5.2E+01	5.2E+01
linuron	indus. soil	330-55-2	9.4E+00	9.4E+00
malathion	indus. soil	121-75-5	9.5E-04	9.5E-04
MCPA	indus. soil	94-74-6	9.7E-01	9.7E-01
mecoprop	indus. soil	7085-19-0	4.2E+01	4.2E+01
mercury	indus. soil	14302-87-5	1.1E+03	9.5E+00
metamitron	indus. soil	41394-05-2	1.2E-02	1.2E-02
metazachlor	indus. soil	67129-08-2	1.6E-01	1.6E-01
methabenzthiazuron	indus. soil	18691-97-9	3.6E-01	3.6E-01
methomyl	indus. soil	16752-77-5	6.9E-01	6.9E-01
methylbromide	indus. soil	74-83-9	2.6E+02	2.6E+02
methyl-mercury	indus. soil	22967-92-6	1.1E+04	3.8E+02
metobromuron	indus. soil	3060-89-7	1.9E+00	1.9E+00
metolachlor	indus. soil	51218-45-2	1.1E-01	1.1E-01
mevinphos	indus. soil	7786-34-7	5.5E-02	5.5E-02
molybdenum	indus. soil	7439-98-7	3.1E+03	2.5E+00
meta-Xylene	indus. soil	108-38-3	1.9E-02	1.9E-02
Naphtalene	indus. soil	91-20-3	1.6E+00	1.6E+00
nickel	indus. soil	7440-02-0	2.0E+02	3.0E+00
nitrogen dioxide	indus. soil	10102-44-0	x	x
oxamyl	indus. soil	23135-22-0	6.8E-02	6.8E-02
oxydemethon-methyl	indus. soil	301-12-2	3.8E+00	3.8E+00
ortho-Xylene	indus. soil	95-47-6	7.6E-02	7.6E-02
parathion-ethyl	indus. soil	56-38-2	1.1E-01	1.1E-01
parathion-methyl	indus. soil	298-00-0	1.7E+00	1.7E+00
pentachlorobenzene	indus. soil	608-93-5	1.4E+02	1.4E+02
pentachloronitrobenzene	indus. soil	82-68-8	4.3E+00	4.3E+00
pentachlorophenol	indus. soil	87-86-5	3.9E-02	3.9E-02
permethrin	indus. soil	52645-53-1	2.1E-02	2.1E-02
phenanthrene	indus. soil	85-01-8	x	x
Phenol	indus. soil	108-95-2	6.0E-03	6.0E-03
phoxim	indus. soil	14816-18-3	3.8E-01	3.8E-01
Phtalic anhydride	indus. soil	85-44-9	6.6E-07	6.6E-07
pirimicarb	indus. soil	23103-98-2	2.9E-01	2.9E-01
dust (PM10)	indus. soil	PM10	x	x
propachlor	indus. soil	1918-16-7	1.4E-01	1.4E-01
propoxur	indus. soil	114-26-1	2.7E-01	2.7E-01
Propylene Oxide	indus. soil	75-56-9	5.9E+02	5.9E+02
para-Xylene	indus. soil	106-42-3	2.5E-02	2.5E-02
pyrazophos	indus. soil	13457-18-6	1.2E+00	1.2E+00
selenium	indus. soil	7782-49-2	2.8E+04	1.8E+02
simazine	indus. soil	122-34-9	2.2E+00	2.2E+00
styrene	indus. soil	100-42-5	1.8E-02	1.8E-02
sulphur dioxide	indus. soil	7446-09-5	x	x
Tetrachloroethylene	indus. soil	127-18-4	5.2E+00	5.2E+00
Tetrachloromethane	indus. soil	56-23-5	2.2E+02	2.2E+02
thallium	indus. soil	7440-28-0	1.2E+05	2.4E+02
Thiram	indus. soil	137-26-8	2.5E-01	2.5E-01

Substance	Comp.	CAS number	HTP (inf) (kg 1,4- DCB eq./kg)	HTP (100 yr) (kg 1,4- DCB eq./kg)
tin	indus. soil	7440-31-5	5.2E-01	4.3E-03
tolclophos-methyl	indus. soil	57018-04-9	4.0E-02	4.0E-02
Toluene	indus. soil	108-88-3	2.1E-01	2.1E-01
tri-allate	indus. soil	2303-17-5	3.6E-01	3.6E-01
triazophos	indus. soil	24017-47-8	3.7E+01	3.7E+01
tributyltinoxide	indus. soil	56-35-9	4.3E+01	4.3E+01
trichlorfon	indus. soil	52-68-6	2.0E-02	2.0E-02
Trichloroethylene	indus. soil	79-01-6	3.2E+01	3.2E+01
Trichloromethane	indus. soil	67-66-3	1.0E+01	1.0E+01
trifluarin	indus. soil	1582-09-8	6.8E-01	6.8E-01
vanadium	indus. soil	7440-62-2	1.7E+03	1.4E+01
Vinyl Chloride	indus. soil	75-01-4	8.3E+01	8.3E+01
zinc	indus. soil	23713-49-7	4.2E-01	1.5E-02
zineb	indus. soil	12122-67-7	1.0E-01	1.0E-01
chlormequat-chloride	indus. soil	999-81-5	1.7E-02	1.7E-02
fenpropimorph	indus. soil	67306-03-0	2.1E+01	2.1E+01
fluroxypyr	indus. soil	69377-81-7	1.0E-02	1.0E-02
epoxiconazole	indus. soil	??	1.9E+01	1.9E+01
ethylene oxide	indus. soil	75-21-8	4.6E+03	4.6E+03
hydrogen fluoride	indus. soil	7664-39-3	1.8E+03	4.7E+00

x = not calculated

Source: Huijbregts, 2000; Huijbregts *et al.*, 2000a

Status: Author(s).

Equations: 
$$human\ toxicity = \sum_i \sum_{ecom} HTP_{ecom,i} \times m_{ecom,i} \quad (4.3.7.1)$$

The indicator result is expressed in kg 1,4-dichlorobenzene equivalent.  $HTP_{ecom,i}$  is the Human Toxicity Potential (the characterisation factor) for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ .

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU. Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.

Table 4.3.7.2: Alternative HTP factors for characterising human toxic releases, for 20- and 500-year time horizons and global scale, and for infinite time horizon and continental scale.

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	1.6E+01 <sup>1</sup>	1.64E+01	1.9E+00
1,2,3,4-tetrachlorobenzene	air	634-66-2	5.0E+01	5.00E+01	2.4E+01
1,2,3,5-tetrachlorobenzene	air	634-90-2	4.6E+01	4.63E+01	1.8E+01
1,2,3-trichlorobenzene	air	87-61-6	1.3E+02	1.31E+02	5.9E+01
1,2,4,5-tetrachlorobenzene	air	95-94-3	3.5E+01	3.45E+01	1.5E+01
1,2,4-trichlorobenzene	air	120-82-1	1.2E+02	1.23E+02	5.7E+01
1,2-dichlorobenzene	air	95-50-1	9.1E+00	9.06E+00	4.0E+00
1,2-dichloroethane	air	107-06-2	6.8E+00	6.81E+00	2.5E+00
1,3,5-trichlorobenzene	air	108-70-3	1.2E+02	1.20E+02	5.7E+01
1,3-Butadiene	air	106-99-0	2.2E+03	2.22E+03	2.2E+03
1,3-dichlorobenzene	air	541-73-1	6.2E+01	6.21E+01	3.1E+01
1,4-dichlorobenzene	air	106-46-7	1.0E+00	1.00E+00	3.9E-01
1-chloro-4-nitrobenzene	air	100-00-5	1.2E+03	1.18E+03	7.1E+02
2,3,4,6-tetrachlorophenol	air	58-90-2	2.9E+02	2.88E+02	2.4E+02
2,3,7,8-TCDD	air	1746-01-6	1.9E+09	1.93E+09	1.6E+09
2,4,5-T	air	93-76-5	8.9E-01	8.87E-01	8.9E-01
2,4,5-trichlorophenol	air	95-95-4	8.3E+00	8.32E+00	6.6E+00
2,4,6-trichlorophenol	air	88-06-2	1.4E+04	1.39E+04	1.3E+04
2,4-D	air	94-75-7	6.6E+00	6.64E+00	6.6E+00
2,4-dichlorophenol	air	120-83-2	9.5E+01	9.53E+01	7.4E+01
2-chlorophenol	air	95-57-8	2.2E+01	2.21E+01	2.0E+01
3,4-dichloroaniline	air	95-76-1	2.2E+02	2.15E+02	2.1E+02
3-chloroaniline	air	108-42-9	1.7E+04	1.70E+04	1.7E+04
4-chloroaniline	air	106-47-8	2.6E+02	2.62E+02	2.6E+02
acephate	air	30560-19-1	3.1E+00	3.06E+00	3.1E+00
Acrolein	air	107-02-8	5.7E+01	5.69E+01	5.4E+01
Acrylonitrile	air	107-13-1	3.4E+03	3.35E+03	2.6E+03
aldicarb	air	116-06-3	7.2E+01	7.16E+01	7.2E+01
aldrin	air	309-00-2	1.9E+01	1.93E+01	1.9E+01
ammonia	air	7664-41-7	1.0E-01	1.00E-01	9.9E-02
anilazine	air	101-05-3	7.2E-02	7.16E-02	7.1E-02
anthracene	air	120-12-7	5.2E-01	5.20E-01	4.8E-01
antimony	air	7440-36-0	8.4E+01	7.26E+02	1.1E+03
arsenic	air	7440-38-2	3.5E+05	3.48E+05	2.9E+05
atrazine	air	1912-24-9	4.5E+00	4.45E+00	4.4E+00
aziphos-ethyl	air	2642-71-9	2.0E+02	2.03E+02	2.0E+02
aziphos-methyl	air	86-50-0	1.4E+01	1.43E+01	1.4E+01
barium	air	7440-39-3	1.7E+02	1.81E+02	1.9E+02
benomyl	air	17804-35-2	2.1E-02	2.10E-02	2.1E-02
bentazone	air	25057-89-0	2.1E+00	2.14E+00	2.1E+00
Benzene	air	71-43-2	1.9E+03	1.90E+03	1.1E+03
benzo[a]anthracene	air	56-55-3	x	x	x
benzo[a]pyrene	air	50-32-8	x	x	x
benzo[ghi]perylene	air	191-24-2	x	x	x
benzo[k]fluoranthrene	air	207-08-9	x	x	x
benzylchloride	air	100-44-7	3.5E+03	3.52E+03	2.7E+03
beryllium	air	7440-41-7	2.3E+05	2.27E+05	1.8E+05
bifenthrin	air	82657-04-3	1.9E+01	1.94E+01	1.9E+01
Butylbenzylphtalate	air	85-68-7	1.0E+01	1.02E+01	9.4E+00
cadmium	air	22537-48-0	1.5E+05	1.45E+05	1.2E+05

<sup>1</sup> Means  $1.6 \times 10^1$ .



Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
captafol	air	2425-06-1	8.7E+01	8.70E+01	8.5E+01
captan	air	133-06-2	5.9E-01	5.89E-01	5.9E-01
carbaryl	air	63-25-2	3.2E+00	3.21E+00	3.2E+00
carbendazim	air	10605-21-7	1.9E+01	1.92E+01	1.9E+01
carbofuran	air	1563-66-2	2.0E+02	1.98E+02	2.0E+02
carbon disulfide	air	75-15-0	2.4E+00	2.41E+00	1.6E+00
Carcinogenic PAHs	air		5.7E+05	5.72E+05	5.6E+05
chlordane	air	57-74-9	6.7E+03	6.74E+03	6.2E+03
chlorfenvinphos	air	470-90-6	2.7E+02	2.71E+02	2.7E+02
chloridazon	air	1698-60-8	1.3E-02	1.30E-02	1.3E-02
chlorobenzene	air	108-90-7	9.2E+00	9.23E+00	4.8E+00
chlorothalonil	air	1897-45-6	8.4E+00	8.39E+00	3.7E+00
chlorpropham	air	101-21-3	3.4E-01	3.35E-01	3.3E-01
chlorpyrifos	air	2921-88-2	2.1E+01	2.12E+01	2.1E+01
chromium III	air	16056-83-1	3.4E+01	5.27E+01	5.4E+02
chromium VI	air	18540-29-9	3.4E+06	3.43E+06	2.9E+06
chrysene	air	218-01-9	x	x	x
cobalt	air	7440-48-4	1.7E+04	1.74E+04	1.5E+04
copper	air	15158-11-9	4.3E+03	4.29E+03	3.6E+03
coumaphos	air	56-72-4	7.8E+02	7.77E+02	7.6E+02
cyanazine	air	21725-46-2	3.5E+00	3.50E+00	3.5E+00
cypermethrin	air	52315-07-8	1.7E+02	1.66E+02	1.5E+02
cyromazine	air	66215-27-8	3.8E+01	3.82E+01	3.8E+01
DDT	air	50-29-3	1.1E+02	1.12E+02	9.5E+01
deltamethrin	air	52918-63-5	1.6E+00	1.62E+00	1.6E+00
demeton	air	8065-48-3	7.1E+01	7.14E+01	7.0E+01
desmetryn	air	1014-69-3	9.5E+01	9.45E+01	9.4E+01
Di(2-ethylhexyl)phtalate	air	117-81-7	2.6E+00	2.61E+00	2.5E+00
diazinon	air	333-41-5	5.9E+01	5.95E+01	5.9E+01
Dibutylphtalate	air	84-74-2	2.5E+01	2.53E+01	2.3E+01
Dichloromethane	air	75-09-2	2.0E+00	1.98E+00	6.3E-01
dichlorprop	air	120-36-5	1.1E+00	1.12E+00	1.1E+00
dichlorvos	air	62-73-7	1.0E+02	1.04E+02	9.4E+01
dieldrin	air	60-57-1	1.3E+04	1.29E+04	1.2E+04
Diethylphtalate	air	84-66-2	3.2E-01	3.16E-01	2.8E-01
Dihexylphtalate	air	84-75-3	7.0E+03	7.02E+03	6.4E+03
Diisodecylphtalate	air	26761-40-0	4.6E+01	4.56E+01	4.1E+01
Diisooctylphtalate	air	27554-26-3	3.1E+02	3.07E+02	2.9E+02
dimethoate	air	60-51-5	4.4E+01	4.35E+01	4.3E+01
Dimethylphtalate	air	133-11-3	2.1E+02	2.08E+02	2.0E+02
dinoseb	air	88-85-7	3.6E+03	3.59E+03	3.2E+03
dinoterb	air	1420-07-1	1.7E+02	1.69E+02	1.4E+02
Diocetylphthalate	air	117-84-0	1.9E+01	1.87E+01	1.8E+01
disulfothon	air	298-04-4	2.9E+02	2.87E+02	2.8E+02
diuron	air	330-54-1	2.1E+02	2.14E+02	2.1E+02
DNOC	air	534-52-1	1.6E+02	1.60E+02	1.6E+02
endosulfan	air	115-29-7	6.7E+00	6.68E+00	6.4E+00
endrin	air	72-20-8	1.2E+03	1.18E+03	1.2E+03
ethoprophos	air	13194-48-4	1.1E+03	1.09E+03	1.1E+03
Ethylbenzene	air	100-41-4	9.7E-01	9.73E-01	8.4E-01
Ethylene	air	74-85-1	6.4E-01	6.37E-01	5.6E-01
fenitrothion	air	122-14-5	5.9E+00	5.94E+00	5.9E+00
fenthion	air	55-38-9	6.3E+01	6.28E+01	6.2E+01
fentin acetate	air	900-95-8	2.2E+03	2.23E+03	2.1E+03



Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
fentin chloride	air	639-58-7	8.4E+02	8.37E+02	5.1E+02
fentin hydroxide	air	76-87-9	8.5E+02	8.49E+02	8.1E+02
fluoranthrene	air	206-44-0	x	x	x
folpet	air	133-07-3	2.0E+00	1.97E+00	1.8E+00
Formaldehyde	air	50-00-0	8.3E-01	8.31E-01	7.5E-01
glyphosate	air	1071-83-6	3.1E-03	3.10E-03	3.1E-03
heptachlor	air	76-44-8	4.0E+01	4.00E+01	3.9E+01
heptenophos	air	23560-59-0	2.3E+01	2.30E+01	2.2E+01
hexachloro-1,3-butadiene	air	87-68-3	7.9E+04	7.90E+04	1.1E+04
hexachlorobenzene	air	118-74-1	2.8E+06	3.16E+06	8.0E+05
hydrogen chloride	air	7647-01-0	5.0E-01	5.00E-01	5.0E-01
hydrogen sulfide	air	7783-06-4	2.2E-01	2.20E-01	2.1E-01
indeno[1,2,3-cd]pyrene	air	193-39-5	x	x	x
iprodione	air	36734-19-7	2.8E-01	2.76E-01	2.7E-01
isoproturon	air	34123-59-6	1.3E+02	1.31E+02	1.3E+02
lead	air	14280-50-3	2.4E+01	4.82E+01	3.6E+02
lindane	air	58-89-9	6.1E+02	6.10E+02	5.4E+02
linuron	air	330-55-2	1.4E+01	1.38E+01	1.4E+01
malathion	air	121-75-5	3.5E-02	3.53E-02	3.5E-02
MCPA	air	94-74-6	1.5E+01	1.47E+01	1.5E+01
mecoprop	air	7085-19-0	1.2E+02	1.19E+02	1.2E+02
mercury	air	14302-87-5	2.1E+02	4.16E+02	1.3E+03
metamitron	air	41394-05-2	8.8E-01	8.79E-01	8.8E-01
metazachlor	air	67129-08-2	6.8E+00	6.82E+00	6.8E+00
methabenzthiazuron	air	18691-97-9	7.1E+00	7.13E+00	7.1E+00
methomyl	air	16752-77-5	6.2E+00	6.16E+00	6.2E+00
methylbromide	air	74-83-9	3.5E+02	3.51E+02	7.2E+01
methyl-mercury	air	22967-92-6	1.3E+03	1.09E+04	8.3E+03
metobromuron	air	3060-89-7	5.5E+01	5.55E+01	5.5E+01
metolachlor	air	51218-45-2	2.6E+00	2.58E+00	2.5E+00
mevinphos	air	7786-34-7	1.0E+00	1.04E+00	1.0E+00
molybdenum	air	7439-98-7	6.9E+00	7.32E+01	6.7E+02
meta-Xylene	air	108-38-3	2.7E-02	2.71E-02	2.6E-02
Naphtalene	air	91-20-3	8.1E+00	8.11E+00	7.7E+00
nickel	air	7440-02-0	3.5E+04	3.50E+04	2.9E+04
nitrogen dioxide	air	10102-44-0	1.2E+00	1.20E+00	1.1E+00
oxamyl	air	23135-22-0	1.4E+00	1.40E+00	1.4E+00
oxydemethon-methyl	air	301-12-2	1.2E+02	1.22E+02	1.2E+02
ortho-Xylene	air	95-47-6	1.2E-01	1.25E-01	1.1E-01
parathion-ethyl	air	56-38-2	3.3E+00	3.34E+00	3.3E+00
parathion-methyl	air	298-00-0	5.3E+01	5.27E+01	5.2E+01
pentachlorobenzene	air	608-93-5	4.1E+02	4.10E+02	1.7E+02
pentachloronitrobenzene	air	82-68-8	1.9E+02	1.86E+02	1.1E+02
pentachlorophenol	air	87-86-5	5.1E+00	5.08E+00	4.9E+00
permethrin	air	52645-53-1	8.5E-01	8.50E-01	8.1E-01
phenanthrene	air	85-01-8	x	x	x
Phenol	air	108-95-2	5.2E-01	5.18E-01	4.9E-01
phoxim	air	14816-18-3	9.7E-01	9.68E-01	9.5E-01
Phtalic anhydride	air	85-44-9	4.1E-01	4.12E-01	4.1E-01
pirimicarb	air	23103-98-2	3.4E+00	3.44E+00	3.4E+00
dust (PM10) <sup>1</sup>	air	PM10	8.2E-01	8.20E-01	7.7E-01

<sup>1</sup> Including dust besides individual chemicals may imply some double-counting according to recent WHO findings.

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
propachlor	air	1918-16-7	1.2E+01	1.25E+01	1.2E+01
propoxur	air	114-26-1	3.7E+01	3.67E+01	3.7E+01
Propylene Oxide	air	75-56-9	1.3E+03	1.26E+03	7.6E+02
para-Xylene	air	106-42-3	4.3E-02	4.32E-02	4.0E-02
pyrazophos	air	13457-18-6	2.5E+01	2.45E+01	2.4E+01
selenium	air	7782-49-2	1.1E+03	1.36E+03	4.2E+03
simazine	air	122-34-9	3.3E+01	3.33E+01	3.3E+01
styrene	air	100-42-5	4.7E-02	4.74E-02	4.6E-02
sulphur dioxide	air	7446-09-5	9.6E-02	9.60E-02	8.9E-02
Tetrachloroethylene	air	127-18-4	5.5E+00	5.53E+00	1.3E+00
Tetrachloromethane	air	56-23-5	2.2E+02	2.20E+02	2.1E+01
thallium	air	7440-28-0	3.4E+03	6.91E+04	2.0E+05
Thiram	air	137-26-8	1.9E+01	1.89E+01	1.8E+01
tin	air	7440-31-5	1.3E-01	2.01E-01	1.4E+00
tolclophos-methyl	air	57018-04-9	6.0E-02	5.96E-02	5.8E-02
Toluene	air	108-88-3	3.3E-01	3.27E-01	2.8E-01
tri-allate	air	2303-17-5	9.7E+00	9.69E+00	9.3E+00
triazophos	air	24017-47-8	2.1E+02	2.10E+02	2.1E+02
tributyltinoxide	air	56-35-9	7.5E+03	7.50E+03	7.0E+03
trichlorfon	air	52-68-6	4.4E+00	4.45E+00	4.4E+00
Trichloroethylene	air	79-01-6	3.4E+01	3.44E+01	2.4E+01
Trichloromethane	air	67-66-3	1.3E+01	1.27E+01	3.2E+00
trifluarin	air	1582-09-8	1.7E+00	1.74E+00	1.7E+00
vanadium	air	7440-62-2	1.3E+02	8.17E+02	2.1E+03
Vinyl Chloride	air	75-01-4	8.4E+01	8.43E+01	7.2E+01
zinc	air	23713-49-7	9.5E+01	9.77E+01	8.7E+01
zineb	air	12122-67-7	4.8E+00	4.76E+00	4.7E+00
chlormequat-chloride	air	999-81-5	2.1E-01	2.1E-01	2.1E-01
fenpropimorph	air	67306-03-0	2.6E+01	2.6E+01	2.5E+01
fluroxypyr	air	69377-81-7	1.1E-01	1.1E-01	1.1E-01
epoxiconazole	air	??	2.9E+01	2.9E+01	2.7E+01
ethylene oxide	air	75-21-8	1.4E+04	1.4E+04	8.1E+03
hydrogen fluoride	air	7664-39-3	9.4E+01	9.4E+01	2.8E+02
1,1,1-trichloroethane	fresh water	71-55-6	1.6E+01	1.62E+01	1.3E+02
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.6E+02	1.56E+02	6.5E+01
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	9.2E+01	9.18E+01	6.4E+01
1,2,3-trichlorobenzene	fresh water	87-61-6	1.3E+02	1.35E+02	1.6E+02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	1.8E+02	1.80E+02	5.9E+01
1,2,4-trichlorobenzene	fresh water	120-82-1	1.2E+02	1.23E+02	3.9E+00
1,2-dichlorobenzene	fresh water	95-50-1	8.9E+00	8.85E+00	2.4E+01
1,2-dichloroethane	fresh water	107-06-2	2.8E+01	2.79E+01	6.4E+01
1,3,5-trichlorobenzene	fresh water	108-70-3	1.2E+02	1.25E+02	7.0E+03
1,3-Butadiene	fresh water	106-99-0	7.0E+03	6.99E+03	4.4E+01
1,3-dichlorobenzene	fresh water	541-73-1	7.4E+01	7.44E+01	4.6E-01
1,4-dichlorobenzene	fresh water	106-46-7	1.1E+00	1.06E+00	1.3E+03
1-chloro-4-nitrobenzene	fresh water	100-00-5	1.7E+03	1.71E+03	3.5E+01
2,3,4,6-tetrachlorophenol	fresh water	58-90-2	3.5E+01	3.52E+01	8.4E+08
2,3,7,8-TCDD	fresh water	1746-01-6	8.3E+08	8.59E+08	1.9E+00
2,4,5-T	fresh water	93-76-5	1.9E+00	1.93E+00	4.5E+01
2,4,5-trichlorophenol	fresh water	95-95-4	4.5E+01	4.52E+01	9.1E+03
2,4,6-trichlorophenol	fresh water	88-06-2	9.1E+03	9.15E+03	3.5E+00
2,4-D	fresh water	94-75-7	3.5E+00	3.47E+00	1.5E+01
2,4-dichlorophenol	fresh water	120-83-2	1.6E+01	1.61E+01	7.0E+01
2-chlorophenol	fresh water	95-57-8	7.0E+01	6.96E+01	1.3E+02

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
3,4-dichloroaniline	fresh water	95-76-1	1.3E+02	1.34E+02	3.5E+03
3-chloroaniline	fresh water	108-42-9	3.5E+03	3.52E+03	2.9E+03
4-chloroaniline	fresh water	106-47-8	2.9E+03	2.85E+03	2.1E+00
acephate	fresh water	30560-19-1	2.1E+00	2.11E+00	5.7E+01
Acrolein	fresh water	107-02-8	5.9E+01	5.86E+01	6.7E+03
Acrylonitrile	fresh water	107-13-1	7.1E+03	7.07E+03	6.1E+01
aldicarb	fresh water	116-06-3	6.1E+01	6.07E+01	6.0E+03
aldrin	fresh water	309-00-2	6.0E+03	5.98E+03	2.4E-01
ammonia	fresh water	7664-41-7	x	x	
anilazine	fresh water	101-05-3	2.4E-01	2.35E-01	2.0E+00
anthracene	fresh water	120-12-7	2.1E+00	2.06E+00	6.7E+02
antimony	fresh water	7440-36-0	3.4E+02	4.13E+02	1.8E+02
arsenic	fresh water	7440-38-2	1.2E+02	1.53E+02	4.6E+00
atrazine	fresh water	1912-24-9	4.6E+00	4.56E+00	4.6E+02
aziphos-ethyl	fresh water	2642-71-9	4.6E+02	4.56E+02	2.5E+00
aziphos-methyl	fresh water	86-50-0	2.5E+00	2.50E+00	5.6E+01
barium	fresh water	7440-39-3	1.4E+01	1.71E+01	1.4E-01
benomyl	fresh water	17804-35-2	1.4E-01	1.42E-01	7.3E-01
bentazone	fresh water	25057-89-0	7.3E-01	7.33E-01	1.1E+03
Benzene	fresh water	71-43-2	1.8E+03	1.83E+03	x
benzo[a]anthracene	fresh water	56-55-3	x	x	x
benzo[a]pyrene	fresh water	50-32-8	x	x	x
benzo[ghi]perylene	fresh water	191-24-2	x	x	x
benzo[k]fluoranthrene	fresh water	207-08-9	x	x	2.0E+03
benzylchloride	fresh water	100-44-7	2.4E+03	2.38E+03	1.3E+03
beryllium	fresh water	7440-41-7	4.2E+02	4.64E+02	9.8E+01
bifenthrin	fresh water	82657-04-3	9.8E+01	9.82E+01	8.2E-02
Butylbenzylphtalate	fresh water	85-68-7	8.6E-02	8.61E-02	1.2E+01
cadmium	fresh water	22537-48-0	9.4E+00	1.26E+01	5.0E+02
captafol	fresh water	2425-06-1	5.0E+02	4.96E+02	5.3E-03
captan	fresh water	133-06-2	5.3E-03	5.29E-03	4.7E+00
carbaryl	fresh water	63-25-2	4.7E+00	4.69E+00	2.5E+00
carbendazim	fresh water	10605-21-7	2.5E+00	2.51E+00	5.6E+01
carbofuran	fresh water	1563-66-2	5.6E+01	5.64E+01	1.6E+00
carbon disulfide	fresh water	75-15-0	2.4E+00	2.43E+00	2.8E+05
Carcinogenic PAHs	fresh water		2.8E+05	2.81E+05	7.2E+02
chlordan	fresh water	57-74-9	7.4E+02	7.41E+02	8.1E+02
chlorfenvinphos	fresh water	470-90-6	8.1E+02	8.15E+02	1.4E-01
chloridazon	fresh water	1698-60-8	1.4E-01	1.43E-01	4.8E+00
chlorobenzene	fresh water	108-90-7	9.1E+00	9.10E+00	3.1E+00
chlorothalonil	fresh water	1897-45-6	6.7E+00	6.69E+00	1.0E+00
chlorpropham	fresh water	101-21-3	1.0E+00	1.02E+00	4.4E+01
chlorpyrifos	fresh water	2921-88-2	4.4E+01	4.43E+01	1.1E+00
chromium III	fresh water	16056-83-1	8.9E-01	1.22E+00	1.9E+00
chromium VI	fresh water	18540-29-9	1.5E+00	2.03E+00	x
chrysene	fresh water	218-01-9	x	x	6.6E+01
cobalt	fresh water	7440-48-4	6.2E+01	6.44E+01	4.9E-01
copper	fresh water	15158-11-9	3.7E-01	5.15E-01	1.0E+04
coumaphos	fresh water	56-72-4	1.0E+04	1.04E+04	6.0E+00
cyanazine	fresh water	21725-46-2	6.0E+00	5.95E+00	5.5E+00
cypermethrin	fresh water	52315-07-8	5.5E+00	5.55E+00	5.4E+00
cyromazine	fresh water	66215-27-8	5.4E+00	5.38E+00	3.6E+01
DDT	fresh water	50-29-3	3.7E+01	3.67E+01	2.8E+00
deltamethrin	fresh water	52918-63-5	2.8E+00	2.85E+00	7.2E+02

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
demeton	fresh water	8065-48-3	7.2E+02	7.21E+02	5.0E+01
desmetryn	fresh water	1014-69-3	5.0E+01	4.99E+01	9.1E-01
Di(2-ethylhexyl)phtalate	fresh water	117-81-7	9.1E-01	9.13E-01	6.6E+01
diazinon	fresh water	333-41-5	6.6E+01	6.57E+01	5.3E-01
Dibutylphtalate	fresh water	84-74-2	5.4E-01	5.37E-01	6.1E-01
Dichloromethane	fresh water	75-09-2	1.8E+00	1.84E+00	2.4E+01
dichlorprop	fresh water	120-36-5	2.4E+01	2.40E+01	3.3E-01
dichlorvos	fresh water	62-73-7	3.4E-01	3.43E-01	4.5E+04
dieldrin	fresh water	60-57-1	4.5E+04	4.49E+04	1.4E-01
Diethylphtalate	fresh water	84-66-2	1.4E-01	1.36E-01	1.4E+04
Dihexylphtalate	fresh water	84-75-3	1.4E+04	1.43E+04	1.7E+01
Diisodecylphtalate	fresh water	26761-40-0	1.9E+01	1.87E+01	1.6E+01
Diisooctylphtalate	fresh water	27554-26-3	1.8E+01	1.77E+01	1.8E+01
dimethoate	fresh water	60-51-5	1.8E+01	1.80E+01	7.1E+00
Dimethylphtalate	fresh water	133-11-3	7.2E+00	7.15E+00	1.6E+02
dinoseb	fresh water	88-85-7	1.6E+02	1.57E+02	2.4E+00
dinoterb	fresh water	1420-07-1	2.5E+00	2.47E+00	6.3E+00
Diocetylphthalate	fresh water	117-84-0	6.3E+00	6.34E+00	3.4E+02
disulfothon	fresh water	298-04-4	3.4E+02	3.45E+02	5.3E+01
diuron	fresh water	330-54-1	5.3E+01	5.31E+01	5.9E+01
DNOC	fresh water	534-52-1	5.9E+01	5.87E+01	1.7E+01
endosulfan	fresh water	115-29-7	1.7E+01	1.73E+01	6.0E+03
endrin	fresh water	72-20-8	6.0E+03	6.04E+03	1.8E+03
ethoprophos	fresh water	13194-48-4	1.8E+03	1.77E+03	7.2E-01
Ethylbenzene	fresh water	100-41-4	8.3E-01	8.27E-01	5.9E-01
Ethylene	fresh water	74-85-1	6.5E-01	6.54E-01	2.2E+01
fenitrothion	fresh water	122-14-5	2.2E+01	2.22E+01	9.3E+01
fenthion	fresh water	55-38-9	9.3E+01	9.29E+01	8.7E+02
fentin acetate	fresh water	900-95-8	8.8E+02	8.75E+02	7.5E+02
fentin chloride	fresh water	639-58-7	8.6E+02	8.61E+02	8.7E+02
fentin hydroxide	fresh water	76-87-9	8.7E+02	8.74E+02	x
fluoranthrene	fresh water	206-44-0	x	x	8.6E+00
folpet	fresh water	133-07-3	8.6E+00	8.63E+00	3.7E-02
Formaldehyde	fresh water	50-00-0	3.7E-02	3.71E-02	6.6E-02
glyphosate	fresh water	1071-83-6	6.6E-02	6.62E-02	3.4E+03
heptachlor	fresh water	76-44-8	3.4E+03	3.44E+03	1.3E+00
heptenophos	fresh water	23560-59-0	1.3E+00	1.28E+00	1.4E+04
hexachloro-1,3-butadiene	fresh water	87-68-3	8.0E+04	7.95E+04	3.3E+06
hexachlorobenzene	fresh water	118-74-1	5.3E+06	5.65E+06	x
hydrogen chloride	fresh water	7647-01-0	x	x	
hydrogen sulfide	fresh water	7783-06-4	x	x	
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	x	x	1.8E-01
iprodione	fresh water	36734-19-7	1.8E-01	1.84E-01	1.3E+01
isoproturon	fresh water	34123-59-6	1.3E+01	1.32E+01	5.7E+00
lead	fresh water	14280-50-3	4.1E+00	6.29E+00	8.2E+02
lindane	fresh water	58-89-9	8.3E+02	8.26E+02	1.1E+02
linuron	fresh water	330-55-2	1.1E+02	1.15E+02	2.4E-01
malathion	fresh water	121-75-5	2.4E-01	2.45E-01	1.5E+01
MCPA	fresh water	94-74-6	1.5E+01	1.51E+01	2.0E+02
mecoprop	fresh water	7085-19-0	2.0E+02	2.05E+02	6.1E+02
mercury	fresh water	14302-87-5	8.0E+01	1.22E+02	1.6E-01
metamitron	fresh water	41394-05-2	1.6E-01	1.61E-01	1.7E+00
metazachlor	fresh water	67129-08-2	1.7E+00	1.69E+00	2.6E+00
methabenzthiazuron	fresh water	18691-97-9	2.6E+00	2.62E+00	3.3E+00

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
methomyl	fresh water	16752-77-5	3.3E+00	3.27E+00	6.1E+01
methylbromide	fresh water	74-83-9	3.0E+02	2.98E+02	6.6E+03
methyl-mercury	fresh water	22967-92-6	4.8E+03	7.27E+03	8.0E+00
metobromuron	fresh water	3060-89-7	8.0E+00	7.97E+00	5.5E-01
metolachlor	fresh water	51218-45-2	5.5E-01	5.54E-01	1.1E+01
mevinphos	fresh water	7786-34-7	1.1E+01	1.06E+01	4.7E+02
molybdenum	fresh water	7439-98-7	1.0E+02	1.26E+02	3.4E-01
meta-Xylene	fresh water	108-38-3	3.4E-01	3.37E-01	5.3E+00
Naphtalene	fresh water	91-20-3	5.6E+00	5.55E+00	6.1E+01
nickel	fresh water	7440-02-0	3.9E+01	4.89E+01	3.6E-01
nitrogen dioxide	fresh water	10102-44-0	x	x	
oxamyl	fresh water	23135-22-0	3.6E-01	3.55E-01	7.4E+01
oxydemethon-methyl	fresh water	301-12-2	7.4E+01	7.42E+01	4.2E-01
ortho-Xylene	fresh water	95-47-6	4.2E-01	4.25E-01	3.1E+01
parathion-ethyl	fresh water	56-38-2	3.1E+01	3.10E+01	1.0E+02
parathion-methyl	fresh water	298-00-0	1.0E+02	1.03E+02	9.6E+02
pentachlorobenzene	fresh water	608-93-5	1.2E+03	1.20E+03	5.9E+01
pentachloronitrobenzene	fresh water	82-68-8	9.1E+01	9.06E+01	7.2E+00
pentachlorophenol	fresh water	87-86-5	7.2E+00	7.24E+00	2.3E+01
permethrin	fresh water	52645-53-1	2.3E+01	2.25E+01	x
phenanthrene	fresh water	85-01-8	x	x	4.9E-02
Phenol	fresh water	108-95-2	4.9E-02	4.92E-02	1.2E+01
phoxim	fresh water	14816-18-3	1.2E+01	1.19E+01	1.1E-04
Phtalic anhydride	fresh water	85-44-9	1.1E-04	1.15E-04	1.7E+00
pirimicarb	fresh water	23103-98-2	1.7E+00	1.66E+00	1.6E+00
dust (PM10)	fresh water	PM10	x	x	
propachlor	fresh water	1918-16-7	1.6E+00	1.61E+00	1.3E+00
propoxur	fresh water	114-26-1	1.3E+00	1.26E+00	2.4E+03
Propylene Oxide	fresh water	75-56-9	2.6E+03	2.64E+03	3.5E-01
para-Xylene	fresh water	106-42-3	3.5E-01	3.51E-01	5.3E+01
pyrazophos	fresh water	13457-18-6	5.3E+01	5.28E+01	4.3E+03
selenium	fresh water	7782-49-2	5.0E+02	6.19E+02	9.7E+00
simazine	fresh water	122-34-9	9.7E+00	9.74E+00	8.4E-02
styrene	fresh water	100-42-5	8.5E-02	8.51E-02	1.6E+00
sulphur dioxide	fresh water	7446-09-5	x	x	
Tetrachloroethylene	fresh water	127-18-4	5.7E+00	5.72E+00	2.1E+01
Tetrachloromethane	fresh water	56-23-5	2.2E+02	2.20E+02	2.0E+04
thallium	fresh water	7440-28-0	5.5E+03	6.68E+03	3.3E+00
Thiram	fresh water	137-26-8	3.3E+00	3.31E+00	8.1E-03
tin	fresh water	7440-31-5	5.9E-03	8.87E-03	1.0E+00
tolclophos-methyl	fresh water	57018-04-9	1.0E+00	1.05E+00	2.6E-01
Toluene	fresh water	108-88-3	3.0E-01	3.03E-01	8.3E+01
tri-allate	fresh water	2303-17-5	8.3E+01	8.34E+01	3.2E+02
triazophos	fresh water	24017-47-8	3.2E+02	3.18E+02	3.4E+03
tributyltinoxide	fresh water	56-35-9	3.4E+03	3.38E+03	3.7E-01
trichlorfon	fresh water	52-68-6	3.7E-01	3.72E-01	2.4E+01
Trichloroethylene	fresh water	79-01-6	3.3E+01	3.35E+01	3.3E+00
Trichloromethane	fresh water	67-66-3	1.3E+01	1.25E+01	9.7E+01
trifluarin	fresh water	1582-09-8	9.7E+01	9.70E+01	4.5E+02
vanadium	fresh water	7440-62-2	2.4E+02	3.12E+02	1.3E+02
Vinyl Chloride	fresh water	75-01-4	1.4E+02	1.45E+02	2.3E-01
zinc	fresh water	23713-49-7	1.7E-01	2.51E-01	1.7E+00
zineb	fresh water	12122-67-7	1.7E+00	1.73E+00	1.8E+00
chlormequat-chloride	fresh water	999-81-5	8.3E-01	8.3E-01	8.3E-01

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
fenpropimorph	fresh water	67306-03-0	1.1E+03	1.1E+03	1.1E+03
fluroxypyr	fresh water	69377-81-7	5.0E-02	5.0E-02	5.0E-02
epoxiconazole	fresh water	??	1.0E+02	1.0E+02	1.0E+02
ethylene oxide	fresh water	75-21-8	1.1E+04	1.1E+04	7.3E+03
hydrogen fluoride	fresh water	7664-39-3	9.4E+00	9.4E+00	2.6E+02
1,1,1-trichloroethane	seawater	71-55-6	9.6E+00	9.65E+00	1.1E+00
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	3.0E+01	2.99E+01	2.0E+01
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	2.5E+01	2.46E+01	1.3E+01
1,2,3-trichlorobenzene	seawater	87-61-6	6.2E+01	6.19E+01	2.8E+01
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	3.0E+01	3.02E+01	2.2E+01
1,2,4-trichlorobenzene	seawater	120-82-1	5.6E+01	5.56E+01	2.6E+01
1,2-dichlorobenzene	seawater	95-50-1	4.1E+00	4.09E+00	1.8E+00
1,2-dichloroethane	seawater	107-06-2	5.4E+00	5.45E+00	2.1E+00
1,3,5-trichlorobenzene	seawater	108-70-3	5.4E+01	5.37E+01	2.6E+01
1,3-Butadiene	seawater	106-99-0	4.5E+02	4.45E+02	4.4E+02
1,3-dichlorobenzene	seawater	541-73-1	3.0E+01	3.04E+01	1.6E+01
1,4-dichlorobenzene	seawater	106-46-7	4.7E-01	4.74E-01	1.9E-01
1-chloro-4-nitrobenzene	seawater	100-00-5	2.2E+02	2.25E+02	1.4E+02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	2.6E-01	2.63E-01	2.6E-01
2,3,7,8-TCDD	seawater	1746-01-6	3.9E+08	4.22E+08	3.8E+08
2,4,5-T	seawater	93-76-5	5.4E-03	5.40E-03	5.4E-03
2,4,5-trichlorophenol	seawater	95-95-4	6.1E-01	6.07E-01	5.9E-01
2,4,6-trichlorophenol	seawater	88-06-2	4.7E+01	4.68E+01	4.7E+01
2,4-D	seawater	94-75-7	6.7E-05	6.68E-05	6.7E-05
2,4-dichlorophenol	seawater	120-83-2	6.5E-02	6.50E-02	6.1E-02
2-chlorophenol	seawater	95-57-8	3.5E-01	3.55E-01	3.5E-01
3,4-dichloroaniline	seawater	95-76-1	1.5E+00	1.51E+00	1.4E+00
3-chloroaniline	seawater	108-42-9	2.1E+00	2.06E+00	2.1E+00
4-chloroaniline	seawater	106-47-8	4.0E+00	4.03E+00	4.0E+00
acephate	seawater	30560-19-1	5.1E-04	5.10E-04	5.1E-04
Acrolein	seawater	107-02-8	8.0E-01	8.03E-01	7.7E-01
Acrylonitrile	seawater	107-13-1	5.1E+01	5.09E+01	4.0E+01
aldicarb	seawater	116-06-3	2.4E-01	2.39E-01	2.4E-01
aldrin	seawater	309-00-2	7.8E+02	7.79E+02	7.7E+02
ammonia	seawater	7664-41-7	x	x	
anilazine	seawater	101-05-3	8.2E-04	8.18E-04	8.2E-04
anthracene	seawater	120-12-7	1.6E-01	1.57E-01	1.5E-01
antimony	seawater	7440-36-0	2.4E+01	1.36E+02	6.1E+02
arsenic	seawater	7440-38-2	1.6E+01	9.20E+01	1.8E+02
atrazine	seawater	1912-24-9	1.8E-02	1.76E-02	1.7E-02
aziphos-ethyl	seawater	2642-71-9	1.6E+00	1.60E+00	1.6E+00
aziphos-methyl	seawater	86-50-0	5.7E-03	5.70E-03	5.7E-03
barium	seawater	7440-39-3	8.3E-01	4.74E+00	5.5E+01
benomyl	seawater	17804-35-2	2.4E-04	2.42E-04	2.4E-04
bentazone	seawater	25057-89-0	2.2E-03	2.20E-03	2.2E-03
Benzene	seawater	71-43-2	2.1E+02	2.10E+02	1.2E+02
benzo[a]anthracene	seawater	56-55-3	x	x	x
benzo[a]pyrene	seawater	50-32-8	x	x	x
benzo[ghi]perylene	seawater	191-24-2	x	x	x
benzo[k]fluoranthrene	seawater	207-08-9	x	x	x
benzylchloride	seawater	100-44-7	5.5E+01	5.50E+01	4.3E+01
beryllium	seawater	7440-41-7	1.0E+01	5.89E+01	1.1E+03
bifenthrin	seawater	82657-04-3	7.5E-01	7.48E-01	7.5E-01
Butylbenzylphtalate	seawater	85-68-7	8.5E-04	8.52E-04	7.9E-04



Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
cadmium	seawater	22537-48-0	2.4E+00	1.77E+01	1.2E+01
captafol	seawater	2425-06-1	9.7E+00	9.69E+00	9.1E+00
captan	seawater	133-06-2	5.4E-06	5.42E-06	5.4E-06
carbaryl	seawater	63-25-2	1.9E-03	1.87E-03	1.9E-03
carbendazim	seawater	10605-21-7	2.0E-03	2.01E-03	2.0E-03
carbofuran	seawater	1563-66-2	2.1E-01	2.09E-01	2.1E-01
carbon disulfide	seawater	75-15-0	4.8E-01	4.82E-01	3.1E-01
Carcinogenic PAHs	seawater		2.8E+04	2.88E+04	2.7E+04
chlordane	seawater	57-74-9	1.2E+03	1.16E+03	1.0E+03
chlorfenvinphos	seawater	470-90-6	3.8E+00	3.85E+00	3.8E+00
chloridazon	seawater	1698-60-8	2.1E-03	2.13E-03	2.0E-03
chlorobenzene	seawater	108-90-7	5.2E+00	5.16E+00	2.7E+00
chlorothalonil	seawater	1897-45-6	4.5E-01	4.55E-01	2.0E-01
chlorpropham	seawater	101-21-3	4.3E-03	4.32E-03	4.3E-03
chlorpyrifos	seawater	2921-88-2	3.8E-02	3.80E-02	3.8E-02
chromium III	seawater	16056-83-1	2.6E-01	2.08E+00	1.4E+00
chromium VI	seawater	18540-29-9	4.4E-01	3.46E+00	2.3E+00
chrysene	seawater	218-01-9	x	x	x
cobalt	seawater	7440-48-4	1.8E-01	1.02E+00	4.2E+00
copper	seawater	15158-11-9	1.1E-01	6.86E-01	5.5E-01
coumaphos	seawater	56-72-4	2.2E+02	2.23E+02	2.1E+02
cyanazine	seawater	21725-46-2	9.6E-03	9.63E-03	9.6E-03
cypermethrin	seawater	52315-07-8	2.6E-02	2.58E-02	2.5E-02
cyromazine	seawater	66215-27-8	2.6E-03	2.57E-03	2.5E-03
DDT	seawater	50-29-3	3.3E+01	3.36E+01	3.0E+01
deltamethrin	seawater	52918-63-5	3.3E-02	3.29E-02	3.3E-02
demeton	seawater	8065-48-3	3.0E-01	2.95E-01	2.9E-01
desmetryn	seawater	1014-69-3	1.2E-01	1.16E-01	1.2E-01
Di(2-ethylhexyl)phtalate	seawater	117-81-7	4.0E-02	3.98E-02	3.9E-02
diazinon	seawater	333-41-5	2.7E-01	2.73E-01	2.7E-01
Dibutylphtalate	seawater	84-74-2	3.0E-03	3.01E-03	2.9E-03
Dichloromethane	seawater	75-09-2	3.0E-01	2.98E-01	9.5E-02
dichlorprop	seawater	120-36-5	9.7E-02	9.68E-02	9.7E-02
dichlorvos	seawater	62-73-7	2.3E-03	2.31E-03	2.1E-03
dieldrin	seawater	60-57-1	5.5E+03	5.50E+03	5.2E+03
Diethylphtalate	seawater	84-66-2	5.7E-04	5.70E-04	5.6E-04
Dihexylphtalate	seawater	84-75-3	3.7E+02	3.69E+02	3.5E+02
Diisodecylphtalate	seawater	26761-40-0	3.2E+00	3.16E+00	2.9E+00
Diisooctylphtalate	seawater	27554-26-3	9.7E+00	9.68E+00	9.0E+00
dimethoate	seawater	60-51-5	3.3E-03	3.29E-03	3.3E-03
Dimethylphtalate	seawater	133-11-3	8.4E-03	8.39E-03	8.3E-03
dinoseb	seawater	88-85-7	6.3E-01	6.32E-01	6.2E-01
dinoterb	seawater	1420-07-1	2.9E-03	2.93E-03	2.5E-03
Diocetylphthalate	seawater	117-84-0	1.3E+00	1.29E+00	1.3E+00
disulfothon	seawater	298-04-4	1.5E+00	1.54E+00	1.5E+00
diuron	seawater	330-54-1	1.9E-01	1.85E-01	1.8E-01
DNOC	seawater	534-52-1	1.5E-03	1.49E-03	1.5E-03
endosulfan	seawater	115-29-7	4.2E-02	4.23E-02	4.2E-02
endrin	seawater	72-20-8	1.6E+03	1.64E+03	1.4E+03
ethoprophos	seawater	13194-48-4	1.3E+01	1.34E+01	1.3E+01
Ethylbenzene	seawater	100-41-4	7.0E-02	7.02E-02	6.1E-02
Ethylene	seawater	74-85-1	4.7E-02	4.71E-02	4.1E-02
fenitrothion	seawater	122-14-5	9.0E-02	8.96E-02	8.9E-02
fenthion	seawater	55-38-9	4.6E-01	4.65E-01	4.6E-01

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
fentin acetate	seawater	900-95-8	4.1E+00	4.14E+00	4.1E+00
fentin chloride	seawater	639-58-7	1.2E+01	1.21E+01	9.0E+00
fentin hydroxide	seawater	76-87-9	4.1E+00	4.11E+00	4.1E+00
fluoranthrene	seawater	206-44-0	x	x	x
folpet	seawater	133-07-3	3.1E-01	3.14E-01	2.9E-01
Formaldehyde	seawater	50-00-0	2.8E-05	2.82E-05	2.6E-05
glyphosate	seawater	1071-83-6	1.5E-05	1.51E-05	1.5E-05
heptachlor	seawater	76-44-8	4.3E+01	4.28E+01	4.3E+01
heptenophos	seawater	23560-59-0	2.3E-03	2.29E-03	2.3E-03
hexachloro-1,3-butadiene	seawater	87-68-3	3.9E+04	3.95E+04	5.7E+03
hexachlorobenzene	seawater	118-74-1	3.1E+06	3.42E+06	1.3E+06
hydrogen chloride	seawater	7647-01-0	x	x	
hydrogen sulfide	seawater	7783-06-4	x	x	
indeno[1,2,3-cd]pyrene	seawater	193-39-5	x	x	x
iprodione	seawater	36734-19-7	1.2E-04	1.19E-04	1.2E-04
isoproturon	seawater	34123-59-6	2.9E-02	2.90E-02	2.9E-02
lead	seawater	14280-50-3	2.1E+00	1.82E+01	1.2E+01
lindane	seawater	58-89-9	6.1E+00	6.15E+00	6.0E+00
linuron	seawater	330-55-2	6.5E-01	6.54E-01	6.5E-01
malathion	seawater	121-75-5	8.4E-04	8.41E-04	8.4E-04
MCPA	seawater	94-74-6	3.7E-02	3.69E-02	3.7E-02
mecoprop	seawater	7085-19-0	8.4E-01	8.43E-01	8.4E-01
mercury	seawater	14302-87-5	4.0E+01	2.96E+02	1.0E+03
metamitron	seawater	41394-05-2	3.2E-05	3.18E-05	3.2E-05
metazachlor	seawater	67129-08-2	2.4E-03	2.42E-03	2.4E-03
methabenzthiazuron	seawater	18691-97-9	8.2E-03	8.24E-03	8.1E-03
methomyl	seawater	16752-77-5	1.4E-03	1.40E-03	1.4E-03
methylbromide	seawater	74-83-9	2.5E+01	2.49E+01	5.1E+00
methyl-mercury	seawater	22967-92-6	2.4E+03	1.74E+04	1.1E+04
metobromuron	seawater	3060-89-7	7.6E-02	7.63E-02	7.2E-02
metolachlor	seawater	51218-45-2	8.5E-04	8.52E-04	8.4E-04
mevinphos	seawater	7786-34-7	1.8E-03	1.85E-03	1.8E-03
molybdenum	seawater	7439-98-7	5.9E+00	3.33E+01	4.7E+02
meta-Xylene	seawater	108-38-3	1.0E-02	1.03E-02	1.0E-02
Naphtalene	seawater	91-20-3	1.9E-01	1.94E-01	1.9E-01
nickel	seawater	7440-02-0	4.1E+00	2.36E+01	5.4E+01
nitrogen dioxide	seawater	10102-44-0	x	x	
oxamyl	seawater	23135-22-0	1.4E-05	1.43E-05	1.4E-05
oxydemethon-methyl	seawater	301-12-2	1.0E-02	1.02E-02	1.0E-02
ortho-Xylene	seawater	95-47-6	2.6E-02	2.58E-02	2.4E-02
parathion-ethyl	seawater	56-38-2	1.8E-01	1.85E-01	1.8E-01
parathion-methyl	seawater	298-00-0	5.4E-01	5.38E-01	5.4E-01
pentachlorobenzene	seawater	608-93-5	4.1E+02	4.12E+02	2.5E+02
pentachloronitrobenzene	seawater	82-68-8	4.6E+01	4.61E+01	2.8E+01
pentachlorophenol	seawater	87-86-5	1.4E-01	1.39E-01	1.4E-01
permethrin	seawater	52645-53-1	2.6E-01	2.55E-01	2.5E-01
phenanthrene	seawater	85-01-8	x	x	x
Phenol	seawater	108-95-2	8.0E-05	7.96E-05	7.9E-05
phoxim	seawater	14816-18-3	2.9E-01	2.94E-01	2.9E-01
Phtalic anhydride	seawater	85-44-9	1.0E-07	1.01E-07	1.0E-07
pirimicarb	seawater	23103-98-2	1.3E-03	1.28E-03	1.3E-03
dust (PM10)	seawater	PM10	x	x	
propachlor	seawater	1918-16-7	2.6E-03	2.60E-03	2.6E-03
propoxur	seawater	114-26-1	3.9E-04	3.90E-04	3.9E-04



Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
Propylene Oxide	seawater	75-56-9	1.6E+01	1.58E+01	9.8E+00
para-Xylene	seawater	106-42-3	1.3E-02	1.30E-02	1.2E-02
pyrazophos	seawater	13457-18-6	2.3E-01	2.28E-01	2.3E-01
selenium	seawater	7782-49-2	2.7E+01	1.56E+02	4.3E+03
simazine	seawater	122-34-9	1.6E-02	1.60E-02	1.6E-02
styrene	seawater	100-42-5	1.0E-02	1.02E-02	9.9E-03
sulphur dioxide	seawater	7446-09-5	x	x	
Tetrachloroethylene	seawater	127-18-4	2.8E+00	2.75E+00	6.7E-01
Tetrachloromethane	seawater	56-23-5	1.7E+02	1.68E+02	1.6E+01
thallium	seawater	7440-28-0	3.4E+02	1.91E+03	2.0E+04
+Thiram	seawater	137-26-8	6.6E-04	6.60E-04	6.5E-04
tin	seawater	7440-31-5	2.8E-03	2.27E-02	1.5E-02
tolclophos-methyl	seawater	57018-04-9	6.5E-02	6.53E-02	6.5E-02
Toluene	seawater	108-88-3	3.9E-02	3.85E-02	3.3E-02
tri-allate	seawater	2303-17-5	1.2E+00	1.21E+00	1.2E+00
triazophos	seawater	24017-47-8	1.6E+00	1.56E+00	1.6E+00
tributyltinoxide	seawater	56-35-9	5.5E+01	5.46E+01	5.4E+01
trichlorfon	seawater	52-68-6	3.1E-05	3.09E-05	3.1E-05
Trichloroethylene	seawater	79-01-6	1.4E+01	1.41E+01	9.9E+00
Trichloromethane	seawater	67-66-3	6.0E+00	6.02E+00	1.5E+00
trifluarin	seawater	1582-09-8	6.0E+00	6.05E+00	6.0E+00
vanadium	seawater	7440-62-2	2.5E+01	1.42E+02	4.4E+02
Vinyl Chloride	seawater	75-01-4	4.3E+01	4.26E+01	3.6E+01
zinc	seawater	23713-49-7	7.3E-02	5.18E-01	3.6E-01
zineb	seawater	12122-67-7	8.2E-04	8.21E-04	8.2E-04
chlormequat-chloride	seawater	999-81-5	2.1E-04	2.1E-04	2.1E-04
fenpropimorph	seawater	67306-03-0	6.0E+00	6.0E+00	6.0E+00
fluroxypyr	seawater	69377-81-7	1.6E-05	1.6E-05	1.6E-05
epoxiconazole	seawater	??	2.3E+00	2.3E+00	2.1E+00
ethylene oxide	seawater	75-21-8	5.4E+02	5.4E+02	3.1E+02
hydrogen fluoride	seawater	7664-39-3	4.8E-03	2.7E-02	2.5E+02
1,1,1-trichloroethane	agri. soil	71-55-6	1.6E+01	1.60E+01	2.1E+00
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	8.0E+01	7.97E+01	7.9E+01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	1.8E+02	1.81E+02	1.8E+02
1,2,3-trichlorobenzene	agri. soil	87-61-6	5.6E+01	5.64E+01	3.4E+01
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	8.4E+01	8.40E+01	8.3E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	4.2E+01	4.20E+01	2.8E+01
1,2-dichlorobenzene	agri. soil	95-50-1	7.3E+00	7.32E+00	3.4E+00
1,2-dichloroethane	agri. soil	107-06-2	1.3E+03	1.29E+03	1.3E+03
1,3,5-trichlorobenzene	agri. soil	108-70-3	6.9E+01	6.91E+01	4.7E+01
1,3-Butadiene	agri. soil	106-99-0	3.1E+03	3.07E+03	3.0E+03
1,3-dichlorobenzene	agri. soil	541-73-1	2.5E+02	2.47E+02	2.2E+02
1,4-dichlorobenzene	agri. soil	106-46-7	2.9E+00	2.88E+00	2.4E+00
1-chloro-4-nitrobenzene	agri. soil	100-00-5	2.2E+04	2.22E+04	2.2E+04
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	3.1E+01	3.06E+01	3.1E+01
2,3,7,8-TCDD	agri. soil	1746-01-6	1.3E+09	1.30E+09	1.3E+09
2,4,5-T	agri. soil	93-76-5	5.8E+00	5.84E+00	5.8E+00
2,4,5-trichlorophenol	agri. soil	95-95-4	5.3E+00	5.28E+00	5.3E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	1.8E+03	1.80E+03	1.8E+03
2,4-D	agri. soil	94-75-7	4.7E+01	4.70E+01	4.7E+01
2,4-dichlorophenol	agri. soil	120-83-2	7.4E+02	7.41E+02	7.4E+02
2-chlorophenol	agri. soil	95-57-8	8.3E+00	8.33E+00	8.3E+00
3,4-dichloroaniline	agri. soil	95-76-1	1.7E+03	1.68E+03	1.7E+03
3-chloroaniline	agri. soil	108-42-9	3.0E+04	2.99E+04	3.0E+04

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4-chloroaniline	agri. soil	106-47-8	3.5E+04	3.47E+04	3.5E+04
acephate	agri. soil	30560-19-1	2.2E+01	2.16E+01	2.2E+01
Acrolein	agri. soil	107-02-8	2.3E+02	2.34E+02	2.3E+02
Acrylonitrile	agri. soil	107-13-1	4.9E+05	4.88E+05	4.9E+05
aldicarb	agri. soil	116-06-3	5.1E+02	5.07E+02	5.1E+02
aldrin	agri. soil	309-00-2	4.7E+03	4.67E+03	4.7E+03
ammonia	agri. soil	7664-41-7	x	x	
anilazine	agri. soil	101-05-3	8.0E-02	8.01E-02	8.0E-02
anthracene	agri. soil	120-12-7	5.1E-01	5.15E-01	5.1E-01
antimony	agri. soil	7440-36-0	3.5E+02	4.86E+03	6.6E+03
arsenic	agri. soil	7440-38-2	6.2E+01	1.53E+03	3.1E+04
atrazine	agri. soil	1912-24-9	2.1E+01	2.13E+01	2.1E+01
aziphos-ethyl	agri. soil	2642-71-9	7.6E+02	7.65E+02	7.6E+02
aziphos-methyl	agri. soil	86-50-0	3.9E+01	3.90E+01	3.9E+01
barium	agri. soil	7440-39-3	3.8E+00	4.56E+01	7.3E+01
benomyl	agri. soil	17804-35-2	4.3E-01	4.28E-01	4.3E-01
bentazone	agri. soil	25057-89-0	1.5E+01	1.51E+01	1.5E+01
Benzene	agri. soil	71-43-2	1.5E+04	1.48E+04	1.4E+04
benzo[a]anthracene	agri. soil	56-55-3	x	x	x
benzo[a]pyrene	agri. soil	50-32-8	x	x	x
benzo[ghi]perylene	agri. soil	191-24-2	x	x	x
benzo[k]fluoranthrene	agri. soil	207-08-9	x	x	x
benzylchloride	agri. soil	100-44-7	5.5E+03	5.53E+03	5.5E+03
beryllium	agri. soil	7440-41-7	6.9E+02	5.69E+03	6.4E+03
bifenthrin	agri. soil	82657-04-3	2.9E+01	2.86E+01	2.9E+01
Butylbenzylphthalate	agri. soil	85-68-7	3.1E-01	3.10E-01	3.1E-01
cadmium	agri. soil	22537-48-0	6.1E+02	1.07E+04	2.0E+04
captafol	agri. soil	2425-06-1	9.5E+02	9.58E+02	9.6E+02
captan	agri. soil	133-06-2	9.7E-02	9.75E-02	9.7E-02
carbaryl	agri. soil	63-25-2	2.1E+01	2.10E+01	2.1E+01
carbendazim	agri. soil	10605-21-7	1.4E+02	1.41E+02	1.4E+02
carbofuran	agri. soil	1563-66-2	1.4E+03	1.42E+03	1.4E+03
carbon disulfide	agri. soil	75-15-0	3.6E+00	3.61E+00	2.8E+00
Carcinogenic PAHs	agri. soil		7.0E+04	7.10E+04	7.1E+04
chlordane	agri. soil	57-74-9	2.8E+03	2.78E+03	2.8E+03
chlorfenvinphos	agri. soil	470-90-6	1.2E+03	1.22E+03	1.2E+03
chloridazon	agri. soil	1698-60-8	2.2E+00	2.18E+00	2.2E+00
chlorobenzene	agri. soil	108-90-7	7.1E+00	7.06E+00	3.8E+00
chlorothalonil	agri. soil	1897-45-6	9.4E-01	9.40E-01	7.9E-01
chlorpropham	agri. soil	101-21-3	2.1E+00	2.12E+00	2.1E+00
chlorpyrifos	agri. soil	2921-88-2	1.4E+01	1.45E+01	1.4E+01
chromium III	agri. soil	16056-83-1	5.9E+00	1.46E+02	5.1E+03
chromium VI	agri. soil	18540-29-9	9.9E+00	2.43E+02	8.5E+03
chrysene	agri. soil	218-01-9	x	x	x
cobalt	agri. soil	7440-48-4	2.6E+02	2.25E+03	2.4E+03
copper	agri. soil	15158-11-9	2.0E+00	3.92E+01	9.3E+01
coumaphos	agri. soil	56-72-4	1.1E+04	1.10E+04	1.1E+04
cyanazine	agri. soil	21725-46-2	2.4E+01	2.45E+01	2.4E+01
cypermethrin	agri. soil	52315-07-8	5.2E+03	5.20E+03	5.2E+03
cyromazine	agri. soil	66215-27-8	2.8E+02	2.79E+02	2.8E+02
DDT	agri. soil	50-29-3	2.0E+02	2.67E+02	2.7E+02
deltamethrin	agri. soil	52918-63-5	1.6E-01	1.60E-01	1.6E-01
demeton	agri. soil	8065-48-3	5.7E+03	5.72E+03	5.7E+03
desmetryn	agri. soil	1014-69-3	6.5E+02	6.48E+02	6.5E+02

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
Di(2-ethylhexyl)phtalate	agri. soil	117-81-7	1.8E+00	1.78E+00	1.8E+00
diazinon	agri. soil	333-41-5	1.2E+02	1.17E+02	1.2E+02
Dibutylphtalate	agri. soil	84-74-2	1.3E+00	1.31E+00	1.3E+00
Dichloromethane	agri. soil	75-09-2	2.4E+00	2.45E+00	1.6E+00
dichlorprop	agri. soil	120-36-5	4.5E+00	4.52E+00	4.5E+00
dichlorvos	agri. soil	62-73-7	9.7E-01	9.68E-01	9.7E-01
dieldrin	agri. soil	60-57-1	7.5E+03	7.56E+03	7.6E+03
Diethylphtalate	agri. soil	84-66-2	5.7E-02	5.73E-02	5.7E-02
Dihexylphtalate	agri. soil	84-75-3	1.2E+03	1.19E+03	1.2E+03
Diisodecylphtalate	agri. soil	26761-40-0	1.1E+02	1.12E+02	1.1E+02
Diisooctylphtalate	agri. soil	27554-26-3	3.2E+01	3.21E+01	3.2E+01
dimethoate	agri. soil	60-51-5	3.2E+02	3.18E+02	3.2E+02
Dimethylphtalate	agri. soil	133-11-3	2.8E+01	2.85E+01	2.8E+01
dinoseb	agri. soil	88-85-7	5.6E+02	5.62E+02	5.6E+02
dinoterb	agri. soil	1420-07-1	3.6E-01	3.56E-01	3.5E-01
Diocetylphthalate	agri. soil	117-84-0	8.6E+00	8.56E+00	8.6E+00
disulfothon	agri. soil	298-04-4	1.7E+02	1.68E+02	1.7E+02
diuron	agri. soil	330-54-1	1.3E+03	1.27E+03	1.3E+03
DNOC	agri. soil	534-52-1	2.8E+02	2.76E+02	2.8E+02
endosulfan	agri. soil	115-29-7	2.6E-01	2.63E-01	2.6E-01
endrin	agri. soil	72-20-8	8.4E+03	8.44E+03	8.4E+03
ethoprophos	agri. soil	13194-48-4	5.7E+03	5.68E+03	5.7E+03
Ethylbenzene	agri. soil	100-41-4	7.5E-01	7.53E-01	6.9E-01
Ethylene	agri. soil	74-85-1	7.8E-01	7.80E-01	7.1E-01
fenitrothion	agri. soil	122-14-5	1.2E+01	1.20E+01	1.2E+01
fenthion	agri. soil	55-38-9	3.0E+01	3.05E+01	3.0E+01
fentin acetate	agri. soil	900-95-8	7.2E+01	7.17E+01	7.2E+01
fentin chloride	agri. soil	639-58-7	1.3E+02	1.31E+02	1.3E+02
fentin hydroxide	agri. soil	76-87-9	8.8E+01	8.80E+01	8.8E+01
fluoranthrene	agri. soil	206-44-0	x	x	x
folpet	agri. soil	133-07-3	1.3E+01	1.28E+01	1.3E+01
Formaldehyde	agri. soil	50-00-0	2.3E+00	2.27E+00	2.3E+00
glyphosate	agri. soil	1071-83-6	1.5E-02	1.49E-02	1.5E-02
heptachlor	agri. soil	76-44-8	6.7E+02	6.69E+02	6.7E+02
heptenophos	agri. soil	23560-59-0	3.4E+00	3.38E+00	3.4E+00
hexachloro-1,3-butadiene	agri. soil	87-68-3	3.0E+04	3.00E+04	4.9E+03
hexachlorobenzene	agri. soil	118-74-1	3.1E+07	3.26E+07	3.2E+07
hydrogen chloride	agri. soil	7647-01-0	x	x	
hydrogen sulfide	agri. soil	7783-06-4	x	x	
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	x	x	x
iprodione	agri. soil	36734-19-7	1.8E+00	1.84E+00	1.8E+00
isoproturon	agri. soil	34123-59-6	9.6E+02	9.61E+02	9.6E+02
lead	agri. soil	14280-50-3	5.5E+00	1.35E+02	3.3E+03
lindane	agri. soil	58-89-9	4.9E+02	4.89E+02	4.9E+02
linuron	agri. soil	330-55-2	1.7E+02	1.69E+02	1.7E+02
malathion	agri. soil	121-75-5	2.6E-02	2.57E-02	2.6E-02
MCPA	agri. soil	94-74-6	1.0E+02	1.04E+02	1.0E+02
mecoprop	agri. soil	7085-19-0	7.4E+02	7.44E+02	7.4E+02
mercury	agri. soil	14302-87-5	2.7E+01	5.00E+02	5.3E+03
metamitron	agri. soil	41394-05-2	6.5E+00	6.46E+00	6.5E+00
metazachlor	agri. soil	67129-08-2	4.9E+01	4.91E+01	4.9E+01
methabenzthiazuron	agri. soil	18691-97-9	5.1E+01	5.08E+01	5.1E+01
methomyl	agri. soil	16752-77-5	4.3E+01	4.33E+01	4.3E+01
methylbromide	agri. soil	74-83-9	2.6E+02	2.62E+02	5.4E+01

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
methyl-mercury	agri. soil	22967-92-6	3.4E+02	7.06E+03	1.4E+04
metobromuron	agri. soil	3060-89-7	4.1E+02	4.13E+02	4.1E+02
metolachlor	agri. soil	51218-45-2	1.1E+01	1.14E+01	1.1E+01
mevinphos	agri. soil	7786-34-7	5.7E+00	5.72E+00	5.7E+00
molybdenum	agri. soil	7439-98-7	1.9E+01	4.43E+02	3.4E+03
meta-Xylene	agri. soil	108-38-3	3.8E+00	3.80E+00	3.8E+00
Naphtalene	agri. soil	91-20-3	4.8E+00	4.81E+00	4.8E+00
nickel	agri. soil	7440-02-0	3.4E+01	7.29E+02	2.5E+03
nitrogen dioxide	agri. soil	10102-44-0	x	x	
oxamyl	agri. soil	23135-22-0	1.0E+01	1.01E+01	1.0E+01
oxydemethon-methyl	agri. soil	301-12-2	6.1E+02	6.11E+02	6.1E+02
ortho-Xylene	agri. soil	95-47-6	5.0E+00	5.02E+00	5.0E+00
parathion-ethyl	agri. soil	56-38-2	2.9E+00	2.92E+00	2.9E+00
parathion-methyl	agri. soil	298-00-0	2.4E+01	2.36E+01	2.4E+01
pentachlorobenzene	agri. soil	608-93-5	4.5E+03	4.46E+03	4.4E+03
pentachloronitrobenzene	agri. soil	82-68-8	7.2E+01	7.25E+01	7.2E+01
pentachlorophenol	agri. soil	87-86-5	1.5E-01	1.49E-01	1.5E-01
permethrin	agri. soil	52645-53-1	1.1E+01	1.13E+01	1.1E+01
phenanthrene	agri. soil	85-01-8	x	x	x
Phenol	agri. soil	108-95-2	1.9E+00	1.86E+00	1.9E+00
phoxim	agri. soil	14816-18-3	2.5E+01	2.53E+01	2.5E+01
Phtalic anhydride	agri. soil	85-44-9	1.0E-02	1.01E-02	1.0E-02
pirimicarb	agri. soil	23103-98-2	2.6E+01	2.61E+01	2.6E+01
dust (PM10)	agri. soil	PM10	x	x	
propachlor	agri. soil	1918-16-7	1.5E+01	1.53E+01	1.5E+01
propoxur	agri. soil	114-26-1	2.7E+02	2.72E+02	2.7E+02
Propylene Oxide	agri. soil	75-56-9	2.2E+05	2.20E+05	2.2E+05
para-Xylene	agri. soil	106-42-3	3.0E+00	3.03E+00	3.0E+00
pyrazophos	agri. soil	13457-18-6	5.1E+01	5.15E+01	5.1E+01
selenium	agri. soil	7782-49-2	2.1E+02	1.09E+03	2.9E+03
simazine	agri. soil	122-34-9	2.1E+02	2.06E+02	2.1E+02
styrene	agri. soil	100-42-5	4.8E-01	4.77E-01	4.8E-01
sulphur dioxide	agri. soil	7446-09-5	x	x	2.5E+00
Tetrachloroethylene	agri. soil	127-18-4	6.4E+00	6.42E+00	2.4E+01
Tetrachloromethane	agri. soil	56-23-5	2.2E+02	2.22E+02	1.9E+06
thallium	agri. soil	7440-28-0	2.8E+04	5.83E+05	7.9E+00
Thiram	agri. soil	137-26-8	7.9E+00	7.91E+00	1.3E+01
tin	agri. soil	7440-31-5	2.2E-02	5.43E-01	1.1E+01
tolclophos-methyl	agri. soil	57018-04-9	1.1E+01	1.09E+01	3.1E-01
Toluene	agri. soil	108-88-3	3.5E-01	3.47E-01	5.8E+00
tri-allate	agri. soil	2303-17-5	5.8E+00	5.75E+00	1.2E+03
triazophos	agri. soil	24017-47-8	1.2E+03	1.19E+03	2.9E+02
tributyltinoxide	agri. soil	56-35-9	2.9E+02	2.92E+02	3.3E+01
trichlorfon	agri. soil	52-68-6	3.3E+01	3.26E+01	2.2E+01
Trichloroethylene	agri. soil	79-01-6	3.2E+01	3.16E+01	6.6E+00
Trichloromethane	agri. soil	67-66-3	1.4E+01	1.41E+01	1.2E+02
trifluarin	agri. soil	1582-09-8	1.2E+02	1.25E+02	1.7E+04
vanadium	agri. soil	7440-62-2	2.6E+02	5.52E+03	5.0E+02
Vinyl Chloride	agri. soil	75-01-4	5.2E+02	5.17E+02	6.4E+01
zinc	agri. soil	23713-49-7	9.2E-01	1.94E+01	2.0E+01
zineb	agri. soil	12122-67-7	2.0E+01	2.04E+01	1.9E+00
chlormequat-chloride	agri. soil	999-81-5	1.4E+00	1.4E+00	1.4E+00
fenpropimorph	agri. soil	67306-03-0	4.7E+02	4.7E+02	4.7E+02

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
fluroxypyr	agri. soil	69377-81-7	8.2E-01	8.2E-01	8.2E-01
epoxiconazole	agri. soil	??	1.7E+02	1.7E+02	1.7E+02
ethylene oxide	agri. soil	75-21-8	1.1E+05	1.1E+05	1.1E+05
hydrogen fluoride	agri. soil	7664-39-3	3.2E+01	3.2E+01	1.6E+02
1,1,1-trichloroethane	indus. soil	71-55-6	1.6E+01	1.57E+01	1.8E+00
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	5.2E+00	5.18E+00	2.9E+00
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	1.4E+01	1.38E+01	5.9E+00
1,2,3-trichlorobenzene	indus. soil	87-61-6	5.4E+01	5.42E+01	2.4E+01
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	5.4E+00	5.35E+00	3.0E+00
1,2,4-trichlorobenzene	indus. soil	120-82-1	4.3E+01	4.32E+01	2.0E+01
1,2-dichlorobenzene	indus. soil	95-50-1	6.9E+00	6.89E+00	3.0E+00
1,2-dichloroethane	indus. soil	107-06-2	5.7E+00	5.67E+00	2.6E+00
1,3,5-trichlorobenzene	indus. soil	108-70-3	5.2E+01	5.17E+01	2.5E+01
1,3-Butadiene	indus. soil	106-99-0	2.2E+03	2.19E+03	2.1E+03
1,3-dichlorobenzene	indus. soil	541-73-1	5.0E+01	4.96E+01	2.5E+01
1,4-dichlorobenzene	indus. soil	106-46-7	7.4E-01	7.38E-01	2.9E-01
1-chloro-4-nitrobenzene	indus. soil	100-00-5	4.6E+02	4.62E+02	3.3E+02
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	1.6E+00	1.60E+00	1.5E+00
2,3,7,8-TCDD	indus. soil	1746-01-6	9.8E+06	1.01E+07	1.0E+07
2,4,5-T	indus. soil	93-76-5	1.8E-01	1.77E-01	1.8E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	2.9E+00	2.93E+00	2.9E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	1.7E+02	1.70E+02	1.7E+02
2,4-D	indus. soil	94-75-7	7.2E-01	7.22E-01	7.2E-01
2,4-dichlorophenol	indus. soil	120-83-2	1.9E+00	1.88E+00	1.6E+00
2-chlorophenol	indus. soil	95-57-8	1.4E+00	1.37E+00	1.4E+00
3,4-dichloroaniline	indus. soil	95-76-1	3.1E+01	3.06E+01	3.1E+01
3-chloroaniline	indus. soil	108-42-9	4.6E+02	4.63E+02	4.6E+02
4-chloroaniline	indus. soil	106-47-8	5.1E+02	5.10E+02	5.1E+02
acephate	indus. soil	30560-19-1	3.1E-01	3.07E-01	3.1E-01
Acrolein	indus. soil	107-02-8	1.7E+01	1.66E+01	1.6E+01
Acrylonitrile	indus. soil	107-13-1	1.5E+03	1.52E+03	1.3E+03
aldicarb	indus. soil	116-06-3	1.3E+01	1.34E+01	1.3E+01
aldrin	indus. soil	309-00-2	1.6E+02	1.58E+02	1.6E+02
ammonia	indus. soil	7664-41-7	x	x	
anilazine	indus. soil	101-05-3	3.0E-04	3.01E-04	3.0E-04
anthracene	indus. soil	120-12-7	2.0E-02	1.98E-02	1.9E-02
antimony	indus. soil	7440-36-0	9.1E+00	1.73E+02	3.8E+02
arsenic	indus. soil	7440-38-2	9.1E-01	2.40E+01	5.2E+02
atrazine	indus. soil	1912-24-9	8.8E-01	8.76E-01	8.8E-01
aziphos-ethyl	indus. soil	2642-71-9	6.9E+00	6.90E+00	6.9E+00
aziphos-methyl	indus. soil	86-50-0	9.9E-02	9.92E-02	9.9E-02
barium	indus. soil	7440-39-3	4.8E-01	7.19E+00	2.8E+01
benomyl	indus. soil	17804-35-2	1.1E-03	1.13E-03	1.1E-03
bentazone	indus. soil	25057-89-0	1.6E-01	1.60E-01	1.6E-01
Benzene	indus. soil	71-43-2	1.6E+03	1.61E+03	9.3E+02
benzo[a]anthracene	indus. soil	56-55-3	x	x	x
benzo[a]pyrene	indus. soil	50-32-8	x	x	x
benzo[ghi]perylene	indus. soil	191-24-2	x	x	x
benzo[k]fluoranthrene	indus. soil	207-08-9	x	x	x
benzylchloride	indus. soil	100-44-7	4.9E+02	4.87E+02	3.8E+02
beryllium	indus. soil	7440-41-7	2.5E+01	2.43E+02	7.0E+02
bifenthrin	indus. soil	82657-04-3	3.0E-01	2.97E-01	3.0E-01
Butylbenzylphtalate	indus. soil	85-68-7	1.8E-03	1.83E-03	1.7E-03
cadmium	indus. soil	22537-48-0	1.8E+00	3.31E+01	6.1E+01

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
captafol	indus. soil	2425-06-1	7.9E+01	7.88E+01	7.9E+01
captan	indus. soil	133-06-2	1.1E-04	1.14E-04	1.1E-04
carbaryl	indus. soil	63-25-2	1.5E-01	1.55E-01	1.5E-01
carbendazim	indus. soil	10605-21-7	4.3E-01	4.32E-01	4.3E-01
carbofuran	indus. soil	1563-66-2	8.0E+00	8.03E+00	8.0E+00
carbon disulfide	indus. soil	75-15-0	2.2E+00	2.24E+00	1.4E+00
Carcinogenic PAHs	indus. soil		2.5E+03	2.74E+03	2.7E+03
chlordane	indus. soil	57-74-9	2.7E+01	2.71E+01	2.6E+01
chlorfenvinphos	indus. soil	470-90-6	4.4E+01	4.44E+01	4.4E+01
chloridazon	indus. soil	1698-60-8	2.0E-02	2.05E-02	2.0E-02
chlorobenzene	indus. soil	108-90-7	6.8E+00	6.83E+00	3.6E+00
chlorothalonil	indus. soil	1897-45-6	1.0E+00	9.99E-01	4.5E-01
chlorpropham	indus. soil	101-21-3	8.1E-02	8.15E-02	8.1E-02
chlorpyrifos	indus. soil	2921-88-2	1.4E-01	1.39E-01	1.4E-01
chromium III	indus. soil	16056-83-1	3.4E-01	8.51E+00	3.0E+02
chromium VI	indus. soil	18540-29-9	5.7E-01	1.42E+01	5.0E+02
chrysene	indus. soil	218-01-9	x	x	x
cobalt	indus. soil	7440-48-4	3.9E+00	4.04E+01	4.4E+01
copper	indus. soil	15158-11-9	1.5E-02	3.38E-01	8.2E-01
coumaphos	indus. soil	56-72-4	1.6E+03	1.61E+03	1.6E+03
cyanazine	indus. soil	21725-46-2	3.5E-01	3.49E-01	3.5E-01
cypermethrin	indus. soil	52315-07-8	1.8E+00	1.85E+00	1.7E+00
cyromazine	indus. soil	66215-27-8	1.3E+00	1.32E+00	1.3E+00
DDT	indus. soil	50-29-3	1.3E+00	1.78E+00	1.8E+00
deltamethrin	indus. soil	52918-63-5	3.0E-02	3.01E-02	3.0E-02
demeton	indus. soil	8065-48-3	8.9E+01	8.88E+01	8.9E+01
desmetryn	indus. soil	1014-69-3	2.9E+00	2.91E+00	2.9E+00
Di(2-ethylhexyl)phtalate	indus. soil	117-81-7	5.2E-03	5.19E-03	5.2E-03
diazinon	indus. soil	333-41-5	3.2E+00	3.19E+00	3.2E+00
Dibutylphtalate	indus. soil	84-74-2	1.3E-02	1.32E-02	1.2E-02
Dichloromethane	indus. soil	75-09-2	1.3E+00	1.30E+00	4.1E-01
dichlorprop	indus. soil	120-36-5	2.6E-01	2.60E-01	2.6E-01
dichlorvos	indus. soil	62-73-7	3.6E-02	3.58E-02	3.3E-02
dieldrin	indus. soil	60-57-1	1.5E+03	1.47E+03	1.5E+03
Diethylphtalate	indus. soil	84-66-2	3.3E-03	3.31E-03	3.2E-03
Dihexylphtalate	indus. soil	84-75-3	1.4E+01	1.36E+01	1.3E+01
Diisodecylphtalate	indus. soil	26761-40-0	3.8E-02	3.84E-02	3.5E-02
Diisooctylphtalate	indus. soil	27554-26-3	5.2E-02	5.17E-02	5.0E-02
dimethoate	indus. soil	60-51-5	3.0E+00	2.99E+00	3.0E+00
Dimethylphtalate	indus. soil	133-11-3	2.7E-01	2.69E-01	2.6E-01
dinoseb	indus. soil	88-85-7	9.7E+01	9.67E+01	9.0E+01
dinoterb	indus. soil	1420-07-1	1.2E-01	1.21E-01	1.0E-01
Diocetylphthalate	indus. soil	117-84-0	8.8E-03	8.79E-03	8.8E-03
disulfothon	indus. soil	298-04-4	2.0E+00	2.04E+00	2.0E+00
diuron	indus. soil	330-54-1	7.2E+00	7.24E+00	7.2E+00
DNOC	indus. soil	534-52-1	2.8E+00	2.77E+00	2.8E+00
endosulfan	indus. soil	115-29-7	1.6E-02	1.62E-02	1.6E-02
endrin	indus. soil	72-20-8	7.5E+02	7.54E+02	7.5E+02
ethoprophos	indus. soil	13194-48-4	3.8E+02	3.77E+02	3.8E+02
Ethylbenzene	indus. soil	100-41-4	5.0E-01	5.02E-01	4.3E-01
Ethylene	indus. soil	74-85-1	6.2E-01	6.17E-01	5.4E-01
fenitrothion	indus. soil	122-14-5	3.2E-01	3.24E-01	3.2E-01
fenthion	indus. soil	55-38-9	1.5E+00	1.53E+00	1.5E+00
fentin acetate	indus. soil	900-95-8	9.2E+00	9.20E+00	9.1E+00



Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
fentin chloride	indus. soil	639-58-7	1.3E+01	1.29E+01	1.0E+01
fentin hydroxide	indus. soil	76-87-9	8.5E+00	8.50E+00	8.5E+00
fluoranthrene	indus. soil	206-44-0	x	x	x
folpet	indus. soil	133-07-3	1.5E+00	1.50E+00	1.5E+00
Formaldehyde	indus. soil	50-00-0	1.9E-02	1.90E-02	1.8E-02
glyphosate	indus. soil	1071-83-6	6.5E-04	6.49E-04	6.5E-04
heptachlor	indus. soil	76-44-8	4.4E+00	4.44E+00	4.4E+00
heptenophos	indus. soil	23560-59-0	2.0E-02	2.03E-02	2.0E-02
hexachloro-1,3-butadiene	indus. soil	87-68-3	3.5E+04	3.52E+04	4.8E+03
hexachlorobenzene	indus. soil	118-74-1	1.1E+06	1.32E+06	3.9E+05
hydrogen chloride	indus. soil	7647-01-0	x	x	
hydrogen sulfide	indus. soil	7783-06-4	x	x	
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	x	x	x
iprodione	indus. soil	36734-19-7	3.2E-03	3.18E-03	3.2E-03
isoproturon	indus. soil	34123-59-6	2.8E+00	2.80E+00	2.8E+00
lead	indus. soil	14280-50-3	4.8E-01	1.19E+01	2.9E+02
lindane	indus. soil	58-89-9	5.2E+01	5.20E+01	5.1E+01
linuron	indus. soil	330-55-2	9.4E+00	9.43E+00	9.4E+00
malathion	indus. soil	121-75-5	9.5E-04	9.48E-04	9.5E-04
MCPA	indus. soil	94-74-6	9.7E-01	9.72E-01	9.7E-01
mecoprop	indus. soil	7085-19-0	4.2E+01	4.24E+01	4.2E+01
mercury	indus. soil	14302-87-5	1.5E+00	4.43E+01	4.4E+02
metamitron	indus. soil	41394-05-2	1.2E-02	1.17E-02	1.2E-02
metazachlor	indus. soil	67129-08-2	1.6E-01	1.55E-01	1.6E-01
methabenzthiazuron	indus. soil	18691-97-9	3.6E-01	3.59E-01	3.6E-01
methomyl	indus. soil	16752-77-5	6.9E-01	6.93E-01	6.9E-01
methylbromide	indus. soil	74-83-9	2.6E+02	2.63E+02	5.4E+01
methyl-mercury	indus. soil	22967-92-6	5.0E+01	1.91E+03	3.7E+03
metobromuron	indus. soil	3060-89-7	1.9E+00	1.93E+00	1.9E+00
metolachlor	indus. soil	51218-45-2	1.1E-01	1.10E-01	1.1E-01
mevinphos	indus. soil	7786-34-7	5.5E-02	5.54E-02	5.5E-02
molybdenum	indus. soil	7439-98-7	4.6E-01	1.27E+01	2.9E+02
meta-Xylene	indus. soil	108-38-3	1.9E-02	1.89E-02	1.8E-02
Naphtalene	indus. soil	91-20-3	1.6E+00	1.63E+00	1.5E+00
nickel	indus. soil	7440-02-0	5.4E-01	1.40E+01	5.7E+01
nitrogen dioxide	indus. soil	10102-44-0	x	x	
oxamyl	indus. soil	23135-22-0	6.8E-02	6.76E-02	6.8E-02
oxydemethon-methyl	indus. soil	301-12-2	3.8E+00	3.84E+00	3.8E+00
ortho-Xylene	indus. soil	95-47-6	7.6E-02	7.65E-02	7.1E-02
parathion-ethyl	indus. soil	56-38-2	1.1E-01	1.11E-01	1.1E-01
parathion-methyl	indus. soil	298-00-0	1.7E+00	1.74E+00	1.7E+00
pentachlorobenzene	indus. soil	608-93-5	1.4E+02	1.44E+02	7.0E+01
pentachloronitrobenzene	indus. soil	82-68-8	4.3E+00	4.34E+00	2.9E+00
pentachlorophenol	indus. soil	87-86-5	3.9E-02	3.92E-02	3.9E-02
permethrin	indus. soil	52645-53-1	2.1E-02	2.11E-02	2.1E-02
phenanthrene	indus. soil	85-01-8	x	x	x
Phenol	indus. soil	108-95-2	6.0E-03	6.04E-03	5.9E-03
phoxim	indus. soil	14816-18-3	3.8E-01	3.84E-01	3.8E-01
Phtalic anhydride	indus. soil	85-44-9	6.6E-07	6.58E-07	6.6E-07
pirimicarb	indus. soil	23103-98-2	2.9E-01	2.89E-01	2.9E-01
dust (PM10)	indus. soil	PM10	x	x	
propachlor	indus. soil	1918-16-7	1.4E-01	1.42E-01	1.4E-01
propoxur	indus. soil	114-26-1	2.7E-01	2.66E-01	2.7E-01
Propylene Oxide	indus. soil	75-56-9	5.9E+02	5.87E+02	4.5E+02

Substance	Comp.	CAS number	HTP (20 yr) (kg 1,4- DCB eq./kg)	HTP (500 yr) (kg 1,4- DCB eq./kg)	HTP (inf-cont) (kg 1,4- DCB eq./kg)
para-Xylene	indus. soil	106-42-3	2.5E-02	2.53E-02	2.4E-02
pyrazophos	indus. soil	13457-18-6	1.2E+00	1.20E+00	1.2E+00
selenium	indus. soil	7782-49-2	4.8E+01	3.01E+02	2.1E+03
simazine	indus. soil	122-34-9	2.2E+00	2.19E+00	2.2E+00
styrene	indus. soil	100-42-5	1.8E-02	1.75E-02	1.7E-02
sulphur dioxide	indus. soil	7446-09-5	x	x	
Tetrachloroethylene	indus. soil	127-18-4	5.2E+00	5.16E+00	1.2E+00
Tetrachloromethane	indus. soil	56-23-5	2.2E+02	2.19E+02	2.0E+01
thallium	indus. soil	7440-28-0	4.3E+01	1.15E+03	1.1E+04
Thiram	indus. soil	137-26-8	2.5E-01	2.53E-01	2.5E-01
tin	indus. soil	7440-31-5	8.6E-04	2.13E-02	5.2E-01
tolclophos-methyl	indus. soil	57018-04-9	4.0E-02	3.97E-02	3.9E-02
Toluene	indus. soil	108-88-3	2.1E-01	2.08E-01	1.8E-01
tri-allate	indus. soil	2303-17-5	3.6E-01	3.57E-01	3.6E-01
triazophos	indus. soil	24017-47-8	3.7E+01	3.74E+01	3.7E+01
tributyltinoxide	indus. soil	56-35-9	4.3E+01	4.28E+01	4.2E+01
trichlorfon	indus. soil	52-68-6	2.0E-02	1.96E-02	2.0E-02
Trichloroethylene	indus. soil	79-01-6	3.2E+01	3.16E+01	2.2E+01
Trichloromethane	indus. soil	67-66-3	1.0E+01	1.01E+01	2.6E+00
trifluarin	indus. soil	1582-09-8	6.8E-01	6.82E-01	6.8E-01
vanadium	indus. soil	7440-62-2	2.3E+00	6.55E+01	2.9E+02
Vinyl Chloride	indus. soil	75-01-4	8.3E+01	8.26E+01	7.0E+01
zinc	indus. soil	23713-49-7	2.6E-03	7.18E-02	2.4E-01
zineb	indus. soil	12122-67-7	1.0E-01	1.00E-01	1.0E-01
chlormequat-chloride	indus. soil	999-81-5	1.7E-02	1.7E-02	1.7E-02
fenpropimorph	indus. soil	67306-03-0	2.1E+01	2.1E+01	2.1E+01
fluroxypyr	indus. soil	69377-81-7	1.0E-02	1.0E-02	1.0E-02
epoxiconazole	indus. soil	??	1.9E+01	1.9E+01	1.9E+01
ethylene oxide	indus. soil	75-21-8	4.6E+03	4.6E+03	2.7E+03
hydrogen fluoride	indus. soil	7664-39-3	4.7E+00	4.7E+00	1.3E+02

x = not calculated

Source: Huijbregts, 2000; Huijbregts et al., 2000a

Status: Author(s).

Equations: 
$$human\ toxicity = \sum_i \sum_{ecom} HTP_{ecom,i} \times m_{ecom,i} \quad (4.3.7.2)$$

The indicator result is expressed in kg 1,4-dichlorobenzene equivalent.  $HTP_{ecom,i}$  is the Human Toxicity Potential (the characterisation factor) for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ .

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU. Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.



### 4.3.8 Ecotoxicity

Table 4.3.8.1: FAETP, MAETP, FSETP, MSETP and TETP factors for characterising ecotoxic releases, for infinite time horizon and global scale.

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4-DCB eq./kg)	MAETP (inf) (kg 1,4-DCB eq./kg)	FSETP (inf) (kg 1,4-DCB eq./kg)	MSETP (inf) (kg 1,4-DCB eq./kg)	TETP (inf) (kg 1,4-DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	1.2E-04 <sup>1</sup>	3.0E-01	1.0E-04	1.0E-01	1.8E-04
1,2,3,4-tetrachlorobenzene	air	634-66-2	1.0E-01	1.7E+01	1.2E-01	6.9E+00	9.9E-03
1,2,3,5-tetrachlorobenzene	air	634-90-2	7.3E-02	1.8E+01	8.1E-02	7.0E+00	1.8E-01
1,2,3-trichlorobenzene	air	87-61-6	8.5E-03	2.1E+00	9.3E-03	8.5E-01	7.5E-02
1,2,4,5-tetrachlorobenzene	air	95-94-3	7.3E-02	1.5E+01	8.5E-02	6.1E+00	2.4E-01
1,2,4-trichlorobenzene	air	120-82-1	9.9E-03	2.0E+00	1.1E-02	8.4E-01	8.8E-03
1,2-dichlorobenzene	air	95-50-1	2.9E-03	6.7E-01	2.7E-03	2.8E-01	5.3E-04
1,2-dichloroethane	air	107-06-2	1.2E-04	8.2E-02	1.0E-04	3.1E-02	2.6E-05
1,3,5-trichlorobenzene	air	108-70-3	1.6E-02	3.0E+00	1.7E-02	1.3E+00	1.9E-03
1,3-Butadiene	air	106-99-0	3.3E-07	2.7E-06	2.2E-07	3.0E-06	2.3E-08
1,3-dichlorobenzene	air	541-73-1	2.4E-03	4.6E-01	2.2E-03	2.0E-01	4.4E-04
1,4-dichlorobenzene	air	106-46-7	2.4E-03	7.4E-01	2.4E-03	2.9E-01	1.2E-02
1-chloro-4-nitrobenzene	air	100-00-5	1.1E+01	3.9E+02	1.0E+01	2.4E+02	5.4E-01
2,3,4,6-tetrachlorophenol	air	58-90-2	8.0E+01	1.3E+02	8.7E+01	1.1E+02	3.1E-01
2,3,7,8-TCDD	air	1746-01-6	2.1E+06	3.0E+08	6.8E+06	8.1E+08	1.2E+04
2,4,5-T	air	93-76-5	8.5E-01	2.0E-01	6.1E-01	2.5E-01	3.2E-01
2,4,5-trichlorophenol	air	95-95-4	1.5E+01	5.3E+01	1.7E+01	4.8E+01	2.4E-01
2,4,6-trichlorophenol	air	88-06-2	5.9E+00	3.9E+00	5.7E+00	4.3E+00	3.2E-01
2,4-D	air	94-75-7	3.9E+01	5.3E+00	2.9E+01	7.3E+00	6.0E-01
2,4-dichlorophenol	air	120-83-2	1.4E+00	1.3E+00	5.5E-01	5.2E-01	3.0E-02
2-chlorophenol	air	95-57-8	1.3E+01	1.2E+01	1.0E+01	1.3E+01	5.3E-02
3,4-dichloroaniline	air	95-76-1	1.7E+03	1.7E+03	2.1E+03	2.1E+03	8.7E+00
3-chloroaniline	air	108-42-9	1.0E+02	2.3E+01	9.3E+01	3.2E+01	4.7E-01
4-chloroaniline	air	106-47-8	2.0E+00	1.7E+00	1.8E+00	2.3E+00	1.6E-02
acephate	air	30560-19-1	7.9E+01	1.9E+01	4.0E+01	1.8E+01	6.9E-01
Acrolein	air	107-02-8	5.2E+02	5.7E+02	3.9E+02	7.5E+02	1.6E+01
Acrylonitrile	air	107-13-1	4.1E-01	9.1E-01	2.7E-01	7.7E-01	8.0E-03
aldicarb	air	116-06-3	5.1E+04	8.2E+03	4.1E+04	1.2E+04	2.0E+03
aldrin	air	309-00-2	2.7E+00	6.1E+01	2.4E-01	5.4E+00	1.4E-02
ammonia	air	7664-41-7	x	x	x	x	x
anilazine	air	101-05-3	1.4E+01	8.3E+00	8.8E-01	3.4E-01	9.2E-02
anthracene	air	120-12-7	1.4E+02	1.7E+03	1.9E+02	2.1E+03	3.2E-02
antimony	air	7440-36-0	3.7E+00	3.3E+04	9.1E+00	3.1E+04	6.1E-01
arsenic	air	7440-38-2	5.0E+01	2.3E+05	1.3E+02	2.3E+05	1.6E+03
atrazine	air	1912-24-9	3.6E+02	2.8E+02	3.1E+02	3.1E+02	2.0E+00
azinphos-ethyl	air	2642-71-9	2.9E+02	1.6E+02	2.1E+02	1.3E+02	2.4E+00
azinphos-methyl	air	86-50-0	4.2E+02	2.0E+02	2.2E+02	5.7E+01	1.9E-01
barium	air	7440-39-3	4.3E+01	7.8E+05	9.7E+01	6.7E+05	4.9E+00
benomyl	air	17804-35-2	3.0E+01	2.1E+01	3.9E+00	1.8E+00	4.7E-01

<sup>1</sup> Means  $1.2 \times 10^{-4}$ .

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
bentazone	air	25057-89-0	5.6E+00	6.2E-01	4.5E+00	9.4E-01	2.5E-01
Benzene	air	71-43-2	8.4E-05	2.8E-03	6.4E-05	1.3E-03	1.6E-05
benzo[a]anthracene	air	56-55-3	4.2E+01	1.0E+03	1.3E+02	3.4E+03	2.3E-01
benzo[a]pyrene	air	50-32-8	8.8E+01	1.4E+03	2.5E+02	4.1E+03	2.4E-01
benzo[ghi]perylene	air	191-24-2	4.4E+01	1.7E+03	1.4E+02	5.7E+03	2.0E-01
benzo[k]fluoranthrene	air	207-08-9	3.9E+03	1.2E+05	1.3E+04	3.5E+05	3.0E+01
benzylchloride	air	100-44-7	7.6E-01	2.1E+00	1.1E-01	3.3E-01	1.7E-03
beryllium	air	7440-41-7	1.7E+04	4.7E+08	2.0E+04	2.0E+08	1.8E+03
bifenthrin	air	82657-04-3	8.2E+02	1.0E+03	2.4E+03	3.7E+03	8.8E+00
Butylbenzylphtalate	air	85-68-7	4.0E-01	3.2E-01	1.3E-01	7.1E-02	1.3E-03
cadmium	air	22537-48-0	2.9E+02	1.1E+06	7.4E+02	1.1E+06	8.1E+01
captafol	air	2425-06-1	2.0E+04	2.7E+04	3.0E+04	3.9E+04	5.9E+00
captan	air	133-06-2	1.6E+01	1.0E+01	1.4E-01	1.2E-01	2.4E-02
carbaryl	air	63-25-2	1.1E+02	1.2E+01	3.2E+01	1.0E+00	6.3E-02
carbendazim	air	10605-21-7	3.0E+03	7.2E+02	3.0E+03	1.1E+03	2.0E+01
carbofuran	air	1563-66-2	9.0E+02	1.5E+02	5.2E+02	1.6E+02	3.0E+00
carbon disulfide	air	75-15-0	3.3E-02	1.5E+00	2.7E-02	8.6E-01	5.1E-03
Carcinogenic PAHs	air		1.7E+02	4.3E+03	5.6E+02	1.4E+04	1.0E+00
chlordane	air	57-74-9	2.7E+02	6.1E+04	2.7E+01	1.6E+03	2.2E+00
chlorfenvinphos	air	470-90-6	3.2E+01	1.1E+01	2.7E+01	1.3E+01	4.9E-01
chloridazon	air	1698-60-8	2.6E-02	2.2E-01	2.0E-02	2.6E-01	4.6E-04
chlorobenzene	air	108-90-7	4.7E-04	1.1E-01	4.4E-04	5.0E-02	7.3E-04
chlorothalonil	air	1897-45-6	2.5E+00	5.1E+01	1.8E+00	1.5E+01	7.1E-03
chlorpropham	air	101-21-3	2.3E+00	6.4E-01	2.0E+00	8.1E-01	3.7E-02
chlorpyrifos	air	2921-88-2	5.2E+02	6.2E+01	3.3E+02	6.0E+00	1.3E-01
chromium III	air	16056-83-1	1.9E+00	5.2E+03	4.9E+00	5.3E+03	3.0E+03
chromium VI	air	18540-29-9	7.7E+00	2.1E+04	2.0E+01	2.1E+04	3.0E+03
chrysene	air	218-01-9	3.9E+01	4.1E+02	1.3E+02	1.4E+03	2.2E-01
cobalt	air	7440-48-4	6.4E+02	5.4E+06	1.1E+03	3.5E+06	1.1E+02
copper	air	15158-11-9	2.2E+02	8.9E+05	5.6E+02	8.8E+05	7.0E+00
coumaphos	air	56-72-4	2.4E+05	3.4E+05	3.5E+05	4.8E+05	1.0E+03
cyanazine	air	21725-46-2	1.9E+03	6.3E+02	1.5E+03	8.1E+02	3.1E+01
cypermethrin	air	52315-07-8	8.4E+04	1.9E+04	1.5E+05	4.9E+04	8.9E+03
cyromazine	air	66215-27-8	3.5E+03	9.2E+02	2.8E+03	1.3E+03	3.1E+02
DDT	air	50-29-3	3.2E+02	8.6E+04	3.5E+02	2.5E+04	1.9E+01
deltamethrin	air	52918-63-5	1.8E+03	3.5E+03	2.7E+03	6.8E+03	7.6E-01
demeton	air	8065-48-3	2.3E+01	9.1E+00	1.6E+01	1.1E+01	3.0E-01
desmetryn	air	1014-69-3	6.8E+00	2.6E+00	4.1E+00	2.6E+00	1.2E+00
Di(2-ethylhexyl)phtalate	air	117-81-7	3.5E-01	2.4E+00	4.7E-01	1.7E+00	2.2E-04
diazinon	air	333-41-5	2.3E+02	1.2E+02	1.6E+02	1.1E+02	2.9E-01
Dibutylphtalate	air	84-74-2	5.6E-01	4.4E-01	7.3E-02	3.8E-02	3.9E-03
Dichloromethane	air	75-09-2	3.3E-05	3.8E-03	2.4E-05	1.4E-03	4.3E-06
dichlorprop	air	120-36-5	9.9E-02	6.2E-02	5.3E-02	3.2E-02	6.8E-04
dichlorvos	air	62-73-7	5.1E+02	4.1E+02	2.3E+01	2.7E+01	9.8E+00
dieldrin	air	60-57-1	2.0E+02	5.2E+03	2.0E+01	1.7E+02	1.1E+00
Diethylphtalate	air	84-66-2	4.2E-01	3.4E-01	2.8E-01	2.3E-01	5.3E-01
Dihexylphtalate	air	84-75-3	5.0E-01	1.7E+00	1.2E+00	3.2E+00	7.8E-04
Diisodecylphtalate	air	26761-40-0	5.6E-01	4.7E+00	1.2E+00	7.5E+00	9.2E-04
Diisooctylphtalate	air	27554-26-3	1.2E-01	3.6E+00	2.8E-01	5.6E+00	1.1E-04
dimethoate	air	60-51-5	1.3E+01	1.6E+00	9.3E+00	2.0E+00	3.0E-01
Dimethylphtalate	air	133-11-3	5.2E-02	2.7E-02	1.3E-02	6.2E-03	6.4E-01
dinoseb	air	88-85-7	1.0E+04	4.6E+03	2.9E+03	1.5E+03	9.7E+01
dinoterb	air	1420-07-1	2.9E+03	7.3E+03	1.3E+03	2.1E+03	3.4E+00

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
Diocetylphthalate	air	117-84-0	1.6E-02	5.4E-01	2.7E-02	5.2E-01	9.8E-06
disulfothon	air	298-04-4	2.7E+01	2.0E+01	9.2E+00	5.7E+00	4.3E-02
diuron	air	330-54-1	5.3E+02	1.1E+02	5.0E+02	1.6E+02	8.7E+00
DNOC	air	534-52-1	3.4E+00	1.3E+00	5.7E-01	3.0E-01	2.4E-01
endosulfan	air	115-29-7	4.5E+01	1.9E+01	9.8E+00	1.2E+00	3.6E-02
endrin	air	72-20-8	1.1E+03	4.9E+04	3.4E+02	3.5E+03	4.9E+01
ethoprophos	air	13194-48-4	2.4E+03	7.1E+02	1.9E+03	9.3E+02	1.7E+01
Ethylbenzene	air	100-41-4	1.3E-04	8.0E-04	8.7E-05	6.1E-04	1.4E-06
Ethylene	air	74-85-1	1.4E-11	7.9E-11	9.0E-12	7.1E-11	1.3E-12
fenitrothion	air	122-14-5	2.5E+03	1.5E+03	1.4E+03	7.5E+02	2.1E+01
fenthion	air	55-38-9	2.5E+03	1.6E+03	1.8E+03	1.1E+03	1.6E+01
fentin acetate	air	900-95-8	4.3E+03	2.1E+04	6.9E+03	5.3E+04	5.3E+00
fentin chloride	air	639-58-7	1.8E+03	4.7E+04	3.0E+03	5.7E+04	2.6E-01
fentin hydroxide	air	76-87-9	4.2E+03	2.0E+04	6.8E+03	5.1E+04	5.5E+00
fluoranthrene	air	206-44-0	1.8E+01	2.0E+02	5.3E+01	6.1E+02	1.8E-02
folpet	air	133-07-3	4.1E+02	2.3E+03	5.6E+02	2.7E+03	1.7E+00
Formaldehyde	air	50-00-0	8.3E+00	1.6E+00	4.5E+00	1.5E+00	9.4E-01
glyphosate	air	1071-83-6	2.2E+01	1.7E+01	2.1E+01	1.5E+01	4.7E-02
heptachlor	air	76-44-8	1.4E+00	2.9E+00	2.0E+00	2.4E+00	8.8E-04
heptenophos	air	23560-59-0	1.2E+02	7.8E+01	1.5E+01	1.5E+01	2.2E+00
hexachloro-1,3-butadiene	air	87-68-3	4.6E+01	7.7E+04	5.4E+01	2.9E+04	4.2E+00
hexachlorobenzene	air	118-74-1	1.3E+00	2.4E+03	4.3E+00	2.8E+03	2.6E-01
hydrogen chloride	air	7647-01-0	x	x	x	x	x
hydrogen sulfide	air	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	air	193-39-5	1.7E+02	7.3E+03	5.3E+02	2.5E+04	8.0E-01
iprodione	air	36734-19-7	2.8E+00	3.2E-01	2.3E-01	5.2E-03	1.1E-01
isoproturon	air	34123-59-6	1.9E+02	3.2E+01	7.1E+01	2.0E+01	2.5E+00
lead	air	14280-50-3	2.4E+00	7.0E+03	6.2E+00	7.2E+03	1.6E+01
lindane	air	58-89-9	5.2E+01	5.2E+01	1.4E+01	9.2E+00	1.8E+00
linuron	air	330-55-2	4.0E+01	2.7E+01	3.9E+01	3.5E+01	2.0E-01
malathion	air	121-75-5	1.8E+03	1.4E+03	1.1E+03	7.8E+02	2.0E-02
MCPA	air	94-74-6	1.1E+00	2.8E-01	7.0E-01	3.5E-01	4.3E-02
mecoprop	air	7085-19-0	3.7E+01	4.1E+00	2.5E+01	5.3E+00	1.8E+00
mercury	air	14302-87-5	3.2E+02	1.2E+06	8.1E+02	1.2E+06	2.8E+04
metamitron	air	41394-05-2	9.3E-01	2.5E-01	4.9E-01	1.9E-01	1.9E-02
metazachlor	air	67129-08-2	7.4E+00	2.2E+00	5.3E+00	2.6E+00	7.4E-02
methabenzthiazuron	air	18691-97-9	7.0E+01	2.5E+01	7.6E+01	3.7E+01	4.5E-01
methomyl	air	16752-77-5	1.4E+04	3.9E+03	1.0E+04	5.0E+03	1.2E+02
methylbromide	air	74-83-9	3.3E-02	4.1E+00	1.7E-02	1.1E+00	1.3E-02
methyl-mercury	air	22967-92-6	7.3E+03	2.8E+07	1.9E+04	2.8E+07	2.8E+04
metobromuron	air	3060-89-7	4.9E+01	4.2E+01	4.8E+01	4.7E+01	9.9E-01
metolachlor	air	51218-45-2	1.5E+03	3.8E+02	1.3E+03	5.2E+02	1.1E-01
mevinphos	air	7786-34-7	9.3E+03	5.4E+03	1.2E+03	6.0E+02	4.3E+01
molybdenum	air	7439-98-7	9.7E+01	1.9E+06	2.1E+02	1.6E+06	1.8E+01
meta-Xylene	air	108-38-3	4.4E-05	3.9E-04	2.8E-05	3.5E-04	6.5E-07
Naphtalene	air	91-20-3	5.0E-01	9.1E-01	1.9E-01	3.2E-01	8.2E-04
nickel	air	7440-02-0	6.3E+02	3.8E+06	1.6E+03	3.7E+06	1.2E+02
nitrogen dioxide	air	10102-44-0	x	x	x	x	x
oxamyl	air	23135-22-0	5.6E+01	1.4E+00	2.5E+01	4.0E-01	2.9E+00
oxydemethon-methyl	air	301-12-2	2.4E+03	5.0E+02	5.3E+02	2.1E+02	4.1E+01
ortho-Xylene	air	95-47-6	9.3E-05	9.1E-04	7.4E-05	9.9E-04	1.3E-06
parathion-ethyl	air	56-38-2	2.8E+03	3.1E+03	1.9E+03	1.3E+03	1.1E+00
parathion-methyl	air	298-00-0	9.9E+02	7.2E+02	6.0E+01	3.0E+01	5.7E+00

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
pentachlorobenzene	air	608-93-5	3.7E-01	1.7E+02	5.2E-01	8.7E+01	3.9E-02
pentachloronitrobenzene	air	82-68-8	4.7E+01	6.0E+03	1.3E+01	4.4E+02	1.2E-01
pentachlorophenol	air	87-86-5	1.1E+01	4.0E+01	2.4E+01	6.9E+01	2.3E+00
permethrin	air	52645-53-1	1.6E+04	3.1E+04	2.1E+04	2.3E+04	2.6E+01
phenanthrene	air	85-01-8	1.3E+00	7.3E+00	1.4E+00	5.4E+00	1.4E-04
Phenol	air	108-95-2	1.5E+00	5.5E-01	5.6E-01	3.6E-01	3.3E-03
phoxim	air	14816-18-3	4.4E-01	1.6E+00	7.1E-02	2.1E-01	1.7E-02
Phtalic anhydride	air	85-44-9	8.2E-03	8.5E-03	1.7E-05	4.9E-05	5.1E-04
pirimicarb	air	23103-98-2	2.4E+03	4.1E+02	2.4E+03	6.2E+02	4.6E+01
dust (PM10)	air	PM10	x	x	x	x	x
propachlor	air	1918-16-7	2.0E+01	7.1E+00	1.1E+01	6.5E+00	5.4E-01
propoxur	air	114-26-1	2.5E+04	1.8E+03	1.8E+04	1.8E+03	7.0E+02
Propylene Oxide	air	75-56-9	3.7E-02	1.2E-01	2.0E-02	6.4E-02	1.5E-03
para-Xylene	air	106-42-3	6.1E-05	6.1E-04	3.7E-05	3.8E-04	5.3E-07
pyrazophos	air	13457-18-6	1.8E+02	9.4E+01	1.7E+02	8.9E+01	2.3E+00
selenium	air	7782-49-2	5.5E+02	2.1E+07	6.4E+02	9.0E+06	5.3E+01
simazine	air	122-34-9	2.1E+03	2.8E+02	1.8E+03	4.1E+02	8.8E+00
styrene	air	100-42-5	5.1E-05	5.1E-04	3.5E-05	3.6E-04	1.4E-07
sulphur dioxide	air	7446-09-5	x	x	x	x	x
Tetrachloroethylene	air	127-18-4	4.1E-04	3.4E-01	3.9E-04	1.2E-01	8.1E-03
Tetrachloromethane	air	56-23-5	2.5E-04	1.2E+00	1.4E-04	3.1E-01	4.7E-04
thallium	air	7440-28-0	1.6E+03	2.6E+07	3.9E+03	2.4E+07	3.4E+02
Thiram	air	137-26-8	2.7E+03	2.2E+02	9.8E+02	1.8E+01	3.2E+01
tin	air	7440-31-5	2.5E+00	7.5E+03	1.3E+00	1.5E+03	1.4E+01
tolclophos-methyl	air	57018-04-9	1.5E-01	1.4E+00	1.6E-01	1.6E+00	3.4E-04
Toluene	air	108-88-3	7.0E-05	7.0E-04	5.0E-05	5.8E-04	1.6E-05
tri-allate	air	2303-17-5	6.1E+01	1.5E+02	2.2E+01	3.9E+01	6.9E-03
triazophos	air	24017-47-8	3.3E+03	8.5E+02	3.0E+03	1.2E+03	3.4E+01
tributyltinoxide	air	56-35-9	7.7E+03	3.1E+05	1.0E+04	3.9E+05	1.7E+01
trichlorfon	air	52-68-6	1.3E+04	1.8E+03	2.4E+03	2.7E+02	1.2E+03
Trichloroethylene	air	79-01-6	3.8E-05	2.7E-03	3.2E-05	1.7E-03	4.7E-06
Trichloromethane	air	67-66-3	9.5E-05	5.9E-02	4.9E-05	1.6E-02	4.0E-05
trifluarin	air	1582-09-8	9.9E+00	1.0E+02	8.1E+00	4.4E+01	1.7E-02
vanadium	air	7440-62-2	1.7E+03	1.2E+07	4.1E+03	1.1E+07	6.7E+02
Vinyl Chloride	air	75-01-4	2.9E-06	1.3E-04	2.3E-06	1.2E-04	2.6E-07
zinc	air	23713-49-7	1.8E+01	6.7E+04	4.6E+01	6.8E+04	1.2E+01
zineb	air	12122-67-7	9.4E+02	4.1E+02	7.4E+02	4.5E+02	7.2E+00
chlormequat-chloride	air	999-81-5	6.2E+00	3.8E+00	2.6E+00	2.3E+00	3.3E-02
fenpropimorph	air	67306-03-0	9.4E-01	7.3E-01	9.3E-01	7.4E-01	3.5E-03
fluroxypyr	air	69377-81-7	8.2E+02	1.2E+02	6.4E+02	1.7E+02	1.3E+01
epoxiconazole	air	??	1.4E+02	2.1E+02	1.9E+02	2.5E+02	6.9E-01
ethylene oxide	air	75-21-8	9.9E-02	8.5E-01	6.0E-02	4.3E-01	2.5E-03
hydrogen fluoride	air	7664-39-3	4.6E+00	4.1E+07	3.8E+00	1.3E+07	2.9E-03
1,1,1-trichloroethane	fresh water	71-55-6	1.1E-01	3.0E-01	9.0E-02	1.0E-01	1.8E-04
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.6E+01	1.6E+01	1.9E+01	6.7E+00	9.3E-03
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	1.4E+01	1.7E+01	1.6E+01	7.0E+00	1.7E-01
1,2,3-trichlorobenzene	fresh water	87-61-6	4.0E+00	2.1E+00	4.4E+00	8.7E-01	7.3E-02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	1.3E+01	1.4E+01	1.5E+01	5.9E+00	2.3E-01
1,2,4-trichlorobenzene	fresh water	120-82-1	3.5E+00	2.0E+00	3.8E+00	8.6E-01	8.5E-03
1,2-dichlorobenzene	fresh water	95-50-1	1.0E+00	6.6E-01	9.5E-01	2.8E-01	5.2E-04
1,2-dichloroethane	fresh water	107-06-2	2.3E-02	8.1E-02	1.9E-02	3.1E-02	2.6E-05

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1,3,5-trichlorobenzene	fresh water	108-70-3	5.0E+00	3.0E+00	5.2E+00	1.3E+00	1.8E-03
1,3-Butadiene	fresh water	106-99-0	3.0E+00	8.7E-03	2.0E+00	9.9E-03	2.1E-08
1,3-dichlorobenzene	fresh water	541-73-1	1.2E+00	4.6E-01	1.2E+00	2.1E-01	4.2E-04
1,4-dichlorobenzene	fresh water	106-46-7	1.0E+00	7.3E-01	1.0E+00	2.9E-01	1.2E-02
1-chloro-4-nitrobenzene	fresh water	100-00-5	8.6E+02	3.7E+02	7.7E+02	2.6E+02	4.4E-01
2,3,4,6-tetrachlorophenol	fresh water	58-90-2	5.2E+03	9.1E+01	5.7E+03	1.0E+02	1.7E-03
2,3,7,8-TCDD	fresh water	1746-01-6	1.7E+08	4.5E+07	5.6E+08	1.5E+08	5.9E+02
2,4,5-T	fresh water	93-76-5	1.7E+01	6.1E-02	1.2E+01	7.6E-02	3.6E-08
2,4,5-trichlorophenol	fresh water	95-95-4	1.6E+03	6.4E+01	1.9E+03	8.1E+01	6.1E-02
2,4,6-trichlorophenol	fresh water	88-06-2	2.9E+02	1.6E+00	2.9E+02	1.9E+00	6.7E-04
2,4-D	fresh water	94-75-7	4.0E+02	2.3E+00	3.0E+02	3.1E+00	9.3E-10
2,4-dichlorophenol	fresh water	120-83-2	1.7E+02	2.5E-01	6.8E+01	1.3E-01	9.6E-04
2-chlorophenol	fresh water	95-57-8	1.6E+03	1.3E+01	1.3E+03	1.7E+01	1.3E-03
3,4-dichloroaniline	fresh water	95-76-1	1.9E+04	2.8E+03	2.4E+04	3.5E+03	7.6E-04
3-chloroaniline	fresh water	108-42-9	2.5E+03	1.1E+01	2.3E+03	1.5E+01	9.4E-06
4-chloroaniline	fresh water	106-47-8	3.1E+03	1.4E+01	2.7E+03	2.0E+01	3.6E-03
acephate	fresh water	30560-19-1	1.1E+03	1.5E+01	5.6E+02	1.4E+01	2.2E-08
Acrolein	fresh water	107-02-8	2.5E+05	1.1E+03	1.9E+05	1.6E+03	5.8E+00
Acrylonitrile	fresh water	107-13-1	7.9E+01	5.4E-01	5.2E+01	5.1E-01	3.9E-03
aldicarb	fresh water	116-06-3	4.4E+05	7.4E+03	3.5E+05	1.1E+04	1.9E-01
aldrin	fresh water	309-00-2	1.2E+04	2.1E+02	1.0E+03	1.9E+01	1.4E-02
ammonia	fresh water	7664-41-7	x	x	x	x	x
anilazine	fresh water	101-05-3	1.1E+03	2.5E-01	7.0E+01	1.0E-02	5.0E-08
anthracene	fresh water	120-12-7	5.7E+04	3.0E+03	8.0E+04	4.1E+03	2.0E-02
antimony	fresh water	7440-36-0	2.0E+01	2.7E+04	4.8E+01	2.5E+04	1.7E-20
arsenic	fresh water	7440-38-2	2.1E+02	1.2E+05	5.3E+02	1.2E+05	1.0E-17
atrazine	fresh water	1912-24-9	5.0E+03	4.8E+02	4.3E+03	5.4E+02	7.6E-04
azinphos-ethyl	fresh water	2642-71-9	2.7E+05	1.0E+03	2.0E+05	7.9E+02	2.1E-02
azinphos-methyl	fresh water	86-50-0	5.2E+04	3.5E+01	2.7E+04	1.0E+01	3.3E-06
barium	fresh water	7440-39-3	2.3E+02	8.3E+05	5.1E+02	7.1E+05	5.1E-19
benomyl	fresh water	17804-35-2	6.8E+03	8.6E+00	8.8E+02	7.5E-01	8.2E-08
bentazone	fresh water	25057-89-0	5.1E+01	2.2E-01	4.1E+01	3.3E-01	1.8E-07
Benzene	fresh water	71-43-2	9.1E-02	2.7E-03	7.0E-02	1.4E-03	1.4E-05
benzo[a]anthracene	fresh water	56-55-3	1.1E+05	8.3E+03	3.5E+05	2.8E+04	1.4E-02
benzo[a]pyrene	fresh water	50-32-8	2.5E+05	1.2E+04	7.2E+05	3.6E+04	2.5E-03
benzo[ghi]perylene	fresh water	191-24-2	5.2E+04	9.1E+03	1.7E+05	3.2E+04	4.3E-04
benzo[k]fluoranthrene	fresh water	207-08-9	1.2E+06	4.4E+05	3.9E+06	1.3E+06	2.1E-01
benzylchloride	fresh water	100-44-7	2.0E+02	1.2E+00	2.9E+01	1.9E-01	8.3E-04
beryllium	fresh water	7440-41-7	9.1E+04	5.4E+08	1.1E+05	2.3E+08	3.3E-16
bifenthrin	fresh water	82657-04-3	2.4E+05	2.1E+02	7.2E+05	8.1E+02	2.1E-02
Butylbenzylphtalate	fresh water	85-68-7	7.6E+01	5.3E-02	2.5E+01	1.3E-02	6.6E-06
cadmium	fresh water	22537-48-0	1.5E+03	2.2E+05	3.9E+03	2.2E+05	1.4E-20
captafol	fresh water	2425-06-1	5.4E+05	8.0E+04	7.7E+05	1.2E+05	1.9E-07
captan	fresh water	133-06-2	2.1E+03	1.0E-01	1.8E+01	1.3E-03	6.2E-08
carbaryl	fresh water	63-25-2	4.5E+03	1.4E+00	1.3E+03	1.3E-01	2.6E-07
carbendazim	fresh water	10605-21-7	3.8E+04	5.8E+02	3.9E+04	8.6E+02	6.3E-08
carbofuran	fresh water	1563-66-2	1.3E+04	4.4E+01	7.6E+03	4.6E+01	3.5E-05
carbon disulfide	fresh water	75-15-0	1.1E+02	1.8E+00	8.6E+01	1.4E+00	4.8E-03
Carcinogenic PAHs	fresh water		2.8E+04	5.5E+03	8.9E+04	1.8E+04	2.1E-03
chlordan	fresh water	57-74-9	9.0E+04	8.9E+03	9.1E+03	2.7E+02	9.7E-02
chlorfenvinphos	fresh water	470-90-6	1.1E+03	5.7E+00	9.4E+02	6.7E+00	4.6E-05
chloridazon	fresh water	1698-60-8	3.1E+01	1.2E+00	2.5E+01	1.5E+00	3.8E-04



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chlorobenzene	fresh water	108-90-7	3.6E-01	1.1E-01	3.4E-01	5.5E-02	7.2E-04
chlorothalonil	fresh water	1897-45-6	3.7E+02	4.0E+01	2.6E+02	1.2E+01	5.5E-03
chlorpropham	fresh water	101-21-3	8.3E+01	3.5E-01	7.1E+01	4.5E-01	2.5E-05
chlorpyrifos	fresh water	2921-88-2	6.4E+05	2.4E+02	4.1E+05	2.4E+01	2.1E-02
chromium III	fresh water	16056-83-1	6.9E+00	8.6E+02	1.8E+01	8.8E+02	2.3E-19
chromium VI	fresh water	18540-29-9	2.8E+01	3.4E+03	7.1E+01	3.5E+03	2.3E-19
chrysene	fresh water	218-01-9	1.9E+04	3.0E+03	5.9E+04	1.0E+04	8.4E-03
cobalt	fresh water	7440-48-4	3.4E+03	4.4E+06	5.6E+03	2.8E+06	2.7E-18
copper	fresh water	15158-11-9	1.2E+03	2.3E+05	2.9E+03	2.3E+05	4.1E-21
coumaphos	fresh water	56-72-4	2.0E+07	3.0E+06	2.9E+07	4.4E+06	6.0E+00
cyanazine	fresh water	21725-46-2	5.4E+04	1.9E+02	4.3E+04	2.5E+02	2.2E-06
cypermethrin	fresh water	52315-07-8	7.9E+06	1.0E+04	1.4E+07	2.7E+04	1.6E+01
cyromazine	fresh water	66215-27-8	2.6E+04	1.0E+03	2.1E+04	1.4E+03	1.9E-06
DDT	fresh water	50-29-3	2.9E+04	4.4E+03	3.1E+04	1.6E+03	3.1E-01
deltamethrin	fresh water	52918-63-5	6.5E+05	9.8E+02	9.8E+05	2.0E+03	3.2E-02
demeton	fresh water	8065-48-3	2.2E+04	9.6E+01	1.6E+04	1.2E+02	1.2E-02
desmetryn	fresh water	1014-69-3	1.9E+02	1.5E+00	1.2E+02	1.6E+00	3.6E-05
Di(2-ethylhexyl)phthalate	fresh water	117-81-7	7.9E+01	3.7E-01	1.0E+02	2.7E-01	6.6E-06
diazinon	fresh water	333-41-5	1.1E+05	6.4E+02	7.7E+04	6.1E+02	4.1E-03
Dibutylphthalate	fresh water	84-74-2	7.9E+01	7.7E-02	1.0E+01	7.5E-03	1.3E-05
Dichloromethane	fresh water	75-09-2	1.2E-02	3.5E-03	8.8E-03	1.3E-03	3.9E-06
dichlorprop	fresh water	120-36-5	5.3E+00	1.5E-02	2.8E+00	7.7E-03	6.1E-12
dichlorvos	fresh water	62-73-7	1.2E+05	1.2E+01	5.5E+03	9.1E-01	1.4E-02
dieldrin	fresh water	60-57-1	7.9E+04	9.0E+03	8.2E+03	3.2E+02	2.6E-01
Diethylphthalate	fresh water	84-66-2	3.4E+01	1.1E-01	2.2E+01	9.4E-02	5.6E-03
Dihexylphthalate	fresh water	84-75-3	1.1E+02	1.2E+00	2.6E+02	2.3E+00	2.6E-04
Diisodecylphthalate	fresh water	26761-40-0	8.6E+01	2.3E+00	1.9E+02	3.8E+00	3.8E-04
Diisooctylphthalate	fresh water	27554-26-3	2.1E+01	4.3E-01	4.7E+01	7.2E-01	6.4E-06
dimethoate	fresh water	60-51-5	1.7E+02	7.5E-01	1.3E+02	9.1E-01	1.2E-05
Dimethylphthalate	fresh water	133-11-3	3.1E+00	1.7E-03	7.9E-01	4.3E-04	3.7E-04
dinoseb	fresh water	88-85-7	3.2E+05	5.9E+03	8.8E+04	2.2E+03	3.4E-01
dinoterb	fresh water	1420-07-1	2.3E+05	5.4E+03	1.0E+05	2.0E+03	1.3E-02
Dioctylphthalate	fresh water	117-84-0	2.8E+00	3.5E-02	4.7E+00	3.6E-02	1.3E-07
disulfothon	fresh water	298-04-4	6.4E+04	1.2E+02	2.2E+04	3.5E+01	1.2E-03
diuron	fresh water	330-54-1	9.4E+03	5.5E+01	8.9E+03	7.8E+01	1.7E-03
DNOC	fresh water	534-52-1	1.1E+02	3.4E-01	1.9E+01	8.0E-02	8.5E-07
endosulfan	fresh water	115-29-7	2.8E+04	1.1E+01	6.0E+03	7.7E-01	1.8E-03
endrin	fresh water	72-20-8	7.0E+05	3.4E+05	2.1E+05	2.5E+04	3.5E-01
ethoprophos	fresh water	13194-48-4	1.5E+05	3.5E+03	1.2E+05	4.8E+03	2.4E-01
Ethylbenzene	fresh water	100-41-4	5.5E-01	1.4E-03	3.6E-01	1.3E-03	1.2E-06
Ethylene	fresh water	74-85-1	2.2E-02	2.8E-05	1.4E-02	3.4E-05	1.1E-12
fenitrothion	fresh water	122-14-5	2.4E+05	6.7E+02	1.4E+05	3.4E+02	4.7E-03
fenthion	fresh water	55-38-9	9.1E+05	3.6E+03	6.6E+05	2.5E+03	8.8E-02
fentin acetate	fresh water	900-95-8	2.7E+05	3.2E+03	4.3E+05	8.7E+03	6.1E-03
fentin chloride	fresh water	639-58-7	1.7E+05	1.9E+04	2.8E+05	2.6E+04	9.2E-02
fentin hydroxide	fresh water	76-87-9	2.7E+05	3.1E+03	4.3E+05	8.6E+03	2.1E-03
fluoranthrene	fresh water	206-44-0	1.3E+04	8.7E+02	3.9E+04	2.8E+03	4.9E-03
folpet	fresh water	133-07-3	8.2E+04	1.2E+04	1.1E+05	1.6E+04	6.0E-01
Formaldehyde	fresh water	50-00-0	2.8E+02	1.9E-01	1.5E+02	2.0E-01	1.6E-03
glyphosate	fresh water	1071-83-6	1.4E+03	4.2E+00	1.3E+03	3.7E+00	2.2E-11
heptachlor	fresh water	76-44-8	1.8E+04	1.2E+01	2.6E+04	1.0E+01	5.3E-04
heptenophos	fresh water	23560-59-0	2.2E+04	1.1E+01	2.8E+03	2.3E+00	1.6E-03
hexachloro-1,3-	fresh water	87-68-3	4.5E+04	7.5E+04	5.2E+04	2.8E+04	4.0E+00

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
butadiene							
hexachlorobenzene	fresh water	118-74-1	1.5E+02	2.4E+03	4.9E+02	2.7E+03	2.6E-01
hydrogen chloride	fresh water	7647-01-0	x	x	x	x	x
hydrogen sulfide	fresh water	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	7.7E+04	1.5E+04	2.5E+05	5.0E+04	6.2E-06
iprodione	fresh water	36734-19-7	1.6E+02	1.5E-02	1.3E+01	2.4E-04	4.4E-08
isoproturon	fresh water	34123-59-6	1.9E+03	2.0E+01	7.1E+02	1.3E+01	1.6E-05
lead	fresh water	14280-50-3	9.6E+00	1.1E+03	2.5E+01	1.1E+03	4.8E-22
lindane	fresh water	58-89-9	6.5E+03	8.7E+01	1.7E+03	1.8E+01	1.6E-01
linuron	fresh water	330-55-2	3.1E+04	5.6E+02	3.1E+04	7.3E+02	1.1E-02
malathion	fresh water	121-75-5	2.1E+05	7.7E+02	1.2E+05	4.3E+02	1.1E-05
MCPA	fresh water	94-74-6	2.7E+01	3.6E-02	1.8E+01	4.4E-02	1.4E-11
mecoprop	fresh water	7085-19-0	3.8E+02	6.7E-01	2.5E+02	8.7E-01	1.1E-08
mercury	fresh water	14302-87-5	1.7E+03	2.1E+05	4.4E+03	2.2E+05	9.3E+02
metamitron	fresh water	41394-05-2	2.3E+01	6.3E-02	1.2E+01	5.0E-02	8.5E-10
metazachlor	fresh water	67129-08-2	1.5E+02	1.3E+00	1.1E+02	1.5E+00	1.4E-06
methabenzthiazuron	fresh water	18691-97-9	1.1E+03	2.5E+01	1.2E+03	3.7E+01	2.0E-05
methomyl	fresh water	16752-77-5	1.4E+05	4.2E+03	1.0E+05	5.4E+03	2.2E-03
methylbromide	fresh water	74-83-9	1.9E+01	3.5E+00	1.0E+01	9.6E-01	1.1E-02
methyl-mercury	fresh water	22967-92-6	3.9E+04	4.9E+06	1.0E+05	5.1E+06	9.3E+02
metobromuron	fresh water	3060-89-7	4.3E+02	6.4E+01	4.2E+02	7.2E+01	4.6E-04
metolachlor	fresh water	51218-45-2	3.8E+04	5.8E+02	3.4E+04	8.1E+02	2.1E-04
mevinphos	fresh water	7786-34-7	5.9E+05	5.7E+02	7.4E+04	6.3E+01	2.3E-05
molybdenum	fresh water	7439-98-7	4.8E+02	2.1E+06	1.1E+03	1.7E+06	2.3E-18
meta-Xylene	fresh water	108-38-3	6.0E-01	2.1E-03	3.9E-01	2.1E-03	6.0E-07
Naphtalene	fresh water	91-20-3	6.6E+02	1.1E+00	2.6E+02	3.8E-01	4.9E-04
nickel	fresh water	7440-02-0	3.2E+03	2.2E+06	8.3E+03	2.2E+06	1.0E-18
nitrogen dioxide	fresh water	10102-44-0	x	x	x	x	x
oxamyl	fresh water	23135-22-0	6.5E+02	1.8E-01	3.0E+02	5.3E-02	7.1E-06
oxydemethon-methyl	fresh water	301-12-2	7.0E+04	1.4E+02	1.6E+04	5.8E+01	4.6E-04
ortho-Xylene	fresh water	95-47-6	5.6E-01	2.5E-03	4.5E-01	3.1E-03	1.2E-06
parathion-ethyl	fresh water	56-38-2	1.2E+06	5.3E+03	8.0E+05	2.2E+03	3.1E-03
parathion-methyl	fresh water	298-00-0	2.9E+05	1.5E+03	1.8E+04	6.2E+01	3.4E-02
pentachlorobenzene	fresh water	608-93-5	5.1E+01	1.7E+02	7.2E+01	8.7E+01	3.8E-02
pentachloronitrobenzene	fresh water	82-68-8	4.0E+03	2.8E+03	1.1E+03	2.2E+02	5.0E-02
pentachlorophenol	fresh water	87-86-5	7.1E+02	1.2E+01	1.6E+03	2.2E+01	3.2E-04
permethrin	fresh water	52645-53-1	5.0E+06	2.7E+04	6.7E+06	2.0E+04	3.9E-01
phenanthrene	fresh water	85-01-8	5.2E+02	1.0E+01	5.6E+02	8.6E+00	6.0E-05
Phenol	fresh water	108-95-2	2.4E+02	5.6E-02	8.8E+01	3.8E-02	2.5E-06
phoxim	fresh water	14816-18-3	2.6E+03	5.0E+00	4.3E+02	6.7E-01	1.5E-02
Phtalic anhydride	fresh water	85-44-9	5.5E-01	4.1E-06	1.1E-03	2.4E-08	1.2E-10
pirimicarb	fresh water	23103-98-2	3.6E+04	1.6E+02	3.6E+04	2.4E+02	9.3E-04
dust (PM10)	fresh water	PM10	x	x	x	x	x
propachlor	fresh water	1918-16-7	1.2E+03	2.4E+00	6.7E+02	2.3E+00	8.1E-04
propoxur	fresh water	114-26-1	2.6E+05	5.0E+02	1.8E+05	5.2E+02	3.1E-04
Propylene Oxide	fresh water	75-56-9	4.0E+00	5.8E-02	2.1E+00	3.3E-02	6.5E-04
para-Xylene	fresh water	106-42-3	5.5E-01	2.2E-03	3.3E-01	1.6E-03	4.9E-07
pyrazophos	fresh water	13457-18-6	4.9E+04	1.2E+02	4.5E+04	1.2E+02	1.7E-03
selenium	fresh water	7782-49-2	2.9E+03	2.5E+07	3.4E+03	1.1E+07	1.6E-17
simazine	fresh water	122-34-9	2.7E+04	1.4E+02	2.3E+04	2.1E+02	1.0E-03
styrene	fresh water	100-42-5	4.4E-01	2.2E-03	3.0E-01	1.6E-03	1.3E-07
sulphur dioxide	fresh water	7446-09-5	x	x	x	x	x
Tetrachloroethylene	fresh water	127-18-4	7.0E-01	3.4E-01	6.7E-01	1.3E-01	7.9E-03

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Tetrachloromethane	fresh water	56-23-5	2.1E-01	1.1E+00	1.2E-01	3.1E-01	4.7E-04
thallium	fresh water	7440-28-0	8.0E+03	2.7E+07	2.0E+04	2.5E+07	3.1E-17
Thiram	fresh water	137-26-8	9.8E+04	7.4E+01	3.5E+04	6.6E+00	9.3E-02
tin	fresh water	7440-31-5	1.0E+01	1.2E+03	5.2E+00	2.5E+02	7.9E-22
tolclophos-methyl	fresh water	57018-04-9	5.0E+02	4.4E+00	5.3E+02	5.1E+00	3.2E-04
Toluene	fresh water	108-88-3	2.9E-01	1.2E-03	2.1E-01	1.3E-03	1.4E-05
tri-allate	fresh water	2303-17-5	4.9E+04	7.8E+02	1.7E+04	2.2E+02	2.7E-03
triazophos	fresh water	24017-47-8	1.7E+05	1.5E+03	1.6E+05	2.1E+03	3.9E-02
tributyltinoxide	fresh water	56-35-9	4.5E+05	2.1E+05	6.1E+05	2.9E+05	1.1E-01
trichlorfon	fresh water	52-68-6	4.1E+05	8.3E+01	7.6E+04	1.3E+01	7.0E-05
Trichloroethylene	fresh water	79-01-6	9.7E-02	3.3E-03	8.2E-02	2.7E-03	4.6E-06
Trichloromethane	fresh water	67-66-3	4.2E-02	5.8E-02	2.2E-02	1.6E-02	3.9E-05
trifluarin	fresh water	1582-09-8	2.7E+04	4.2E+02	2.2E+04	1.8E+02	1.3E-02
vanadium	fresh water	7440-62-2	9.0E+03	8.6E+06	2.1E+04	7.9E+06	1.0E-17
Vinyl Chloride	fresh water	75-01-4	2.8E-02	3.8E-04	2.3E-02	4.9E-04	2.6E-07
zinc	fresh water	23713-49-7	9.2E+01	1.4E+04	2.4E+02	1.4E+04	2.5E-21
zineb	fresh water	12122-67-7	2.8E+04	2.5E+02	2.2E+04	2.7E+02	1.3E-03
chlormequat-chloride	fresh water	999-81-5	2.7E+02	1.9E+00	1.1E+02	1.2E+00	3.0E-11
fenpropimorph	fresh water	67306-03-0	1.6E+03	9.0E+00	1.6E+03	9.2E+00	1.1E-04
fluroxypyr	fresh water	69377-81-7	8.7E+03	5.5E+01	6.8E+03	7.7E+01	5.8E-12
epoxiconazole	fresh water	??	6.0E+03	9.0E+02	8.1E+03	1.2E+03	5.7E-02
ethylene oxide	fresh water	75-21-8	9.8E+00	6.3E-01	6.0E+00	3.4E-01	1.8E-03
hydrogen fluoride	fresh water	7664-39-3	1.9E+01	5.4E+07	1.5E+01	1.8E+07	4.5E-05
1,1,1-trichloroethane	seawater	71-55-6	7.1E-05	2.7E-01	5.9E-05	1.9E-01	1.0E-04
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	3.8E-02	1.5E+01	4.5E-02	1.2E+01	3.7E-03
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	3.0E-02	1.6E+01	3.3E-02	1.3E+01	7.4E-02
1,2,3-trichlorobenzene	seawater	87-61-6	3.9E-03	3.6E+00	4.3E-03	3.5E+00	3.5E-02
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	2.9E-02	1.3E+01	3.3E-02	1.0E+01	9.5E-02
1,2,4-trichlorobenzene	seawater	120-82-1	4.4E-03	3.1E+00	4.8E-03	2.9E+00	4.0E-03
1,2-dichlorobenzene	seawater	95-50-1	1.3E-03	9.5E-01	1.2E-03	1.0E+00	2.4E-04
1,2-dichloroethane	seawater	107-06-2	8.8E-05	9.1E-02	7.4E-05	6.1E-02	2.0E-05
1,3,5-trichlorobenzene	seawater	108-70-3	7.0E-03	4.5E+00	7.2E-03	4.5E+00	8.3E-04
1,3-Butadiene	seawater	106-99-0	5.6E-08	7.3E-01	3.8E-08	8.3E-01	4.0E-09
1,3-dichlorobenzene	seawater	541-73-1	1.1E-03	1.0E+00	1.0E-03	1.2E+00	2.0E-04
1,4-dichlorobenzene	seawater	106-46-7	1.1E-03	1.0E+00	1.1E-03	1.0E+00	5.7E-03
1-chloro-4-nitrobenzene	seawater	100-00-5	1.9E+00	3.7E+02	1.7E+00	4.4E+02	9.6E-02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	1.3E-03	2.2E+02	1.4E-03	2.5E+02	5.2E-06
2,3,7,8-TCDD	seawater	1746-01-6	1.3E+05	5.0E+08	4.3E+05	1.9E+09	8.3E+02
2,4,5-T	seawater	93-76-5	1.7E-10	4.0E-01	1.2E-10	4.9E-01	6.4E-11
2,4,5-trichlorophenol	seawater	95-95-4	5.4E-02	1.2E+02	6.4E-02	1.6E+02	9.1E-04
2,4,6-trichlorophenol	seawater	88-06-2	2.4E-04	7.6E+00	2.3E-04	8.9E+00	1.3E-05
2,4-D	seawater	94-75-7	1.1E-10	1.0E+01	8.5E-11	1.4E+01	1.8E-12
2,4-dichlorophenol	seawater	120-83-2	2.9E-04	3.7E+00	1.1E-04	2.0E+00	6.2E-06
2-chlorophenol	seawater	95-57-8	6.7E-03	4.6E+01	5.3E-03	6.1E+01	2.7E-05
3,4-dichloroaniline	seawater	95-76-1	1.2E-03	3.3E+03	1.5E-03	4.1E+03	6.7E-06
3-chloroaniline	seawater	108-42-9	3.7E-06	5.9E+01	3.4E-06	8.2E+01	1.7E-08
4-chloroaniline	seawater	106-47-8	1.1E-02	9.6E+01	9.7E-03	1.4E+02	8.6E-05
acephate	seawater	30560-19-1	6.0E-08	3.7E+01	3.1E-08	3.5E+01	5.3E-10
Acrolein	seawater	107-02-8	5.0E+00	8.9E+03	3.7E+00	1.3E+04	1.6E-01
Acrylonitrile	seawater	107-13-1	6.0E-03	3.1E+00	3.9E-03	4.0E+00	1.2E-04



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aldicarb	seawater	116-06-3	1.2E-01	1.5E+04	9.8E-02	2.2E+04	4.8E-03
aldrin	seawater	309-00-2	1.3E+00	8.0E+03	1.1E-01	7.4E+02	6.7E-03
ammonia	seawater	7664-41-7	x	x	x	x	x
anilazine	seawater	101-05-3	1.1E-07	2.0E+01	6.8E-09	8.3E-01	7.0E-10
anthracene	seawater	120-12-7	1.7E+01	1.8E+04	2.3E+01	2.5E+04	4.0E-03
antimony	seawater	7440-36-0	7.6E-21	4.9E+04	1.8E-20	4.6E+04	3.0E-20
arsenic	seawater	7440-38-2	3.8E-20	3.4E+05	9.8E-20	3.4E+05	3.0E-17
atrazine	seawater	1912-24-9	8.3E-03	6.0E+02	7.2E-03	6.6E+02	5.0E-05
aziphos-ethyl	seawater	2642-71-9	4.1E-02	5.9E+03	3.0E-02	4.7E+03	3.4E-04
aziphos-methyl	seawater	86-50-0	1.1E-04	1.0E+03	5.6E-05	2.9E+02	4.9E-08
barium	seawater	7440-39-3	2.4E-19	1.1E+06	5.4E-19	9.3E+05	6.6E-19
benomyl	seawater	17804-35-2	8.9E-08	1.5E+02	1.1E-08	1.3E+01	1.4E-09
bentazone	seawater	25057-89-0	7.4E-09	1.2E+00	6.0E-09	1.8E+00	3.3E-10
Benzene	seawater	71-43-2	9.2E-06	1.5E-02	7.0E-06	2.1E-02	1.7E-06
benzo[a]anthracene	seawater	56-55-3	1.1E+00	8.5E+04	3.2E+00	2.8E+05	6.2E-03
benzo[a]pyrene	seawater	50-32-8	2.8E-01	1.2E+05	8.0E-01	3.7E+05	8.0E-04
benzo[ghi]perylene	seawater	191-24-2	4.9E-02	6.5E+04	1.6E-01	2.3E+05	2.5E-04
benzo[k]fluoranthrene	seawater	207-08-9	9.1E+00	1.5E+06	3.0E+01	4.4E+06	8.8E-02
benzylchloride	seawater	100-44-7	1.1E-02	7.8E+00	1.7E-03	1.9E+00	2.5E-05
beryllium	seawater	7440-41-7	1.6E-16	6.4E+08	1.8E-16	2.8E+08	3.9E-16
bifenthrin	seawater	82657-04-3	5.5E-02	8.9E+03	1.6E-01	3.4E+04	5.9E-04
Butylbenzylphtalate	seawater	85-68-7	3.2E-05	1.6E+00	1.0E-05	4.0E-01	1.0E-07
cadmium	seawater	22537-48-0	2.5E-20	1.8E+06	6.5E-20	1.9E+06	1.1E-19
captafol	seawater	2425-06-1	5.0E-05	9.4E+04	7.3E-05	1.4E+05	1.6E-08
captan	seawater	133-06-2	6.5E-07	4.0E+01	5.7E-09	5.0E-01	9.4E-10
carbaryl	seawater	63-25-2	1.9E-06	2.4E+01	5.5E-07	2.1E+00	1.1E-09
carbendazim	seawater	10605-21-7	2.4E-08	1.3E+03	2.4E-08	2.0E+03	1.6E-10
carbofuran	seawater	1563-66-2	1.8E-04	3.0E+02	1.1E-04	3.1E+02	6.1E-07
carbon disulfide	seawater	75-15-0	6.5E-03	3.0E+01	5.4E-03	4.5E+01	1.0E-03
Carcinogenic PAHs	seawater		1.2E-01	2.4E+04	3.8E-01	8.0E+04	8.1E-04
chlordane	seawater	57-74-9	3.1E+01	4.7E+05	3.2E+00	1.5E+04	2.8E-01
chlorfenvinphos	seawater	470-90-6	5.6E-05	2.8E+01	4.8E-05	3.3E+01	8.6E-07
chloridazon	seawater	1698-60-8	3.5E-03	8.0E+00	2.7E-03	1.0E+01	6.4E-05
chlorobenzene	seawater	108-90-7	2.6E-04	3.5E-01	2.4E-04	4.5E-01	4.1E-04
chlorothalonil	seawater	1897-45-6	1.4E-01	3.6E+01	9.5E-02	2.3E+01	3.8E-04
chlorpropham	seawater	101-21-3	2.8E-05	2.0E+00	2.4E-05	2.5E+00	4.5E-07
chlorpyrifos	seawater	2921-88-2	2.3E-01	2.2E+03	1.5E-01	2.2E+02	5.7E-05
chromium III	seawater	16056-83-1	8.8E-23	8.2E+03	2.3E-22	8.4E+03	2.0E-18
chromium VI	seawater	18540-29-9	3.5E-22	3.3E+04	9.1E-22	3.4E+04	2.0E-18
chrysene	seawater	218-01-9	2.6E-01	7.6E+03	8.3E-01	2.6E+04	1.6E-03
cobalt	seawater	7440-48-4	1.2E-18	8.0E+06	2.0E-18	5.2E+06	4.9E-18
copper	seawater	15158-11-9	4.1E-20	1.5E+06	1.0E-19	1.5E+06	2.5E-20
coumaphos	seawater	56-72-4	1.1E+02	3.6E+06	1.5E+02	5.2E+06	5.0E-01
cyanazine	seawater	21725-46-2	2.5E-06	1.3E+03	1.9E-06	1.6E+03	4.0E-08
cypermethrin	seawater	52315-07-8	2.4E+00	1.6E+05	4.3E+00	4.5E+05	2.5E-01
cyromazine	seawater	66215-27-8	8.1E-07	1.6E+03	6.5E-07	2.2E+03	7.3E-08
DDT	seawater	50-29-3	1.5E+01	1.9E+05	1.6E+01	7.1E+04	9.6E-01
deltamethrin	seawater	52918-63-5	3.2E+00	3.6E+04	4.8E+00	7.2E+04	1.4E-03
demeton	seawater	8065-48-3	1.7E-02	5.5E+02	1.2E-02	7.0E+02	2.3E-04
desmetryn	seawater	1014-69-3	4.1E-06	5.4E+00	2.4E-06	5.5E+00	7.5E-07
Di(2-ethylhexyl)phtalate	seawater	117-81-7	1.6E-03	1.5E+01	2.1E-03	1.1E+01	9.6E-07
diazinon	seawater	333-41-5	6.4E-02	2.8E+03	4.6E-02	2.7E+03	8.2E-05
Dibutylphtalate	seawater	84-74-2	2.9E-05	1.7E+00	3.8E-06	1.6E-01	2.1E-07

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
Dichloromethane	seawater	75-09-2	5.0E-06	3.2E-03	3.6E-06	3.8E-03	6.5E-07
dichlorprop	seawater	120-36-5	1.6E-12	1.2E-01	8.3E-13	6.4E-02	1.1E-14
dichlorvos	seawater	62-73-7	1.1E-02	2.4E+03	5.1E-04	1.8E+02	2.2E-04
dieldrin	seawater	60-57-1	1.6E+01	5.9E+04	1.7E+00	2.1E+03	1.0E-01
Diethylphtalate	seawater	84-66-2	7.9E-05	8.0E-01	5.2E-05	6.5E-01	1.0E-04
Dihexylphtalate	seawater	84-75-3	1.1E-02	9.7E+00	2.6E-02	2.0E+01	1.7E-05
Diisodecylphtalate	seawater	26761-40-0	3.8E-02	1.9E+01	8.5E-02	3.4E+01	6.4E-05
Diisooctylphtalate	seawater	27554-26-3	3.9E-03	1.6E+01	8.7E-03	2.8E+01	3.5E-06
dimethoate	seawater	60-51-5	7.4E-06	3.4E+00	5.5E-06	4.1E+00	1.8E-07
Dimethylphtalate	seawater	133-11-3	3.8E-07	5.2E-02	9.8E-08	1.3E-02	4.7E-06
dinoseb	seawater	88-85-7	1.1E-01	1.3E+04	2.9E-02	5.0E+03	1.0E-03
dinoterb	seawater	1420-07-1	4.2E-02	1.2E+04	1.9E-02	4.5E+03	5.1E-05
Diocetylphthalate	seawater	117-84-0	1.4E-04	2.5E+00	2.4E-04	2.6E+00	8.8E-08
disulfothon	seawater	298-04-4	1.3E-02	1.5E+03	4.6E-03	4.2E+02	2.1E-05
diuron	seawater	330-54-1	1.9E-03	2.4E+02	1.8E-03	3.4E+02	3.2E-05
DNOC	seawater	534-52-1	2.1E-08	2.6E+00	3.6E-09	6.1E-01	1.5E-09
endosulfan	seawater	115-29-7	2.1E-02	3.2E+02	4.5E-03	2.2E+01	1.6E-05
endrin	seawater	72-20-8	6.1E+00	2.7E+06	1.9E+00	2.0E+05	3.8E-01
ethoprophos	seawater	13194-48-4	1.0E+00	6.6E+03	7.9E-01	8.9E+03	7.2E-03
Ethylbenzene	seawater	100-41-4	9.4E-06	6.2E-02	6.3E-06	6.7E-02	1.0E-07
Ethylene	seawater	74-85-1	1.0E-12	2.6E-03	6.6E-13	3.2E-03	9.9E-14
fenitrothion	seawater	122-14-5	9.9E-03	5.6E+03	5.5E-03	2.9E+03	8.4E-05
fenthion	seawater	55-38-9	2.6E-01	2.3E+04	1.9E-01	1.5E+04	1.7E-03
fentin acetate	seawater	900-95-8	8.7E-02	4.0E+04	1.4E-01	1.1E+05	1.1E-04
fentin chloride	seawater	639-58-7	1.8E+01	4.0E+04	2.9E+01	1.1E+05	2.5E-03
fentin hydroxide	seawater	76-87-9	2.9E-02	4.0E+04	4.7E-02	1.1E+05	3.8E-05
fluoranthrene	seawater	206-44-0	8.7E-01	4.2E+03	2.6E+00	1.4E+04	9.6E-04
folpet	seawater	133-07-3	1.6E+01	2.1E+04	2.2E+01	2.8E+04	7.4E-02
Formaldehyde	seawater	50-00-0	2.1E-04	5.6E+00	1.2E-04	6.0E+00	2.4E-05
glyphosate	seawater	1071-83-6	2.1E-11	3.3E+01	2.0E-11	3.0E+01	4.4E-14
heptachlor	seawater	76-44-8	3.9E-02	1.1E+03	5.5E-02	9.2E+02	2.4E-05
heptenophos	seawater	23560-59-0	1.3E-03	4.5E+02	1.7E-04	9.1E+01	2.4E-05
hexachloro-1,3-butadiene	seawater	87-68-3	2.3E+01	7.0E+04	2.6E+01	4.7E+04	2.1E+00
hexachlorobenzene	seawater	118-74-1	1.1E+00	2.4E+03	3.6E+00	3.4E+03	2.4E-01
hydrogen chloride	seawater	7647-01-0	x	x	x	x	x
hydrogen sulfide	seawater	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	seawater	193-39-5	7.4E-04	1.1E+05	2.4E-03	3.8E+05	4.1E-06
iprodione	seawater	36734-19-7	3.8E-09	7.2E-01	3.1E-10	1.2E-02	1.5E-10
isoproturon	seawater	34123-59-6	2.9E-05	5.9E+01	1.1E-05	3.7E+01	3.8E-07
lead	seawater	14280-50-3	5.6E-23	1.1E+04	1.4E-22	1.2E+04	4.6E-21
lindane	seawater	58-89-9	1.1E-01	2.3E+02	3.0E-02	4.8E+01	3.9E-03
linuron	seawater	330-55-2	6.0E-02	1.3E+03	6.0E-02	1.7E+03	3.1E-04
malathion	seawater	121-75-5	1.8E-02	5.1E+03	1.1E-02	2.8E+03	2.0E-07
MCPA	seawater	94-74-6	5.3E-13	5.6E-01	3.6E-13	6.9E-01	2.2E-14
mecoprop	seawater	7085-19-0	3.8E-10	8.0E+00	2.5E-10	1.1E+01	1.8E-11
mercury	seawater	14302-87-5	6.8E+00	1.9E+06	1.7E+01	1.9E+06	7.6E+03
metamitron	seawater	41394-05-2	6.8E-10	4.9E-01	3.5E-10	3.8E-01	1.4E-11
metazachlor	seawater	67129-08-2	3.0E-06	4.4E+00	2.2E-06	5.2E+00	3.0E-08
methabenzthiazuron	seawater	18691-97-9	9.2E-05	4.8E+01	1.0E-04	7.0E+01	6.0E-07
methomyl	seawater	16752-77-5	8.5E-03	6.9E+03	6.3E-03	8.9E+03	7.5E-05
methylbromide	seawater	74-83-9	2.3E-03	2.4E+00	1.2E-03	2.0E+00	9.1E-04
methyl-mercury	seawater	22967-92-6	1.6E+02	4.3E+07	4.0E+02	4.4E+07	7.6E+03
metobromuron	seawater	3060-89-7	1.6E-03	7.3E+01	1.6E-03	8.2E+01	3.8E-05

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metolachlor	seawater	51218-45-2	7.0E-02	1.3E+03	6.2E-02	1.9E+03	5.4E-06
mevinphos	seawater	7786-34-7	6.9E-05	1.1E+04	8.8E-06	1.2E+03	3.2E-07
molybdenum	seawater	7439-98-7	6.6E-19	2.6E+06	1.5E-18	2.2E+06	2.9E-18
meta-Xylene	seawater	108-38-3	7.2E-06	1.4E-01	4.7E-06	1.4E-01	1.1E-07
Naphtalene	seawater	91-20-3	1.1E-02	3.3E+01	4.5E-03	1.2E+01	1.9E-05
nickel	seawater	7440-02-0	6.1E-19	5.8E+06	1.6E-18	5.7E+06	2.6E-18
nitrogen dioxide	seawater	10102-44-0	x	x	x	x	x
oxamyl	seawater	23135-22-0	4.5E-07	2.8E+00	2.1E-07	8.0E-01	2.3E-08
oxydemethon-methyl	seawater	301-12-2	3.0E-04	1.0E+03	6.8E-05	4.2E+02	5.2E-06
ortho-Xylene	seawater	95-47-6	1.5E-05	1.3E-01	1.2E-05	1.7E-01	2.1E-07
parathion-ethyl	seawater	56-38-2	2.0E-01	4.1E+04	1.4E-01	1.7E+04	8.2E-05
parathion-methyl	seawater	298-00-0	1.2E-01	8.1E+03	7.4E-03	3.4E+02	7.1E-04
pentachlorobenzene	seawater	608-93-5	2.4E-01	1.7E+02	3.3E-01	1.4E+02	2.6E-02
pentachloronitrobenzene	seawater	82-68-8	1.1E+01	5.6E+03	3.1E+00	5.5E+02	2.9E-02
pentachlorophenol	seawater	87-86-5	1.2E-05	7.8E+01	2.7E-05	1.4E+02	2.6E-06
permethrin	seawater	52645-53-1	1.0E+01	2.8E+05	1.3E+01	2.2E+05	1.7E-02
phenanthrene	seawater	85-01-8	5.8E-02	7.4E+01	6.3E-02	6.4E+01	6.3E-06
Phenol	seawater	108-95-2	1.7E-05	4.7E+00	6.4E-06	3.2E+00	3.8E-08
phoxim	seawater	14816-18-3	3.3E-02	3.0E+02	5.4E-03	4.1E+01	1.3E-03
Phtalic anhydride	seawater	85-44-9	4.6E-11	1.7E-02	9.4E-14	9.9E-05	2.8E-12
pirimicarb	seawater	23103-98-2	8.9E-04	8.6E+02	9.0E-04	1.3E+03	1.7E-05
dust (PM10)	seawater	PM10	x	x	x	x	x
propachlor	seawater	1918-16-7	5.0E-04	2.7E+01	2.7E-04	2.5E+01	1.3E-05
propoxur	seawater	114-26-1	1.2E-04	3.4E+03	8.2E-05	3.6E+03	3.2E-06
Propylene Oxide	seawater	75-56-9	4.4E-04	1.4E-01	2.4E-04	1.5E-01	1.8E-05
para-Xylene	seawater	106-42-3	1.0E-05	1.3E-01	6.1E-06	9.7E-02	8.9E-08
pyrazophos	seawater	13457-18-6	2.3E-03	1.1E+03	2.0E-03	1.1E+03	2.9E-05
selenium	seawater	7782-49-2	7.4E-18	2.9E+07	8.6E-18	1.2E+07	1.8E-17
simazine	seawater	122-34-9	4.5E-03	6.7E+02	3.8E-03	1.0E+03	1.9E-05
styrene	seawater	100-42-5	1.0E-05	1.2E-01	7.0E-06	9.3E-02	2.7E-08
sulphur dioxide	seawater	7446-09-5	x	x	x	x	x
Tetrachloroethylene	seawater	127-18-4	2.0E-04	6.5E-01	1.9E-04	7.8E-01	4.0E-03
Tetrachloromethane	seawater	56-23-5	1.9E-04	1.1E+00	1.1E-04	4.6E-01	3.6E-04
thallium	seawater	7440-28-0	7.9E-18	3.6E+07	2.0E-17	3.4E+07	4.2E-17
Thiram	seawater	137-26-8	2.6E-02	4.2E+02	9.5E-03	3.7E+01	3.1E-04
tin	seawater	7440-31-5	9.5E-23	1.2E+04	4.8E-23	2.5E+03	7.2E-21
tolclophos-methyl	seawater	57018-04-9	2.9E-02	1.4E+02	3.1E-02	1.6E+02	6.7E-05
Toluene	seawater	108-88-3	8.3E-06	5.1E-02	5.9E-06	6.3E-02	1.9E-06
tri-allate	seawater	2303-17-5	1.1E+00	3.3E+03	4.1E-01	9.2E+02	1.3E-04
triazophos	seawater	24017-47-8	7.9E-02	4.9E+03	7.4E-02	6.8E+03	8.4E-04
tributyltinoxide	seawater	56-35-9	3.0E+00	5.7E+05	4.1E+00	7.9E+05	6.9E-03
trichlorfon	seawater	52-68-6	5.3E-06	3.6E+03	9.9E-07	5.4E+02	4.8E-07
Trichloroethylene	seawater	79-01-6	1.6E-05	5.7E-02	1.3E-05	8.1E-02	1.9E-06
Trichloromethane	seawater	67-66-3	4.5E-05	5.6E-02	2.3E-05	3.3E-02	1.9E-05
trifluarin	seawater	1582-09-8	1.8E+00	8.3E+03	1.4E+00	3.6E+03	3.0E-03
vanadium	seawater	7440-62-2	2.4E-18	1.8E+07	5.7E-18	1.7E+07	2.2E-17
Vinyl Chloride	seawater	75-01-4	1.4E-06	2.0E-02	1.1E-06	2.9E-02	1.3E-07
zinc	seawater	23713-49-7	1.8E-21	1.1E+05	4.5E-21	1.1E+05	1.9E-20
zineb	seawater	12122-67-7	3.6E-03	8.1E+02	2.9E-03	8.9E+02	2.8E-05
chlormequat-chloride	seawater	999-81-5	1.1E-10	7.5E+00	4.7E-11	4.6E+00	6.1E-13
fenpropimorph	seawater	67306-03-0	1.1E-04	4.4E+01	1.1E-04	4.6E+01	4.2E-07
fluroxypyr	seawater	69377-81-7	7.3E-13	2.2E+02	5.7E-13	3.2E+02	1.1E-14
epoxiconazole	seawater	??	9.1E-01	1.1E+03	1.2E+00	1.5E+03	5.1E-03

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ethylene oxide	seawater	75-21-8	3.8E-03	7.4E-01	2.3E-03	8.4E-01	9.7E-05
hydrogen fluoride	seawater	7664-39-3	2.2E-03	5.4E+07	1.8E-03	1.8E+07	4.5E-05
1,1,1-trichloroethane	agri. soil	71-55-6	3.7E-04	2.9E-01	3.1E-04	9.6E-02	1.5E-03
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	2.8E-02	3.9E-01	3.2E-02	1.6E-01	8.3E-01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	8.3E-02	2.3E+00	9.3E-02	9.0E-01	1.5E+01
1,2,3-trichlorobenzene	agri. soil	87-61-6	2.3E-02	6.5E-01	2.5E-02	2.6E-01	9.3E+00
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	2.5E-02	5.1E-01	2.9E-02	2.1E-01	1.9E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	2.0E-02	4.3E-01	2.2E-02	1.8E-01	1.2E+00
1,2-dichlorobenzene	agri. soil	95-50-1	1.9E-02	5.1E-01	1.8E-02	2.1E-01	5.4E-02
1,2-dichloroethane	agri. soil	107-06-2	7.5E-04	5.9E-02	6.3E-04	2.2E-02	1.7E-03
1,3,5-trichlorobenzene	agri. soil	108-70-3	5.4E-02	1.1E+00	5.6E-02	4.5E-01	2.5E-01
1,3-Butadiene	agri. soil	106-99-0	5.7E-05	2.9E-06	3.8E-05	3.2E-06	3.1E-04
1,3-dichlorobenzene	agri. soil	541-73-1	1.8E-02	3.7E-01	1.6E-02	1.6E-01	6.2E-02
1,4-dichlorobenzene	agri. soil	106-46-7	1.4E-02	5.5E-01	1.4E-02	2.1E-01	1.0E+00
1-chloro-4-nitrobenzene	agri. soil	100-00-5	1.5E+02	1.2E+02	1.3E+02	7.9E+01	1.7E+01
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	3.2E+01	6.2E-01	3.5E+01	6.8E-01	1.0E+00
2,3,7,8-TCDD	agri. soil	1746-01-6	1.2E+05	4.5E+04	4.0E+05	1.4E+05	2.7E+04
2,4,5-T	agri. soil	93-76-5	4.4E-01	1.6E-03	3.2E-01	2.0E-03	7.4E-01
2,4,5-trichlorophenol	agri. soil	95-95-4	2.8E+01	1.3E+00	3.3E+01	1.6E+00	4.4E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	1.2E+00	8.2E-03	1.2E+00	9.5E-03	7.0E-01
2,4-D	agri. soil	94-75-7	2.9E+01	1.7E-01	2.2E+01	2.3E-01	1.6E+00
2,4-dichlorophenol	agri. soil	120-83-2	2.5E+00	7.0E-03	1.0E+00	3.2E-03	5.9E-01
2-chlorophenol	agri. soil	95-57-8	7.9E+00	6.8E-02	6.3E+00	9.0E-02	3.8E-01
3,4-dichloroaniline	agri. soil	95-76-1	1.8E+03	2.7E+02	2.3E+03	3.3E+02	2.6E+01
3-chloroaniline	agri. soil	108-42-9	7.4E+01	3.2E-01	6.8E+01	4.5E-01	1.4E+00
4-chloroaniline	agri. soil	106-47-8	1.7E+02	7.7E-01	1.5E+02	1.1E+00	1.6E+01
acephate	agri. soil	30560-19-1	5.1E+01	6.7E-01	2.6E+01	6.4E-01	1.7E+00
Acrolein	agri. soil	107-02-8	4.5E+04	2.5E+02	3.4E+04	3.6E+02	7.0E+03
Acrylonitrile	agri. soil	107-13-1	6.5E+00	2.1E-01	4.2E+00	1.9E-01	2.5E+00
aldicarb	agri. soil	116-06-3	9.6E+04	1.6E+03	7.6E+04	2.4E+03	4.2E+03
aldrin	agri. soil	309-00-2	2.8E+02	3.2E+01	2.4E+01	2.9E+00	2.0E+01
ammonia	agri. soil	7664-41-7	x	x	x	x	x
anilazine	agri. soil	101-05-3	2.1E-01	5.0E-05	1.4E-02	2.1E-06	2.3E-01
anthracene	agri. soil	120-12-7	8.2E+01	6.2E+00	1.1E+02	8.2E+00	8.9E+00
antimony	agri. soil	7440-36-0	1.0E+01	1.4E+04	2.4E+01	1.3E+04	1.3E+00
arsenic	agri. soil	7440-38-2	1.3E+02	7.7E+04	3.4E+02	7.7E+04	3.3E+03
atrazine	agri. soil	1912-24-9	3.4E+02	3.4E+01	3.0E+02	3.8E+01	6.6E+00
azinphos-ethyl	agri. soil	2642-71-9	2.8E+03	1.1E+01	2.0E+03	8.4E+00	2.2E+02
azinphos-methyl	agri. soil	86-50-0	1.9E+02	1.4E-01	1.0E+02	4.1E-02	9.7E-01
barium	agri. soil	7440-39-3	1.1E+02	4.2E+05	2.6E+02	3.6E+05	1.0E+01
benomyl	agri. soil	17804-35-2	4.6E+00	5.8E-03	5.9E-01	5.0E-04	3.5E+00
bentazone	agri. soil	25057-89-0	8.3E+00	3.6E-02	6.7E+00	5.5E-02	5.9E-01
Benzene	agri. soil	71-43-2	7.2E-04	2.4E-03	5.4E-04	1.1E-03	3.4E-03
benzo[a]anthracene	agri. soil	56-55-3	6.2E+01	4.5E+00	1.9E+02	1.5E+01	3.1E+01
benzo[a]pyrene	agri. soil	50-32-8	1.3E+02	6.5E+00	3.8E+02	1.9E+01	2.3E+01
benzo[ghi]perylene	agri. soil	191-24-2	6.1E+01	1.1E+01	2.0E+02	3.7E+01	8.3E+00
benzo[k]fluoranthrene	agri. soil	207-08-9	5.2E+03	2.0E+03	1.7E+04	5.9E+03	3.9E+02
benzylchloride	agri. soil	100-44-7	9.2E-01	8.2E-02	1.3E-01	1.3E-02	8.0E-01
beryllium	agri. soil	7440-41-7	4.6E+04	2.7E+08	5.4E+04	1.2E+08	3.6E+03
bifenthrin	agri. soil	82657-04-3	1.0E+02	1.1E-01	3.1E+02	4.3E-01	8.3E+01

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Butylbenzylphthalate	agri. soil	85-68-7	2.5E-02	2.9E-05	8.2E-03	7.1E-06	1.0E-02
cadmium	agri. soil	22537-48-0	7.8E+02	1.1E+05	2.0E+03	1.1E+05	1.7E+02
captafol	agri. soil	2425-06-1	2.7E+04	4.0E+03	3.9E+04	5.8E+03	2.8E+01
captan	agri. soil	133-06-2	4.0E-01	6.9E-05	3.5E-03	8.4E-07	4.1E-02
carbaryl	agri. soil	63-25-2	2.3E+01	7.4E-03	6.7E+00	6.5E-04	1.1E-01
carbendazim	agri. soil	10605-21-7	2.0E+03	3.0E+01	2.0E+03	4.5E+01	4.9E+01
carbofuran	agri. soil	1563-66-2	5.8E+02	2.0E+00	3.4E+02	2.1E+00	7.5E+00
carbon disulfide	agri. soil	75-15-0	3.4E-01	1.4E+00	2.8E-01	7.9E-01	1.6E+00
Carcinogenic PAHs	agri. soil		5.8E+01	1.2E+01	1.9E+02	4.1E+01	6.3E+00
chlordane	agri. soil	57-74-9	9.4E+01	3.0E+01	9.5E+00	8.4E-01	7.4E+01
chlorfenvinphos	agri. soil	470-90-6	1.6E+01	8.5E-02	1.4E+01	1.0E-01	1.3E+00
chloridazon	agri. soil	1698-60-8	1.8E+00	8.1E-02	1.4E+00	1.0E-01	9.0E-01
chlorobenzene	agri. soil	108-90-7	3.2E-03	8.3E-02	3.0E-03	3.7E-02	1.2E-01
chlorothalonil	agri. soil	1897-45-6	1.0E+00	1.7E+00	7.3E-01	4.7E-01	6.8E-01
chlorpropham	agri. soil	101-21-3	1.8E+00	8.4E-03	1.6E+00	1.1E-02	1.3E-01
chlorpyrifos	agri. soil	2921-88-2	3.6E+02	1.4E-01	2.3E+02	1.4E-02	1.7E+01
chromium III	agri. soil	16056-83-1	5.3E+00	6.5E+02	1.3E+01	6.7E+02	6.3E+03
chromium VI	agri. soil	18540-29-9	2.1E+01	2.6E+03	5.4E+01	2.7E+03	6.3E+03
chrysene	agri. soil	218-01-9	7.4E+01	1.2E+01	2.4E+02	4.0E+01	4.6E+00
cobalt	agri. soil	7440-48-4	1.7E+03	2.2E+06	2.8E+03	1.4E+06	2.2E+02
copper	agri. soil	15158-11-9	5.9E+02	1.2E+05	1.5E+03	1.2E+05	1.4E+01
coumaphos	agri. soil	56-72-4	1.0E+06	1.5E+05	1.5E+06	2.2E+05	1.6E+04
cyanazine	agri. soil	21725-46-2	8.1E+02	2.8E+00	6.3E+02	3.7E+00	6.9E+01
cypermethrin	agri. soil	52315-07-8	2.0E+05	3.0E+02	3.6E+05	8.0E+02	9.0E+04
cyromazine	agri. soil	66215-27-8	6.5E+03	2.5E+02	5.2E+03	3.5E+02	6.3E+02
DDT	agri. soil	50-29-3	8.7E+01	4.3E+01	9.4E+01	1.4E+01	6.0E+01
deltamethrin	agri. soil	52918-63-5	2.4E+01	6.0E-02	3.6E+01	1.2E-01	8.5E+00
demeton	agri. soil	8065-48-3	8.0E+02	3.5E+00	5.7E+02	4.5E+00	6.0E+01
desmetryn	agri. soil	1014-69-3	3.0E+00	2.4E-02	1.8E+00	2.4E-02	2.9E+00
Di(2-ethylhexyl)phthalate	agri. soil	117-81-7	1.5E-03	1.6E-05	2.0E-03	1.1E-05	1.4E-03
diazinon	agri. soil	333-41-5	1.3E+03	7.8E+00	9.3E+02	7.5E+00	1.2E+01
Dibutylphthalate	agri. soil	84-74-2	7.9E-02	1.2E-04	1.0E-02	1.1E-05	2.3E-02
Dichloromethane	agri. soil	75-09-2	1.6E-04	2.5E-03	1.1E-04	9.2E-04	2.5E-04
dichlorprop	agri. soil	120-36-5	1.3E-02	3.6E-05	6.9E-03	1.9E-05	1.4E-03
dichlorvos	agri. soil	62-73-7	7.4E+01	4.1E-02	3.3E+00	2.7E-03	2.0E+02
dieldrin	agri. soil	60-57-1	6.0E+02	8.1E+01	6.3E+01	2.8E+00	1.1E+02
Diethylphthalate	agri. soil	84-66-2	1.6E-01	7.1E-04	1.1E-01	5.6E-04	2.1E+00
Dihexylphthalate	agri. soil	84-75-3	1.8E-02	4.3E-04	4.4E-02	8.0E-04	7.3E-03
Diisodecylphthalate	agri. soil	26761-40-0	4.6E-03	8.6E-04	1.0E-02	1.4E-03	4.0E-03
Diisooctylphthalate	agri. soil	27554-26-3	6.2E-04	6.5E-05	1.4E-03	1.0E-04	5.5E-04
dimethoate	agri. soil	60-51-5	8.9E+00	3.9E-02	6.6E+00	4.8E-02	8.0E-01
Dimethylphthalate	agri. soil	133-11-3	7.4E-03	9.7E-06	1.9E-03	2.3E-06	1.4E+00
dinoseb	agri. soil	88-85-7	2.0E+04	3.9E+02	5.6E+03	1.5E+02	5.9E+02
dinoterb	agri. soil	1420-07-1	3.3E+02	8.7E+00	1.5E+02	3.1E+00	9.9E+00
Diocetylphthalate	agri. soil	117-84-0	4.2E-05	1.3E-06	7.1E-05	1.3E-06	4.8E-05
disulfothon	agri. soil	298-04-4	7.2E+01	1.4E-01	2.5E+01	4.0E-02	1.1E+01
diuron	agri. soil	330-54-1	3.5E+02	2.1E+00	3.3E+02	3.0E+00	2.3E+01
DNOC	agri. soil	534-52-1	1.2E+00	3.6E-03	2.0E-01	8.5E-04	5.2E-01
endosulfan	agri. soil	115-29-7	2.2E+00	1.4E-03	4.8E-01	9.0E-05	2.7E+00
endrin	agri. soil	72-20-8	2.1E+04	1.0E+04	6.4E+03	7.5E+02	4.2E+03
ethoprophos	agri. soil	13194-48-4	1.1E+04	2.6E+02	8.8E+03	3.6E+02	2.7E+02
Ethylbenzene	agri. soil	100-41-4	1.8E-03	4.1E-04	1.2E-03	3.2E-04	1.9E-03
Ethylene	agri. soil	74-85-1	1.1E-09	7.8E-11	7.1E-10	7.1E-11	2.3E-09



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fenitrothion	agri. soil	122-14-5	7.6E+02	2.3E+00	4.2E+02	1.1E+00	8.3E+01
fenthion	agri. soil	55-38-9	3.5E+03	1.5E+01	2.5E+03	9.9E+00	2.9E+02
fentin acetate	agri. soil	900-95-8	3.8E+02	6.8E+00	6.2E+02	1.8E+01	1.2E+01
fentin chloride	agri. soil	639-58-7	2.5E+02	9.5E+01	4.1E+02	1.2E+02	1.2E+01
fentin hydroxide	agri. soil	76-87-9	3.8E+02	6.1E+00	6.2E+02	1.6E+01	1.2E+01
fluoranthrene	agri. soil	206-44-0	1.9E+01	1.3E+00	5.7E+01	4.3E+00	2.3E+00
folpet	agri. soil	133-07-3	4.5E+03	7.1E+02	6.2E+03	9.3E+02	1.1E+02
Formaldehyde	agri. soil	50-00-0	1.5E+01	1.8E-02	7.9E+00	1.8E-02	5.8E+00
glyphosate	agri. soil	1071-83-6	9.2E-01	2.8E-03	9.0E-01	2.5E-03	9.6E-02
heptachlor	agri. soil	76-44-8	2.3E+00	2.4E-02	3.2E+00	2.0E-02	5.5E+00
heptenophos	agri. soil	23560-59-0	3.1E+01	2.6E-02	3.8E+00	5.1E-03	1.6E+01
hexachloro-1,3-butadiene	agri. soil	87-68-3	7.0E+01	2.8E+04	8.0E+01	1.1E+04	5.3E+01
hexachlorobenzene	agri. soil	118-74-1	3.2E+00	7.2E+02	1.0E+01	8.3E+02	3.5E+00
hydrogen chloride	agri. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	agri. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	9.0E+01	1.7E+01	2.9E+02	5.9E+01	1.3E+01
iprodione	agri. soil	36734-19-7	2.3E-01	2.2E-05	1.9E-02	3.5E-07	1.4E-01
isoproturon	agri. soil	34123-59-6	1.7E+02	1.8E+00	6.3E+01	1.1E+00	6.4E+00
lead	agri. soil	14280-50-3	6.5E+00	7.5E+02	1.7E+01	7.8E+02	3.3E+01
lindane	agri. soil	58-89-9	9.7E+01	1.4E+00	2.5E+01	2.9E-01	2.3E+01
linuron	agri. soil	330-55-2	6.9E+02	1.2E+01	6.9E+02	1.6E+01	2.1E+01
malathion	agri. soil	121-75-5	1.6E+02	6.6E-01	9.5E+01	3.7E-01	7.6E-02
MCPA	agri. soil	94-74-6	4.6E-01	6.2E-04	3.1E-01	7.6E-04	9.4E-02
mecoprop	agri. soil	7085-19-0	3.0E+01	5.3E-02	2.0E+01	6.9E-02	4.7E+00
mercury	agri. soil	14302-87-5	8.5E+02	1.7E+05	2.2E+03	1.7E+05	5.6E+04
metamitron	agri. soil	41394-05-2	4.1E-01	1.1E-03	2.2E-01	8.9E-04	4.2E-02
metazachlor	agri. soil	67129-08-2	3.9E+00	3.3E-02	2.8E+00	3.9E-02	1.7E-01
methabenzthiazuron	agri. soil	18691-97-9	4.4E+01	1.0E+00	4.8E+01	1.5E+00	1.1E+00
methomyl	agri. soil	16752-77-5	1.4E+04	4.4E+02	1.1E+04	5.7E+02	3.0E+02
methylbromide	agri. soil	74-83-9	1.4E-01	3.1E+00	7.2E-02	8.3E-01	3.6E-01
methyl-mercury	agri. soil	22967-92-6	1.9E+04	3.8E+06	5.0E+04	3.9E+06	5.6E+04
metobromuron	agri. soil	3060-89-7	9.5E+01	1.4E+01	9.2E+01	1.6E+01	2.2E+00
metolachlor	agri. soil	51218-45-2	1.9E+03	3.0E+01	1.7E+03	4.1E+01	5.4E-01
mevinphos	agri. soil	7786-34-7	3.5E+02	3.4E-01	4.4E+01	3.8E-02	8.7E+01
molybdenum	agri. soil	7439-98-7	2.6E+02	1.2E+06	5.8E+02	9.6E+05	3.6E+01
meta-Xylene	agri. soil	108-38-3	1.9E-03	2.5E-04	1.2E-03	2.3E-04	3.0E-03
Naphtalene	agri. soil	91-20-3	3.8E+00	5.7E-02	1.5E+00	2.0E-02	3.1E+00
nickel	agri. soil	7440-02-0	1.7E+03	1.2E+06	4.3E+03	1.2E+06	2.4E+02
nitrogen dioxide	agri. soil	10102-44-0	x	x	x	x	x
oxamyl	agri. soil	23135-22-0	3.0E+01	8.4E-03	1.3E+01	2.4E-03	5.9E+00
oxydemethon-methyl	agri. soil	301-12-2	9.7E+02	2.0E+00	2.2E+02	8.2E-01	9.2E+01
ortho-Xylene	agri. soil	95-47-6	2.5E-03	5.5E-04	2.0E-03	6.0E-04	3.4E-03
parathion-ethyl	agri. soil	56-38-2	5.0E+02	2.3E+00	3.4E+02	9.6E-01	1.7E+01
parathion-methyl	agri. soil	298-00-0	1.1E+03	5.9E+00	6.8E+01	2.5E-01	8.1E+01
pentachlorobenzene	agri. soil	608-93-5	5.9E-01	2.8E+01	8.3E-01	1.4E+01	2.1E+00
pentachloronitrobenzene	agri. soil	82-68-8	1.5E+01	3.0E+01	4.3E+00	2.3E+00	2.7E+00
pentachlorophenol	agri. soil	87-86-5	3.3E-01	5.9E-03	7.4E-01	1.1E-02	4.8E+00
permethrin	agri. soil	52645-53-1	9.2E+02	5.5E+00	1.2E+03	4.2E+00	2.5E+02
phenanthrene	agri. soil	85-01-8	2.9E-01	8.7E-03	3.2E-01	7.0E-03	3.7E-02
Phenol	agri. soil	108-95-2	3.5E+00	1.7E-03	1.3E+00	1.1E-03	4.5E-02
phoxim	agri. soil	14816-18-3	4.4E+00	3.1E-01	7.2E-01	4.1E-02	4.7E+00
Phtalic anhydride	agri. soil	85-44-9	4.8E-05	1.8E-08	9.8E-08	1.1E-10	2.6E-03

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pirimicarb	agri. soil	23103-98-2	1.7E+03	7.3E+00	1.7E+03	1.1E+01	1.2E+02
dust (PM10)	agri. soil	PM10	x	x	x	x	x
propachlor	agri. soil	1918-16-7	1.7E+01	4.2E-02	9.4E+00	4.0E-02	2.5E+00
propoxur	agri. soil	114-26-1	2.0E+04	3.9E+01	1.4E+04	4.0E+01	1.8E+03
Propylene Oxide	agri. soil	75-56-9	4.2E-01	2.9E-02	2.3E-01	1.6E-02	1.4E-01
para-Xylene	agri. soil	106-42-3	1.4E-03	3.2E-04	8.6E-04	2.0E-04	1.5E-03
pyrazophos	agri. soil	13457-18-6	2.5E+02	6.8E-01	2.3E+02	6.5E-01	3.0E+01
selenium	agri. soil	7782-49-2	1.5E+03	1.3E+07	1.7E+03	5.4E+06	1.1E+02
simazine	agri. soil	122-34-9	2.3E+03	1.3E+01	2.0E+03	1.9E+01	2.9E+01
styrene	agri. soil	100-42-5	1.5E-03	1.1E-04	1.1E-03	7.6E-05	1.4E-03
sulphur dioxide	agri. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	agri. soil	127-18-4	2.2E-03	3.1E-01	2.1E-03	1.1E-01	3.0E-01
Tetrachloromethane	agri. soil	56-23-5	5.6E-04	1.1E+00	3.2E-04	3.0E-01	2.1E-03
thallium	agri. soil	7440-28-0	4.2E+03	1.4E+07	1.1E+04	1.3E+07	7.0E+02
Thiram	agri. soil	137-26-8	6.9E+02	6.5E-01	2.5E+02	5.7E-02	5.1E+01
tin	agri. soil	7440-31-5	6.9E+00	8.3E+02	3.5E+00	1.7E+02	3.0E+01
tolclophos-methyl	agri. soil	57018-04-9	3.1E+00	1.3E-01	3.3E+00	1.5E-01	1.8E+00
Toluene	agri. soil	108-88-3	1.1E-03	4.5E-04	7.5E-04	3.7E-04	1.9E-02
tri-allate	agri. soil	2303-17-5	5.0E+01	8.4E-01	1.8E+01	2.3E-01	1.3E+00
triazophos	agri. soil	24017-47-8	5.8E+03	5.3E+01	5.4E+03	7.3E+01	2.5E+02
tributyltinoxide	agri. soil	56-35-9	1.1E+03	5.6E+02	1.5E+03	7.7E+02	3.7E+01
trichlorfon	agri. soil	52-68-6	3.3E+03	6.7E-01	6.1E+02	1.0E-01	1.9E+03
Trichloroethylene	agri. soil	79-01-6	4.6E-04	2.5E-03	3.9E-04	1.5E-03	2.1E-03
Trichloromethane	agri. soil	67-66-3	4.7E-04	4.7E-02	2.4E-04	1.3E-02	1.6E-03
trifluarin	agri. soil	1582-09-8	4.0E+01	1.2E+00	3.3E+01	4.9E-01	3.5E+01
vanadium	agri. soil	7440-62-2	4.7E+03	4.5E+06	1.1E+04	4.1E+06	1.4E+03
Vinyl Chloride	agri. soil	75-01-4	6.4E-05	1.3E-04	5.2E-05	1.2E-04	3.1E-04
zinc	agri. soil	23713-49-7	4.8E+01	7.2E+03	1.2E+02	7.3E+03	2.5E+01
zineb	agri. soil	12122-67-7	3.7E+02	3.5E+00	3.0E+02	3.8E+00	1.6E+01
chlormequat-chloride	agri. soil	999-81-5	1.4E+00	9.7E-03	5.7E-01	6.0E-03	7.0E-02
fenpropimorph	agri. soil	67306-03-0	8.2E+00	4.6E-02	8.1E+00	4.7E-02	5.3E-01
fluroxypyr	agri. soil	69377-81-7	6.2E+02	3.9E+00	4.8E+02	5.5E+00	3.3E+01
epoxiconazole	agri. soil	??	3.8E+02	5.8E+01	5.1E+02	7.5E+01	6.4E+00
ethylene oxide	agri. soil	75-21-8	7.9E-01	2.2E-01	4.8E-01	1.1E-01	2.2E-01
hydrogen fluoride	agri. soil	7664-39-3	9.4E+00	2.7E+07	7.6E+00	8.9E+06	6.0E-03
1,1,1-trichloroethane	indus. soil	71-55-6	3.7E-04	2.9E-01	3.1E-04	9.6E-02	1.5E-03
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	1.0E-01	1.5E+00	1.2E-01	6.0E-01	7.7E-01
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	1.9E-01	5.1E+00	2.1E-01	2.0E+00	1.2E+01
1,2,3-trichlorobenzene	indus. soil	87-61-6	3.0E-02	8.6E-01	3.3E-02	3.5E-01	8.0E+00
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	9.0E-02	1.8E+00	1.0E-01	7.4E-01	1.7E+01
1,2,4-trichlorobenzene	indus. soil	120-82-1	3.2E-02	7.1E-01	3.6E-02	3.0E-01	9.9E-01
1,2-dichlorobenzene	indus. soil	95-50-1	1.9E-02	5.1E-01	1.8E-02	2.1E-01	5.4E-02
1,2-dichloroethane	indus. soil	107-06-2	7.5E-04	5.9E-02	6.3E-04	2.2E-02	1.7E-03
1,3,5-trichlorobenzene	indus. soil	108-70-3	6.6E-02	1.3E+00	6.9E-02	5.5E-01	2.2E-01
1,3-Butadiene	indus. soil	106-99-0	5.7E-05	2.9E-06	3.8E-05	3.2E-06	3.1E-04
1,3-dichlorobenzene	indus. soil	541-73-1	1.8E-02	3.7E-01	1.6E-02	1.6E-01	6.2E-02
1,4-dichlorobenzene	indus. soil	106-46-7	1.4E-02	5.5E-01	1.4E-02	2.1E-01	1.0E+00
1-chloro-4-nitrobenzene	indus. soil	100-00-5	1.5E+02	1.2E+02	1.3E+02	7.9E+01	1.7E+01
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	1.2E+02	2.5E+00	1.3E+02	2.7E+00	9.7E-01
2,3,7,8-TCDD	indus. soil	1746-01-6	4.9E+05	1.8E+05	1.6E+06	5.7E+05	2.7E+04

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2,4,5-T	indus. soil	93-76-5	1.5E+00	5.5E-03	1.1E+00	6.8E-03	6.4E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	9.9E+01	4.6E+00	1.2E+02	5.7E+00	3.9E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	4.8E+00	3.2E-02	4.7E+00	3.7E-02	6.8E-01
2,4-D	indus. soil	94-75-7	8.2E+01	4.6E-01	6.1E+01	6.4E-01	1.1E+00
2,4-dichlorophenol	indus. soil	120-83-2	9.2E+00	2.7E-02	3.6E+00	1.2E-02	5.4E-01
2-chlorophenol	indus. soil	95-57-8	3.1E+01	2.6E-01	2.4E+01	3.5E-01	3.7E-01
3,4-dichloroaniline	indus. soil	95-76-1	4.0E+03	6.0E+02	5.0E+03	7.4E+02	1.8E+01
3-chloroaniline	indus. soil	108-42-9	2.5E+02	1.2E+00	2.3E+02	1.6E+00	1.2E+00
4-chloroaniline	indus. soil	106-47-8	4.9E+02	2.2E+00	4.2E+02	3.3E+00	1.1E+01
acephate	indus. soil	30560-19-1	1.6E+02	2.1E+00	8.1E+01	2.0E+00	1.3E+00
Acrolein	indus. soil	107-02-8	4.5E+04	2.5E+02	3.4E+04	3.6E+02	7.0E+03
Acrylonitrile	indus. soil	107-13-1	8.1E+00	2.7E-01	5.3E+00	2.3E-01	2.1E+00
aldicarb	indus. soil	116-06-3	9.6E+04	1.6E+03	7.6E+04	2.4E+03	4.2E+03
aldrin	indus. soil	309-00-2	2.9E+02	3.3E+01	2.5E+01	3.0E+00	2.0E+01
ammonia	indus. soil	7664-41-7	x	x	x	x	x
anilazine	indus. soil	101-05-3	8.6E-01	2.0E-04	5.5E-02	8.5E-06	2.3E-01
anthracene	indus. soil	120-12-7	3.2E+02	2.5E+01	4.5E+02	3.2E+01	8.8E+00
antimony	indus. soil	7440-36-0	1.0E+01	1.4E+04	2.4E+01	1.3E+04	1.3E+00
arsenic	indus. soil	7440-38-2	1.3E+02	7.7E+04	3.4E+02	7.7E+04	3.3E+03
atrazine	indus. soil	1912-24-9	9.3E+02	9.1E+01	8.0E+02	1.0E+02	4.4E+00
aziphos-ethyl	indus. soil	2642-71-9	3.7E+03	1.4E+01	2.7E+03	1.1E+01	7.2E+01
aziphos-methyl	indus. soil	86-50-0	8.0E+02	5.8E-01	4.1E+02	1.7E-01	1.0E+00
barium	indus. soil	7440-39-3	1.1E+02	4.2E+05	2.6E+02	3.6E+05	1.0E+01
benomyl	indus. soil	17804-35-2	1.8E+01	2.3E-02	2.4E+00	2.0E-03	3.5E+00
bentazone	indus. soil	25057-89-0	1.1E+01	4.8E-02	8.8E+00	7.2E-02	5.0E-01
Benzene	indus. soil	71-43-2	7.2E-04	2.4E-03	5.4E-04	1.1E-03	3.4E-03
benzo[a]anthracene	indus. soil	56-55-3	2.5E+02	1.8E+01	7.4E+02	6.0E+01	3.1E+01
benzo[a]pyrene	indus. soil	50-32-8	5.3E+02	2.6E+01	1.5E+03	7.7E+01	2.3E+01
benzo[ghi]perylene	indus. soil	191-24-2	2.4E+02	4.3E+01	7.8E+02	1.5E+02	8.3E+00
benzo[k]fluoranthrene	indus. soil	207-08-9	2.0E+04	7.8E+03	6.8E+04	2.3E+04	3.9E+02
benzylchloride	indus. soil	100-44-7	3.2E+00	2.9E-01	4.7E-01	4.5E-02	7.1E-01
beryllium	indus. soil	7440-41-7	4.6E+04	2.7E+08	5.4E+04	1.2E+08	3.6E+03
bifenthrin	indus. soil	82657-04-3	4.1E+02	4.5E-01	1.2E+03	1.7E+00	8.3E+01
Butylbenzylphthalate	indus. soil	85-68-7	1.0E-01	1.2E-04	3.3E-02	2.8E-05	1.0E-02
cadmium	indus. soil	22537-48-0	7.8E+02	1.1E+05	2.0E+03	1.1E+05	1.7E+02
captafol	indus. soil	2425-06-1	8.3E+04	1.2E+04	1.2E+05	1.8E+04	2.2E+01
captan	indus. soil	133-06-2	4.7E+00	8.1E-04	4.1E-02	9.9E-06	1.2E-01
carbaryl	indus. soil	63-25-2	1.2E+02	4.0E-02	3.6E+01	3.5E-03	1.4E-01
carbendazim	indus. soil	10605-21-7	6.1E+03	9.3E+01	6.2E+03	1.4E+02	3.8E+01
carbofuran	indus. soil	1563-66-2	1.8E+03	6.2E+00	1.1E+03	6.6E+00	5.9E+00
carbon disulfide	indus. soil	75-15-0	3.4E-01	1.4E+00	2.8E-01	7.9E-01	1.6E+00
Carcinogenic PAHs	indus. soil		2.3E+02	4.8E+01	7.5E+02	1.6E+02	6.3E+00
chlordane	indus. soil	57-74-9	3.7E+02	1.2E+02	3.8E+01	3.3E+00	7.3E+01
chlorfenvinphos	indus. soil	470-90-6	5.9E+01	3.1E-01	5.0E+01	3.7E-01	1.2E+00
chloridazon	indus. soil	1698-60-8	3.9E+00	1.8E-01	3.1E+00	2.2E-01	6.8E-01
chlorobenzene	indus. soil	108-90-7	3.2E-03	8.3E-02	3.0E-03	3.7E-02	1.2E-01
chlorothalonil	indus. soil	1897-45-6	3.7E+00	6.0E+00	2.6E+00	1.7E+00	6.1E-01
chlorpropham	indus. soil	101-21-3	6.4E+00	3.0E-02	5.5E+00	3.8E-02	1.2E-01
chlorpyrifos	indus. soil	2921-88-2	1.4E+03	5.8E-01	9.3E+02	5.8E-02	1.7E+01
chromium III	indus. soil	16056-83-1	5.3E+00	6.5E+02	1.3E+01	6.7E+02	6.3E+03
chromium VI	indus. soil	18540-29-9	2.1E+01	2.6E+03	5.4E+01	2.7E+03	6.3E+03
chrysene	indus. soil	218-01-9	2.9E+02	4.7E+01	9.3E+02	1.6E+02	4.5E+00
cobalt	indus. soil	7440-48-4	1.7E+03	2.2E+06	2.8E+03	1.4E+06	2.2E+02
copper	indus. soil	15158-11-9	5.9E+02	1.2E+05	1.5E+03	1.2E+05	1.4E+01



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coumaphos	indus. soil	56-72-4	3.1E+06	4.6E+05	4.4E+06	6.7E+05	1.2E+04
cyanazine	indus. soil	21725-46-2	3.0E+03	1.0E+01	2.3E+03	1.4E+01	6.3E+01
cypermethrin	indus. soil	52315-07-8	6.9E+05	1.0E+03	1.3E+06	2.8E+03	7.8E+04
cyromazine	indus. soil	66215-27-8	6.5E+03	2.5E+02	5.2E+03	3.5E+02	6.3E+02
DDT	indus. soil	50-29-3	3.4E+02	1.7E+02	3.7E+02	5.3E+01	5.9E+01
deltamethrin	indus. soil	52918-63-5	9.6E+01	2.4E-01	1.5E+02	4.7E-01	8.5E+00
demeton	indus. soil	8065-48-3	2.6E+03	1.1E+01	1.8E+03	1.5E+01	4.9E+01
desmetryn	indus. soil	1014-69-3	1.1E+01	8.8E-02	6.6E+00	8.8E-02	2.6E+00
Di(2-ethylhexyl)phtalate	indus. soil	117-81-7	6.0E-03	6.2E-05	7.9E-03	4.4E-05	1.4E-03
diazinon	indus. soil	333-41-5	4.6E+03	2.7E+01	3.3E+03	2.6E+01	1.0E+01
Dibutylphtalate	indus. soil	84-74-2	3.1E-01	4.8E-04	4.1E-02	4.5E-05	2.3E-02
Dichloromethane	indus. soil	75-09-2	1.6E-04	2.5E-03	1.1E-04	9.2E-04	2.5E-04
dichlorprop	indus. soil	120-36-5	5.1E-02	1.4E-04	2.7E-02	7.4E-05	1.4E-03
dichlorvos	indus. soil	62-73-7	3.0E+02	1.6E-01	1.3E+01	1.1E-02	2.0E+02
dieldrin	indus. soil	60-57-1	2.3E+03	3.1E+02	2.4E+02	1.1E+01	1.0E+02
Diethylphtalate	indus. soil	84-66-2	6.3E-01	2.8E-03	4.1E-01	2.2E-03	2.1E+00
Dihexylphtalate	indus. soil	84-75-3	7.4E-02	1.7E-03	1.8E-01	3.2E-03	7.3E-03
Diisodecylphtalate	indus. soil	26761-40-0	1.8E-02	3.4E-03	4.1E-02	5.4E-03	4.0E-03
Diisooctylphtalate	indus. soil	27554-26-3	2.5E-03	2.6E-04	5.5E-03	4.1E-04	5.5E-04
dimethoate	indus. soil	60-51-5	2.8E+01	1.2E-01	2.0E+01	1.5E-01	6.2E-01
Dimethylphtalate	indus. soil	133-11-3	2.9E-02	3.8E-05	7.5E-03	9.1E-06	1.4E+00
dinoseb	indus. soil	88-85-7	5.8E+04	1.1E+03	1.6E+04	4.3E+02	4.2E+02
dinoterb	indus. soil	1420-07-1	1.3E+03	3.6E+01	5.9E+02	1.3E+01	9.9E+00
Dioctylphtalate	indus. soil	117-84-0	1.7E-04	5.2E-06	2.8E-04	5.1E-06	4.8E-05
disulfothon	indus. soil	298-04-4	2.9E+02	5.6E-01	9.9E+01	1.6E-01	1.1E+01
diuron	indus. soil	330-54-1	1.1E+03	6.8E+00	1.1E+03	9.8E+00	1.9E+01
DNOC	indus. soil	534-52-1	4.5E+00	1.4E-02	7.5E-01	3.3E-03	4.9E-01
endosulfan	indus. soil	115-29-7	9.0E+00	5.5E-03	1.9E+00	3.6E-04	2.8E+00
endrin	indus. soil	72-20-8	7.1E+04	3.5E+04	2.2E+04	2.5E+03	3.6E+03
ethoprophos	indus. soil	13194-48-4	3.0E+04	7.2E+02	2.4E+04	9.7E+02	1.9E+02
Ethylbenzene	indus. soil	100-41-4	1.8E-03	4.1E-04	1.2E-03	3.2E-04	1.9E-03
Ethylene	indus. soil	74-85-1	1.1E-09	7.8E-11	7.1E-10	7.1E-11	2.3E-09
fenitrothion	indus. soil	122-14-5	3.0E+03	8.9E+00	1.7E+03	4.5E+00	8.1E+01
fenthion	indus. soil	55-38-9	1.4E+04	5.7E+01	9.9E+03	3.9E+01	2.8E+02
fentin acetate	indus. soil	900-95-8	1.5E+03	2.7E+01	2.5E+03	7.2E+01	1.1E+01
fentin chloride	indus. soil	639-58-7	9.9E+02	3.7E+02	1.6E+03	4.7E+02	1.1E+01
fentin hydroxide	indus. soil	76-87-9	1.5E+03	2.4E+01	2.5E+03	6.5E+01	1.1E+01
fluoranthrene	indus. soil	206-44-0	7.6E+01	5.3E+00	2.3E+02	1.7E+01	2.3E+00
folpet	indus. soil	133-07-3	1.3E+04	2.1E+03	1.8E+04	2.7E+03	7.8E+01
Formaldehyde	indus. soil	50-00-0	4.4E+01	5.5E-02	2.4E+01	5.5E-02	4.4E+00
glyphosate	indus. soil	1071-83-6	3.7E+00	1.1E-02	3.6E+00	9.9E-03	9.6E-02
heptachlor	indus. soil	76-44-8	8.9E+00	9.5E-02	1.3E+01	7.9E-02	5.3E+00
heptenophos	indus. soil	23560-59-0	1.2E+02	1.0E-01	1.5E+01	2.0E-02	1.6E+01
hexachloro-1,3-butadiene	indus. soil	87-68-3	8.4E+01	3.4E+04	9.7E+01	1.3E+04	4.7E+01
hexachlorobenzene	indus. soil	118-74-1	4.3E+00	9.6E+02	1.4E+01	1.1E+03	3.0E+00
hydrogen chloride	indus. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	indus. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	3.6E+02	6.8E+01	1.2E+03	2.4E+02	1.3E+01
iprodione	indus. soil	36734-19-7	1.9E+00	1.8E-04	1.6E-01	2.9E-06	3.0E-01
isoproturon	indus. soil	34123-59-6	4.0E+02	4.2E+00	1.5E+02	2.7E+00	4.6E+00
lead	indus. soil	14280-50-3	6.5E+00	7.5E+02	1.7E+01	7.8E+02	3.3E+01
lindane	indus. soil	58-89-9	3.7E+02	5.3E+00	9.7E+01	1.1E+00	2.2E+01

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
linuron	indus. soil	330-55-2	2.4E+03	4.4E+01	2.4E+03	5.7E+01	1.8E+01
malathion	indus. soil	121-75-5	6.5E+02	2.6E+00	3.8E+02	1.5E+00	7.5E-02
MCPA	indus. soil	94-74-6	1.7E+00	2.2E-03	1.1E+00	2.7E-03	8.6E-02
mecoprop	indus. soil	7085-19-0	7.8E+01	1.4E-01	5.3E+01	1.8E-01	3.3E+00
mercury	indus. soil	14302-87-5	8.5E+02	1.7E+05	2.2E+03	1.7E+05	5.6E+04
metamitron	indus. soil	41394-05-2	1.5E+00	4.1E-03	7.9E-01	3.2E-03	3.8E-02
metazachlor	indus. soil	67129-08-2	1.4E+01	1.1E-01	9.8E+00	1.4E-01	1.5E-01
methabenzthiazuron	indus. soil	18691-97-9	1.4E+02	3.2E+00	1.5E+02	4.7E+00	8.8E-01
methomyl	indus. soil	16752-77-5	2.8E+04	8.9E+02	2.1E+04	1.1E+03	2.2E+02
methylbromide	indus. soil	74-83-9	1.4E-01	3.1E+00	7.3E-02	8.3E-01	3.7E-01
methyl-mercury	indus. soil	22967-92-6	1.9E+04	3.8E+06	5.0E+04	3.9E+06	5.6E+04
metobromuron	indus. soil	3060-89-7	9.5E+01	1.4E+01	9.2E+01	1.6E+01	2.2E+00
metolachlor	indus. soil	51218-45-2	5.8E+03	9.1E+01	5.2E+03	1.3E+02	4.1E-01
mevinphos	indus. soil	7786-34-7	1.5E+03	1.4E+00	1.8E+02	1.6E-01	9.0E+01
molybdenum	indus. soil	7439-98-7	2.6E+02	1.2E+06	5.8E+02	9.6E+05	3.6E+01
meta-Xylene	indus. soil	108-38-3	1.9E-03	2.5E-04	1.2E-03	2.3E-04	3.0E-03
Naphtalene	indus. soil	91-20-3	1.2E+01	1.9E-01	4.9E+00	6.7E-02	2.6E+00
nickel	indus. soil	7440-02-0	1.7E+03	1.2E+06	4.3E+03	1.2E+06	2.4E+02
nitrogen dioxide	indus. soil	10102-44-0	x	x	x	x	x
oxamyl	indus. soil	23135-22-0	1.2E+02	3.4E-02	5.5E+01	9.9E-03	6.0E+00
oxydemethon-methyl	indus. soil	301-12-2	3.6E+03	7.3E+00	8.1E+02	3.0E+00	8.5E+01
ortho-Xylene	indus. soil	95-47-6	2.5E-03	5.5E-04	2.0E-03	6.0E-04	3.4E-03
parathion-ethyl	indus. soil	56-38-2	1.9E+03	9.2E+00	1.3E+03	3.8E+00	1.7E+01
parathion-methyl	indus. soil	298-00-0	4.4E+03	2.3E+01	2.6E+02	9.8E-01	7.9E+01
pentachlorobenzene	indus. soil	608-93-5	1.1E+00	5.4E+01	1.6E+00	2.7E+01	1.7E+00
pentachloronitrobenzene	indus. soil	82-68-8	5.8E+01	1.2E+02	1.7E+01	8.8E+00	2.6E+00
pentachlorophenol	indus. soil	87-86-5	1.3E+00	2.7E-02	3.0E+00	4.9E-02	4.8E+00
permethrin	indus. soil	52645-53-1	3.7E+03	2.2E+01	4.8E+03	1.7E+01	2.5E+02
phenanthrene	indus. soil	85-01-8	1.2E+00	3.5E-02	1.3E+00	2.8E-02	3.7E-02
Phenol	indus. soil	108-95-2	1.3E+01	6.1E-03	4.7E+00	4.0E-03	4.1E-02
phoxim	indus. soil	14816-18-3	7.9E+00	5.5E-01	1.3E+00	7.2E-02	3.8E+00
Phtalic anhydride	indus. soil	85-44-9	3.1E-05	1.2E-08	6.3E-08	6.8E-11	4.2E-04
pirimicarb	indus. soil	23103-98-2	5.2E+03	2.3E+01	5.3E+03	3.5E+01	9.4E+01
dust (PM10)	indus. soil	PM10	x	x	x	x	x
propachlor	indus. soil	1918-16-7	6.4E+01	1.6E-01	3.4E+01	1.5E-01	2.3E+00
propoxur	indus. soil	114-26-1	5.4E+04	1.0E+02	3.8E+04	1.1E+02	1.3E+03
Propylene Oxide	indus. soil	75-56-9	4.8E-01	3.3E-02	2.5E-01	1.8E-02	1.2E-01
para-Xylene	indus. soil	106-42-3	1.4E-03	3.2E-04	8.7E-04	2.0E-04	1.5E-03
pyrazophos	indus. soil	13457-18-6	9.9E+02	2.6E+00	9.0E+02	2.5E+00	2.9E+01
selenium	indus. soil	7782-49-2	1.5E+03	1.3E+07	1.7E+03	5.4E+06	1.1E+02
simazine	indus. soil	122-34-9	5.6E+03	3.1E+01	4.8E+03	4.6E+01	2.1E+01
styrene	indus. soil	100-42-5	2.6E-03	1.8E-04	1.8E-03	1.3E-04	1.2E-03
sulphur dioxide	indus. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	indus. soil	127-18-4	2.2E-03	3.1E-01	2.1E-03	1.1E-01	3.0E-01
Tetrachloromethane	indus. soil	56-23-5	5.6E-04	1.1E+00	3.2E-04	3.0E-01	2.1E-03
thallium	indus. soil	7440-28-0	4.2E+03	1.4E+07	1.1E+04	1.3E+07	7.0E+02
Thiram	indus. soil	137-26-8	4.4E+03	4.2E+00	1.6E+03	3.6E-01	8.1E+01
tin	indus. soil	7440-31-5	6.9E+00	8.3E+02	3.5E+00	1.7E+02	3.0E+01
tolclophos-methyl	indus. soil	57018-04-9	9.2E+00	3.9E-01	9.9E+00	4.4E-01	1.5E+00
Toluene	indus. soil	108-88-3	1.1E-03	4.5E-04	7.5E-04	3.7E-04	1.9E-02
tri-allate	indus. soil	2303-17-5	2.0E+02	3.4E+00	7.0E+01	9.3E-01	1.3E+00
triazophos	indus. soil	24017-47-8	1.9E+04	1.7E+02	1.8E+04	2.4E+02	2.0E+02
tributyltinoxide	indus. soil	56-35-9	4.2E+03	2.2E+03	5.7E+03	3.0E+03	3.7E+01

Substance	Comp.	CAS number	FAETP (inf) (kg 1,4- DCB eq./kg)	MAETP (inf) (kg 1,4- DCB eq./kg)	FSETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
trichlorfon	indus. soil	52-68-6	1.8E+04	3.7E+00	3.4E+03	5.6E-01	2.6E+03
Trichloroethylene	indus. soil	79-01-6	4.6E-04	2.5E-03	3.9E-04	1.5E-03	2.1E-03
Trichloromethane	indus. soil	67-66-3	4.7E-04	4.7E-02	2.4E-04	1.3E-02	1.6E-03
trifluarin	indus. soil	1582-09-8	1.6E+02	4.5E+00	1.3E+02	1.9E+00	3.4E+01
vanadium	indus. soil	7440-62-2	4.7E+03	4.5E+06	1.1E+04	4.1E+06	1.4E+03
Vinyl Chloride	indus. soil	75-01-4	6.4E-05	1.3E-04	5.2E-05	1.2E-04	3.1E-04
zinc	indus. soil	23713-49-7	4.8E+01	7.2E+03	1.2E+02	7.3E+03	2.5E+01
zineb	indus. soil	12122-67-7	1.4E+03	1.3E+01	1.1E+03	1.4E+01	1.5E+01
chlormequat-chloride	indus. soil	999-81-5	5.4E+00	3.8E-02	2.2E+00	2.3E-02	6.8E-02
fenpropimorph	indus. soil	67306-03-0	3.2E+01	1.8E-01	3.1E+01	1.8E-01	5.1E-01
fluroxypyr	indus. soil	69377-81-7	1.7E+03	1.1E+01	1.3E+03	1.5E+01	2.3E+01
epoxiconazole	indus. soil	??	1.1E+03	1.7E+02	1.5E+03	2.2E+02	4.6E+00
ethylene oxide	indus. soil	75-21-8	9.8E-01	2.7E-01	6.0E-01	1.4E-01	1.9E-01
hydrogen fluoride	indus. soil	7664-39-3	9.4E+00	2.7E+07	7.6E+00	8.9E+06	6.0E-03

x = not calculated

Source: Huijbregts, 2000; Huijbregts *et al.*, 2000a

Status: Author(s).

Equations: 
$$fresh\ water\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} FAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.1)$$

$$marine\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} MAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.2)$$

$$fresh\ water\ sediment\ ecotoxicity = \sum_i \sum_{ecom} FSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.3)$$

$$marine\ sediment\ ecotoxicity = \sum_i \sum_{ecom} MSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.4)$$

$$terrestrial\ ecotoxicity = \sum_i \sum_{ecom} TETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.5)$$

The five indicator results are expressed in kg 1,4-dichlorobenzene equivalent.  $FAETP_{ecom,i}$  is the characterisation factor for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $FAETP$  is the Fresh water Aquatic EcoToxicity Potential,  $MAETP$  is the Marine Aquatic EcoToxicity Potential,  $FSETP$  is the Fresh water Sediment EcoToxicity Potential,  $MSETP$  is the Marine Sediment EcoToxicity Potential,  $TETP$  is the Terrestrial EcoToxicity Potential, and  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ . The five indicator scores can only be added after weighting (see Part 2a, Section 4.3.8).

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU. Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.

Table 4.3.8.2: Alternative FAETP, MAETP, FSETP, MSETP and TETP factors for characterising ecotoxic releases, for 100-year time horizon and global scale.

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	1.2E-04 <sup>1</sup>	3.0E-01	1.0E-04	1.0E-01	1.8E-04
1,2,3,4-tetrachlorobenzene	air	634-66-2	1.0E-01	1.7E+01	1.2E-01	6.9E+00	9.9E-03
1,2,3,5-tetrachlorobenzene	air	634-90-2	7.3E-02	1.8E+01	8.1E-02	7.0E+00	1.8E-01
1,2,3-trichlorobenzene	air	87-61-6	8.5E-03	2.1E+00	9.3E-03	8.5E-01	7.5E-02
1,2,4,5-tetrachlorobenzene	air	95-94-3	7.3E-02	1.5E+01	8.5E-02	6.1E+00	2.4E-01
1,2,4-trichlorobenzene	air	120-82-1	9.9E-03	2.0E+00	1.1E-02	8.4E-01	8.8E-03
1,2-dichlorobenzene	air	95-50-1	2.9E-03	6.7E-01	2.7E-03	2.8E-01	5.3E-04
1,2-dichloroethane	air	107-06-2	1.2E-04	8.2E-02	1.0E-04	3.1E-02	2.6E-05
1,3,5-trichlorobenzene	air	108-70-3	1.6E-02	3.0E+00	1.7E-02	1.3E+00	1.9E-03
1,3-Butadiene	air	106-99-0	3.3E-07	2.7E-06	2.2E-07	3.0E-06	2.3E-08
1,3-dichlorobenzene	air	541-73-1	2.4E-03	4.6E-01	2.2E-03	2.0E-01	4.4E-04
1,4-dichlorobenzene	air	106-46-7	2.4E-03	7.4E-01	2.4E-03	2.9E-01	1.2E-02
1-chloro-4-nitrobenzene	air	100-00-5	1.1E+01	3.9E+02	1.0E+01	2.4E+02	5.4E-01
2,3,4,6-tetrachlorophenol	air	58-90-2	8.0E+01	1.3E+02	8.7E+01	1.1E+02	3.1E-01
2,3,7,8-TCDD	air	1746-01-6	2.1E+06	3.0E+08	6.8E+06	8.1E+08	1.2E+04
2,4,5-T	air	93-76-5	8.5E-01	2.0E-01	6.1E-01	2.5E-01	3.2E-01
2,4,5-trichlorophenol	air	95-95-4	1.5E+01	5.3E+01	1.7E+01	4.8E+01	2.4E-01
2,4,6-trichlorophenol	air	88-06-2	5.9E+00	3.9E+00	5.7E+00	4.3E+00	3.2E-01
2,4-D	air	94-75-7	3.9E+01	5.3E+00	2.9E+01	7.3E+00	6.0E-01
2,4-dichlorophenol	air	120-83-2	1.4E+00	1.3E+00	5.5E-01	5.2E-01	3.0E-02
2-chlorophenol	air	95-57-8	1.3E+01	1.2E+01	1.0E+01	1.3E+01	5.3E-02
3,4-dichloroaniline	air	95-76-1	1.7E+03	1.7E+03	2.1E+03	2.1E+03	8.7E+00
3-chloroaniline	air	108-42-9	1.0E+02	2.3E+01	9.3E+01	3.2E+01	4.7E-01
4-chloroaniline	air	106-47-8	2.0E+00	1.7E+00	1.8E+00	2.3E+00	1.6E-02
acephate	air	30560-19-1	7.9E+01	1.9E+01	4.0E+01	1.8E+01	6.9E-01
Acrolein	air	107-02-8	5.2E+02	5.7E+02	3.9E+02	7.5E+02	1.6E+01
Acrylonitrile	air	107-13-1	4.1E-01	9.1E-01	2.7E-01	7.7E-01	8.0E-03
aldicarb	air	116-06-3	5.1E+04	8.2E+03	4.1E+04	1.2E+04	2.0E+03
aldrin	air	309-00-2	2.7E+00	6.1E+01	2.4E-01	5.4E+00	1.4E-02
ammonia	air	7664-41-7	x	x	x	x	x
anilazine	air	101-05-3	1.4E+01	8.3E+00	8.8E-01	3.4E-01	9.2E-02
anthracene	air	120-12-7	1.4E+02	1.7E+03	1.9E+02	2.1E+03	3.2E-02
antimony	air	7440-36-0	1.0E+00	6.9E+01	2.5E+00	7.5E+01	1.5E-01
arsenic	air	7440-38-2	2.6E+00	1.1E+03	6.6E+00	1.3E+03	1.7E+01
atrazine	air	1912-24-9	3.6E+02	2.8E+02	3.1E+02	3.1E+02	2.0E+00
azinphos-ethyl	air	2642-71-9	2.9E+02	1.6E+02	2.1E+02	1.3E+02	2.4E+00
azinphos-methyl	air	86-50-0	4.2E+02	2.0E+02	2.2E+02	5.7E+01	1.9E-01
barium	air	7440-39-3	1.5E+01	5.9E+02	3.4E+01	5.9E+02	1.5E+00
benomyl	air	17804-35-2	3.0E+01	2.1E+01	3.9E+00	1.8E+00	4.7E-01
bentazone	air	25057-89-0	5.6E+00	6.2E-01	4.5E+00	9.4E-01	2.5E-01
Benzene	air	71-43-2	8.4E-05	2.8E-03	6.4E-05	1.3E-03	1.6E-05
benzo[a]anthracene	air	56-55-3	4.2E+01	1.0E+03	1.3E+02	3.4E+03	2.3E-01
benzo[a]pyrene	air	50-32-8	8.8E+01	1.4E+03	2.5E+02	4.1E+03	2.4E-01
benzo[ghi]perylene	air	191-24-2	4.4E+01	1.7E+03	1.4E+02	5.7E+03	2.0E-01
benzo[k]fluoranthrene	air	207-08-9	3.9E+03	1.2E+05	1.3E+04	3.5E+05	3.0E+01

<sup>1</sup> Means  $1.2 \times 10^{-4}$ .

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
benzylchloride	air	100-44-7	7.6E-01	2.1E+00	1.1E-01	3.3E-01	1.7E-03
beryllium	air	7440-41-7	8.2E+03	2.3E+05	9.6E+03	1.1E+05	8.0E+02
bifenthrin	air	82657-04-3	8.2E+02	1.0E+03	2.4E+03	3.7E+03	8.8E+00
Butylbenzylphtalate	air	85-68-7	4.0E-01	3.2E-01	1.3E-01	7.1E-02	1.3E-03
cadmium	air	22537-48-0	5.2E+01	2.3E+04	1.3E+02	3.1E+04	1.2E+01
captafol	air	2425-06-1	2.0E+04	2.7E+04	3.0E+04	3.9E+04	5.9E+00
captan	air	133-06-2	1.6E+01	1.0E+01	1.4E-01	1.2E-01	2.4E-02
carbaryl	air	63-25-2	1.1E+02	1.2E+01	3.2E+01	1.0E+00	6.3E-02
carbendazim	air	10605-21-7	3.0E+03	7.2E+02	3.0E+03	1.1E+03	2.0E+01
carbofuran	air	1563-66-2	9.0E+02	1.5E+02	5.2E+02	1.6E+02	3.0E+00
carbon disulfide	air	75-15-0	3.3E-02	1.5E+00	2.7E-02	8.6E-01	5.1E-03
Carcinogenic PAHs	air		1.7E+02	4.3E+03	5.6E+02	1.4E+04	1.0E+00
chlordane	air	57-74-9	2.7E+02	6.1E+04	2.7E+01	1.6E+03	2.2E+00
chlorfenvinphos	air	470-90-6	3.2E+01	1.1E+01	2.7E+01	1.3E+01	4.9E-01
chloridazon	air	1698-60-8	2.6E-02	2.2E-01	2.0E-02	2.6E-01	4.6E-04
chlorobenzene	air	108-90-7	4.7E-04	1.1E-01	4.4E-04	5.0E-02	7.3E-04
chlorothalonil	air	1897-45-6	2.5E+00	5.1E+01	1.8E+00	1.5E+01	7.1E-03
chlorpropham	air	101-21-3	2.3E+00	6.4E-01	2.0E+00	8.1E-01	3.7E-02
chlorpyrifos	air	2921-88-2	5.2E+02	6.2E+01	3.3E+02	6.0E+00	1.3E-01
chromium III	air	16056-83-1	8.1E-02	1.1E+02	2.1E-01	1.5E+02	2.0E+01
chromium VI	air	18540-29-9	3.2E-01	4.2E+02	8.3E-01	6.2E+02	2.0E+01
chrysene	air	218-01-9	3.9E+01	4.1E+02	1.3E+02	1.4E+03	2.2E-01
cobalt	air	7440-48-4	2.9E+02	1.3E+04	4.8E+02	9.4E+03	4.8E+01
copper	air	15158-11-9	3.1E+01	1.4E+04	7.9E+01	1.7E+04	7.1E-01
coumaphos	air	56-72-4	2.4E+05	3.4E+05	3.5E+05	4.8E+05	1.0E+03
cyanazine	air	21725-46-2	1.9E+03	6.3E+02	1.5E+03	8.1E+02	3.1E+01
cypermethrin	air	52315-07-8	8.4E+04	1.9E+04	1.5E+05	4.9E+04	8.9E+03
cyromazine	air	66215-27-8	3.5E+03	9.2E+02	2.8E+03	1.3E+03	3.1E+02
DDT	air	50-29-3	3.2E+02	8.6E+04	3.5E+02	2.5E+04	1.9E+01
deltamethrin	air	52918-63-5	1.8E+03	3.5E+03	2.7E+03	6.8E+03	7.6E-01
demeton	air	8065-48-3	2.3E+01	9.1E+00	1.6E+01	1.1E+01	3.0E-01
desmetryn	air	1014-69-3	6.8E+00	2.6E+00	4.1E+00	2.6E+00	1.2E+00
Di(2-ethylhexyl)phtalate	air	117-81-7	3.5E-01	2.4E+00	4.7E-01	1.7E+00	2.2E-04
diazinon	air	333-41-5	2.3E+02	1.2E+02	1.6E+02	1.1E+02	2.9E-01
Dibutylphtalate	air	84-74-2	5.6E-01	4.4E-01	7.3E-02	3.8E-02	3.9E-03
Dichloromethane	air	75-09-2	3.3E-05	3.8E-03	2.4E-05	1.4E-03	4.3E-06
dichlorprop	air	120-36-5	9.9E-02	6.2E-02	5.3E-02	3.2E-02	6.8E-04
dichlorvos	air	62-73-7	5.1E+02	4.1E+02	2.3E+01	2.7E+01	9.8E+00
dieldrin	air	60-57-1	2.0E+02	5.2E+03	2.0E+01	1.7E+02	1.1E+00
Diethylphtalate	air	84-66-2	4.2E-01	3.4E-01	2.8E-01	2.3E-01	5.3E-01
Diethylphtalate	air	84-75-3	5.0E-01	1.7E+00	1.2E+00	3.2E+00	7.8E-04
Diisodecylphtalate	air	26761-40-0	5.6E-01	4.7E+00	1.2E+00	7.5E+00	9.2E-04
Diisooctylphtalate	air	27554-26-3	1.2E-01	3.6E+00	2.8E-01	5.6E+00	1.1E-04
dimethoate	air	60-51-5	1.3E+01	1.6E+00	9.3E+00	2.0E+00	3.0E-01
Dimethylphtalate	air	133-11-3	5.2E-02	2.7E-02	1.3E-02	6.2E-03	6.4E-01

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
dinoseb	air	88-85-7	1.0E+04	4.6E+03	2.9E+03	1.5E+03	9.7E+01
dinoterb	air	1420-07-1	2.9E+03	7.3E+03	1.3E+03	2.1E+03	3.4E+00
Diocetylphthalate	air	117-84-0	1.6E-02	5.4E-01	2.7E-02	5.2E-01	9.8E-06
disulfothon	air	298-04-4	2.7E+01	2.0E+01	9.2E+00	5.7E+00	4.3E-02
diuron	air	330-54-1	5.3E+02	1.1E+02	5.0E+02	1.6E+02	8.7E+00
DNOC	air	534-52-1	3.4E+00	1.3E+00	5.7E-01	3.0E-01	2.4E-01
endosulfan	air	115-29-7	4.5E+01	1.9E+01	9.8E+00	1.2E+00	3.6E-02
endrin	air	72-20-8	1.1E+03	4.9E+04	3.4E+02	3.5E+03	4.9E+01
ethoprophos	air	13194-48-4	2.4E+03	7.1E+02	1.9E+03	9.3E+02	1.7E+01
Ethylbenzene	air	100-41-4	1.3E-04	8.0E-04	8.7E-05	6.1E-04	1.4E-06
Ethylene	air	74-85-1	1.4E-11	7.9E-11	9.0E-12	7.1E-11	1.3E-12
fenitrothion	air	122-14-5	2.5E+03	1.5E+03	1.4E+03	7.5E+02	2.1E+01
fenthion	air	55-38-9	2.5E+03	1.6E+03	1.8E+03	1.1E+03	1.6E+01
fentin acetate	air	900-95-8	4.3E+03	2.1E+04	6.9E+03	5.3E+04	5.3E+00
fentin chloride	air	639-58-7	1.8E+03	4.7E+04	3.0E+03	5.7E+04	2.6E-01
fentin hydroxide	air	76-87-9	4.2E+03	2.0E+04	6.8E+03	5.1E+04	5.5E+00
fluoranthrene	air	206-44-0	1.8E+01	2.0E+02	5.3E+01	6.1E+02	1.8E-02
folpet	air	133-07-3	4.1E+02	2.3E+03	5.6E+02	2.7E+03	1.7E+00
Formaldehyde	air	50-00-0	8.3E+00	1.6E+00	4.5E+00	1.5E+00	9.4E-01
glyphosate	air	1071-83-6	2.2E+01	1.7E+01	2.1E+01	1.5E+01	4.7E-02
heptachlor	air	76-44-8	1.4E+00	2.9E+00	2.0E+00	2.4E+00	8.8E-04
heptenophos	air	23560-59-0	1.2E+02	7.8E+01	1.5E+01	1.5E+01	2.2E+00
hexachloro-1,3-butadiene	air	87-68-3	4.6E+01	7.7E+04	5.4E+01	2.9E+04	4.2E+00
hexachlorobenzene	air	118-74-1	1.3E+00	2.4E+03	4.3E+00	2.8E+03	2.6E-01
hydrogen chloride	air	7647-01-0	x	x	x	x	x
hydrogen sulfide	air	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	air	193-39-5	1.7E+02	7.3E+03	5.3E+02	2.5E+04	8.0E-01
iprodione	air	36734-19-7	2.8E+00	3.2E-01	2.3E-01	5.2E-03	1.1E-01
isoprotruron	air	34123-59-6	1.9E+02	3.2E+01	7.1E+01	2.0E+01	2.5E+00
lead	air	14280-50-3	1.2E-01	1.5E+02	3.0E-01	2.3E+02	1.4E-01
lindane	air	58-89-9	5.2E+01	5.2E+01	1.4E+01	9.2E+00	1.8E+00
linuron	air	330-55-2	4.0E+01	2.7E+01	3.9E+01	3.5E+01	2.0E-01
malathion	air	121-75-5	1.8E+03	1.4E+03	1.1E+03	7.8E+02	2.0E-02
MCPA	air	94-74-6	1.1E+00	2.8E-01	7.0E-01	3.5E-01	4.3E-02
mecoprop	air	7085-19-0	3.7E+01	4.1E+00	2.5E+01	5.3E+00	1.8E+00
mercury	air	14302-87-5	5.9E+01	2.8E+04	1.5E+02	4.1E+04	3.2E+03
metamitron	air	41394-05-2	9.3E-01	2.5E-01	4.9E-01	1.9E-01	1.9E-02
metazachlor	air	67129-08-2	7.4E+00	2.2E+00	5.3E+00	2.6E+00	7.4E-02
methabenzthiazuron	air	18691-97-9	7.0E+01	2.5E+01	7.6E+01	3.7E+01	4.5E-01
methomyl	air	16752-77-5	1.4E+04	3.9E+03	1.0E+04	5.0E+03	1.2E+02
methylbromide	air	74-83-9	3.3E-02	4.1E+00	1.7E-02	1.1E+00	1.3E-02
methyl-mercury	air	22967-92-6	1.3E+03	6.5E+05	3.5E+03	9.4E+05	3.2E+03
metobromuron	air	3060-89-7	4.9E+01	4.2E+01	4.8E+01	4.7E+01	9.9E-01
metolachlor	air	51218-45-2	1.5E+03	3.8E+02	1.3E+03	5.2E+02	1.1E-01



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mevinphos	air	7786-34-7	9.3E+03	5.4E+03	1.2E+03	6.0E+02	4.3E+01
molybdenum	air	7439-98-7	7.5E+00	1.1E+03	1.7E+01	1.1E+03	5.2E-01
meta-Xylene	air	108-38-3	4.4E-05	3.9E-04	2.8E-05	3.5E-04	6.5E-07
Naphtalene	air	91-20-3	5.0E-01	9.1E-01	1.9E-01	3.2E-01	8.2E-04
nickel	air	7440-02-0	7.0E+01	1.6E+04	1.8E+02	1.8E+04	7.6E+00
nitrogen dioxide	air	10102-44-0	x	x	x	x	x
oxamyl	air	23135-22-0	5.6E+01	1.4E+00	2.5E+01	4.0E-01	2.9E+00
oxydemethon-methyl	air	301-12-2	2.4E+03	5.0E+02	5.3E+02	2.1E+02	4.1E+01
ortho-Xylene	air	95-47-6	9.3E-05	9.1E-04	7.4E-05	9.9E-04	1.3E-06
parathion-ethyl	air	56-38-2	2.8E+03	3.1E+03	1.9E+03	1.3E+03	1.1E+00
parathion-methyl	air	298-00-0	9.9E+02	7.2E+02	6.0E+01	3.0E+01	5.7E+00
pentachlorobenzene	air	608-93-5	3.7E-01	1.7E+02	5.2E-01	8.7E+01	3.9E-02
pentachloronitrobenzene	air	82-68-8	4.7E+01	6.0E+03	1.3E+01	4.4E+02	1.2E-01
pentachlorophenol	air	87-86-5	1.1E+01	4.0E+01	2.4E+01	6.9E+01	2.3E+00
permethrin	air	52645-53-1	1.6E+04	3.1E+04	2.1E+04	2.3E+04	2.6E+01
phenanthrene	air	85-01-8	1.3E+00	7.3E+00	1.4E+00	5.4E+00	1.4E-04
Phenol	air	108-95-2	1.5E+00	5.5E-01	5.6E-01	3.6E-01	3.3E-03
phoxim	air	14816-18-3	4.4E-01	1.6E+00	7.1E-02	2.1E-01	1.7E-02
Phtalic anhydride	air	85-44-9	8.2E-03	8.5E-03	1.7E-05	4.9E-05	5.1E-04
pirimicarb	air	23103-98-2	2.4E+03	4.1E+02	2.4E+03	6.2E+02	4.6E+01
dust (PM10)	air	PM10	x	x	x	x	x
propachlor	air	1918-16-7	2.0E+01	7.1E+00	1.1E+01	6.5E+00	5.4E-01
propoxur	air	114-26-1	2.5E+04	1.8E+03	1.8E+04	1.8E+03	7.0E+02
Propylene Oxide	air	75-56-9	3.7E-02	1.2E-01	2.0E-02	6.4E-02	1.5E-03
para-Xylene	air	106-42-3	6.1E-05	6.1E-04	3.7E-05	3.8E-04	5.3E-07
pyrazophos	air	13457-18-6	1.8E+02	9.4E+01	1.7E+02	8.9E+01	2.3E+00
selenium	air	7782-49-2	3.8E+02	7.3E+03	4.4E+02	3.6E+03	3.6E+01
simazine	air	122-34-9	2.1E+03	2.8E+02	1.8E+03	4.1E+02	8.8E+00
styrene	air	100-42-5	5.1E-05	5.1E-04	3.5E-05	3.6E-04	1.4E-07
sulphur dioxide	air	7446-09-5	x	x	x	x	x
Tetrachloroethylene	air	127-18-4	4.1E-04	3.4E-01	3.9E-04	1.2E-01	8.1E-03
Tetrachloromethane	air	56-23-5	2.5E-04	1.2E+00	1.4E-04	3.1E-01	4.7E-04
thallium	air	7440-28-0	1.8E+02	2.0E+04	4.6E+02	2.2E+04	2.4E+01
Thiram	air	137-26-8	2.7E+03	2.2E+02	9.8E+02	1.8E+01	3.2E+01
tin	air	7440-31-5	1.2E-01	1.6E+02	6.3E-02	4.7E+01	1.3E-01
tolclophos-methyl	air	57018-04-9	1.5E-01	1.4E+00	1.6E-01	1.6E+00	3.4E-04
Toluene	air	108-88-3	7.0E-05	7.0E-04	5.0E-05	5.8E-04	1.6E-05
tri-allate	air	2303-17-5	6.1E+01	1.5E+02	2.2E+01	3.9E+01	6.9E-03
triazophos	air	24017-47-8	3.3E+03	8.5E+02	3.0E+03	1.2E+03	3.4E+01
tributyltinoxide	air	56-35-9	7.7E+03	3.1E+05	1.0E+04	3.9E+05	1.7E+01
trichlorfon	air	52-68-6	1.3E+04	1.8E+03	2.4E+03	2.7E+02	1.2E+03
Trichloroethylene	air	79-01-6	3.8E-05	2.7E-03	3.2E-05	1.7E-03	4.7E-06
Trichloromethane	air	67-66-3	9.5E-05	5.9E-02	4.9E-05	1.6E-02	4.0E-05
trifluarin	air	1582-09-8	9.9E+00	1.0E+02	8.1E+00	4.4E+01	1.7E-02
vanadium	air	7440-62-2	2.1E+02	3.6E+04	5.0E+02	3.9E+04	5.0E+01
Vinyl Chloride	air	75-01-4	2.9E-06	1.3E-04	2.3E-06	1.2E-04	2.6E-07
zinc	air	23713-49-7	2.0E+00	1.3E+03	5.2E+00	1.8E+03	8.4E-01

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zineb	air	12122-67-7	9.4E+02	4.1E+02	7.4E+02	4.5E+02	7.2E+00
chlormequat-chloride	air	999-81-5	6.2E+00	3.8E+00	2.6E+00	2.3E+00	3.3E-02
fenpropimorph	air	67306-03-0	9.4E-01	7.3E-01	9.3E-01	7.4E-01	3.5E-03
fluroxypyr	air	69377-81-7	8.2E+02	1.2E+02	6.4E+02	1.7E+02	1.3E+01
epoxiconazole	air	??	1.4E+02	2.1E+02	1.9E+02	2.5E+02	6.9E-01
ethylene oxide	air	75-21-8	9.9E-02	8.5E-01	6.0E-02	4.3E-01	2.5E-03
hydrogen fluoride	air	7664-39-3	4.6E+00	5.2E+01	3.8E+00	2.1E+01	2.9E-03
1,1,1-trichloroethane	fresh water	71-55-6	1.1E-01	3.0E-01	9.0E-02	1.0E-01	1.8E-04
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.6E+01	1.6E+01	1.9E+01	6.7E+00	9.3E-03
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	1.4E+01	1.7E+01	1.6E+01	7.0E+00	1.7E-01
1,2,3-trichlorobenzene	fresh water	87-61-6	4.0E+00	2.1E+00	4.4E+00	8.7E-01	7.3E-02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	1.3E+01	1.4E+01	1.5E+01	5.9E+00	2.3E-01
1,2,4-trichlorobenzene	fresh water	120-82-1	3.5E+00	2.0E+00	3.8E+00	8.6E-01	8.5E-03
1,2-dichlorobenzene	fresh water	95-50-1	1.0E+00	6.6E-01	9.5E-01	2.8E-01	5.2E-04
1,2-dichloroethane	fresh water	107-06-2	2.3E-02	8.1E-02	1.9E-02	3.1E-02	2.6E-05
1,3,5-trichlorobenzene	fresh water	108-70-3	5.0E+00	3.0E+00	5.2E+00	1.3E+00	1.8E-03
1,3-Butadiene	fresh water	106-99-0	3.0E+00	8.7E-03	2.0E+00	9.9E-03	2.1E-08
1,3-dichlorobenzene	fresh water	541-73-1	1.2E+00	4.6E-01	1.2E+00	2.1E-01	4.2E-04
1,4-dichlorobenzene	fresh water	106-46-7	1.0E+00	7.3E-01	1.0E+00	2.9E-01	1.2E-02
1-chloro-4-nitrobenzene	fresh water	100-00-5	8.6E+02	3.7E+02	7.7E+02	2.6E+02	4.4E-01
2,3,4,6-tetrachlorophenol	fresh water	58-90-2	5.2E+03	9.1E+01	5.7E+03	1.0E+02	1.7E-03
2,3,7,8-TCDD	fresh water	1746-01-6	1.7E+08	4.5E+07	5.6E+08	1.5E+08	5.9E+02
2,4,5-T	fresh water	93-76-5	1.7E+01	6.1E-02	1.2E+01	7.6E-02	3.6E-08
2,4,5-trichlorophenol	fresh water	95-95-4	1.6E+03	6.4E+01	1.9E+03	8.1E+01	6.1E-02
2,4,6-trichlorophenol	fresh water	88-06-2	2.9E+02	1.6E+00	2.9E+02	1.9E+00	6.7E-04
2,4-D	fresh water	94-75-7	4.0E+02	2.3E+00	3.0E+02	3.1E+00	9.3E-10
2,4-dichlorophenol	fresh water	120-83-2	1.7E+02	2.5E-01	6.8E+01	1.3E-01	9.6E-04
2-chlorophenol	fresh water	95-57-8	1.6E+03	1.3E+01	1.3E+03	1.7E+01	1.3E-03
3,4-dichloroaniline	fresh water	95-76-1	1.9E+04	2.8E+03	2.4E+04	3.5E+03	7.6E-04
3-chloroaniline	fresh water	108-42-9	2.5E+03	1.1E+01	2.3E+03	1.5E+01	9.4E-06
4-chloroaniline	fresh water	106-47-8	3.1E+03	1.4E+01	2.7E+03	2.0E+01	3.6E-03
acephate	fresh water	30560-19-1	1.1E+03	1.5E+01	5.6E+02	1.4E+01	2.2E-08
Acrolein	fresh water	107-02-8	2.5E+05	1.1E+03	1.9E+05	1.6E+03	5.8E+00
Acrylonitrile	fresh water	107-13-1	7.9E+01	5.4E-01	5.2E+01	5.1E-01	3.9E-03
aldicarb	fresh water	116-06-3	4.4E+05	7.4E+03	3.5E+05	1.1E+04	1.9E-01
aldrin	fresh water	309-00-2	1.2E+04	2.1E+02	1.0E+03	1.9E+01	1.4E-02
ammonia	fresh water	7664-41-7	x	x	x	x	x
anilazine	fresh water	101-05-3	1.1E+03	2.5E-01	7.0E+01	1.0E-02	5.0E-08
anthracene	fresh water	120-12-7	5.7E+04	3.0E+03	8.0E+04	4.1E+03	2.0E-02
antimony	fresh water	7440-36-0	2.0E+01	6.9E+01	4.8E+01	8.0E+01	1.7E-20
arsenic	fresh water	7440-38-2	2.1E+02	7.0E+02	5.3E+02	8.8E+02	1.0E-17
atrazine	fresh water	1912-24-9	5.0E+03	4.8E+02	4.3E+03	5.4E+02	7.6E-04
azinphos-ethyl	fresh water	2642-71-9	2.7E+05	1.0E+03	2.0E+05	7.9E+02	2.1E-02
azinphos-methyl	fresh water	86-50-0	5.2E+04	3.5E+01	2.7E+04	1.0E+01	3.3E-06
barium	fresh water	7440-39-3	2.3E+02	8.1E+02	5.1E+02	8.5E+02	5.1E-19
benomyl	fresh water	17804-35-2	6.8E+03	8.6E+00	8.8E+02	7.5E-01	8.2E-08
bentazone	fresh water	25057-89-0	5.1E+01	2.2E-01	4.1E+01	3.3E-01	1.8E-07



Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
Benzene	fresh water	71-43-2	9.1E-02	2.7E-03	7.0E-02	1.4E-03	1.4E-05
benzo[a]anthracene	fresh water	56-55-3	1.1E+05	8.3E+03	3.5E+05	2.8E+04	1.3E-02
benzo[a]pyrene	fresh water	50-32-8	2.5E+05	1.2E+04	7.2E+05	3.6E+04	2.5E-03
benzo[ghi]perylene	fresh water	191-24-2	5.2E+04	9.1E+03	1.7E+05	3.2E+04	4.3E-04
benzo[k]fluoranthrene	fresh water	207-08-9	1.2E+06	4.4E+05	3.9E+06	1.3E+06	2.1E-01
benzylchloride	fresh water	100-44-7	2.0E+02	1.2E+00	2.9E+01	1.9E-01	8.3E-04
beryllium	fresh water	7440-41-7	9.1E+04	3.3E+05	1.1E+05	1.7E+05	3.3E-16
bifenthrin	fresh water	82657-04-3	2.4E+05	2.1E+02	7.2E+05	8.1E+02	2.1E-02
Butylbenzylphtalate	fresh water	85-68-7	7.6E+01	5.3E-02	2.5E+01	1.3E-02	6.6E-06
cadmium	fresh water	22537-48-0	1.5E+03	4.2E+03	3.9E+03	6.9E+03	1.4E-20
captafol	fresh water	2425-06-1	5.4E+05	8.0E+04	7.7E+05	1.2E+05	1.9E-07
captan	fresh water	133-06-2	2.1E+03	1.0E-01	1.8E+01	1.3E-03	6.2E-08
carbaryl	fresh water	63-25-2	4.5E+03	1.4E+00	1.3E+03	1.3E-01	2.6E-07
carbendazim	fresh water	10605-21-7	3.8E+04	5.8E+02	3.9E+04	8.6E+02	6.3E-08
carbofuran	fresh water	1563-66-2	1.3E+04	4.4E+01	7.6E+03	4.6E+01	3.5E-05
carbon disulfide	fresh water	75-15-0	1.1E+02	1.8E+00	8.6E+01	1.4E+00	4.8E-03
Carcinogenic PAHs	fresh water		2.8E+04	5.5E+03	8.9E+04	1.8E+04	2.1E-03
chlordane	fresh water	57-74-9	9.0E+04	8.9E+03	9.1E+03	2.7E+02	9.7E-02
chlorfenvinphos	fresh water	470-90-6	1.1E+03	5.7E+00	9.4E+02	6.7E+00	4.6E-05
chloridazon	fresh water	1698-60-8	3.1E+01	1.2E+00	2.5E+01	1.5E+00	3.8E-04
chlorobenzene	fresh water	108-90-7	3.6E-01	1.1E-01	3.4E-01	5.5E-02	7.2E-04
chlorothalonil	fresh water	1897-45-6	3.7E+02	4.0E+01	2.6E+02	1.2E+01	5.5E-03
chlorpropham	fresh water	101-21-3	8.3E+01	3.5E-01	7.1E+01	4.5E-01	2.5E-05
chlorpyrifos	fresh water	2921-88-2	6.4E+05	2.4E+02	4.1E+05	2.4E+01	2.1E-02
chromium III	fresh water	16056-83-1	6.9E+00	1.7E+01	1.8E+01	3.1E+01	2.3E-19
chromium VI	fresh water	18540-29-9	2.8E+01	6.9E+01	7.1E+01	1.2E+02	2.3E-19
chrysene	fresh water	218-01-9	1.9E+04	3.0E+03	5.9E+04	1.0E+04	8.4E-03
cobalt	fresh water	7440-48-4	3.4E+03	1.2E+04	5.6E+03	9.5E+03	2.7E-18
copper	fresh water	15158-11-9	1.1E+03	3.6E+03	2.9E+03	5.0E+03	4.1E-21
coumaphos	fresh water	56-72-4	2.0E+07	3.0E+06	2.9E+07	4.4E+06	6.0E+00
cyanazine	fresh water	21725-46-2	5.4E+04	1.9E+02	4.3E+04	2.5E+02	2.2E-06
cypermethrin	fresh water	52315-07-8	7.9E+06	1.0E+04	1.4E+07	2.7E+04	1.6E+01
cyromazine	fresh water	66215-27-8	2.6E+04	1.0E+03	2.1E+04	1.4E+03	1.9E-06
DDT	fresh water	50-29-3	2.9E+04	4.4E+03	3.1E+04	1.6E+03	3.1E-01
deltamethrin	fresh water	52918-63-5	6.5E+05	9.8E+02	9.8E+05	2.0E+03	3.2E-02
demeton	fresh water	8065-48-3	2.2E+04	9.6E+01	1.6E+04	1.2E+02	1.2E-02
desmetryn	fresh water	1014-69-3	1.9E+02	1.5E+00	1.2E+02	1.6E+00	3.6E-05
Di(2-ethylhexyl)phtalate	fresh water	117-81-7	7.9E+01	3.7E-01	1.0E+02	2.7E-01	6.6E-06
diazinon	fresh water	333-41-5	1.1E+05	6.4E+02	7.7E+04	6.1E+02	4.1E-03
Dibutylphtalate	fresh water	84-74-2	7.9E+01	7.7E-02	1.0E+01	7.5E-03	1.3E-05
Dichloromethane	fresh water	75-09-2	1.2E-02	3.5E-03	8.8E-03	1.3E-03	3.9E-06
dichlorprop	fresh water	120-36-5	5.3E+00	1.5E-02	2.8E+00	7.7E-03	6.1E-12
dichlorvos	fresh water	62-73-7	1.2E+05	1.2E+01	5.5E+03	9.1E-01	1.4E-02
dieldrin	fresh water	60-57-1	7.9E+04	9.0E+03	8.2E+03	3.2E+02	2.6E-01
Diethylphtalate	fresh water	84-66-2	3.4E+01	1.1E-01	2.2E+01	9.4E-02	5.6E-03
Dihexylphtalate	fresh water	84-75-3	1.1E+02	1.2E+00	2.6E+02	2.3E+00	2.6E-04

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
Diisodecylphthalate	fresh water	26761-40-0	8.6E+01	2.3E+00	1.9E+02	3.8E+00	3.8E-04
Diisooctylphthalate	fresh water	27554-26-3	2.1E+01	4.3E-01	4.7E+01	7.2E-01	6.4E-06
dimethoate	fresh water	60-51-5	1.7E+02	7.5E-01	1.3E+02	9.1E-01	1.2E-05
Dimethylphthalate	fresh water	133-11-3	3.1E+00	1.7E-03	7.9E-01	4.3E-04	3.7E-04
dinoseb	fresh water	88-85-7	3.2E+05	5.9E+03	8.8E+04	2.2E+03	3.4E-01
dinoterb	fresh water	1420-07-1	2.3E+05	5.4E+03	1.0E+05	2.0E+03	1.3E-02
Diocetylphthalate	fresh water	117-84-0	2.8E+00	3.5E-02	4.7E+00	3.6E-02	1.3E-07
disulfothon	fresh water	298-04-4	6.4E+04	1.2E+02	2.2E+04	3.5E+01	1.2E-03
diuron	fresh water	330-54-1	9.4E+03	5.5E+01	8.9E+03	7.8E+01	1.7E-03
DNOC	fresh water	534-52-1	1.1E+02	3.4E-01	1.9E+01	8.0E-02	8.5E-07
endosulfan	fresh water	115-29-7	2.8E+04	1.1E+01	6.0E+03	7.7E-01	1.8E-03
endrin	fresh water	72-20-8	7.0E+05	3.4E+05	2.1E+05	2.5E+04	3.5E-01
ethoprophos	fresh water	13194-48-4	1.5E+05	3.5E+03	1.2E+05	4.8E+03	2.4E-01
Ethylbenzene	fresh water	100-41-4	5.5E-01	1.4E-03	3.6E-01	1.3E-03	1.2E-06
Ethylene	fresh water	74-85-1	2.2E-02	2.8E-05	1.4E-02	3.4E-05	1.1E-12
fenitrothion	fresh water	122-14-5	2.4E+05	6.7E+02	1.4E+05	3.4E+02	4.7E-03
fenthion	fresh water	55-38-9	9.1E+05	3.6E+03	6.6E+05	2.5E+03	8.8E-02
fentin acetate	fresh water	900-95-8	2.7E+05	3.2E+03	4.3E+05	8.7E+03	6.1E-03
fentin chloride	fresh water	639-58-7	1.7E+05	1.9E+04	2.8E+05	2.6E+04	9.2E-02
fentin hydroxide	fresh water	76-87-9	2.7E+05	3.1E+03	4.3E+05	8.6E+03	2.1E-03
fluoranthrene	fresh water	206-44-0	1.3E+04	8.7E+02	3.9E+04	2.8E+03	4.9E-03
folpet	fresh water	133-07-3	8.2E+04	1.2E+04	1.1E+05	1.6E+04	6.0E-01
Formaldehyde	fresh water	50-00-0	2.8E+02	1.9E-01	1.5E+02	2.0E-01	1.6E-03
glyphosate	fresh water	1071-83-6	1.4E+03	4.2E+00	1.3E+03	3.7E+00	2.2E-11
heptachlor	fresh water	76-44-8	1.8E+04	1.2E+01	2.6E+04	1.0E+01	5.3E-04
heptenophos	fresh water	23560-59-0	2.2E+04	1.1E+01	2.8E+03	2.3E+00	1.6E-03
hexachloro-1,3-butadiene	fresh water	87-68-3	4.5E+04	7.5E+04	5.2E+04	2.8E+04	4.0E+00
hexachlorobenzene	fresh water	118-74-1	1.5E+02	2.4E+03	4.9E+02	2.7E+03	2.5E-01
hydrogen chloride	fresh water	7647-01-0	x	x	x	x	x
hydrogen sulfide	fresh water	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	7.7E+04	1.5E+04	2.5E+05	5.0E+04	6.2E-06
iprodione	fresh water	36734-19-7	1.6E+02	1.5E-02	1.3E+01	2.4E-04	4.4E-08
isoproturon	fresh water	34123-59-6	1.9E+03	2.0E+01	7.1E+02	1.3E+01	1.6E-05
lead	fresh water	14280-50-3	9.6E+00	2.2E+01	2.5E+01	4.3E+01	4.8E-22
lindane	fresh water	58-89-9	6.5E+03	8.7E+01	1.7E+03	1.8E+01	1.6E-01
linuron	fresh water	330-55-2	3.1E+04	5.6E+02	3.1E+04	7.3E+02	1.1E-02
malathion	fresh water	121-75-5	2.1E+05	7.7E+02	1.2E+05	4.3E+02	1.1E-05
MCPA	fresh water	94-74-6	2.7E+01	3.6E-02	1.8E+01	4.4E-02	1.4E-11
mecoprop	fresh water	7085-19-0	3.8E+02	6.7E-01	2.5E+02	8.7E-01	1.1E-08
mercury	fresh water	14302-87-5	1.7E+03	4.6E+03	4.4E+03	7.8E+03	9.9E+00
metamitron	fresh water	41394-05-2	2.3E+01	6.3E-02	1.2E+01	5.0E-02	8.5E-10
metazachlor	fresh water	67129-08-2	1.5E+02	1.3E+00	1.1E+02	1.5E+00	1.4E-06
methabenzthiazuron	fresh water	18691-97-9	1.1E+03	2.5E+01	1.2E+03	3.7E+01	2.0E-05
methomyl	fresh water	16752-77-5	1.4E+05	4.2E+03	1.0E+05	5.4E+03	2.2E-03

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methylbromide	fresh water	74-83-9	1.9E+01	3.5E+00	1.0E+01	9.6E-01	1.1E-02
methyl-mercury	fresh water	22967-92-6	3.9E+04	1.1E+05	1.0E+05	1.8E+05	9.9E+00
metobromuron	fresh water	3060-89-7	4.3E+02	6.4E+01	4.2E+02	7.2E+01	4.6E-04
metolachlor	fresh water	51218-45-2	3.8E+04	5.8E+02	3.4E+04	8.1E+02	2.1E-04
mevinphos	fresh water	7786-34-7	5.9E+05	5.7E+02	7.4E+04	6.3E+01	2.3E-05
molybdenum	fresh water	7439-98-7	4.7E+02	1.7E+03	1.0E+03	1.7E+03	2.3E-18
meta-Xylene	fresh water	108-38-3	6.0E-01	2.1E-03	3.9E-01	2.1E-03	6.0E-07
Naphtalene	fresh water	91-20-3	6.6E+02	1.1E+00	2.6E+02	3.8E-01	4.9E-04
nickel	fresh water	7440-02-0	3.2E+03	1.1E+04	8.2E+03	1.4E+04	1.0E-18
nitrogen dioxide	fresh water	10102-44-0	x	x	x	x	x
oxamyl	fresh water	23135-22-0	6.5E+02	1.8E-01	3.0E+02	5.3E-02	7.1E-06
oxydemethon-methyl	fresh water	301-12-2	7.0E+04	1.4E+02	1.6E+04	5.8E+01	4.6E-04
ortho-Xylene	fresh water	95-47-6	5.6E-01	2.5E-03	4.5E-01	3.1E-03	1.2E-06
parathion-ethyl	fresh water	56-38-2	1.2E+06	5.3E+03	8.0E+05	2.2E+03	3.1E-03
parathion-methyl	fresh water	298-00-0	2.9E+05	1.5E+03	1.8E+04	6.2E+01	3.4E-02
pentachlorobenzene	fresh water	608-93-5	5.1E+01	1.7E+02	7.2E+01	8.7E+01	3.8E-02
pentachloronitrobenzene	fresh water	82-68-8	4.0E+03	2.8E+03	1.1E+03	2.2E+02	5.0E-02
pentachlorophenol	fresh water	87-86-5	7.1E+02	1.2E+01	1.6E+03	2.2E+01	3.2E-04
permethrin	fresh water	52645-53-1	5.0E+06	2.7E+04	6.7E+06	2.0E+04	3.9E-01
phenanthrene	fresh water	85-01-8	5.2E+02	1.0E+01	5.6E+02	8.6E+00	6.0E-05
Phenol	fresh water	108-95-2	2.4E+02	5.6E-02	8.8E+01	3.8E-02	2.5E-06
phoxim	fresh water	14816-18-3	2.6E+03	5.0E+00	4.3E+02	6.7E-01	1.5E-02
Phtalic anhydride	fresh water	85-44-9	5.5E-01	4.1E-06	1.1E-03	2.4E-08	1.2E-10
pirimicarb	fresh water	23103-98-2	3.6E+04	1.6E+02	3.6E+04	2.4E+02	9.3E-04
dust (PM10)	fresh water	PM10	x	x	x	x	x
propachlor	fresh water	1918-16-7	1.2E+03	2.4E+00	6.7E+02	2.3E+00	8.1E-04
propoxur	fresh water	114-26-1	2.6E+05	5.0E+02	1.8E+05	5.2E+02	3.1E-04
Propylene Oxide	fresh water	75-56-9	4.0E+00	5.8E-02	2.1E+00	3.3E-02	6.5E-04
para-Xylene	fresh water	106-42-3	5.5E-01	2.2E-03	3.3E-01	1.6E-03	4.9E-07
pyrazophos	fresh water	13457-18-6	4.9E+04	1.2E+02	4.5E+04	1.2E+02	1.7E-03
selenium	fresh water	7782-49-2	2.9E+03	1.1E+04	3.4E+03	5.5E+03	1.6E-17
simazine	fresh water	122-34-9	2.7E+04	1.4E+02	2.3E+04	2.1E+02	1.0E-03
styrene	fresh water	100-42-5	4.4E-01	2.2E-03	3.0E-01	1.6E-03	1.3E-07
sulphur dioxide	fresh water	7446-09-5	x	x	x	x	x
Tetrachloroethylene	fresh water	127-18-4	7.0E-01	3.4E-01	6.7E-01	1.3E-01	7.9E-03
Tetrachloromethane	fresh water	56-23-5	2.1E-01	1.1E+00	1.2E-01	3.1E-01	4.7E-04
thallium	fresh water	7440-28-0	8.0E+03	2.8E+04	2.0E+04	3.3E+04	3.1E-17
Thiram	fresh water	137-26-8	9.8E+04	7.4E+01	3.5E+04	6.6E+00	9.3E-02
tin	fresh water	7440-31-5	1.0E+01	2.5E+01	5.2E+00	9.1E+00	7.9E-22
tolclophos-methyl	fresh water	57018-04-9	5.0E+02	4.4E+00	5.3E+02	5.1E+00	3.2E-04
Toluene	fresh water	108-88-3	2.9E-01	1.2E-03	2.1E-01	1.3E-03	1.4E-05
tri-allate	fresh water	2303-17-5	4.9E+04	7.8E+02	1.7E+04	2.2E+02	2.7E-03
triazophos	fresh water	24017-47-8	1.7E+05	1.5E+03	1.6E+05	2.1E+03	3.9E-02
tributyltinoxide	fresh water	56-35-9	4.5E+05	2.1E+05	6.1E+05	2.9E+05	1.1E-01
trichlorfon	fresh water	52-68-6	4.1E+05	8.3E+01	7.6E+04	1.3E+01	7.0E-05
Trichloroethylene	fresh water	79-01-6	9.7E-02	3.3E-03	8.2E-02	2.7E-03	4.6E-06

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Trichloromethane	fresh water	67-66-3	4.2E-02	5.8E-02	2.2E-02	1.6E-02	3.9E-05
trifluarin	fresh water	1582-09-8	2.7E+04	4.2E+02	2.2E+04	1.8E+02	1.3E-02
vanadium	fresh water	7440-62-2	8.9E+03	3.1E+04	2.1E+04	3.5E+04	1.0E-17
Vinyl Chloride	fresh water	75-01-4	2.8E-02	3.8E-04	2.3E-02	4.9E-04	2.6E-07
zinc	fresh water	23713-49-7	9.1E+01	2.6E+02	2.3E+02	4.1E+02	2.5E-21
zineb	fresh water	12122-67-7	2.8E+04	2.5E+02	2.2E+04	2.7E+02	1.3E-03
chlormequat-chloride	fresh water	999-81-5	2.7E+02	1.9E+00	1.1E+02	1.2E+00	3.0E-11
fenpropimorph	fresh water	67306-03-0	1.6E+03	9.0E+00	1.6E+03	9.2E+00	1.1E-04
fluroxypyr	fresh water	69377-81-7	8.7E+03	5.5E+01	6.8E+03	7.7E+01	5.8E-12
epoxiconazole	fresh water	??	6.0E+03	9.0E+02	8.1E+03	1.2E+03	5.7E-02
ethylene oxide	fresh water	75-21-8	9.8E+00	6.3E-01	6.0E+00	3.4E-01	1.8E-03
hydrogen fluoride	fresh water	7664-39-3	1.9E+01	6.8E+01	1.5E+01	2.8E+01	2.3E-10
1,1,1-trichloroethane	seawater	71-55-6	7.1E-05	2.7E-01	5.9E-05	1.9E-01	1.0E-04
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	3.8E-02	1.5E+01	4.5E-02	1.2E+01	3.7E-03
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	3.0E-02	1.6E+01	3.3E-02	1.3E+01	7.4E-02
1,2,3-trichlorobenzene	seawater	87-61-6	3.9E-03	3.6E+00	4.3E-03	3.5E+00	3.5E-02
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	2.9E-02	1.3E+01	3.3E-02	1.0E+01	9.5E-02
1,2,4-trichlorobenzene	seawater	120-82-1	4.4E-03	3.1E+00	4.8E-03	2.9E+00	4.0E-03
1,2-dichlorobenzene	seawater	95-50-1	1.3E-03	9.5E-01	1.2E-03	1.0E+00	2.4E-04
1,2-dichloroethane	seawater	107-06-2	8.8E-05	9.1E-02	7.4E-05	6.1E-02	2.0E-05
1,3,5-trichlorobenzene	seawater	108-70-3	7.0E-03	4.5E+00	7.2E-03	4.5E+00	8.3E-04
1,3-Butadiene	seawater	106-99-0	5.6E-08	7.3E-01	3.8E-08	8.3E-01	4.0E-09
1,3-dichlorobenzene	seawater	541-73-1	1.1E-03	1.0E+00	1.0E-03	1.2E+00	2.0E-04
1,4-dichlorobenzene	seawater	106-46-7	1.1E-03	1.0E+00	1.1E-03	1.0E+00	5.7E-03
1-chloro-4-nitrobenzene	seawater	100-00-5	1.9E+00	3.7E+02	1.7E+00	4.4E+02	9.6E-02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	1.3E-03	2.2E+02	1.4E-03	2.5E+02	5.2E-06
2,3,7,8-TCDD	seawater	1746-01-6	1.3E+05	5.0E+08	4.3E+05	1.9E+09	8.3E+02
2,4,5-T	seawater	93-76-5	1.7E-10	4.0E-01	1.2E-10	4.9E-01	6.4E-11
2,4,5-trichlorophenol	seawater	95-95-4	5.4E-02	1.2E+02	6.4E-02	1.6E+02	9.1E-04
2,4,6-trichlorophenol	seawater	88-06-2	2.4E-04	7.6E+00	2.3E-04	8.9E+00	1.3E-05
2,4-D	seawater	94-75-7	1.1E-10	1.0E+01	8.5E-11	1.4E+01	1.8E-12
2,4-dichlorophenol	seawater	120-83-2	2.9E-04	3.7E+00	1.1E-04	2.0E+00	6.2E-06
2-chlorophenol	seawater	95-57-8	6.7E-03	4.6E+01	5.3E-03	6.1E+01	2.7E-05
3,4-dichloroaniline	seawater	95-76-1	1.2E-03	3.3E+03	1.5E-03	4.1E+03	6.7E-06
3-chloroaniline	seawater	108-42-9	3.7E-06	5.9E+01	3.4E-06	8.2E+01	1.7E-08
4-chloroaniline	seawater	106-47-8	1.1E-02	9.6E+01	9.7E-03	1.4E+02	8.6E-05
acephate	seawater	30560-19-1	6.0E-08	3.7E+01	3.1E-08	3.5E+01	5.3E-10
Acrolein	seawater	107-02-8	5.0E+00	8.9E+03	3.7E+00	1.3E+04	1.6E-01
Acrylonitrile	seawater	107-13-1	6.0E-03	3.1E+00	3.9E-03	4.0E+00	1.2E-04
aldicarb	seawater	116-06-3	1.2E-01	1.5E+04	9.8E-02	2.2E+04	4.8E-03
aldrin	seawater	309-00-2	1.3E+00	8.0E+03	1.1E-01	7.4E+02	6.7E-03
ammonia	seawater	7664-41-7	x	x	x	x	x
anilazine	seawater	101-05-3	1.1E-07	2.0E+01	6.8E-09	8.3E-01	7.0E-10
anthracene	seawater	120-12-7	1.7E+01	1.8E+04	2.3E+01	2.5E+04	4.0E-03
antimony	seawater	7440-36-0	7.6E-21	1.3E+02	1.8E-20	1.5E+02	3.0E-20
arsenic	seawater	7440-38-2	3.8E-20	2.2E+03	9.8E-20	2.7E+03	3.0E-17
atrazine	seawater	1912-24-9	8.3E-03	6.0E+02	7.2E-03	6.6E+02	5.0E-05
azinphos-ethyl	seawater	2642-71-9	4.1E-02	5.9E+03	3.0E-02	4.7E+03	3.4E-04

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aziphos-methyl	seawater	86-50-0	1.1E-04	1.0E+03	5.6E-05	2.9E+02	4.9E-08
barium	seawater	7440-39-3	2.4E-19	1.1E+03	5.4E-19	1.1E+03	6.6E-19
benomyl	seawater	17804-35-2	8.9E-08	1.5E+02	1.1E-08	1.3E+01	1.4E-09
bentazone	seawater	25057-89-0	7.4E-09	1.2E+00	6.0E-09	1.8E+00	3.3E-10
Benzene	seawater	71-43-2	9.2E-06	1.5E-02	7.0E-06	2.1E-02	1.7E-06
benzo[a]anthracene	seawater	56-55-3	1.1E+00	8.5E+04	3.2E+00	2.8E+05	6.2E-03
benzo[a]pyrene	seawater	50-32-8	2.8E-01	1.2E+05	8.0E-01	3.7E+05	8.0E-04
benzo[ghi]perylene	seawater	191-24-2	4.9E-02	6.5E+04	1.6E-01	2.3E+05	2.5E-04
benzo[k]fluoranthrene	seawater	207-08-9	9.1E+00	1.5E+06	3.0E+01	4.4E+06	8.7E-02
benzylchloride	seawater	100-44-7	1.1E-02	7.8E+00	1.7E-03	1.9E+00	2.5E-05
beryllium	seawater	7440-41-7	1.6E-16	4.0E+05	1.8E-16	2.1E+05	3.9E-16
bifenthrin	seawater	82657-04-3	5.5E-02	8.9E+03	1.6E-01	3.4E+04	5.9E-04
Butylbenzylphthalate	seawater	85-68-7	3.2E-05	1.6E+00	1.0E-05	4.0E-01	1.0E-07
cadmium	seawater	22537-48-0	2.5E-20	4.0E+04	6.5E-20	6.3E+04	1.1E-19
captafol	seawater	2425-06-1	5.0E-05	9.4E+04	7.3E-05	1.4E+05	1.6E-08
captan	seawater	133-06-2	6.5E-07	4.0E+01	5.7E-09	5.0E-01	9.4E-10
carbaryl	seawater	63-25-2	1.9E-06	2.4E+01	5.5E-07	2.1E+00	1.1E-09
carbendazim	seawater	10605-21-7	2.4E-08	1.3E+03	2.4E-08	2.0E+03	1.6E-10
carbofuran	seawater	1563-66-2	1.8E-04	3.0E+02	1.1E-04	3.1E+02	6.1E-07
carbon disulfide	seawater	75-15-0	6.5E-03	3.0E+01	5.4E-03	4.5E+01	1.0E-03
Carcinogenic PAHs	seawater		1.2E-01	2.4E+04	3.8E-01	8.0E+04	8.1E-04
chlordane	seawater	57-74-9	3.1E+01	4.7E+05	3.2E+00	1.5E+04	2.8E-01
chlorfenvinphos	seawater	470-90-6	5.6E-05	2.8E+01	4.8E-05	3.3E+01	8.6E-07
chloridazon	seawater	1698-60-8	3.5E-03	8.0E+00	2.7E-03	1.0E+01	6.4E-05
chlorobenzene	seawater	108-90-7	2.6E-04	3.5E-01	2.4E-04	4.5E-01	4.1E-04
chlorothalonil	seawater	1897-45-6	1.4E-01	3.6E+01	9.5E-02	2.3E+01	3.8E-04
chlorpropham	seawater	101-21-3	2.8E-05	2.0E+00	2.4E-05	2.5E+00	4.5E-07
chlorpyrifos	seawater	2921-88-2	2.3E-01	2.2E+03	1.5E-01	2.2E+02	5.7E-05
chromium III	seawater	16056-83-1	8.8E-23	1.9E+02	2.3E-22	3.3E+02	2.0E-18
chromium VI	seawater	18540-29-9	3.5E-22	7.5E+02	9.1E-22	1.3E+03	2.0E-18
chrysene	seawater	218-01-9	2.6E-01	7.6E+03	8.3E-01	2.6E+04	1.6E-03
cobalt	seawater	7440-48-4	1.2E-18	2.3E+04	2.0E-18	1.8E+04	4.9E-18
copper	seawater	15158-11-9	4.1E-20	2.5E+04	1.0E-19	3.5E+04	2.5E-20
coumaphos	seawater	56-72-4	1.1E+02	3.6E+06	1.5E+02	5.2E+06	5.0E-01
cyanazine	seawater	21725-46-2	2.5E-06	1.3E+03	1.9E-06	1.6E+03	4.0E-08
cypermethrin	seawater	52315-07-8	2.4E+00	1.6E+05	4.3E+00	4.5E+05	2.5E-01
cyromazine	seawater	66215-27-8	8.1E-07	1.6E+03	6.5E-07	2.2E+03	7.3E-08
DDT	seawater	50-29-3	1.5E+01	1.9E+05	1.6E+01	7.1E+04	9.5E-01
deltamethrin	seawater	52918-63-5	3.2E+00	3.6E+04	4.8E+00	7.2E+04	1.4E-03
demeton	seawater	8065-48-3	1.7E-02	5.5E+02	1.2E-02	7.0E+02	2.3E-04
desmetryn	seawater	1014-69-3	4.1E-06	5.4E+00	2.4E-06	5.5E+00	7.5E-07
Di(2-ethylhexyl)phthalate	seawater	117-81-7	1.6E-03	1.5E+01	2.1E-03	1.1E+01	9.6E-07
diazinon	seawater	333-41-5	6.4E-02	2.8E+03	4.6E-02	2.7E+03	8.2E-05
Dibutylphthalate	seawater	84-74-2	2.9E-05	1.7E+00	3.8E-06	1.6E-01	2.1E-07
Dichloromethane	seawater	75-09-2	5.0E-06	3.2E-03	3.6E-06	3.8E-03	6.5E-07



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dichlorprop	seawater	120-36-5	1.6E-12	1.2E-01	8.3E-13	6.4E-02	1.1E-14
dichlorvos	seawater	62-73-7	1.1E-02	2.4E+03	5.1E-04	1.8E+02	2.2E-04
dieldrin	seawater	60-57-1	1.6E+01	5.9E+04	1.7E+00	2.1E+03	1.0E-01
Diethylphtalate	seawater	84-66-2	7.9E-05	8.0E-01	5.2E-05	6.5E-01	1.0E-04
Dihexylphtalate	seawater	84-75-3	1.1E-02	9.7E+00	2.6E-02	2.0E+01	1.7E-05
Diisodecylphtalate	seawater	26761-40-0	3.8E-02	1.9E+01	8.5E-02	3.4E+01	6.4E-05
Diisooctylphtalate	seawater	27554-26-3	3.9E-03	1.6E+01	8.7E-03	2.8E+01	3.5E-06
dimethoate	seawater	60-51-5	7.4E-06	3.4E+00	5.5E-06	4.1E+00	1.8E-07
Dimethylphtalate	seawater	133-11-3	3.8E-07	5.2E-02	9.8E-08	1.3E-02	4.7E-06
dinoseb	seawater	88-85-7	1.1E-01	1.3E+04	2.9E-02	5.0E+03	1.0E-03
dinoterb	seawater	1420-07-1	4.2E-02	1.2E+04	1.9E-02	4.5E+03	5.1E-05
Diocetylphthalate	seawater	117-84-0	1.4E-04	2.5E+00	2.4E-04	2.6E+00	8.8E-08
disulfothon	seawater	298-04-4	1.3E-02	1.5E+03	4.6E-03	4.2E+02	2.1E-05
diuron	seawater	330-54-1	1.9E-03	2.4E+02	1.8E-03	3.4E+02	3.2E-05
DNOC	seawater	534-52-1	2.1E-08	2.6E+00	3.6E-09	6.1E-01	1.5E-09
endosulfan	seawater	115-29-7	2.1E-02	3.2E+02	4.5E-03	2.2E+01	1.6E-05
endrin	seawater	72-20-8	6.1E+00	2.7E+06	1.9E+00	2.0E+05	3.7E-01
ethoprophos	seawater	13194-48-4	1.0E+00	6.6E+03	7.9E-01	8.9E+03	7.2E-03
Ethylbenzene	seawater	100-41-4	9.4E-06	6.2E-02	6.3E-06	6.7E-02	1.0E-07
Ethylene	seawater	74-85-1	1.0E-12	2.6E-03	6.6E-13	3.2E-03	9.9E-14
fenitrothion	seawater	122-14-5	9.9E-03	5.6E+03	5.5E-03	2.9E+03	8.4E-05
fenthion	seawater	55-38-9	2.6E-01	2.3E+04	1.9E-01	1.5E+04	1.7E-03
fentin acetate	seawater	900-95-8	8.7E-02	4.0E+04	1.4E-01	1.1E+05	1.1E-04
fentin chloride	seawater	639-58-7	1.8E+01	4.0E+04	2.9E+01	1.1E+05	2.5E-03
fentin hydroxide	seawater	76-87-9	2.9E-02	4.0E+04	4.7E-02	1.1E+05	3.8E-05
fluoranthrene	seawater	206-44-0	8.7E-01	4.2E+03	2.6E+00	1.4E+04	9.6E-04
folpet	seawater	133-07-3	1.6E+01	2.1E+04	2.2E+01	2.8E+04	7.4E-02
Formaldehyde	seawater	50-00-0	2.1E-04	5.6E+00	1.2E-04	6.0E+00	2.4E-05
glyphosate	seawater	1071-83-6	2.1E-11	3.3E+01	2.0E-11	3.0E+01	4.4E-14
heptachlor	seawater	76-44-8	3.9E-02	1.1E+03	5.5E-02	9.2E+02	2.4E-05
heptenophos	seawater	23560-59-0	1.3E-03	4.5E+02	1.7E-04	9.1E+01	2.4E-05
hexachloro-1,3-butadiene	seawater	87-68-3	2.3E+01	7.0E+04	2.6E+01	4.7E+04	2.1E+00
hexachlorobenzene	seawater	118-74-1	1.1E+00	2.4E+03	3.6E+00	3.4E+03	2.3E-01
hydrogen chloride	seawater	7647-01-0	x	x	x	x	x
hydrogen sulfide	seawater	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	seawater	193-39-5	7.4E-04	1.1E+05	2.4E-03	3.8E+05	4.1E-06
iprodione	seawater	36734-19-7	3.8E-09	7.2E-01	3.1E-10	1.2E-02	1.5E-10
isoproturon	seawater	34123-59-6	2.9E-05	5.9E+01	1.1E-05	3.7E+01	3.8E-07
lead	seawater	14280-50-3	5.6E-23	2.6E+02	1.4E-22	4.8E+02	4.6E-21
lindane	seawater	58-89-9	1.1E-01	2.3E+02	3.0E-02	4.8E+01	3.9E-03
linuron	seawater	330-55-2	6.0E-02	1.3E+03	6.0E-02	1.7E+03	3.1E-04
malathion	seawater	121-75-5	1.8E-02	5.1E+03	1.1E-02	2.8E+03	2.0E-07
MCPA	seawater	94-74-6	5.3E-13	5.6E-01	3.6E-13	6.9E-01	2.2E-14
mecoprop	seawater	7085-19-0	3.8E-10	8.0E+00	2.5E-10	1.1E+01	1.8E-11
mercury	seawater	14302-87-5	4.0E-01	4.6E+04	1.0E+00	7.5E+04	3.0E+01
metamitron	seawater	41394-05-2	6.8E-10	4.9E-01	3.5E-10	3.8E-01	1.4E-11

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metazachlor	seawater	67129-08-2	3.0E-06	4.4E+00	2.2E-06	5.2E+00	3.0E-08
methabenzthiazuron	seawater	18691-97-9	9.2E-05	4.8E+01	1.0E-04	7.0E+01	6.0E-07
methomyl	seawater	16752-77-5	8.5E-03	6.9E+03	6.3E-03	8.9E+03	7.5E-05
methylbromide	seawater	74-83-9	2.3E-03	2.4E+00	1.2E-03	2.0E+00	9.1E-04
methyl-mercury	seawater	22967-92-6	9.2E+00	1.1E+06	2.3E+01	1.7E+06	3.0E+01
metobromuron	seawater	3060-89-7	1.6E-03	7.3E+01	1.6E-03	8.2E+01	3.8E-05
metolachlor	seawater	51218-45-2	7.0E-02	1.3E+03	6.2E-02	1.9E+03	5.4E-06
mevinphos	seawater	7786-34-7	6.9E-05	1.1E+04	8.8E-06	1.2E+03	3.2E-07
molybdenum	seawater	7439-98-7	6.6E-19	2.2E+03	1.5E-18	2.2E+03	2.9E-18
meta-Xylene	seawater	108-38-3	7.2E-06	1.4E-01	4.7E-06	1.4E-01	1.1E-07
Naphtalene	seawater	91-20-3	1.1E-02	3.3E+01	4.5E-03	1.2E+01	1.9E-05
nickel	seawater	7440-02-0	6.1E-19	3.0E+04	1.6E-18	3.7E+04	2.6E-18
nitrogen dioxide	seawater	10102-44-0	x	x	x	x	x
oxamyl	seawater	23135-22-0	4.5E-07	2.8E+00	2.1E-07	8.0E-01	2.3E-08
oxydemethon-methyl	seawater	301-12-2	3.0E-04	1.0E+03	6.8E-05	4.2E+02	5.2E-06
ortho-Xylene	seawater	95-47-6	1.5E-05	1.3E-01	1.2E-05	1.7E-01	2.1E-07
parathion-ethyl	seawater	56-38-2	2.0E-01	4.1E+04	1.4E-01	1.7E+04	8.2E-05
parathion-methyl	seawater	298-00-0	1.2E-01	8.1E+03	7.4E-03	3.4E+02	7.1E-04
pentachlorobenzene	seawater	608-93-5	2.4E-01	1.7E+02	3.3E-01	1.4E+02	2.6E-02
pentachloronitrobenzene	seawater	82-68-8	1.1E+01	5.6E+03	3.1E+00	5.5E+02	2.9E-02
pentachlorophenol	seawater	87-86-5	1.2E-05	7.8E+01	2.7E-05	1.4E+02	2.6E-06
permethrin	seawater	52645-53-1	1.0E+01	2.8E+05	1.3E+01	2.2E+05	1.7E-02
phenanthrene	seawater	85-01-8	5.8E-02	7.4E+01	6.3E-02	6.4E+01	6.3E-06
Phenol	seawater	108-95-2	1.7E-05	4.7E+00	6.4E-06	3.2E+00	3.8E-08
phoxim	seawater	14816-18-3	3.3E-02	3.0E+02	5.4E-03	4.1E+01	1.3E-03
Phtalic anhydride	seawater	85-44-9	4.6E-11	1.7E-02	9.4E-14	9.9E-05	2.8E-12
pirimicarb	seawater	23103-98-2	8.9E-04	8.6E+02	9.0E-04	1.3E+03	1.7E-05
dust (PM10)	seawater	PM10	x	x	x	x	x
propachlor	seawater	1918-16-7	5.0E-04	2.7E+01	2.7E-04	2.5E+01	1.3E-05
propoxur	seawater	114-26-1	1.2E-04	3.4E+03	8.2E-05	3.6E+03	3.2E-06
Propylene Oxide	seawater	75-56-9	4.4E-04	1.4E-01	2.4E-04	1.5E-01	1.8E-05
para-Xylene	seawater	106-42-3	1.0E-05	1.3E-01	6.1E-06	9.7E-02	8.9E-08
pyrazophos	seawater	13457-18-6	2.3E-03	1.1E+03	2.0E-03	1.1E+03	2.9E-05
selenium	seawater	7782-49-2	7.4E-18	1.2E+04	8.6E-18	6.3E+03	1.8E-17
simazine	seawater	122-34-9	4.5E-03	6.7E+02	3.8E-03	1.0E+03	1.9E-05
styrene	seawater	100-42-5	1.0E-05	1.2E-01	7.0E-06	9.3E-02	2.7E-08
sulphur dioxide	seawater	7446-09-5	x	x	x	x	x
Tetrachloroethylene	seawater	127-18-4	2.0E-04	6.5E-01	1.9E-04	7.8E-01	4.0E-03
Tetrachloromethane	seawater	56-23-5	1.9E-04	1.1E+00	1.1E-04	4.6E-01	3.6E-04
thallium	seawater	7440-28-0	7.9E-18	3.9E+04	2.0E-17	4.5E+04	4.2E-17
Thiram	seawater	137-26-8	2.6E-02	4.2E+02	9.5E-03	3.7E+01	3.1E-04
tin	seawater	7440-31-5	9.5E-23	2.7E+02	4.8E-23	9.8E+01	7.2E-21
tolclophos-methyl	seawater	57018-04-9	2.9E-02	1.4E+02	3.1E-02	1.6E+02	6.7E-05
Toluene	seawater	108-88-3	8.3E-06	5.1E-02	5.9E-06	6.3E-02	1.9E-06
tri-allate	seawater	2303-17-5	1.1E+00	3.3E+03	4.1E-01	9.2E+02	1.3E-04

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
triazophos	seawater	24017-47-8	7.9E-02	4.9E+03	7.4E-02	6.8E+03	8.4E-04
tributyltinoxide	seawater	56-35-9	3.0E+00	5.7E+05	4.1E+00	7.9E+05	6.9E-03
trichlorfon	seawater	52-68-6	5.3E-06	3.6E+03	9.9E-07	5.4E+02	4.8E-07
Trichloroethylene	seawater	79-01-6	1.6E-05	5.7E-02	1.3E-05	8.1E-02	1.9E-06
Trichloromethane	seawater	67-66-3	4.5E-05	5.6E-02	2.3E-05	3.3E-02	1.9E-05
trifluarin	seawater	1582-09-8	1.8E+00	8.3E+03	1.4E+00	3.6E+03	3.0E-03
vanadium	seawater	7440-62-2	2.4E-18	7.0E+04	5.7E-18	8.0E+04	2.2E-17
Vinyl Chloride	seawater	75-01-4	1.4E-06	2.0E-02	1.1E-06	2.9E-02	1.3E-07
zinc	seawater	23713-49-7	1.8E-21	2.4E+03	4.5E-21	3.6E+03	1.9E-20
zineb	seawater	12122-67-7	3.6E-03	8.1E+02	2.9E-03	8.9E+02	2.8E-05
chlormequat-chloride	seawater	999-81-5	1.1E-10	7.5E+00	4.7E-11	4.6E+00	6.1E-13
fenpropimorph	seawater	67306-03-0	1.1E-04	4.4E+01	1.1E-04	4.6E+01	4.2E-07
fluroxypyr	seawater	69377-81-7	7.3E-13	2.2E+02	5.7E-13	3.2E+02	1.1E-14
epoxiconazole	seawater	??	9.1E-01	1.1E+03	1.2E+00	1.5E+03	5.1E-03
ethylene oxide	seawater	75-21-8	3.8E-03	7.4E-01	2.3E-03	8.4E-01	9.7E-05
hydrogen fluoride	seawater	7664-39-3	4.1E-08	6.9E+01	3.4E-08	2.8E+01	8.4E-11
1,1,1-trichloroethane	agri. soil	71-55-6	3.7E-04	2.9E-01	3.1E-04	9.6E-02	1.5E-03
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	2.8E-02	3.9E-01	3.2E-02	1.6E-01	8.3E-01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	8.3E-02	2.3E+00	9.3E-02	9.0E-01	1.5E+01
1,2,3-trichlorobenzene	agri. soil	87-61-6	2.3E-02	6.5E-01	2.5E-02	2.6E-01	9.3E+00
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	2.5E-02	5.1E-01	2.9E-02	2.1E-01	1.9E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	2.0E-02	4.3E-01	2.2E-02	1.8E-01	1.2E+00
1,2-dichlorobenzene	agri. soil	95-50-1	1.9E-02	5.1E-01	1.8E-02	2.1E-01	5.4E-02
1,2-dichloroethane	agri. soil	107-06-2	7.5E-04	5.9E-02	6.3E-04	2.2E-02	1.7E-03
1,3,5-trichlorobenzene	agri. soil	108-70-3	5.4E-02	1.1E+00	5.6E-02	4.5E-01	2.5E-01
1,3-Butadiene	agri. soil	106-99-0	5.7E-05	2.9E-06	3.8E-05	3.2E-06	3.1E-04
1,3-dichlorobenzene	agri. soil	541-73-1	1.8E-02	3.7E-01	1.6E-02	1.6E-01	6.2E-02
1,4-dichlorobenzene	agri. soil	106-46-7	1.4E-02	5.5E-01	1.4E-02	2.1E-01	1.0E+00
1-chloro-4-nitrobenzene	agri. soil	100-00-5	1.5E+02	1.2E+02	1.3E+02	7.9E+01	1.7E+01
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	3.2E+01	6.2E-01	3.5E+01	6.8E-01	1.0E+00
2,3,7,8-TCDD	agri. soil	1746-01-6	1.2E+05	4.5E+04	4.0E+05	1.4E+05	2.7E+04
2,4,5-T	agri. soil	93-76-5	4.4E-01	1.6E-03	3.2E-01	2.0E-03	7.4E-01
2,4,5-trichlorophenol	agri. soil	95-95-4	2.8E+01	1.3E+00	3.3E+01	1.6E+00	4.4E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	1.2E+00	8.2E-03	1.2E+00	9.5E-03	7.0E-01
2,4-D	agri. soil	94-75-7	2.9E+01	1.7E-01	2.2E+01	2.3E-01	1.6E+00
2,4-dichlorophenol	agri. soil	120-83-2	2.5E+00	7.0E-03	1.0E+00	3.2E-03	5.9E-01
2-chlorophenol	agri. soil	95-57-8	7.9E+00	6.8E-02	6.3E+00	9.0E-02	3.8E-01
3,4-dichloroaniline	agri. soil	95-76-1	1.8E+03	2.7E+02	2.3E+03	3.3E+02	2.6E+01
3-chloroaniline	agri. soil	108-42-9	7.4E+01	3.2E-01	6.8E+01	4.5E-01	1.4E+00
4-chloroaniline	agri. soil	106-47-8	1.7E+02	7.7E-01	1.5E+02	1.1E+00	1.6E+01
acephate	agri. soil	30560-19-1	5.1E+01	6.7E-01	2.6E+01	6.4E-01	1.7E+00
Acrolein	agri. soil	107-02-8	4.5E+04	2.5E+02	3.4E+04	3.6E+02	7.0E+03
Acrylonitrile	agri. soil	107-13-1	6.5E+00	2.1E-01	4.2E+00	1.9E-01	2.5E+00
aldicarb	agri. soil	116-06-3	9.6E+04	1.6E+03	7.6E+04	2.4E+03	4.2E+03
aldrin	agri. soil	309-00-2	2.8E+02	3.2E+01	2.4E+01	2.9E+00	2.0E+01
ammonia	agri. soil	7664-41-7	x	x	x	x	x
anilazine	agri. soil	101-05-3	2.1E-01	5.0E-05	1.4E-02	2.1E-06	2.3E-01



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anthracene	agri. soil	120-12-7	8.2E+01	6.2E+00	1.1E+02	8.2E+00	8.9E+00
antimony	agri. soil	7440-36-0	2.3E+00	4.2E+00	5.6E+00	5.5E+00	3.0E-01
arsenic	agri. soil	7440-38-2	1.2E+00	2.1E+00	3.1E+00	3.0E+00	3.3E+01
atrazine	agri. soil	1912-24-9	3.4E+02	3.4E+01	3.0E+02	3.8E+01	6.6E+00
azinthos-ethyl	agri. soil	2642-71-9	2.8E+03	1.1E+01	2.0E+03	8.4E+00	2.2E+02
azinthos-methyl	agri. soil	86-50-0	1.9E+02	1.4E-01	1.0E+02	4.1E-02	9.7E-01
barium	agri. soil	7440-39-3	3.6E+01	6.8E+01	8.1E+01	8.1E+01	3.2E+00
benomyl	agri. soil	17804-35-2	4.6E+00	5.8E-03	5.9E-01	5.0E-04	3.5E+00
bentazone	agri. soil	25057-89-0	8.3E+00	3.6E-02	6.7E+00	5.5E-02	5.9E-01
Benzene	agri. soil	71-43-2	7.2E-04	2.4E-03	5.4E-04	1.1E-03	3.4E-03
benzo[a]anthracene	agri. soil	56-55-3	6.2E+01	4.5E+00	1.9E+02	1.5E+01	3.1E+01
benzo[a]pyrene	agri. soil	50-32-8	1.3E+02	6.5E+00	3.8E+02	1.9E+01	2.3E+01
benzo[ghi]perylene	agri. soil	191-24-2	6.1E+01	1.1E+01	2.0E+02	3.7E+01	8.3E+00
benzo[k]fluoranthrene	agri. soil	207-08-9	5.2E+03	2.0E+03	1.7E+04	5.9E+03	3.9E+02
benzylchloride	agri. soil	100-44-7	9.2E-01	8.2E-02	1.3E-01	1.3E-02	8.0E-01
beryllium	agri. soil	7440-41-7	2.1E+04	4.1E+04	2.4E+04	2.4E+04	1.7E+03
bifenthrin	agri. soil	82657-04-3	1.0E+02	1.1E-01	3.1E+02	4.3E-01	8.3E+01
Butylbenzylphtalate	agri. soil	85-68-7	2.5E-02	2.9E-05	8.2E-03	7.1E-06	1.0E-02
cadmium	agri. soil	22537-48-0	1.0E+02	1.3E+02	2.6E+02	2.5E+02	2.4E+01
captafol	agri. soil	2425-06-1	2.7E+04	4.0E+03	3.9E+04	5.8E+03	2.8E+01
captan	agri. soil	133-06-2	4.0E-01	6.9E-05	3.5E-03	8.4E-07	4.1E-02
carbaryl	agri. soil	63-25-2	2.3E+01	7.4E-03	6.7E+00	6.5E-04	1.1E-01
carbendazim	agri. soil	10605-21-7	2.0E+03	3.0E+01	2.0E+03	4.5E+01	4.9E+01
carbofuran	agri. soil	1563-66-2	5.8E+02	2.0E+00	3.4E+02	2.1E+00	7.5E+00
carbon disulfide	agri. soil	75-15-0	3.4E-01	1.4E+00	2.8E-01	7.9E-01	1.6E+00
Carcinogenic PAHs	agri. soil		5.8E+01	1.2E+01	1.9E+02	4.1E+01	6.3E+00
chlordane	agri. soil	57-74-9	9.4E+01	3.0E+01	9.5E+00	8.4E-01	7.4E+01
chlorfenvinphos	agri. soil	470-90-6	1.6E+01	8.5E-02	1.4E+01	1.0E-01	1.3E+00
chloridazon	agri. soil	1698-60-8	1.8E+00	8.1E-02	1.4E+00	1.0E-01	9.0E-01
chlorobenzene	agri. soil	108-90-7	3.2E-03	8.3E-02	3.0E-03	3.7E-02	1.2E-01
chlorothalonil	agri. soil	1897-45-6	1.0E+00	1.7E+00	7.3E-01	4.7E-01	6.8E-01
chlorpropham	agri. soil	101-21-3	1.8E+00	8.4E-03	1.6E+00	1.1E-02	1.3E-01
chlorpyrifos	agri. soil	2921-88-2	3.6E+02	1.4E-01	2.3E+02	1.4E-02	1.7E+01
chromium III	agri. soil	16056-83-1	2.7E-02	3.1E-02	6.9E-02	6.5E-02	3.6E+01
chromium VI	agri. soil	18540-29-9	1.1E-01	1.2E-01	2.8E-01	2.6E-01	3.6E+01
chrysene	agri. soil	218-01-9	7.4E+01	1.2E+01	2.4E+02	4.0E+01	4.6E+00
cobalt	agri. soil	7440-48-4	7.3E+02	1.4E+03	1.2E+03	1.2E+03	9.9E+01
copper	agri. soil	15158-11-9	5.5E+01	8.3E+01	1.4E+02	1.4E+02	1.5E+00
coumaphos	agri. soil	56-72-4	1.0E+06	1.5E+05	1.5E+06	2.2E+05	1.6E+04
cyanazine	agri. soil	21725-46-2	8.1E+02	2.8E+00	6.3E+02	3.7E+00	6.9E+01
cypermethrin	agri. soil	52315-07-8	2.0E+05	3.0E+02	3.6E+05	8.0E+02	9.0E+04
cyromazine	agri. soil	66215-27-8	6.5E+03	2.5E+02	5.2E+03	3.5E+02	6.3E+02
DDT	agri. soil	50-29-3	8.7E+01	4.3E+01	9.3E+01	1.4E+01	6.0E+01
deltamethrin	agri. soil	52918-63-5	2.4E+01	6.0E-02	3.6E+01	1.2E-01	8.5E+00
demeton	agri. soil	8065-48-3	8.0E+02	3.5E+00	5.7E+02	4.5E+00	6.0E+01

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desmetryn	agri. soil	1014-69-3	3.0E+00	2.4E-02	1.8E+00	2.4E-02	2.9E+00
Di(2-ethylhexyl)phtalate	agri. soil	117-81-7	1.5E-03	1.6E-05	2.0E-03	1.1E-05	1.4E-03
diazinon	agri. soil	333-41-5	1.3E+03	7.8E+00	9.3E+02	7.5E+00	1.2E+01
Dibutylphtalate	agri. soil	84-74-2	7.9E-02	1.2E-04	1.0E-02	1.1E-05	2.3E-02
Dichloromethane	agri. soil	75-09-2	1.6E-04	2.5E-03	1.1E-04	9.2E-04	2.5E-04
dichlorprop	agri. soil	120-36-5	1.3E-02	3.6E-05	6.9E-03	1.9E-05	1.4E-03
dichlorvos	agri. soil	62-73-7	7.4E+01	4.1E-02	3.3E+00	2.7E-03	2.0E+02
dieldrin	agri. soil	60-57-1	6.0E+02	8.1E+01	6.3E+01	2.8E+00	1.1E+02
Diethylphtalate	agri. soil	84-66-2	1.6E-01	7.1E-04	1.1E-01	5.6E-04	2.1E+00
Dihexylphtalate	agri. soil	84-75-3	1.8E-02	4.3E-04	4.4E-02	8.0E-04	7.3E-03
Diisodecylphtalate	agri. soil	26761-40-0	4.6E-03	8.6E-04	1.0E-02	1.4E-03	4.0E-03
Diisooctylphtalate	agri. soil	27554-26-3	6.2E-04	6.5E-05	1.4E-03	1.0E-04	5.5E-04
dimethoate	agri. soil	60-51-5	8.9E+00	3.9E-02	6.6E+00	4.8E-02	8.0E-01
Dimethylphtalate	agri. soil	133-11-3	7.4E-03	9.7E-06	1.9E-03	2.3E-06	1.4E+00
dinoseb	agri. soil	88-85-7	2.0E+04	3.9E+02	5.6E+03	1.5E+02	5.9E+02
dinoterb	agri. soil	1420-07-1	3.3E+02	8.7E+00	1.5E+02	3.1E+00	9.9E+00
Diocetylphthalate	agri. soil	117-84-0	4.2E-05	1.3E-06	7.1E-05	1.3E-06	4.8E-05
disulfothon	agri. soil	298-04-4	7.2E+01	1.4E-01	2.5E+01	4.0E-02	1.1E+01
diuron	agri. soil	330-54-1	3.5E+02	2.1E+00	3.3E+02	3.0E+00	2.3E+01
DNOC	agri. soil	534-52-1	1.2E+00	3.6E-03	2.0E-01	8.5E-04	5.2E-01
endosulfan	agri. soil	115-29-7	2.2E+00	1.4E-03	4.8E-01	9.0E-05	2.7E+00
endrin	agri. soil	72-20-8	2.1E+04	1.0E+04	6.3E+03	7.4E+02	4.2E+03
ethoprophos	agri. soil	13194-48-4	1.1E+04	2.6E+02	8.8E+03	3.6E+02	2.7E+02
Ethylbenzene	agri. soil	100-41-4	1.8E-03	4.1E-04	1.2E-03	3.2E-04	1.9E-03
Ethylene	agri. soil	74-85-1	1.1E-09	7.8E-11	7.1E-10	7.1E-11	2.3E-09
fenitrothion	agri. soil	122-14-5	7.6E+02	2.3E+00	4.2E+02	1.1E+00	8.3E+01
fenthion	agri. soil	55-38-9	3.5E+03	1.5E+01	2.5E+03	9.9E+00	2.9E+02
fentin acetate	agri. soil	900-95-8	3.8E+02	6.8E+00	6.2E+02	1.8E+01	1.2E+01
fentin chloride	agri. soil	639-58-7	2.5E+02	9.5E+01	4.1E+02	1.2E+02	1.2E+01
fentin hydroxide	agri. soil	76-87-9	3.8E+02	6.1E+00	6.2E+02	1.6E+01	1.2E+01
fluoranthrene	agri. soil	206-44-0	1.9E+01	1.3E+00	5.7E+01	4.3E+00	2.3E+00
folpet	agri. soil	133-07-3	4.5E+03	7.1E+02	6.2E+03	9.3E+02	1.1E+02
Formaldehyde	agri. soil	50-00-0	1.5E+01	1.8E-02	7.9E+00	1.8E-02	5.8E+00
glyphosate	agri. soil	1071-83-6	9.2E-01	2.8E-03	9.0E-01	2.5E-03	9.6E-02
heptachlor	agri. soil	76-44-8	2.3E+00	2.4E-02	3.2E+00	2.0E-02	5.5E+00
heptenophos	agri. soil	23560-59-0	3.1E+01	2.6E-02	3.8E+00	5.1E-03	1.6E+01
hexachloro-1,3-butadiene	agri. soil	87-68-3	7.0E+01	2.8E+04	8.0E+01	1.1E+04	5.3E+01
hexachlorobenzene	agri. soil	118-74-1	3.2E+00	7.2E+02	1.0E+01	8.3E+02	3.5E+00
hydrogen chloride	agri. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	agri. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	9.0E+01	1.7E+01	2.9E+02	5.9E+01	1.3E+01
iprodione	agri. soil	36734-19-7	2.3E-01	2.2E-05	1.9E-02	3.5E-07	1.4E-01
isoproturon	agri. soil	34123-59-6	1.7E+02	1.8E+00	6.3E+01	1.1E+00	6.4E+00
lead	agri. soil	14280-50-3	4.9E-02	5.2E-02	1.3E-01	1.2E-01	2.7E-01
lindane	agri. soil	58-89-9	9.7E+01	1.4E+00	2.5E+01	2.9E-01	2.3E+01
linuron	agri. soil	330-55-2	6.9E+02	1.2E+01	6.9E+02	1.6E+01	2.1E+01
malathion	agri. soil	121-75-5	1.6E+02	6.6E-01	9.5E+01	3.7E-01	7.6E-02
MCPA	agri. soil	94-74-6	4.6E-01	6.2E-04	3.1E-01	7.6E-04	9.4E-02

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mecoprop	agri. soil	7085-19-0	3.0E+01	5.3E-02	2.0E+01	6.9E-02	4.7E+00
mercury	agri. soil	14302-87-5	1.0E+02	2.3E+02	2.6E+02	4.1E+02	7.4E+03
metamitron	agri. soil	41394-05-2	4.1E-01	1.1E-03	2.2E-01	8.9E-04	4.2E-02
metazachlor	agri. soil	67129-08-2	3.9E+00	3.3E-02	2.8E+00	3.9E-02	1.7E-01
methabenzthiazuron	agri. soil	18691-97-9	4.4E+01	1.0E+00	4.8E+01	1.5E+00	1.1E+00
methomyl	agri. soil	16752-77-5	1.4E+04	4.4E+02	1.1E+04	5.7E+02	3.0E+02
methylbromide	agri. soil	74-83-9	1.4E-01	3.1E+00	7.2E-02	8.3E-01	3.6E-01
methyl-mercury	agri. soil	22967-92-6	2.4E+03	5.2E+03	6.1E+03	9.5E+03	7.5E+03
metobromuron	agri. soil	3060-89-7	9.5E+01	1.4E+01	9.2E+01	1.6E+01	2.2E+00
metolachlor	agri. soil	51218-45-2	1.9E+03	3.0E+01	1.7E+03	4.1E+01	5.4E-01
mevinphos	agri. soil	7786-34-7	3.5E+02	3.4E-01	4.4E+01	3.8E-02	8.7E+01
molybdenum	agri. soil	7439-98-7	7.4E+00	1.3E+01	1.6E+01	1.6E+01	1.1E+00
meta-Xylene	agri. soil	108-38-3	1.9E-03	2.5E-04	1.2E-03	2.3E-04	3.0E-03
Naphtalene	agri. soil	91-20-3	3.8E+00	5.7E-02	1.5E+00	2.0E-02	3.1E+00
nickel	agri. soil	7440-02-0	1.0E+02	1.8E+02	2.6E+02	2.5E+02	1.6E+01
nitrogen dioxide	agri. soil	10102-44-0	x	x	x	x	x
oxamyl	agri. soil	23135-22-0	3.0E+01	8.4E-03	1.3E+01	2.4E-03	5.9E+00
oxydemethon-methyl	agri. soil	301-12-2	9.7E+02	2.0E+00	2.2E+02	8.2E-01	9.2E+01
ortho-Xylene	agri. soil	95-47-6	2.5E-03	5.5E-04	2.0E-03	6.0E-04	3.4E-03
parathion-ethyl	agri. soil	56-38-2	5.0E+02	2.3E+00	3.4E+02	9.6E-01	1.7E+01
parathion-methyl	agri. soil	298-00-0	1.1E+03	5.9E+00	6.8E+01	2.5E-01	8.1E+01
pentachlorobenzene	agri. soil	608-93-5	5.9E-01	2.8E+01	8.3E-01	1.4E+01	2.1E+00
pentachloronitrobenzene	agri. soil	82-68-8	1.5E+01	3.0E+01	4.3E+00	2.3E+00	2.7E+00
pentachlorophenol	agri. soil	87-86-5	3.3E-01	5.9E-03	7.4E-01	1.1E-02	4.8E+00
permethrin	agri. soil	52645-53-1	9.2E+02	5.5E+00	1.2E+03	4.2E+00	2.5E+02
phenanthrene	agri. soil	85-01-8	2.9E-01	8.7E-03	3.2E-01	7.0E-03	3.7E-02
Phenol	agri. soil	108-95-2	3.5E+00	1.7E-03	1.3E+00	1.1E-03	4.5E-02
phoxim	agri. soil	14816-18-3	4.4E+00	3.1E-01	7.2E-01	4.1E-02	4.7E+00
Phtalic anhydride	agri. soil	85-44-9	4.8E-05	1.8E-08	9.8E-08	1.1E-10	2.6E-03
pirimicarb	agri. soil	23103-98-2	1.7E+03	7.3E+00	1.7E+03	1.1E+01	1.2E+02
dust (PM10)	agri. soil	PM10	x	x	x	x	x
propachlor	agri. soil	1918-16-7	1.7E+01	4.2E-02	9.4E+00	4.0E-02	2.5E+00
propoxur	agri. soil	114-26-1	2.0E+04	3.9E+01	1.4E+04	4.0E+01	1.8E+03
Propylene Oxide	agri. soil	75-56-9	4.2E-01	2.9E-02	2.3E-01	1.6E-02	1.4E-01
para-Xylene	agri. soil	106-42-3	1.4E-03	3.2E-04	8.6E-04	2.0E-04	1.5E-03
pyrazophos	agri. soil	13457-18-6	2.5E+02	6.8E-01	2.3E+02	6.5E-01	3.0E+01
selenium	agri. soil	7782-49-2	9.9E+02	2.1E+03	1.2E+03	1.2E+03	7.5E+01
simazine	agri. soil	122-34-9	2.3E+03	1.3E+01	2.0E+03	1.9E+01	2.9E+01
styrene	agri. soil	100-42-5	1.5E-03	1.1E-04	1.1E-03	7.6E-05	1.4E-03
sulphur dioxide	agri. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	agri. soil	127-18-4	2.2E-03	3.1E-01	2.1E-03	1.1E-01	3.0E-01
Tetrachloromethane	agri. soil	56-23-5	5.6E-04	1.1E+00	3.2E-04	3.0E-01	2.1E-03
thallium	agri. soil	7440-28-0	2.8E+02	5.1E+02	7.1E+02	6.7E+02	4.9E+01
Thiram	agri. soil	137-26-8	6.9E+02	6.5E-01	2.5E+02	5.7E-02	5.1E+01

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tin	agri. soil	7440-31-5	5.2E-02	5.8E-02	2.6E-02	2.5E-02	2.5E-01
tolclophos-methyl	agri. soil	57018-04-9	3.1E+00	1.3E-01	3.3E+00	1.5E-01	1.8E+00
Toluene	agri. soil	108-88-3	1.1E-03	4.5E-04	7.5E-04	3.7E-04	1.9E-02
tri-allate	agri. soil	2303-17-5	5.0E+01	8.4E-01	1.8E+01	2.3E-01	1.3E+00
triazophos	agri. soil	24017-47-8	5.8E+03	5.3E+01	5.4E+03	7.3E+01	2.5E+02
tributyltinoxide	agri. soil	56-35-9	1.1E+03	5.6E+02	1.5E+03	7.7E+02	3.7E+01
trichlorfon	agri. soil	52-68-6	3.3E+03	6.7E-01	6.1E+02	1.0E-01	1.9E+03
Trichloroethylene	agri. soil	79-01-6	4.6E-04	2.5E-03	3.9E-04	1.5E-03	2.1E-03
Trichloromethane	agri. soil	67-66-3	4.7E-04	4.7E-02	2.4E-04	1.3E-02	1.6E-03
trifluarin	agri. soil	1582-09-8	4.0E+01	1.2E+00	3.3E+01	4.9E-01	3.5E+01
vanadium	agri. soil	7440-62-2	3.3E+02	5.7E+02	7.8E+02	7.5E+02	1.0E+02
Vinyl Chloride	agri. soil	75-01-4	6.4E-05	1.3E-04	5.2E-05	1.2E-04	3.1E-04
zinc	agri. soil	23713-49-7	3.0E+00	4.0E+00	7.7E+00	7.4E+00	1.7E+00
zineb	agri. soil	12122-67-7	3.7E+02	3.5E+00	3.0E+02	3.8E+00	1.6E+01
chlormequat-chloride	agri. soil	999-81-5	1.4E+00	9.7E-03	5.7E-01	6.0E-03	7.0E-02
fenpropimorph	agri. soil	67306-03-0	8.2E+00	4.6E-02	8.1E+00	4.7E-02	5.3E-01
fluroxypyr	agri. soil	69377-81-7	6.2E+02	3.9E+00	4.8E+02	5.5E+00	3.3E+01
epoxiconazole	agri. soil	??	3.8E+02	5.8E+01	5.1E+02	7.5E+01	6.4E+00
ethylene oxide	agri. soil	75-21-8	7.9E-01	2.2E-01	4.8E-01	1.1E-01	2.2E-01
hydrogen fluoride	agri. soil	7664-39-3	9.4E+00	3.4E+01	7.6E+00	1.4E+01	6.0E-03
1,1,1-trichloroethane	indus. soil	71-55-6	3.7E-04	2.9E-01	3.1E-04	9.6E-02	1.5E-03
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	1.0E-01	1.5E+00	1.2E-01	6.0E-01	7.7E-01
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	1.9E-01	5.1E+00	2.1E-01	2.0E+00	1.2E+01
1,2,3-trichlorobenzene	indus. soil	87-61-6	3.0E-02	8.6E-01	3.3E-02	3.5E-01	8.0E+00
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	9.0E-02	1.8E+00	1.0E-01	7.4E-01	1.7E+01
1,2,4-trichlorobenzene	indus. soil	120-82-1	3.2E-02	7.1E-01	3.6E-02	3.0E-01	9.9E-01
1,2-dichlorobenzene	indus. soil	95-50-1	1.9E-02	5.1E-01	1.8E-02	2.1E-01	5.4E-02
1,2-dichloroethane	indus. soil	107-06-2	7.5E-04	5.9E-02	6.3E-04	2.2E-02	1.7E-03
1,3,5-trichlorobenzene	indus. soil	108-70-3	6.6E-02	1.3E+00	6.9E-02	5.5E-01	2.2E-01
1,3-Butadiene	indus. soil	106-99-0	5.7E-05	2.9E-06	3.8E-05	3.2E-06	3.1E-04
1,3-dichlorobenzene	indus. soil	541-73-1	1.8E-02	3.7E-01	1.6E-02	1.6E-01	6.2E-02
1,4-dichlorobenzene	indus. soil	106-46-7	1.4E-02	5.5E-01	1.4E-02	2.1E-01	1.0E+00
1-chloro-4-nitrobenzene	indus. soil	100-00-5	1.5E+02	1.2E+02	1.3E+02	7.9E+01	1.7E+01
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	1.2E+02	2.5E+00	1.3E+02	2.7E+00	9.7E-01
2,3,7,8-TCDD	indus. soil	1746-01-6	4.9E+05	1.8E+05	1.6E+06	5.7E+05	2.7E+04
2,4,5-T	indus. soil	93-76-5	1.5E+00	5.5E-03	1.1E+00	6.8E-03	6.4E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	9.9E+01	4.6E+00	1.2E+02	5.7E+00	3.9E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	4.8E+00	3.2E-02	4.7E+00	3.7E-02	6.8E-01
2,4-D	indus. soil	94-75-7	8.2E+01	4.6E-01	6.1E+01	6.4E-01	1.1E+00
2,4-dichlorophenol	indus. soil	120-83-2	9.2E+00	2.7E-02	3.6E+00	1.2E-02	5.4E-01
2-chlorophenol	indus. soil	95-57-8	3.1E+01	2.6E-01	2.4E+01	3.5E-01	3.7E-01
3,4-dichloroaniline	indus. soil	95-76-1	4.0E+03	6.0E+02	5.0E+03	7.4E+02	1.8E+01
3-chloroaniline	indus. soil	108-42-9	2.5E+02	1.2E+00	2.3E+02	1.6E+00	1.2E+00
4-chloroaniline	indus. soil	106-47-8	4.9E+02	2.2E+00	4.2E+02	3.3E+00	1.1E+01
acephate	indus. soil	30560-19-1	1.6E+02	2.1E+00	8.1E+01	2.0E+00	1.3E+00
Acrolein	indus. soil	107-02-8	4.5E+04	2.5E+02	3.4E+04	3.6E+02	7.0E+03

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Acrylonitrile	indus. soil	107-13-1	8.1E+00	2.7E-01	5.3E+00	2.3E-01	2.1E+00
aldicarb	indus. soil	116-06-3	9.6E+04	1.6E+03	7.6E+04	2.4E+03	4.2E+03
aldrin	indus. soil	309-00-2	2.9E+02	3.3E+01	2.5E+01	3.0E+00	2.0E+01
ammonia	indus. soil	7664-41-7	x	x	x	x	x
anilazine	indus. soil	101-05-3	8.6E-01	2.0E-04	5.5E-02	8.5E-06	2.3E-01
anthracene	indus. soil	120-12-7	3.2E+02	2.5E+01	4.5E+02	3.2E+01	8.8E+00
antimony	indus. soil	7440-36-0	2.3E+00	4.2E+00	5.6E+00	5.5E+00	3.0E-01
arsenic	indus. soil	7440-38-2	1.2E+00	2.1E+00	3.1E+00	3.0E+00	3.3E+01
atrazine	indus. soil	1912-24-9	9.3E+02	9.1E+01	8.0E+02	1.0E+02	4.4E+00
aziphos-ethyl	indus. soil	2642-71-9	3.7E+03	1.4E+01	2.7E+03	1.1E+01	7.2E+01
aziphos-methyl	indus. soil	86-50-0	8.0E+02	5.8E-01	4.1E+02	1.7E-01	1.0E+00
barium	indus. soil	7440-39-3	3.6E+01	6.8E+01	8.1E+01	8.1E+01	3.2E+00
benomyl	indus. soil	17804-35-2	1.8E+01	2.3E-02	2.4E+00	2.0E-03	3.5E+00
bentazone	indus. soil	25057-89-0	1.1E+01	4.8E-02	8.8E+00	7.2E-02	5.0E-01
Benzene	indus. soil	71-43-2	7.2E-04	2.4E-03	5.4E-04	1.1E-03	3.4E-03
benzo[a]anthracene	indus. soil	56-55-3	2.5E+02	1.8E+01	7.4E+02	6.0E+01	3.1E+01
benzo[a]pyrene	indus. soil	50-32-8	5.3E+02	2.6E+01	1.5E+03	7.7E+01	2.3E+01
benzo[ghi]perylene	indus. soil	191-24-2	2.4E+02	4.3E+01	7.8E+02	1.5E+02	8.3E+00
benzo[k]fluoranthrene	indus. soil	207-08-9	2.0E+04	7.7E+03	6.8E+04	2.3E+04	3.9E+02
benzylchloride	indus. soil	100-44-7	3.2E+00	2.9E-01	4.7E-01	4.5E-02	7.1E-01
beryllium	indus. soil	7440-41-7	2.1E+04	4.1E+04	2.4E+04	2.4E+04	1.7E+03
bifenthrin	indus. soil	82657-04-3	4.1E+02	4.5E-01	1.2E+03	1.7E+00	8.3E+01
Butylbenzylphtalate	indus. soil	85-68-7	1.0E-01	1.2E-04	3.3E-02	2.8E-05	1.0E-02
cadmium	indus. soil	22537-48-0	1.0E+02	1.3E+02	2.6E+02	2.5E+02	2.4E+01
captafol	indus. soil	2425-06-1	8.3E+04	1.2E+04	1.2E+05	1.8E+04	2.2E+01
captan	indus. soil	133-06-2	4.7E+00	8.1E-04	4.1E-02	9.9E-06	1.2E-01
carbaryl	indus. soil	63-25-2	1.2E+02	4.0E-02	3.6E+01	3.5E-03	1.4E-01
carbendazim	indus. soil	10605-21-7	6.1E+03	9.3E+01	6.2E+03	1.4E+02	3.8E+01
carbofuran	indus. soil	1563-66-2	1.8E+03	6.2E+00	1.1E+03	6.6E+00	5.9E+00
carbon disulfide	indus. soil	75-15-0	3.4E-01	1.4E+00	2.8E-01	7.9E-01	1.6E+00
Carcinogenic PAHs	indus. soil		2.3E+02	4.8E+01	7.5E+02	1.6E+02	6.3E+00
chlordane	indus. soil	57-74-9	3.7E+02	1.2E+02	3.8E+01	3.3E+00	7.3E+01
chlorfenvinphos	indus. soil	470-90-6	5.9E+01	3.1E-01	5.0E+01	3.7E-01	1.2E+00
chloridazon	indus. soil	1698-60-8	3.9E+00	1.8E-01	3.1E+00	2.2E-01	6.8E-01
chlorobenzene	indus. soil	108-90-7	3.2E-03	8.3E-02	3.0E-03	3.7E-02	1.2E-01
chlorothalonil	indus. soil	1897-45-6	3.7E+00	6.0E+00	2.6E+00	1.7E+00	6.1E-01
chlorpropham	indus. soil	101-21-3	6.4E+00	3.0E-02	5.5E+00	3.8E-02	1.2E-01
chlorpyrifos	indus. soil	2921-88-2	1.4E+03	5.8E-01	9.3E+02	5.8E-02	1.7E+01
chromium III	indus. soil	16056-83-1	2.7E-02	3.1E-02	6.9E-02	6.5E-02	3.6E+01
chromium VI	indus. soil	18540-29-9	1.1E-01	1.2E-01	2.8E-01	2.6E-01	3.6E+01
chrysene	indus. soil	218-01-9	2.9E+02	4.7E+01	9.3E+02	1.6E+02	4.5E+00
cobalt	indus. soil	7440-48-4	7.3E+02	1.4E+03	1.2E+03	1.2E+03	9.9E+01
copper	indus. soil	15158-11-9	5.5E+01	8.3E+01	1.4E+02	1.4E+02	1.5E+00
coumaphos	indus. soil	56-72-4	3.1E+06	4.6E+05	4.4E+06	6.7E+05	1.2E+04
cyanazine	indus. soil	21725-46-2	3.0E+03	1.0E+01	2.3E+03	1.4E+01	6.3E+01
cypermethrin	indus. soil	52315-07-8	6.9E+05	1.0E+03	1.3E+06	2.8E+03	7.8E+04

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
cyromazine	indus. soil	66215-27-8	6.5E+03	2.5E+02	5.2E+03	3.5E+02	6.3E+02
DDT	indus. soil	50-29-3	3.4E+02	1.7E+02	3.7E+02	5.3E+01	5.9E+01
deltamethrin	indus. soil	52918-63-5	9.6E+01	2.4E-01	1.5E+02	4.7E-01	8.5E+00
demeton	indus. soil	8065-48-3	2.6E+03	1.1E+01	1.8E+03	1.5E+01	4.9E+01
desmetryn	indus. soil	1014-69-3	1.1E+01	8.8E-02	6.6E+00	8.8E-02	2.6E+00
Di(2-ethylhexyl)phthalate	indus. soil	117-81-7	6.0E-03	6.2E-05	7.9E-03	4.4E-05	1.4E-03
diazinon	indus. soil	333-41-5	4.6E+03	2.7E+01	3.3E+03	2.6E+01	1.0E+01
Dibutylphthalate	indus. soil	84-74-2	3.1E-01	4.8E-04	4.1E-02	4.5E-05	2.3E-02
Dichloromethane	indus. soil	75-09-2	1.6E-04	2.5E-03	1.1E-04	9.2E-04	2.5E-04
dichlorprop	indus. soil	120-36-5	5.1E-02	1.4E-04	2.7E-02	7.4E-05	1.4E-03
dichlorvos	indus. soil	62-73-7	3.0E+02	1.6E-01	1.3E+01	1.1E-02	2.0E+02
dieldrin	indus. soil	60-57-1	2.3E+03	3.1E+02	2.4E+02	1.1E+01	1.0E+02
Diethylphthalate	indus. soil	84-66-2	6.3E-01	2.8E-03	4.1E-01	2.2E-03	2.1E+00
Dihexylphthalate	indus. soil	84-75-3	7.4E-02	1.7E-03	1.8E-01	3.2E-03	7.3E-03
Diisodecylphthalate	indus. soil	26761-40-0	1.8E-02	3.4E-03	4.1E-02	5.4E-03	4.0E-03
Diisooctylphthalate	indus. soil	27554-26-3	2.5E-03	2.6E-04	5.5E-03	4.1E-04	5.5E-04
dimethoate	indus. soil	60-51-5	2.8E+01	1.2E-01	2.0E+01	1.5E-01	6.2E-01
Dimethylphthalate	indus. soil	133-11-3	2.9E-02	3.8E-05	7.5E-03	9.1E-06	1.4E+00
dinoseb	indus. soil	88-85-7	5.8E+04	1.1E+03	1.6E+04	4.3E+02	4.2E+02
dinoterb	indus. soil	1420-07-1	1.3E+03	3.6E+01	5.9E+02	1.3E+01	9.9E+00
Diocetylphthalate	indus. soil	117-84-0	1.7E-04	5.2E-06	2.8E-04	5.1E-06	4.8E-05
disulfothon	indus. soil	298-04-4	2.9E+02	5.6E-01	9.9E+01	1.6E-01	1.1E+01
diuron	indus. soil	330-54-1	1.1E+03	6.8E+00	1.1E+03	9.8E+00	1.9E+01
DNOC	indus. soil	534-52-1	4.5E+00	1.4E-02	7.5E-01	3.3E-03	4.9E-01
endosulfan	indus. soil	115-29-7	9.0E+00	5.5E-03	1.9E+00	3.6E-04	2.8E+00
endrin	indus. soil	72-20-8	7.1E+04	3.5E+04	2.2E+04	2.5E+03	3.6E+03
ethoprophos	indus. soil	13194-48-4	3.0E+04	7.2E+02	2.4E+04	9.7E+02	1.9E+02
Ethylbenzene	indus. soil	100-41-4	1.8E-03	4.1E-04	1.2E-03	3.2E-04	1.9E-03
Ethylene	indus. soil	74-85-1	1.1E-09	7.8E-11	7.1E-10	7.1E-11	2.3E-09
fenitrothion	indus. soil	122-14-5	3.0E+03	8.9E+00	1.7E+03	4.5E+00	8.1E+01
fenthion	indus. soil	55-38-9	1.4E+04	5.7E+01	9.9E+03	3.9E+01	2.8E+02
fentin acetate	indus. soil	900-95-8	1.5E+03	2.7E+01	2.5E+03	7.2E+01	1.1E+01
fentin chloride	indus. soil	639-58-7	9.9E+02	3.7E+02	1.6E+03	4.7E+02	1.1E+01
fentin hydroxide	indus. soil	76-87-9	1.5E+03	2.4E+01	2.5E+03	6.5E+01	1.1E+01
fluoranthrene	indus. soil	206-44-0	7.6E+01	5.3E+00	2.3E+02	1.7E+01	2.3E+00
folpet	indus. soil	133-07-3	1.3E+04	2.1E+03	1.8E+04	2.7E+03	7.8E+01
Formaldehyde	indus. soil	50-00-0	4.4E+01	5.5E-02	2.4E+01	5.5E-02	4.4E+00
glyphosate	indus. soil	1071-83-6	3.7E+00	1.1E-02	3.6E+00	9.9E-03	9.6E-02
heptachlor	indus. soil	76-44-8	8.9E+00	9.5E-02	1.3E+01	7.9E-02	5.3E+00
heptenophos	indus. soil	23560-59-0	1.2E+02	1.0E-01	1.5E+01	2.0E-02	1.6E+01
hexachloro-1,3-butadiene	indus. soil	87-68-3	8.4E+01	3.4E+04	9.7E+01	1.3E+04	4.7E+01
hexachlorobenzene	indus. soil	118-74-1	4.3E+00	9.6E+02	1.4E+01	1.1E+03	3.0E+00
hydrogen chloride	indus. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	indus. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	3.6E+02	6.8E+01	1.2E+03	2.4E+02	1.3E+01
iprodione	indus. soil	36734-19-7	1.9E+00	1.8E-04	1.6E-01	2.9E-06	3.0E-01
isoproturon	indus. soil	34123-59-6	4.0E+02	4.2E+00	1.5E+02	2.7E+00	4.6E+00



Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
lead	indus. soil	14280-50-3	4.9E-02	5.2E-02	1.3E-01	1.2E-01	2.7E-01
lindane	indus. soil	58-89-9	3.7E+02	5.3E+00	9.7E+01	1.1E+00	2.2E+01
linuron	indus. soil	330-55-2	2.4E+03	4.4E+01	2.4E+03	5.7E+01	1.8E+01
malathion	indus. soil	121-75-5	6.5E+02	2.6E+00	3.8E+02	1.5E+00	7.5E-02
MCPA	indus. soil	94-74-6	1.7E+00	2.2E-03	1.1E+00	2.7E-03	8.6E-02
mecoprop	indus. soil	7085-19-0	7.8E+01	1.4E-01	5.3E+01	1.8E-01	3.3E+00
mercury	indus. soil	14302-87-5	1.0E+02	2.3E+02	2.6E+02	4.1E+02	7.4E+03
metamitron	indus. soil	41394-05-2	1.5E+00	4.1E-03	7.9E-01	3.2E-03	3.8E-02
metazachlor	indus. soil	67129-08-2	1.4E+01	1.1E-01	9.8E+00	1.4E-01	1.5E-01
methabenzthiazuron	indus. soil	18691-97-9	1.4E+02	3.2E+00	1.5E+02	4.7E+00	8.8E-01
methomyl	indus. soil	16752-77-5	2.8E+04	8.9E+02	2.1E+04	1.1E+03	2.2E+02
methylbromide	indus. soil	74-83-9	1.4E-01	3.1E+00	7.3E-02	8.3E-01	3.7E-01
methyl-mercury	indus. soil	22967-92-6	2.4E+03	5.2E+03	6.1E+03	9.5E+03	7.4E+03
metobromuron	indus. soil	3060-89-7	9.5E+01	1.4E+01	9.2E+01	1.6E+01	2.2E+00
metolachlor	indus. soil	51218-45-2	5.8E+03	9.1E+01	5.2E+03	1.3E+02	4.1E-01
mevinphos	indus. soil	7786-34-7	1.5E+03	1.4E+00	1.8E+02	1.6E-01	9.0E+01
molybdenum	indus. soil	7439-98-7	7.4E+00	1.3E+01	1.6E+01	1.6E+01	1.1E+00
meta-Xylene	indus. soil	108-38-3	1.9E-03	2.5E-04	1.2E-03	2.3E-04	3.0E-03
Naphtalene	indus. soil	91-20-3	1.2E+01	1.9E-01	4.9E+00	6.7E-02	2.6E+00
nickel	indus. soil	7440-02-0	1.0E+02	1.8E+02	2.6E+02	2.5E+02	1.6E+01
nitrogen dioxide	indus. soil	10102-44-0	x	x	x	x	x
oxamyl	indus. soil	23135-22-0	1.2E+02	3.4E-02	5.5E+01	9.9E-03	6.0E+00
oxydemethon-methyl	indus. soil	301-12-2	3.6E+03	7.3E+00	8.1E+02	3.0E+00	8.5E+01
ortho-Xylene	indus. soil	95-47-6	2.5E-03	5.5E-04	2.0E-03	6.0E-04	3.4E-03
parathion-ethyl	indus. soil	56-38-2	1.9E+03	9.2E+00	1.3E+03	3.8E+00	1.7E+01
parathion-methyl	indus. soil	298-00-0	4.4E+03	2.3E+01	2.6E+02	9.8E-01	7.9E+01
pentachlorobenzene	indus. soil	608-93-5	1.1E+00	5.4E+01	1.6E+00	2.7E+01	1.7E+00
pentachloronitrobenzene	indus. soil	82-68-8	5.8E+01	1.2E+02	1.7E+01	8.8E+00	2.6E+00
pentachlorophenol	indus. soil	87-86-5	1.3E+00	2.7E-02	3.0E+00	4.9E-02	4.8E+00
permethrin	indus. soil	52645-53-1	3.7E+03	2.2E+01	4.8E+03	1.7E+01	2.5E+02
phenanthrene	indus. soil	85-01-8	1.2E+00	3.5E-02	1.3E+00	2.8E-02	3.7E-02
Phenol	indus. soil	108-95-2	1.3E+01	6.1E-03	4.7E+00	4.0E-03	4.1E-02
phoxim	indus. soil	14816-18-3	7.9E+00	5.5E-01	1.3E+00	7.2E-02	3.8E+00
Phtalic anhydride	indus. soil	85-44-9	3.1E-05	1.2E-08	6.3E-08	6.8E-11	4.2E-04
pirimicarb	indus. soil	23103-98-2	5.2E+03	2.3E+01	5.3E+03	3.5E+01	9.4E+01
dust (PM10)	indus. soil	PM10	x	x	x	x	x
propachlor	indus. soil	1918-16-7	6.4E+01	1.6E-01	3.4E+01	1.5E-01	2.3E+00
propoxur	indus. soil	114-26-1	5.4E+04	1.0E+02	3.8E+04	1.1E+02	1.3E+03
Propylene Oxide	indus. soil	75-56-9	4.8E-01	3.3E-02	2.5E-01	1.8E-02	1.2E-01
para-Xylene	indus. soil	106-42-3	1.4E-03	3.2E-04	8.7E-04	2.0E-04	1.5E-03
pyrazophos	indus. soil	13457-18-6	9.9E+02	2.6E+00	9.0E+02	2.5E+00	2.9E+01
selenium	indus. soil	7782-49-2	9.9E+02	2.1E+03	1.2E+03	1.2E+03	7.5E+01
simazine	indus. soil	122-34-9	5.6E+03	3.1E+01	4.8E+03	4.6E+01	2.1E+01

Substance	Comp.	CAS number	FAETP (100 yr) (kg 1,4-DCB eq./kg)	MAETP (100 yr) (kg 1,4-DCB eq./kg)	FSETP (100 yr) (kg 1,4-DCB eq./kg)	MSETP (100 yr) (kg 1,4-DCB eq./kg)	TETP (100 yr) (kg 1,4-DCB eq./kg)
styrene	indus. soil	100-42-5	2.6E-03	1.8E-04	1.8E-03	1.3E-04	1.2E-03
sulphur dioxide	indus. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	indus. soil	127-18-4	2.2E-03	3.1E-01	2.1E-03	1.1E-01	3.0E-01
Tetrachloromethane	indus. soil	56-23-5	5.6E-04	1.1E+00	3.2E-04	3.0E-01	2.1E-03
thallium	indus. soil	7440-28-0	2.8E+02	5.1E+02	7.1E+02	6.7E+02	4.9E+01
Thiram	indus. soil	137-26-8	4.4E+03	4.2E+00	1.6E+03	3.6E-01	8.1E+01
tin	indus. soil	7440-31-5	5.2E-02	5.8E-02	2.6E-02	2.5E-02	2.5E-01
tolclophos-methyl	indus. soil	57018-04-9	9.2E+00	3.9E-01	9.9E+00	4.4E-01	1.5E+00
Toluene	indus. soil	108-88-3	1.1E-03	4.5E-04	7.5E-04	3.7E-04	1.9E-02
tri-allate	indus. soil	2303-17-5	2.0E+02	3.4E+00	7.0E+01	9.3E-01	1.3E+00
triazophos	indus. soil	24017-47-8	1.9E+04	1.7E+02	1.8E+04	2.4E+02	2.0E+02
tributyltinoxide	indus. soil	56-35-9	4.2E+03	2.2E+03	5.7E+03	3.0E+03	3.7E+01
trichlorfon	indus. soil	52-68-6	1.8E+04	3.7E+00	3.4E+03	5.6E-01	2.6E+03
Trichloroethylene	indus. soil	79-01-6	4.6E-04	2.5E-03	3.9E-04	1.5E-03	2.1E-03
Trichloromethane	indus. soil	67-66-3	4.7E-04	4.7E-02	2.4E-04	1.3E-02	1.6E-03
trifluarin	indus. soil	1582-09-8	1.6E+02	4.5E+00	1.3E+02	1.9E+00	3.4E+01
vanadium	indus. soil	7440-62-2	3.3E+02	5.7E+02	7.8E+02	7.5E+02	1.0E+02
Vinyl Chloride	indus. soil	75-01-4	6.4E-05	1.3E-04	5.2E-05	1.2E-04	3.1E-04
zinc	indus. soil	23713-49-7	3.0E+00	4.0E+00	7.7E+00	7.4E+00	1.7E+00
zineb	indus. soil	12122-67-7	1.4E+03	1.3E+01	1.1E+03	1.4E+01	1.5E+01
chlormequat-chloride	indus. soil	999-81-5	5.4E+00	3.8E-02	2.2E+00	2.3E-02	6.8E-02
fenpropimorph	indus. soil	67306-03-0	3.2E+01	1.8E-01	3.1E+01	1.8E-01	5.1E-01
fluroxypyr	indus. soil	69377-81-7	1.7E+03	1.1E+01	1.3E+03	1.5E+01	2.3E+01
epoxiconazole	indus. soil	??	1.1E+03	1.7E+02	1.5E+03	2.2E+02	4.6E+00
ethylene oxide	indus. soil	75-21-8	9.8E-01	2.7E-01	6.0E-01	1.4E-01	1.9E-01
hydrogen fluoride	indus. soil	7664-39-3	9.4E+00	3.4E+01	7.6E+00	1.4E+01	6.0E-03

x = not calculated

Source: Huijbregts, 2000; Huijbregts *et al.*, 2000a

Status: Author(s).

Equations: 
$$fresh\ water\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} FAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.6)$$

$$marine\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} MAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.7)$$

$$fresh\ water\ sediment\ ecotoxicity = \sum_i \sum_{ecom} FSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.8)$$

$$marine\ sediment\ ecotoxicity = \sum_i \sum_{ecom} MSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.9)$$

$$terrestrial\ ecotoxicity = \sum_i \sum_{ecom} TETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.10)$$

The five indicator results are expressed in kg 1,4-dichlorobenzene equivalent.  $FAETP_{ecom,i}$  is the characterisation factor for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $FAETP$  is the Fresh water Aquatic EcoToxicity Potential,  $MAETP$  is the Marine Aquatic EcoToxicity Potential,  $FSETP$  is the Fresh water Sediment EcoToxicity Potential,  $MSETP$  is the Marine Sediment EcoToxicity Potential,  $TETP$  is the Terrestrial EcoToxicity Potential, and  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ . The five indicator scores can only be added after



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weighting (see Part 2a, Section 4.3.8).

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU. Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.

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Table 4.3.8.3: Alternative FAETP, MAETP, FSETP, MSETP and TETP factors for characterising ecotoxic releases, for 20-year time horizon and global scale.

Substance	Comp.	CAS number	FAETP (20 yr) (kg 1,4-DCB eq./kg)	MAETP (20 yr) (kg 1,4-DCB eq./kg)	FSETP (20 yr) (kg 1,4-DCB eq./kg)	MSETP (20 yr) (kg 1,4-DCB eq./kg)	TETP (20 yr) (kg 1,4-DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	1.2E-04 <sup>1</sup>	3.0E-01	1.0E-04	1.0E-01	1.8E-04
1,2,3,4-tetrachlorobenzene	air	634-66-2	1.0E-01	1.7E+01	1.2E-01	6.9E+00	9.9E-03
1,2,3,5-tetrachlorobenzene	air	634-90-2	7.3E-02	1.8E+01	8.1E-02	7.0E+00	1.8E-01
1,2,3-trichlorobenzene	air	87-61-6	8.5E-03	2.1E+00	9.3E-03	8.5E-01	7.5E-02
1,2,4,5-tetrachlorobenzene	air	95-94-3	7.3E-02	1.5E+01	8.5E-02	6.1E+00	2.4E-01
1,2,4-trichlorobenzene	air	120-82-1	9.9E-03	2.0E+00	1.1E-02	8.4E-01	8.8E-03
1,2-dichlorobenzene	air	95-50-1	2.9E-03	6.7E-01	2.7E-03	2.8E-01	5.3E-04
1,2-dichloroethane	air	107-06-2	1.2E-04	8.1E-02	1.0E-04	3.1E-02	2.6E-05
1,3,5-trichlorobenzene	air	108-70-3	1.6E-02	3.0E+00	1.7E-02	1.3E+00	1.9E-03
1,3-Butadiene	air	106-99-0	3.3E-07	2.7E-06	2.2E-07	3.0E-06	2.3E-08
1,3-dichlorobenzene	air	541-73-1	2.4E-03	4.6E-01	2.2E-03	2.0E-01	4.4E-04
1,4-dichlorobenzene	air	106-46-7	2.4E-03	7.4E-01	2.4E-03	2.9E-01	1.2E-02
1-chloro-4-nitrobenzene	air	100-00-5	1.1E+01	3.9E+02	1.0E+01	2.4E+02	5.3E-01
2,3,4,6-tetrachlorophenol	air	58-90-2	8.0E+01	1.3E+02	8.7E+01	1.1E+02	3.1E-01
2,3,7,8-TCDD	air	1746-01-6	2.1E+06	2.6E+08	6.6E+06	7.1E+08	1.2E+04
2,4,5-T	air	93-76-5	8.5E-01	2.0E-01	6.1E-01	2.5E-01	3.2E-01
2,4,5-trichlorophenol	air	95-95-4	1.5E+01	5.3E+01	1.7E+01	4.8E+01	2.4E-01
2,4,6-trichlorophenol	air	88-06-2	5.9E+00	3.9E+00	5.7E+00	4.3E+00	3.2E-01
2,4-D	air	94-75-7	3.9E+01	5.3E+00	2.9E+01	7.3E+00	6.0E-01
2,4-dichlorophenol	air	120-83-2	1.4E+00	1.3E+00	5.5E-01	5.2E-01	3.0E-02
2-chlorophenol	air	95-57-8	1.3E+01	1.2E+01	1.0E+01	1.3E+01	5.3E-02
3,4-dichloroaniline	air	95-76-1	1.7E+03	1.7E+03	2.1E+03	2.1E+03	8.7E+00
3-chloroaniline	air	108-42-9	1.0E+02	2.3E+01	9.3E+01	3.2E+01	4.7E-01
4-chloroaniline	air	106-47-8	2.0E+00	1.7E+00	1.8E+00	2.3E+00	1.6E-02
acephate	air	30560-19-1	7.9E+01	1.9E+01	4.0E+01	1.8E+01	6.9E-01
Acrolein	air	107-02-8	5.2E+02	5.7E+02	3.9E+02	7.5E+02	1.6E+01
Acrylonitrile	air	107-13-1	4.1E-01	9.1E-01	2.7E-01	7.7E-01	8.0E-03
aldicarb	air	116-06-3	5.1E+04	8.2E+03	4.1E+04	1.2E+04	2.0E+03
aldrin	air	309-00-2	2.7E+00	6.1E+01	2.4E-01	5.4E+00	1.4E-02
ammonia	air	7664-41-7	x	x	x	x	x
anilazine	air	101-05-3	1.4E+01	8.3E+00	8.8E-01	3.4E-01	9.2E-02
anthracene	air	120-12-7	1.4E+02	1.7E+03	1.9E+02	2.1E+03	3.2E-02
antimony	air	7440-36-0	3.4E-01	1.3E+01	8.2E-01	2.0E+01	3.2E-02
arsenic	air	7440-38-2	2.0E+00	2.1E+02	5.2E+00	3.4E+02	3.5E+00
atrazine	air	1912-24-9	3.6E+02	2.8E+02	3.1E+02	3.1E+02	2.0E+00
azinphos-ethyl	air	2642-71-9	2.9E+02	1.6E+02	2.1E+02	1.3E+02	2.4E+00
azinphos-methyl	air	86-50-0	4.2E+02	2.0E+02	2.2E+02	5.7E+01	1.9E-01
barium	air	7440-39-3	4.9E+00	1.1E+02	1.1E+01	1.6E+02	3.6E-01
benomyl	air	17804-35-2	3.0E+01	2.1E+01	3.9E+00	1.8E+00	4.7E-01
bentazone	air	25057-89-0	5.6E+00	6.2E-01	4.5E+00	9.4E-01	2.5E-01
Benzene	air	71-43-2	8.4E-05	2.8E-03	6.4E-05	1.3E-03	1.6E-05
benzo[a]anthracene	air	56-55-3	4.2E+01	1.0E+03	1.3E+02	3.4E+03	2.3E-01
benzo[a]pyrene	air	50-32-8	8.8E+01	1.4E+03	2.5E+02	4.1E+03	2.4E-01
benzo[ghi]perylene	air	191-24-2	4.2E+01	1.5E+03	1.4E+02	5.4E+03	2.0E-01
benzo[k]fluoranthrene	air	207-08-9	3.5E+03	9.5E+04	1.1E+04	3.0E+05	2.6E+01
benzylchloride	air	100-44-7	7.6E-01	2.1E+00	1.1E-01	3.3E-01	1.7E-03
beryllium	air	7440-41-7	2.6E+03	4.2E+04	3.0E+03	3.0E+04	2.0E+02

<sup>1</sup> Means  $1.2 \times 10^{-4}$ .

Substance	Comp.	CAS number	FAETP (20 yr) (kg 1,4-DCB eq./kg)	MAETP (20 yr) (kg 1,4-DCB eq./kg)	FSETP (20 yr) (kg 1,4-DCB eq./kg)	MSETP (20 yr) (kg 1,4-DCB eq./kg)	TETP (20 yr) (kg 1,4-DCB eq./kg)
bifenthrin	air	82657-04-3	8.2E+02	1.0E+03	2.4E+03	3.7E+03	8.8E+00
Butylbenzylphthalate	air	85-68-7	4.0E-01	3.2E-01	1.3E-01	7.1E-02	1.3E-03
cadmium	air	22537-48-0	1.9E+01	3.8E+03	4.7E+01	6.7E+03	2.5E+00
captafol	air	2425-06-1	2.0E+04	2.7E+04	2.9E+04	3.9E+04	5.9E+00
captan	air	133-06-2	1.6E+01	1.0E+01	1.4E-01	1.2E-01	2.4E-02
carbaryl	air	63-25-2	1.1E+02	1.2E+01	3.2E+01	1.0E+00	6.3E-02
carbendazim	air	10605-21-7	3.0E+03	7.2E+02	3.0E+03	1.1E+03	2.0E+01
carbofuran	air	1563-66-2	9.0E+02	1.5E+02	5.2E+02	1.6E+02	3.0E+00
carbon disulfide	air	75-15-0	3.3E-02	1.5E+00	2.7E-02	8.6E-01	5.1E-03
Carcinogenic PAHs	air		1.7E+02	3.9E+03	5.4E+02	1.3E+04	1.0E+00
chlordane	air	57-74-9	2.7E+02	6.1E+04	2.7E+01	1.6E+03	2.2E+00
chlorfenvinphos	air	470-90-6	3.2E+01	1.1E+01	2.7E+01	1.3E+01	4.9E-01
chloridazon	air	1698-60-8	2.6E-02	2.2E-01	2.0E-02	2.6E-01	4.6E-04
chlorobenzene	air	108-90-7	4.7E-04	1.1E-01	4.4E-04	5.0E-02	7.3E-04
chlorothalonil	air	1897-45-6	2.5E+00	5.1E+01	1.8E+00	1.5E+01	7.1E-03
chlorpropham	air	101-21-3	2.3E+00	6.4E-01	2.0E+00	8.1E-01	3.7E-02
chlorpyrifos	air	2921-88-2	5.2E+02	6.2E+01	3.3E+02	6.0E+00	1.3E-01
chromium III	air	16056-83-1	6.3E-02	1.8E+01	1.6E-01	3.3E+01	4.1E+00
chromium VI	air	18540-29-9	2.5E-01	7.3E+01	6.4E-01	1.3E+02	4.1E+00
chrysene	air	218-01-9	3.9E+01	4.0E+02	1.3E+02	1.3E+03	2.1E-01
cobalt	air	7440-48-4	8.4E+01	2.3E+03	1.4E+02	2.5E+03	1.2E+01
copper	air	15158-11-9	1.3E+01	2.3E+03	3.3E+01	3.9E+03	1.5E-01
coumaphos	air	56-72-4	2.4E+05	3.3E+05	3.5E+05	4.8E+05	1.0E+03
cyanazine	air	21725-46-2	1.9E+03	6.3E+02	1.5E+03	8.1E+02	3.1E+01
cypermethrin	air	52315-07-8	8.4E+04	1.9E+04	1.5E+05	4.9E+04	8.9E+03
cyromazine	air	66215-27-8	3.5E+03	9.2E+02	2.8E+03	1.3E+03	3.1E+02
DDT	air	50-29-3	3.1E+02	8.5E+04	3.3E+02	2.5E+04	1.4E+01
deltamethrin	air	52918-63-5	1.8E+03	3.5E+03	2.7E+03	6.8E+03	7.6E-01
demeton	air	8065-48-3	2.3E+01	9.1E+00	1.6E+01	1.1E+01	3.0E-01
desmetryn	air	1014-69-3	6.8E+00	2.6E+00	4.1E+00	2.6E+00	1.2E+00
Di(2-ethylhexyl)phthalate	air	117-81-7	3.5E-01	2.4E+00	4.7E-01	1.7E+00	2.2E-04
diazinon	air	333-41-5	2.3E+02	1.2E+02	1.6E+02	1.1E+02	2.9E-01
Dibutylphthalate	air	84-74-2	5.6E-01	4.4E-01	7.3E-02	3.8E-02	3.9E-03
Dichloromethane	air	75-09-2	3.3E-05	3.8E-03	2.4E-05	1.4E-03	4.3E-06
dichlorprop	air	120-36-5	9.9E-02	6.2E-02	5.3E-02	3.2E-02	6.8E-04
dichlorvos	air	62-73-7	5.1E+02	4.1E+02	2.3E+01	2.7E+01	9.8E+00
dieldrin	air	60-57-1	2.0E+02	5.2E+03	2.0E+01	1.7E+02	1.1E+00
Diethylphthalate	air	84-66-2	4.2E-01	3.4E-01	2.8E-01	2.3E-01	5.3E-01
Dihexylphthalate	air	84-75-3	5.0E-01	1.7E+00	1.2E+00	3.2E+00	7.8E-04
Diisodecylphthalate	air	26761-40-0	5.6E-01	4.7E+00	1.2E+00	7.5E+00	9.2E-04
Diisooctylphthalate	air	27554-26-3	1.2E-01	3.6E+00	2.8E-01	5.6E+00	1.1E-04
dimethoate	air	60-51-5	1.3E+01	1.6E+00	9.3E+00	2.0E+00	3.0E-01
Dimethylphthalate	air	133-11-3	5.2E-02	2.7E-02	1.3E-02	6.2E-03	6.4E-01
dinoseb	air	88-85-7	1.0E+04	4.6E+03	2.9E+03	1.5E+03	9.7E+01
dinoterb	air	1420-07-1	2.9E+03	7.3E+03	1.3E+03	2.1E+03	3.4E+00
Diocetylphthalate	air	117-84-0	1.6E-02	5.4E-01	2.7E-02	5.2E-01	9.8E-06
disulfothon	air	298-04-4	2.7E+01	2.0E+01	9.2E+00	5.7E+00	4.3E-02
diuron	air	330-54-1	5.3E+02	1.1E+02	5.0E+02	1.6E+02	8.7E+00
DNOC	air	534-52-1	3.4E+00	1.3E+00	5.7E-01	3.0E-01	2.4E-01
endosulfan	air	115-29-7	4.5E+01	1.9E+01	9.8E+00	1.2E+00	3.6E-02
endrin	air	72-20-8	9.0E+02	3.7E+04	2.7E+02	2.8E+03	3.5E+01
ethoprophos	air	13194-48-4	2.4E+03	7.1E+02	1.9E+03	9.3E+02	1.7E+01
Ethylbenzene	air	100-41-4	1.3E-04	8.0E-04	8.7E-05	6.1E-04	1.4E-06
Ethylene	air	74-85-1	1.4E-11	7.9E-11	9.0E-12	7.1E-11	1.3E-12

Substance	Comp.	CAS number	FAETP (20 yr) (kg 1,4-DCB eq./kg)	MAETP (20 yr) (kg 1,4-DCB eq./kg)	FSETP (20 yr) (kg 1,4-DCB eq./kg)	MSETP (20 yr) (kg 1,4-DCB eq./kg)	TETP (20 yr) (kg 1,4-DCB eq./kg)
fenitrothion	air	122-14-5	2.5E+03	1.5E+03	1.4E+03	7.5E+02	2.1E+01
fenthion	air	55-38-9	2.5E+03	1.6E+03	1.8E+03	1.1E+03	1.6E+01
fentin acetate	air	900-95-8	4.3E+03	2.1E+04	6.9E+03	5.3E+04	5.3E+00
fentin chloride	air	639-58-7	1.8E+03	4.7E+04	3.0E+03	5.7E+04	2.6E-01
fentin hydroxide	air	76-87-9	4.2E+03	2.0E+04	6.8E+03	5.1E+04	5.5E+00
fluoranthrene	air	206-44-0	1.8E+01	2.0E+02	5.3E+01	6.1E+02	1.8E-02
folpet	air	133-07-3	4.1E+02	2.2E+03	5.6E+02	2.7E+03	1.7E+00
Formaldehyde	air	50-00-0	8.3E+00	1.6E+00	4.5E+00	1.5E+00	9.4E-01
glyphosate	air	1071-83-6	2.2E+01	1.7E+01	2.1E+01	1.5E+01	4.7E-02
heptachlor	air	76-44-8	1.4E+00	2.9E+00	2.0E+00	2.4E+00	8.8E-04
heptenophos	air	23560-59-0	1.2E+02	7.8E+01	1.5E+01	1.5E+01	2.2E+00
hexachloro-1,3-butadiene	air	87-68-3	4.6E+01	7.7E+04	5.4E+01	2.9E+04	4.2E+00
hexachlorobenzene	air	118-74-1	1.3E+00	2.0E+03	4.1E+00	2.2E+03	1.4E-01
hydrogen chloride	air	7647-01-0	x	x	x	x	x
hydrogen sulfide	air	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	air	193-39-5	1.7E+02	6.7E+03	5.1E+02	2.3E+04	7.9E-01
iprodione	air	36734-19-7	2.8E+00	3.2E-01	2.3E-01	5.2E-03	1.1E-01
isoproturon	air	34123-59-6	1.9E+02	3.2E+01	7.1E+01	2.0E+01	2.5E+00
lead	air	14280-50-3	8.8E-02	2.6E+01	2.2E-01	4.9E+01	2.9E-02
lindane	air	58-89-9	5.2E+01	5.2E+01	1.4E+01	9.2E+00	1.8E+00
linuron	air	330-55-2	4.0E+01	2.7E+01	3.9E+01	3.5E+01	2.0E-01
malathion	air	121-75-5	1.8E+03	1.4E+03	1.1E+03	7.8E+02	2.0E-02
MCPA	air	94-74-6	1.1E+00	2.8E-01	7.0E-01	3.5E-01	4.3E-02
mecoprop	air	7085-19-0	3.7E+01	4.1E+00	2.5E+01	5.3E+00	1.8E+00
mercury	air	14302-87-5	2.5E+01	4.6E+03	6.3E+01	9.1E+03	6.7E+02
metamitron	air	41394-05-2	9.3E-01	2.5E-01	4.9E-01	1.9E-01	1.9E-02
metazachlor	air	67129-08-2	7.4E+00	2.2E+00	5.3E+00	2.6E+00	7.4E-02
methabenzthiazuron	air	18691-97-9	7.0E+01	2.5E+01	7.6E+01	3.7E+01	4.5E-01
methomyl	air	16752-77-5	1.4E+04	3.9E+03	1.0E+04	5.0E+03	1.2E+02
methylbromide	air	74-83-9	3.3E-02	4.1E+00	1.7E-02	1.1E+00	1.3E-02
methyl-mercury	air	22967-92-6	5.8E+02	1.1E+05	1.5E+03	2.1E+05	6.7E+02
metobromuron	air	3060-89-7	4.9E+01	4.1E+01	4.8E+01	4.7E+01	9.9E-01
metolachlor	air	51218-45-2	1.5E+03	3.8E+02	1.3E+03	5.2E+02	1.1E-01
mevinphos	air	7786-34-7	9.3E+03	5.4E+03	1.2E+03	6.0E+02	4.3E+01
molybdenum	air	7439-98-7	5.4E+00	2.2E+02	1.2E+01	3.1E+02	1.1E-01
meta-Xylene	air	108-38-3	4.4E-05	3.9E-04	2.8E-05	3.5E-04	6.5E-07
Naphtalene	air	91-20-3	5.0E-01	9.1E-01	1.9E-01	3.2E-01	8.2E-04
nickel	air	7440-02-0	3.7E+01	3.0E+03	9.4E+01	4.9E+03	1.6E+00
nitrogen dioxide	air	10102-44-0	x	x	x	x	x
oxamyl	air	23135-22-0	5.6E+01	1.4E+00	2.5E+01	4.0E-01	2.9E+00
oxydemethon-methyl	air	301-12-2	2.4E+03	5.0E+02	5.3E+02	2.1E+02	4.1E+01
ortho-Xylene	air	95-47-6	9.3E-05	9.1E-04	7.4E-05	9.9E-04	1.3E-06
parathion-ethyl	air	56-38-2	2.8E+03	3.1E+03	1.9E+03	1.3E+03	1.1E+00
parathion-methyl	air	298-00-0	9.9E+02	7.2E+02	6.0E+01	3.0E+01	5.7E+00
pentachlorobenzene	air	608-93-5	3.7E-01	1.7E+02	5.2E-01	8.6E+01	3.8E-02
pentachloronitrobenzene	air	82-68-8	4.7E+01	5.8E+03	1.3E+01	4.2E+02	1.1E-01
pentachlorophenol	air	87-86-5	1.1E+01	4.0E+01	2.4E+01	6.9E+01	2.3E+00
permethrin	air	52645-53-1	1.6E+04	3.1E+04	2.1E+04	2.3E+04	2.6E+01
phenanthrene	air	85-01-8	1.3E+00	7.3E+00	1.4E+00	5.4E+00	1.4E-04
Phenol	air	108-95-2	1.5E+00	5.5E-01	5.6E-01	3.6E-01	3.3E-03
phoxim	air	14816-18-3	4.4E-01	1.6E+00	7.1E-02	2.1E-01	1.7E-02
Phtalic anhydride	air	85-44-9	8.2E-03	8.5E-03	1.7E-05	4.9E-05	5.1E-04
pirimicarb	air	23103-98-2	2.4E+03	4.1E+02	2.4E+03	6.2E+02	4.6E+01

Substance	Comp.	CAS number	FAETP (20 yr) (kg 1,4-DCB eq./kg)	MAETP (20 yr) (kg 1,4-DCB eq./kg)	FSETP (20 yr) (kg 1,4-DCB eq./kg)	MSETP (20 yr) (kg 1,4-DCB eq./kg)	TETP (20 yr) (kg 1,4-DCB eq./kg)
dust (PM10)	air	PM10	x	x	x	x	x
propachlor	air	1918-16-7	2.0E+01	7.1E+00	1.1E+01	6.5E+00	5.4E-01
propoxur	air	114-26-1	2.5E+04	1.8E+03	1.8E+04	1.8E+03	7.0E+02
Propylene Oxide	air	75-56-9	3.7E-02	1.2E-01	2.0E-02	6.4E-02	1.5E-03
para-Xylene	air	106-42-3	6.1E-05	6.1E-04	3.7E-05	3.8E-04	5.3E-07
pyrazophos	air	13457-18-6	1.8E+02	9.4E+01	1.7E+02	8.9E+01	2.3E+00
selenium	air	7782-49-2	1.3E+02	1.3E+03	1.5E+02	9.3E+02	1.1E+01
simazine	air	122-34-9	2.1E+03	2.8E+02	1.8E+03	4.1E+02	8.8E+00
styrene	air	100-42-5	5.1E-05	5.1E-04	3.5E-05	3.6E-04	1.4E-07
sulphur dioxide	air	7446-09-5	x	x	x	x	x
Tetrachloroethylene	air	127-18-4	4.1E-04	3.4E-01	3.9E-04	1.2E-01	8.1E-03
Tetrachloromethane	air	56-23-5	2.5E-04	1.2E+00	1.4E-04	3.1E-01	4.7E-04
thallium	air	7440-28-0	1.0E+02	4.0E+03	2.5E+02	6.3E+03	4.9E+00
Thiram	air	137-26-8	2.7E+03	2.2E+02	9.8E+02	1.8E+01	3.2E+01
tin	air	7440-31-5	9.3E-02	2.7E+01	4.7E-02	1.0E+01	2.6E-02
tolclophos-methyl	air	57018-04-9	1.5E-01	1.4E+00	1.6E-01	1.6E+00	3.4E-04
Toluene	air	108-88-3	7.0E-05	7.0E-04	5.0E-05	5.8E-04	1.6E-05
tri-allate	air	2303-17-5	6.1E+01	1.5E+02	2.2E+01	3.9E+01	6.9E-03
triazophos	air	24017-47-8	3.3E+03	8.5E+02	3.0E+03	1.2E+03	3.4E+01
tributyltinoxide	air	56-35-9	7.7E+03	3.1E+05	1.0E+04	3.9E+05	1.7E+01
trichlorfon	air	52-68-6	1.3E+04	1.8E+03	2.4E+03	2.7E+02	1.2E+03
Trichloroethylene	air	79-01-6	3.8E-05	2.7E-03	3.2E-05	1.7E-03	4.7E-06
Trichloromethane	air	67-66-3	9.5E-05	5.9E-02	4.9E-05	1.6E-02	4.0E-05
trifluarin	air	1582-09-8	9.9E+00	1.0E+02	8.1E+00	4.4E+01	1.7E-02
vanadium	air	7440-62-2	1.1E+02	6.9E+03	2.5E+02	1.1E+04	1.0E+01
Vinyl Chloride	air	75-01-4	2.9E-06	1.3E-04	2.3E-06	1.2E-04	2.6E-07
zinc	air	23713-49-7	9.7E-01	2.2E+02	2.5E+00	3.9E+02	1.7E-01
zineb	air	12122-67-7	9.4E+02	4.1E+02	7.4E+02	4.5E+02	7.2E+00
chlormequat-chloride	air	999-81-5	6.2E+00	3.8E+00	2.6E+00	2.3E+00	3.3E-02
fenpropimorph	air	67306-03-0	9.4E-01	7.3E-01	9.3E-01	7.4E-01	3.5E-03
fluroxypyr	air	69377-81-7	8.2E+02	1.2E+02	6.4E+02	1.7E+02	1.3E+01
epoxiconazole	air	??	1.4E+02	2.1E+02	1.9E+02	2.5E+02	6.9E-01
ethylene oxide	air	75-21-8	9.9E-02	8.5E-01	6.0E-02	4.3E-01	2.5E-03
hydrogen fluoride	air	7664-39-3	4.6E+00	1.0E+01	3.8E+00	7.1E+00	2.9E-03
1,1,1-trichloroethane	fresh water	71-55-6	1.1E-01	3.0E-01	9.0E-02	1.0E-01	1.8E-04
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.6E+01	1.6E+01	1.9E+01	6.7E+00	9.3E-03
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	1.4E+01	1.7E+01	1.6E+01	7.0E+00	1.7E-01
1,2,3-trichlorobenzene	fresh water	87-61-6	4.0E+00	2.1E+00	4.4E+00	8.7E-01	7.3E-02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	1.3E+01	1.4E+01	1.5E+01	5.9E+00	2.3E-01
1,2,4-trichlorobenzene	fresh water	120-82-1	3.5E+00	2.0E+00	3.8E+00	8.6E-01	8.5E-03
1,2-dichlorobenzene	fresh water	95-50-1	1.0E+00	6.6E-01	9.5E-01	2.8E-01	5.2E-04
1,2-dichloroethane	fresh water	107-06-2	2.3E-02	8.1E-02	1.9E-02	3.1E-02	2.6E-05
1,3,5-trichlorobenzene	fresh water	108-70-3	5.0E+00	3.0E+00	5.2E+00	1.3E+00	1.8E-03
1,3-Butadiene	fresh water	106-99-0	3.0E+00	8.7E-03	2.0E+00	9.9E-03	2.1E-08
1,3-dichlorobenzene	fresh water	541-73-1	1.2E+00	4.6E-01	1.2E+00	2.1E-01	4.2E-04
1,4-dichlorobenzene	fresh water	106-46-7	1.0E+00	7.3E-01	1.0E+00	2.9E-01	1.2E-02
1-chloro-4-nitrobenzene	fresh water	100-00-5	8.6E+02	3.7E+02	7.7E+02	2.6E+02	4.4E-01
2,3,4,6-tetrachlorophenol	fresh water	58-90-2	5.2E+03	9.1E+01	5.7E+03	1.0E+02	1.7E-03
2,3,7,8-TCDD	fresh water	1746-01-6	1.7E+08	3.4E+07	5.4E+08	1.2E+08	5.2E+02
2,4,5-T	fresh water	93-76-5	1.7E+01	6.1E-02	1.2E+01	7.6E-02	3.6E-08
2,4,5-trichlorophenol	fresh water	95-95-4	1.6E+03	6.4E+01	1.9E+03	8.1E+01	6.1E-02

Substance	Comp.	CAS number	FAETP (20 yr) (kg 1,4-DCB eq./kg)	MAETP (20 yr) (kg 1,4-DCB eq./kg)	FSETP (20 yr) (kg 1,4-DCB eq./kg)	MSETP (20 yr) (kg 1,4-DCB eq./kg)	TETP (20 yr) (kg 1,4-DCB eq./kg)
2,4,6-trichlorophenol	fresh water	88-06-2	2.9E+02	1.6E+00	2.9E+02	1.9E+00	6.7E-04
2,4-D	fresh water	94-75-7	4.0E+02	2.3E+00	3.0E+02	3.1E+00	9.3E-10
2,4-dichlorophenol	fresh water	120-83-2	1.7E+02	2.5E-01	6.8E+01	1.3E-01	9.6E-04
2-chlorophenol	fresh water	95-57-8	1.6E+03	1.3E+01	1.3E+03	1.7E+01	1.3E-03
3,4-dichloroaniline	fresh water	95-76-1	1.9E+04	2.7E+03	2.4E+04	3.5E+03	7.6E-04
3-chloroaniline	fresh water	108-42-9	2.5E+03	1.1E+01	2.3E+03	1.5E+01	9.4E-06
4-chloroaniline	fresh water	106-47-8	3.1E+03	1.4E+01	2.7E+03	2.0E+01	3.6E-03
acephate	fresh water	30560-19-1	1.1E+03	1.5E+01	5.6E+02	1.4E+01	2.2E-08
Acrolein	fresh water	107-02-8	2.5E+05	1.1E+03	1.9E+05	1.6E+03	5.8E+00
Acrylonitrile	fresh water	107-13-1	7.9E+01	5.4E-01	5.2E+01	5.1E-01	3.9E-03
aldicarb	fresh water	116-06-3	4.4E+05	7.4E+03	3.5E+05	1.1E+04	1.9E-01
aldrin	fresh water	309-00-2	1.2E+04	2.1E+02	1.0E+03	1.9E+01	1.4E-02
ammonia	fresh water	7664-41-7	x	x	x	x	x
anilazine	fresh water	101-05-3	1.1E+03	2.5E-01	7.0E+01	1.0E-02	5.0E-08
anthracene	fresh water	120-12-7	5.7E+04	3.0E+03	8.0E+04	4.1E+03	2.0E-02
antimony	fresh water	7440-36-0	1.9E+01	1.1E+01	4.7E+01	2.0E+01	1.7E-20
arsenic	fresh water	7440-38-2	1.9E+02	9.2E+01	4.9E+02	1.9E+02	1.0E-17
atrazine	fresh water	1912-24-9	5.0E+03	4.8E+02	4.3E+03	5.4E+02	7.6E-04
aziphos-ethyl	fresh water	2642-71-9	2.7E+05	1.0E+03	2.0E+05	7.9E+02	2.1E-02
aziphos-methyl	fresh water	86-50-0	5.2E+04	3.5E+01	2.7E+04	1.0E+01	3.3E-06
barium	fresh water	7440-39-3	2.3E+02	1.4E+02	5.1E+02	2.5E+02	5.1E-19
benomyl	fresh water	17804-35-2	6.8E+03	8.6E+00	8.8E+02	7.5E-01	8.2E-08
bentazone	fresh water	25057-89-0	5.1E+01	2.2E-01	4.1E+01	3.3E-01	1.8E-07
Benzene	fresh water	71-43-2	9.1E-02	2.7E-03	7.0E-02	1.4E-03	1.4E-05
benzo[a]anthracene	fresh water	56-55-3	1.1E+05	8.2E+03	3.5E+05	2.7E+04	1.3E-02
benzo[a]pyrene	fresh water	50-32-8	2.5E+05	1.2E+04	7.2E+05	3.6E+04	2.5E-03
benzo[ghi]perylene	fresh water	191-24-2	5.0E+04	7.7E+03	1.6E+05	2.7E+04	4.0E-04
benzo[k]fluoranthrene	fresh water	207-08-9	1.1E+06	2.9E+05	3.7E+06	9.4E+05	1.5E-01
benzylchloride	fresh water	100-44-7	2.0E+02	1.2E+00	2.9E+01	1.9E-01	8.3E-04
beryllium	fresh water	7440-41-7	9.1E+04	5.9E+04	1.1E+05	5.3E+04	3.3E-16
bifenthrin	fresh water	82657-04-3	2.4E+05	2.1E+02	7.2E+05	8.1E+02	2.1E-02
Butylbenzylphtalate	fresh water	85-68-7	7.6E+01	5.3E-02	2.5E+01	1.3E-02	6.6E-06
cadmium	fresh water	22537-48-0	1.3E+03	4.1E+02	3.4E+03	1.0E+03	1.4E-20
captafol	fresh water	2425-06-1	5.4E+05	7.8E+04	7.7E+05	1.2E+05	1.9E-07
captan	fresh water	133-06-2	2.1E+03	1.0E-01	1.8E+01	1.3E-03	6.2E-08
carbaryl	fresh water	63-25-2	4.5E+03	1.4E+00	1.3E+03	1.3E-01	2.6E-07
carbendazim	fresh water	10605-21-7	3.8E+04	5.8E+02	3.9E+04	8.6E+02	6.3E-08
carbofuran	fresh water	1563-66-2	1.3E+04	4.4E+01	7.6E+03	4.6E+01	3.5E-05
carbon disulfide	fresh water	75-15-0	1.1E+02	1.8E+00	8.6E+01	1.4E+00	4.8E-03
Carcinogenic PAHs	fresh water		2.8E+04	4.6E+03	8.7E+04	1.6E+04	1.9E-03
chlordane	fresh water	57-74-9	9.0E+04	8.9E+03	9.1E+03	2.7E+02	9.6E-02
chlorfenvinphos	fresh water	470-90-6	1.1E+03	5.7E+00	9.4E+02	6.7E+00	4.6E-05
chloridazon	fresh water	1698-60-8	3.1E+01	1.2E+00	2.5E+01	1.5E+00	3.8E-04
chlorobenzene	fresh water	108-90-7	3.6E-01	1.1E-01	3.4E-01	5.5E-02	7.2E-04
chlorothalonil	fresh water	1897-45-6	3.7E+02	4.0E+01	2.6E+02	1.2E+01	5.5E-03
chlorpropham	fresh water	101-21-3	8.3E+01	3.5E-01	7.1E+01	4.5E-01	2.5E-05
chlorpyrifos	fresh water	2921-88-2	6.4E+05	2.4E+02	4.1E+05	2.4E+01	2.1E-02
chromium III	fresh water	16056-83-1	6.0E+00	1.7E+00	1.5E+01	4.5E+00	2.3E-19
chromium VI	fresh water	18540-29-9	2.4E+01	6.6E+00	6.1E+01	1.8E+01	2.3E-19
chrysene	fresh water	218-01-9	1.9E+04	2.8E+03	5.9E+04	9.4E+03	8.1E-03
cobalt	fresh water	7440-48-4	3.3E+03	1.8E+03	5.4E+03	2.4E+03	2.7E-18
copper	fresh water	15158-11-9	1.0E+03	3.7E+02	2.5E+03	8.5E+02	4.1E-21
coumaphos	fresh water	56-72-4	2.0E+07	2.9E+06	2.9E+07	4.3E+06	6.0E+00
cyanazine	fresh water	21725-46-2	5.4E+04	1.9E+02	4.3E+04	2.5E+02	2.2E-06



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cypermethrin	fresh water	52315-07-8	7.9E+06	1.0E+04	1.4E+07	2.7E+04	1.6E+01
cyromazine	fresh water	66215-27-8	2.6E+04	1.0E+03	2.1E+04	1.4E+03	1.9E-06
DDT	fresh water	50-29-3	2.9E+04	4.4E+03	3.1E+04	1.6E+03	2.4E-01
deltamethrin	fresh water	52918-63-5	6.5E+05	9.8E+02	9.8E+05	2.0E+03	3.2E-02
demeton	fresh water	8065-48-3	2.2E+04	9.6E+01	1.6E+04	1.2E+02	1.2E-02
desmetryn	fresh water	1014-69-3	1.9E+02	1.5E+00	1.2E+02	1.6E+00	3.6E-05
Di(2-ethylhexyl)phthalate	fresh water	117-81-7	7.9E+01	3.7E-01	1.0E+02	2.7E-01	6.6E-06
diazinon	fresh water	333-41-5	1.1E+05	6.4E+02	7.7E+04	6.1E+02	4.1E-03
Dibutylphthalate	fresh water	84-74-2	7.9E+01	7.7E-02	1.0E+01	7.5E-03	1.3E-05
Dichloromethane	fresh water	75-09-2	1.2E-02	3.5E-03	8.8E-03	1.3E-03	3.9E-06
dichlorprop	fresh water	120-36-5	5.3E+00	1.5E-02	2.8E+00	7.7E-03	6.1E-12
dichlorvos	fresh water	62-73-7	1.2E+05	1.2E+01	5.5E+03	9.1E-01	1.4E-02
dieldrin	fresh water	60-57-1	7.9E+04	8.9E+03	8.2E+03	3.1E+02	2.6E-01
Diethylphthalate	fresh water	84-66-2	3.4E+01	1.1E-01	2.2E+01	9.4E-02	5.6E-03
Dihexylphthalate	fresh water	84-75-3	1.1E+02	1.2E+00	2.6E+02	2.3E+00	2.6E-04
Diisodecylphthalate	fresh water	26761-40-0	8.6E+01	2.3E+00	1.9E+02	3.8E+00	3.8E-04
Diisooctylphthalate	fresh water	27554-26-3	2.1E+01	4.3E-01	4.7E+01	7.2E-01	6.4E-06
dimethoate	fresh water	60-51-5	1.7E+02	7.5E-01	1.3E+02	9.1E-01	1.2E-05
Dimethylphthalate	fresh water	133-11-3	3.1E+00	1.7E-03	7.9E-01	4.3E-04	3.7E-04
dinoseb	fresh water	88-85-7	3.2E+05	5.9E+03	8.8E+04	2.2E+03	3.4E-01
dinoterb	fresh water	1420-07-1	2.3E+05	5.4E+03	1.0E+05	2.0E+03	1.3E-02
Diocetylphthalate	fresh water	117-84-0	2.8E+00	3.5E-02	4.7E+00	3.6E-02	1.3E-07
disulfothon	fresh water	298-04-4	6.4E+04	1.2E+02	2.2E+04	3.5E+01	1.2E-03
diuron	fresh water	330-54-1	9.4E+03	5.5E+01	8.9E+03	7.8E+01	1.7E-03
DNOC	fresh water	534-52-1	1.1E+02	3.4E-01	1.9E+01	8.0E-02	8.5E-07
endosulfan	fresh water	115-29-7	2.8E+04	1.1E+01	6.0E+03	7.7E-01	1.8E-03
endrin	fresh water	72-20-8	7.0E+05	2.6E+05	2.1E+05	2.0E+04	2.4E-01
ethoprophos	fresh water	13194-48-4	1.5E+05	3.5E+03	1.2E+05	4.8E+03	2.4E-01
Ethylbenzene	fresh water	100-41-4	5.5E-01	1.4E-03	3.6E-01	1.3E-03	1.2E-06
Ethylene	fresh water	74-85-1	2.2E-02	2.8E-05	1.4E-02	3.4E-05	1.1E-12
fenitrothion	fresh water	122-14-5	2.4E+05	6.7E+02	1.4E+05	3.4E+02	4.7E-03
fenthion	fresh water	55-38-9	9.1E+05	3.6E+03	6.6E+05	2.5E+03	8.8E-02
fentin acetate	fresh water	900-95-8	2.7E+05	3.2E+03	4.3E+05	8.7E+03	6.1E-03
fentin chloride	fresh water	639-58-7	1.7E+05	1.9E+04	2.8E+05	2.6E+04	9.2E-02
fentin hydroxide	fresh water	76-87-9	2.7E+05	3.1E+03	4.3E+05	8.6E+03	2.1E-03
fluoranthrene	fresh water	206-44-0	1.3E+04	8.7E+02	3.9E+04	2.8E+03	4.9E-03
folpet	fresh water	133-07-3	8.2E+04	1.2E+04	1.1E+05	1.6E+04	5.9E-01
Formaldehyde	fresh water	50-00-0	2.8E+02	1.9E-01	1.5E+02	2.0E-01	1.6E-03
glyphosate	fresh water	1071-83-6	1.4E+03	4.2E+00	1.3E+03	3.7E+00	2.2E-11
heptachlor	fresh water	76-44-8	1.8E+04	1.2E+01	2.6E+04	1.0E+01	5.3E-04
heptenophos	fresh water	23560-59-0	2.2E+04	1.1E+01	2.8E+03	2.3E+00	1.6E-03
hexachloro-1,3-butadiene	fresh water	87-68-3	4.5E+04	7.5E+04	5.2E+04	2.8E+04	4.0E+00
hexachlorobenzene	fresh water	118-74-1	1.5E+02	1.9E+03	4.9E+02	2.2E+03	1.4E-01
hydrogen chloride	fresh water	7647-01-0	x	x	x	x	x
hydrogen sulfide	fresh water	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	7.5E+04	1.2E+04	2.4E+05	4.1E+04	5.6E-06
iprodione	fresh water	36734-19-7	1.6E+02	1.5E-02	1.3E+01	2.4E-04	4.4E-08
isoproturon	fresh water	34123-59-6	1.9E+03	2.0E+01	7.1E+02	1.3E+01	1.6E-05
lead	fresh water	14280-50-3	8.3E+00	2.1E+00	2.1E+01	6.0E+00	4.8E-22
lindane	fresh water	58-89-9	6.5E+03	8.7E+01	1.7E+03	1.8E+01	1.6E-01
linuron	fresh water	330-55-2	3.1E+04	5.6E+02	3.1E+04	7.3E+02	1.1E-02
malathion	fresh water	121-75-5	2.1E+05	7.7E+02	1.2E+05	4.3E+02	1.1E-05
MCPA	fresh water	94-74-6	2.7E+01	3.6E-02	1.8E+01	4.4E-02	1.4E-11

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mecoprop	fresh water	7085-19-0	3.8E+02	6.7E-01	2.5E+02	8.7E-01	1.1E-08
mercury	fresh water	14302-87-5	1.5E+03	4.5E+02	3.8E+03	1.2E+03	1.1E+00
metamitron	fresh water	41394-05-2	2.3E+01	6.3E-02	1.2E+01	5.0E-02	8.5E-10
metazachlor	fresh water	67129-08-2	1.5E+02	1.3E+00	1.1E+02	1.5E+00	1.4E-06
methabenzthiazuron	fresh water	18691-97-9	1.1E+03	2.5E+01	1.2E+03	3.7E+01	2.0E-05
methomyl	fresh water	16752-77-5	1.4E+05	4.2E+03	1.0E+05	5.4E+03	2.2E-03
methylbromide	fresh water	74-83-9	1.9E+01	3.5E+00	1.0E+01	9.6E-01	1.1E-02
methyl-mercury	fresh water	22967-92-6	3.4E+04	1.0E+04	8.7E+04	2.7E+04	1.1E+00
metobromuron	fresh water	3060-89-7	4.3E+02	6.4E+01	4.2E+02	7.1E+01	4.6E-04
metolachlor	fresh water	51218-45-2	3.8E+04	5.8E+02	3.4E+04	8.1E+02	2.1E-04
mevinphos	fresh water	7786-34-7	5.9E+05	5.7E+02	7.4E+04	6.3E+01	2.3E-05
molybdenum	fresh water	7439-98-7	4.7E+02	3.0E+02	1.0E+03	5.2E+02	2.3E-18
meta-Xylene	fresh water	108-38-3	6.0E-01	2.1E-03	3.9E-01	2.1E-03	6.0E-07
Naphtalene	fresh water	91-20-3	6.6E+02	1.1E+00	2.6E+02	3.8E-01	4.9E-04
nickel	fresh water	7440-02-0	3.0E+03	1.5E+03	7.7E+03	3.1E+03	1.0E-18
nitrogen dioxide	fresh water	10102-44-0	x	x	x	x	x
oxamyl	fresh water	23135-22-0	6.5E+02	1.8E-01	3.0E+02	5.3E-02	7.1E-06
oxydemethon-methyl	fresh water	301-12-2	7.0E+04	1.4E+02	1.6E+04	5.8E+01	4.6E-04
ortho-Xylene	fresh water	95-47-6	5.6E-01	2.5E-03	4.5E-01	3.1E-03	1.2E-06
parathion-ethyl	fresh water	56-38-2	1.2E+06	5.3E+03	8.0E+05	2.2E+03	3.1E-03
parathion-methyl	fresh water	298-00-0	2.9E+05	1.5E+03	1.8E+04	6.2E+01	3.4E-02
pentachlorobenzene	fresh water	608-93-5	5.1E+01	1.7E+02	7.2E+01	8.6E+01	3.8E-02
pentachloronitrobenzene	fresh water	82-68-8	4.0E+03	2.8E+03	1.1E+03	2.1E+02	4.6E-02
pentachlorophenol	fresh water	87-86-5	7.1E+02	1.2E+01	1.6E+03	2.2E+01	3.2E-04
permethrin	fresh water	52645-53-1	5.0E+06	2.7E+04	6.7E+06	2.0E+04	3.9E-01
phenanthrene	fresh water	85-01-8	5.2E+02	1.0E+01	5.6E+02	8.6E+00	6.0E-05
Phenol	fresh water	108-95-2	2.4E+02	5.6E-02	8.8E+01	3.8E-02	2.5E-06
phoxim	fresh water	14816-18-3	2.6E+03	5.0E+00	4.3E+02	6.7E-01	1.5E-02
Phthalic anhydride	fresh water	85-44-9	5.5E-01	4.1E-06	1.1E-03	2.4E-08	1.2E-10
pirimicarb	fresh water	23103-98-2	3.6E+04	1.6E+02	3.6E+04	2.4E+02	9.3E-04
dust (PM10)	fresh water	PM10	x	x	x	x	x
propachlor	fresh water	1918-16-7	1.2E+03	2.4E+00	6.7E+02	2.3E+00	8.1E-04
propoxur	fresh water	114-26-1	2.6E+05	5.0E+02	1.8E+05	5.2E+02	3.1E-04
Propylene Oxide	fresh water	75-56-9	4.0E+00	5.8E-02	2.1E+00	3.3E-02	6.5E-04
para-Xylene	fresh water	106-42-3	5.5E-01	2.2E-03	3.3E-01	1.6E-03	4.9E-07
pyrazophos	fresh water	13457-18-6	4.9E+04	1.2E+02	4.5E+04	1.2E+02	1.7E-03
selenium	fresh water	7782-49-2	2.9E+03	1.9E+03	3.4E+03	1.7E+03	1.6E-17
simazine	fresh water	122-34-9	2.7E+04	1.4E+02	2.3E+04	2.1E+02	1.0E-03
styrene	fresh water	100-42-5	4.4E-01	2.2E-03	3.0E-01	1.6E-03	1.3E-07
sulphur dioxide	fresh water	7446-09-5	x	x	x	x	x
Tetrachloroethylene	fresh water	127-18-4	7.0E-01	3.4E-01	6.7E-01	1.3E-01	7.9E-03
Tetrachloromethane	fresh water	56-23-5	2.1E-01	1.1E+00	1.2E-01	3.1E-01	4.7E-04
thallium	fresh water	7440-28-0	7.9E+03	4.9E+03	2.0E+04	9.6E+03	3.1E-17
Thiram	fresh water	137-26-8	9.8E+04	7.4E+01	3.5E+04	6.6E+00	9.3E-02
tin	fresh water	7440-31-5	8.8E+00	2.4E+00	4.4E+00	1.3E+00	7.9E-22
tolclophos-methyl	fresh water	57018-04-9	5.0E+02	4.4E+00	5.3E+02	5.1E+00	3.2E-04
Toluene	fresh water	108-88-3	2.9E-01	1.2E-03	2.1E-01	1.3E-03	1.4E-05
tri-allate	fresh water	2303-17-5	4.9E+04	7.8E+02	1.7E+04	2.2E+02	2.7E-03
triazophos	fresh water	24017-47-8	1.7E+05	1.5E+03	1.6E+05	2.1E+03	3.9E-02
tributyltinoxide	fresh water	56-35-9	4.5E+05	2.1E+05	6.1E+05	2.9E+05	1.1E-01
trichlorfon	fresh water	52-68-6	4.1E+05	8.3E+01	7.6E+04	1.3E+01	7.0E-05
Trichloroethylene	fresh water	79-01-6	9.7E-02	3.3E-03	8.2E-02	2.7E-03	4.6E-06
Trichloromethane	fresh water	67-66-3	4.2E-02	5.8E-02	2.2E-02	1.6E-02	3.9E-05
trifluarin	fresh water	1582-09-8	2.7E+04	4.2E+02	2.2E+04	1.8E+02	1.3E-02



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vanadium	fresh water	7440-62-2	8.5E+03	4.5E+03	2.0E+04	8.6E+03	1.0E-17
Vinyl Chloride	fresh water	75-01-4	2.8E-02	3.8E-04	2.3E-02	4.9E-04	2.6E-07
zinc	fresh water	23713-49-7	8.0E+01	2.5E+01	2.0E+02	6.3E+01	2.5E-21
zineb	fresh water	12122-67-7	2.8E+04	2.5E+02	2.2E+04	2.7E+02	1.3E-03
chlormequat-chloride	fresh water	999-81-5	2.7E+02	1.9E+00	1.1E+02	1.2E+00	3.0E-11
fenpropimorph	fresh water	67306-03-0	1.6E+03	9.0E+00	1.6E+03	9.2E+00	1.1E-04
fluroxypyr	fresh water	69377-81-7	8.7E+03	5.5E+01	6.8E+03	7.7E+01	5.8E-12
epoxiconazole	fresh water	??	6.0E+03	9.0E+02	8.1E+03	1.2E+03	5.7E-02
ethylene oxide	fresh water	75-21-8	9.8E+00	6.3E-01	6.0E+00	3.4E-01	1.8E-03
hydrogen fluoride	fresh water	7664-39-3	1.9E+01	1.3E+01	1.5E+01	9.5E+00	1.7E-10
1,1,1-trichloroethane	seawater	71-55-6	7.1E-05	2.7E-01	5.9E-05	1.9E-01	1.0E-04
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	3.8E-02	1.5E+01	4.5E-02	1.2E+01	3.7E-03
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	3.0E-02	1.6E+01	3.3E-02	1.3E+01	7.4E-02
1,2,3-trichlorobenzene	seawater	87-61-6	3.9E-03	3.6E+00	4.3E-03	3.5E+00	3.5E-02
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	2.9E-02	1.3E+01	3.3E-02	1.0E+01	9.5E-02
1,2,4-trichlorobenzene	seawater	120-82-1	4.4E-03	3.1E+00	4.8E-03	2.9E+00	4.0E-03
1,2-dichlorobenzene	seawater	95-50-1	1.3E-03	9.5E-01	1.2E-03	1.0E+00	2.4E-04
1,2-dichloroethane	seawater	107-06-2	8.8E-05	9.0E-02	7.4E-05	6.1E-02	2.0E-05
1,3,5-trichlorobenzene	seawater	108-70-3	7.0E-03	4.5E+00	7.2E-03	4.5E+00	8.3E-04
1,3-Butadiene	seawater	106-99-0	5.6E-08	7.3E-01	3.8E-08	8.3E-01	4.0E-09
1,3-dichlorobenzene	seawater	541-73-1	1.1E-03	1.0E+00	1.0E-03	1.2E+00	2.0E-04
1,4-dichlorobenzene	seawater	106-46-7	1.1E-03	1.0E+00	1.1E-03	1.0E+00	5.7E-03
1-chloro-4-nitrobenzene	seawater	100-00-5	1.9E+00	3.7E+02	1.7E+00	4.4E+02	9.5E-02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	1.3E-03	2.2E+02	1.4E-03	2.5E+02	5.2E-06
2,3,7,8-TCDD	seawater	1746-01-6	1.1E+05	4.4E+08	3.6E+05	1.6E+09	6.8E+02
2,4,5-T	seawater	93-76-5	1.7E-10	4.0E-01	1.2E-10	4.9E-01	6.4E-11
2,4,5-trichlorophenol	seawater	95-95-4	5.4E-02	1.2E+02	6.4E-02	1.6E+02	9.1E-04
2,4,6-trichlorophenol	seawater	88-06-2	2.4E-04	7.6E+00	2.3E-04	8.9E+00	1.3E-05
2,4-D	seawater	94-75-7	1.1E-10	1.0E+01	8.5E-11	1.4E+01	1.8E-12
2,4-dichlorophenol	seawater	120-83-2	2.9E-04	3.7E+00	1.1E-04	2.0E+00	6.2E-06
2-chlorophenol	seawater	95-57-8	6.7E-03	4.6E+01	5.3E-03	6.1E+01	2.7E-05
3,4-dichloroaniline	seawater	95-76-1	1.2E-03	3.2E+03	1.5E-03	4.1E+03	6.6E-06
3-chloroaniline	seawater	108-42-9	3.7E-06	5.9E+01	3.4E-06	8.2E+01	1.7E-08
4-chloroaniline	seawater	106-47-8	1.1E-02	9.6E+01	9.7E-03	1.4E+02	8.6E-05
acephate	seawater	30560-19-1	6.0E-08	3.7E+01	3.1E-08	3.5E+01	5.3E-10
Acrolein	seawater	107-02-8	5.0E+00	8.9E+03	3.7E+00	1.3E+04	1.6E-01
Acrylonitrile	seawater	107-13-1	6.0E-03	3.1E+00	3.9E-03	4.0E+00	1.2E-04
aldicarb	seawater	116-06-3	1.2E-01	1.5E+04	9.8E-02	2.2E+04	4.8E-03
aldrin	seawater	309-00-2	1.3E+00	8.0E+03	1.1E-01	7.4E+02	6.7E-03
ammonia	seawater	7664-41-7	x	x	x	x	x
anilazine	seawater	101-05-3	1.1E-07	2.0E+01	6.8E-09	8.3E-01	7.0E-10
anthracene	seawater	120-12-7	1.7E+01	1.8E+04	2.3E+01	2.5E+04	4.0E-03
antimony	seawater	7440-36-0	7.6E-21	2.5E+01	1.8E-20	4.7E+01	3.0E-20
arsenic	seawater	7440-38-2	3.8E-20	4.0E+02	9.8E-20	8.1E+02	3.0E-17
atrazine	seawater	1912-24-9	8.3E-03	6.0E+02	7.2E-03	6.6E+02	5.0E-05
azinphos-ethyl	seawater	2642-71-9	4.1E-02	5.9E+03	3.0E-02	4.7E+03	3.4E-04
azinphos-methyl	seawater	86-50-0	1.1E-04	1.0E+03	5.6E-05	2.9E+02	4.9E-08
barium	seawater	7440-39-3	2.4E-19	2.1E+02	5.4E-19	3.6E+02	6.6E-19
benomyl	seawater	17804-35-2	8.9E-08	1.5E+02	1.1E-08	1.3E+01	1.4E-09
bentazone	seawater	25057-89-0	7.4E-09	1.2E+00	6.0E-09	1.8E+00	3.3E-10
Benzene	seawater	71-43-2	9.2E-06	1.5E-02	7.0E-06	2.1E-02	1.7E-06

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benzo[a]anthracene	seawater	56-55-3	1.1E+00	8.5E+04	3.2E+00	2.8E+05	6.2E-03
benzo[a]pyrene	seawater	50-32-8	2.8E-01	1.2E+05	8.0E-01	3.7E+05	8.0E-04
benzo[ghi]perylene	seawater	191-24-2	4.4E-02	6.0E+04	1.4E-01	2.1E+05	2.3E-04
benzo[k]fluoranthrene	seawater	207-08-9	7.1E+00	1.2E+06	2.3E+01	3.8E+06	6.1E-02
benzylchloride	seawater	100-44-7	1.1E-02	7.8E+00	1.7E-03	1.9E+00	2.5E-05
beryllium	seawater	7440-41-7	1.6E-16	7.9E+04	1.8E-16	6.9E+04	3.9E-16
bifenthrin	seawater	82657-04-3	5.5E-02	8.9E+03	1.6E-01	3.4E+04	5.9E-04
Butylbenzylphthalate	seawater	85-68-7	3.2E-05	1.6E+00	1.0E-05	4.0E-01	1.0E-07
cadmium	seawater	22537-48-0	2.5E-20	5.8E+03	6.5E-20	1.5E+04	1.1E-19
captafol	seawater	2425-06-1	5.0E-05	9.2E+04	7.2E-05	1.4E+05	1.6E-08
captan	seawater	133-06-2	6.5E-07	4.0E+01	5.7E-09	5.0E-01	9.4E-10
carbaryl	seawater	63-25-2	1.9E-06	2.4E+01	5.5E-07	2.1E+00	1.1E-09
carbendazim	seawater	10605-21-7	2.4E-08	1.3E+03	2.4E-08	2.0E+03	1.6E-10
carbofuran	seawater	1563-66-2	1.8E-04	3.0E+02	1.1E-04	3.1E+02	6.1E-07
carbon disulfide	seawater	75-15-0	6.5E-03	3.0E+01	5.4E-03	4.5E+01	1.0E-03
Carcinogenic PAHs	seawater		1.1E-01	2.2E+04	3.4E-01	7.6E+04	7.2E-04
chlordane	seawater	57-74-9	3.1E+01	4.7E+05	3.1E+00	1.5E+04	2.7E-01
chlorfenvinphos	seawater	470-90-6	5.6E-05	2.8E+01	4.8E-05	3.3E+01	8.6E-07
chloridazon	seawater	1698-60-8	3.5E-03	8.0E+00	2.7E-03	1.0E+01	6.4E-05
chlorobenzene	seawater	108-90-7	2.6E-04	3.5E-01	2.4E-04	4.5E-01	4.1E-04
chlorothalonil	seawater	1897-45-6	1.4E-01	3.6E+01	9.5E-02	2.3E+01	3.8E-04
chlorpropham	seawater	101-21-3	2.8E-05	2.0E+00	2.4E-05	2.5E+00	4.5E-07
chlorpyrifos	seawater	2921-88-2	2.3E-01	2.2E+03	1.5E-01	2.2E+02	5.7E-05
chromium III	seawater	16056-83-1	8.8E-23	2.7E+01	2.3E-22	7.2E+01	2.0E-18
chromium VI	seawater	18540-29-9	3.5E-22	1.1E+02	9.1E-22	2.9E+02	2.0E-18
chrysene	seawater	218-01-9	2.5E-01	7.4E+03	8.0E-01	2.5E+04	1.5E-03
cobalt	seawater	7440-48-4	1.2E-18	4.4E+03	2.0E-18	5.7E+03	4.9E-18
copper	seawater	15158-11-9	4.1E-20	4.0E+03	1.0E-19	8.8E+03	2.5E-20
coumaphos	seawater	56-72-4	1.1E+02	3.5E+06	1.5E+02	5.2E+06	4.9E-01
cyanazine	seawater	21725-46-2	2.5E-06	1.3E+03	1.9E-06	1.6E+03	4.0E-08
cypermethrin	seawater	52315-07-8	2.4E+00	1.6E+05	4.3E+00	4.5E+05	2.5E-01
cyromazine	seawater	66215-27-8	8.1E-07	1.6E+03	6.5E-07	2.2E+03	7.3E-08
DDT	seawater	50-29-3	1.5E+01	1.8E+05	1.5E+01	7.0E+04	6.8E-01
deltamethrin	seawater	52918-63-5	3.2E+00	3.6E+04	4.8E+00	7.2E+04	1.4E-03
demeton	seawater	8065-48-3	1.7E-02	5.5E+02	1.2E-02	7.0E+02	2.3E-04
desmetryn	seawater	1014-69-3	4.1E-06	5.4E+00	2.4E-06	5.5E+00	7.5E-07
Di(2-ethylhexyl)phthalate	seawater	117-81-7	1.6E-03	1.5E+01	2.1E-03	1.1E+01	9.6E-07
diazinon	seawater	333-41-5	6.4E-02	2.8E+03	4.6E-02	2.7E+03	8.2E-05
Dibutylphthalate	seawater	84-74-2	2.9E-05	1.7E+00	3.8E-06	1.6E-01	2.1E-07
Dichloromethane	seawater	75-09-2	5.0E-06	3.2E-03	3.6E-06	3.8E-03	6.5E-07
dichlorprop	seawater	120-36-5	1.6E-12	1.2E-01	8.3E-13	6.4E-02	1.1E-14
dichlorvos	seawater	62-73-7	1.1E-02	2.4E+03	5.1E-04	1.8E+02	2.2E-04
dieldrin	seawater	60-57-1	1.6E+01	5.8E+04	1.7E+00	2.1E+03	1.0E-01
Diethylphthalate	seawater	84-66-2	7.9E-05	8.0E-01	5.2E-05	6.5E-01	1.0E-04
Dihexylphthalate	seawater	84-75-3	1.1E-02	9.7E+00	2.6E-02	2.0E+01	1.7E-05
Diisodecylphthalate	seawater	26761-40-0	3.8E-02	1.9E+01	8.5E-02	3.4E+01	6.4E-05
Diisooctylphthalate	seawater	27554-26-3	3.9E-03	1.6E+01	8.7E-03	2.8E+01	3.5E-06
dimethoate	seawater	60-51-5	7.4E-06	3.4E+00	5.5E-06	4.1E+00	1.8E-07
Dimethylphthalate	seawater	133-11-3	3.8E-07	5.2E-02	9.8E-08	1.3E-02	4.7E-06
dinoseb	seawater	88-85-7	1.1E-01	1.3E+04	2.9E-02	5.0E+03	1.0E-03
dinoterb	seawater	1420-07-1	4.2E-02	1.2E+04	1.9E-02	4.5E+03	5.1E-05
Diocetylphthalate	seawater	117-84-0	1.4E-04	2.5E+00	2.4E-04	2.6E+00	8.8E-08
disulfothon	seawater	298-04-4	1.3E-02	1.5E+03	4.6E-03	4.2E+02	2.1E-05
diuron	seawater	330-54-1	1.9E-03	2.4E+02	1.8E-03	3.4E+02	3.2E-05

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DNOC	seawater	534-52-1	2.1E-08	2.6E+00	3.6E-09	6.1E-01	1.5E-09
endosulfan	seawater	115-29-7	2.1E-02	3.2E+02	4.5E-03	2.2E+01	1.6E-05
endrin	seawater	72-20-8	4.5E+00	2.1E+06	1.4E+00	1.6E+05	2.0E-01
ethoprophos	seawater	13194-48-4	1.0E+00	6.6E+03	7.9E-01	8.9E+03	7.2E-03
Ethylbenzene	seawater	100-41-4	9.4E-06	6.2E-02	6.3E-06	6.7E-02	1.0E-07
Ethylene	seawater	74-85-1	1.0E-12	2.6E-03	6.6E-13	3.2E-03	9.9E-14
fenitrothion	seawater	122-14-5	9.9E-03	5.6E+03	5.5E-03	2.9E+03	8.4E-05
fenthion	seawater	55-38-9	2.6E-01	2.3E+04	1.9E-01	1.5E+04	1.7E-03
fentin acetate	seawater	900-95-8	8.7E-02	4.0E+04	1.4E-01	1.1E+05	1.1E-04
fentin chloride	seawater	639-58-7	1.8E+01	4.0E+04	2.9E+01	1.1E+05	2.5E-03
fentin hydroxide	seawater	76-87-9	2.9E-02	4.0E+04	4.7E-02	1.1E+05	3.8E-05
fluoranthrene	seawater	206-44-0	8.7E-01	4.2E+03	2.6E+00	1.4E+04	9.6E-04
folpet	seawater	133-07-3	1.6E+01	2.1E+04	2.2E+01	2.8E+04	7.2E-02
Formaldehyde	seawater	50-00-0	2.1E-04	5.6E+00	1.2E-04	6.0E+00	2.4E-05
glyphosate	seawater	1071-83-6	2.1E-11	3.3E+01	2.0E-11	3.0E+01	4.4E-14
heptachlor	seawater	76-44-8	3.9E-02	1.1E+03	5.5E-02	9.2E+02	2.4E-05
heptenophos	seawater	23560-59-0	1.3E-03	4.5E+02	1.7E-04	9.1E+01	2.4E-05
hexachloro-1,3-butadiene	seawater	87-68-3	2.3E+01	7.0E+04	2.6E+01	4.7E+04	2.1E+00
hexachlorobenzene	seawater	118-74-1	1.1E+00	2.0E+03	3.5E+00	2.9E+03	1.3E-01
hydrogen chloride	seawater	7647-01-0	x	x	x	x	x
hydrogen sulfide	seawater	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	seawater	193-39-5	6.6E-04	1.0E+05	2.1E-03	3.6E+05	3.7E-06
iprodione	seawater	36734-19-7	3.8E-09	7.2E-01	3.1E-10	1.2E-02	1.5E-10
isoproturon	seawater	34123-59-6	2.9E-05	5.9E+01	1.1E-05	3.7E+01	3.8E-07
lead	seawater	14280-50-3	5.6E-23	3.7E+01	1.4E-22	1.0E+02	4.6E-21
lindane	seawater	58-89-9	1.1E-01	2.3E+02	3.0E-02	4.8E+01	3.9E-03
linuron	seawater	330-55-2	6.0E-02	1.3E+03	6.0E-02	1.7E+03	3.1E-04
malathion	seawater	121-75-5	1.8E-02	5.1E+03	1.1E-02	2.8E+03	2.0E-07
MCPA	seawater	94-74-6	5.3E-13	5.6E-01	3.6E-13	6.9E-01	2.2E-14
mecoprop	seawater	7085-19-0	3.8E-10	8.0E+00	2.5E-10	1.1E+01	1.8E-11
mercury	seawater	14302-87-5	6.5E-02	6.6E+03	1.6E-01	1.7E+04	1.7E+00
metamitron	seawater	41394-05-2	6.8E-10	4.9E-01	3.5E-10	3.8E-01	1.4E-11
metazachlor	seawater	67129-08-2	3.0E-06	4.4E+00	2.2E-06	5.2E+00	3.0E-08
methabenzthiazuron	seawater	18691-97-9	9.2E-05	4.8E+01	1.0E-04	7.0E+01	6.0E-07
methomyl	seawater	16752-77-5	8.5E-03	6.9E+03	6.3E-03	8.9E+03	7.5E-05
methylbromide	seawater	74-83-9	2.3E-03	2.4E+00	1.2E-03	2.0E+00	9.1E-04
methyl-mercury	seawater	22967-92-6	1.5E+00	1.5E+05	3.7E+00	3.9E+05	1.7E+00
metobromuron	seawater	3060-89-7	1.6E-03	7.3E+01	1.6E-03	8.1E+01	3.7E-05
metolachlor	seawater	51218-45-2	7.0E-02	1.3E+03	6.2E-02	1.9E+03	5.4E-06
mevinphos	seawater	7786-34-7	6.9E-05	1.1E+04	8.8E-06	1.2E+03	3.2E-07
molybdenum	seawater	7439-98-7	6.6E-19	4.3E+02	1.5E-18	7.2E+02	2.9E-18
meta-Xylene	seawater	108-38-3	7.2E-06	1.4E-01	4.7E-06	1.4E-01	1.1E-07
Naphtalene	seawater	91-20-3	1.1E-02	3.3E+01	4.5E-03	1.2E+01	1.9E-05
nickel	seawater	7440-02-0	6.1E-19	5.7E+03	1.6E-18	1.1E+04	2.6E-18
nitrogen dioxide	seawater	10102-44-0	x	x	x	x	x
oxamyl	seawater	23135-22-0	4.5E-07	2.8E+00	2.1E-07	8.0E-01	2.3E-08
oxydemethon-methyl	seawater	301-12-2	3.0E-04	1.0E+03	6.8E-05	4.2E+02	5.2E-06
ortho-Xylene	seawater	95-47-6	1.5E-05	1.3E-01	1.2E-05	1.7E-01	2.1E-07
parathion-ethyl	seawater	56-38-2	2.0E-01	4.1E+04	1.4E-01	1.7E+04	8.2E-05
parathion-methyl	seawater	298-00-0	1.2E-01	8.1E+03	7.4E-03	3.4E+02	7.1E-04
pentachlorobenzene	seawater	608-93-5	2.4E-01	1.7E+02	3.3E-01	1.4E+02	2.5E-02
pentachloronitrobenzene	seawater	82-68-8	1.1E+01	5.5E+03	3.1E+00	5.4E+02	2.6E-02
pentachlorophenol	seawater	87-86-5	1.2E-05	7.8E+01	2.7E-05	1.4E+02	2.6E-06

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permethrin	seawater	52645-53-1	1.0E+01	2.8E+05	1.3E+01	2.2E+05	1.7E-02
phenanthrene	seawater	85-01-8	5.8E-02	7.4E+01	6.3E-02	6.4E+01	6.3E-06
Phenol	seawater	108-95-2	1.7E-05	4.7E+00	6.4E-06	3.2E+00	3.8E-08
phoxim	seawater	14816-18-3	3.3E-02	3.0E+02	5.4E-03	4.1E+01	1.3E-03
Phtalic anhydride	seawater	85-44-9	4.6E-11	1.7E-02	9.4E-14	9.9E-05	2.8E-12
pirimicarb	seawater	23103-98-2	8.9E-04	8.6E+02	9.0E-04	1.3E+03	1.7E-05
dust (PM10)	seawater	PM10	x	x	x	x	x
propachlor	seawater	1918-16-7	5.0E-04	2.7E+01	2.7E-04	2.5E+01	1.3E-05
propoxur	seawater	114-26-1	1.2E-04	3.4E+03	8.2E-05	3.6E+03	3.2E-06
Propylene Oxide	seawater	75-56-9	4.4E-04	1.4E-01	2.4E-04	1.5E-01	1.8E-05
para-Xylene	seawater	106-42-3	1.0E-05	1.3E-01	6.1E-06	9.7E-02	8.9E-08
pyrazophos	seawater	13457-18-6	2.3E-03	1.1E+03	2.0E-03	1.1E+03	2.9E-05
selenium	seawater	7782-49-2	7.4E-18	2.4E+03	8.6E-18	2.1E+03	1.8E-17
simazine	seawater	122-34-9	4.5E-03	6.7E+02	3.8E-03	1.0E+03	1.9E-05
styrene	seawater	100-42-5	1.0E-05	1.2E-01	7.0E-06	9.3E-02	2.7E-08
sulphur dioxide	seawater	7446-09-5	x	x	x	x	x
Tetrachloroethylene	seawater	127-18-4	2.0E-04	6.5E-01	1.9E-04	7.8E-01	4.0E-03
Tetrachloromethane	seawater	56-23-5	1.9E-04	1.1E+00	1.1E-04	4.6E-01	3.6E-04
thallium	seawater	7440-28-0	7.9E-18	7.8E+03	2.0E-17	1.5E+04	4.2E-17
Thiram	seawater	137-26-8	2.6E-02	4.2E+02	9.5E-03	3.7E+01	3.1E-04
tin	seawater	7440-31-5	9.5E-23	3.9E+01	4.8E-23	2.2E+01	7.2E-21
tolclophos-methyl	seawater	57018-04-9	2.9E-02	1.4E+02	3.1E-02	1.6E+02	6.7E-05
Toluene	seawater	108-88-3	8.3E-06	5.1E-02	5.9E-06	6.3E-02	1.9E-06
tri-allate	seawater	2303-17-5	1.1E+00	3.3E+03	4.1E-01	9.2E+02	1.3E-04
triazophos	seawater	24017-47-8	7.9E-02	4.9E+03	7.4E-02	6.8E+03	8.4E-04
tributyltinoxide	seawater	56-35-9	3.0E+00	5.7E+05	4.1E+00	7.9E+05	6.9E-03
trichlorfon	seawater	52-68-6	5.3E-06	3.6E+03	9.9E-07	5.4E+02	4.8E-07
Trichloroethylene	seawater	79-01-6	1.6E-05	5.7E-02	1.3E-05	8.1E-02	1.9E-06
Trichloromethane	seawater	67-66-3	4.5E-05	5.6E-02	2.3E-05	3.3E-02	1.9E-05
trifluarin	seawater	1582-09-8	1.8E+00	8.3E+03	1.4E+00	3.6E+03	3.0E-03
vanadium	seawater	7440-62-2	2.4E-18	1.3E+04	5.7E-18	2.5E+04	2.2E-17
Vinyl Chloride	seawater	75-01-4	1.4E-06	2.0E-02	1.1E-06	2.9E-02	1.3E-07
zinc	seawater	23713-49-7	1.8E-21	3.5E+02	4.5E-21	8.6E+02	1.9E-20
zineb	seawater	12122-67-7	3.6E-03	8.1E+02	2.9E-03	8.9E+02	2.8E-05
chlormequat-chloride	seawater	999-81-5	1.1E-10	7.5E+00	4.7E-11	4.6E+00	6.1E-13
fenpropimorph	seawater	67306-03-0	1.1E-04	4.4E+01	1.1E-04	4.6E+01	4.2E-07
fluroxypyr	seawater	69377-81-7	7.3E-13	2.2E+02	5.7E-13	3.2E+02	1.1E-14
epoxiconazole	seawater	??	9.1E-01	1.1E+03	1.2E+00	1.5E+03	5.1E-03
ethylene oxide	seawater	75-21-8	3.8E-03	7.4E-01	2.3E-03	8.4E-01	9.7E-05
hydrogen fluoride	seawater	7664-39-3	3.7E-08	1.4E+01	3.0E-08	9.7E+00	3.3E-11
1,1,1-trichloroethane	agri. soil	71-55-6	3.7E-04	2.9E-01	3.1E-04	9.6E-02	1.5E-03
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	2.8E-02	3.9E-01	3.2E-02	1.6E-01	8.3E-01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	8.3E-02	2.3E+00	9.3E-02	9.0E-01	1.5E+01
1,2,3-trichlorobenzene	agri. soil	87-61-6	2.3E-02	6.5E-01	2.5E-02	2.6E-01	9.3E+00
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	2.5E-02	5.1E-01	2.9E-02	2.1E-01	1.9E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	2.0E-02	4.3E-01	2.2E-02	1.8E-01	1.2E+00
1,2-dichlorobenzene	agri. soil	95-50-1	1.9E-02	5.1E-01	1.8E-02	2.1E-01	5.4E-02
1,2-dichloroethane	agri. soil	107-06-2	7.5E-04	5.8E-02	6.3E-04	2.2E-02	1.7E-03
1,3,5-trichlorobenzene	agri. soil	108-70-3	5.4E-02	1.1E+00	5.6E-02	4.5E-01	2.5E-01
1,3-Butadiene	agri. soil	106-99-0	5.7E-05	2.9E-06	3.8E-05	3.2E-06	3.1E-04
1,3-dichlorobenzene	agri. soil	541-73-1	1.8E-02	3.7E-01	1.6E-02	1.6E-01	6.2E-02

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1,4-dichlorobenzene	agri. soil	106-46-7	1.4E-02	5.5E-01	1.4E-02	2.1E-01	1.0E+00
1-chloro-4-nitrobenzene	agri. soil	100-00-5	1.5E+02	1.2E+02	1.3E+02	7.9E+01	1.7E+01
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	3.2E+01	6.2E-01	3.5E+01	6.8E-01	1.0E+00
2,3,7,8-TCDD	agri. soil	1746-01-6	1.1E+05	3.1E+04	3.6E+05	9.5E+04	2.7E+04
2,4,5-T	agri. soil	93-76-5	4.4E-01	1.6E-03	3.2E-01	2.0E-03	7.4E-01
2,4,5-trichlorophenol	agri. soil	95-95-4	2.8E+01	1.3E+00	3.3E+01	1.6E+00	4.4E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	1.2E+00	8.2E-03	1.2E+00	9.5E-03	7.0E-01
2,4-D	agri. soil	94-75-7	2.9E+01	1.7E-01	2.2E+01	2.3E-01	1.6E+00
2,4-dichlorophenol	agri. soil	120-83-2	2.5E+00	7.0E-03	1.0E+00	3.2E-03	5.9E-01
2-chlorophenol	agri. soil	95-57-8	7.9E+00	6.8E-02	6.3E+00	9.0E-02	3.8E-01
3,4-dichloroaniline	agri. soil	95-76-1	1.8E+03	2.6E+02	2.3E+03	3.3E+02	2.6E+01
3-chloroaniline	agri. soil	108-42-9	7.4E+01	3.2E-01	6.8E+01	4.5E-01	1.4E+00
4-chloroaniline	agri. soil	106-47-8	1.7E+02	7.7E-01	1.5E+02	1.1E+00	1.6E+01
acephate	agri. soil	30560-19-1	5.1E+01	6.7E-01	2.6E+01	6.4E-01	1.7E+00
Acrolein	agri. soil	107-02-8	4.5E+04	2.5E+02	3.4E+04	3.6E+02	7.0E+03
Acrylonitrile	agri. soil	107-13-1	6.5E+00	2.1E-01	4.2E+00	1.9E-01	2.5E+00
aldicarb	agri. soil	116-06-3	9.6E+04	1.6E+03	7.6E+04	2.4E+03	4.2E+03
aldrin	agri. soil	309-00-2	2.8E+02	3.2E+01	2.4E+01	2.9E+00	2.0E+01
ammonia	agri. soil	7664-41-7	x	x	x	x	x
anilazine	agri. soil	101-05-3	2.1E-01	5.0E-05	1.4E-02	2.1E-06	2.3E-01
anthracene	agri. soil	120-12-7	8.2E+01	6.2E+00	1.1E+02	8.2E+00	8.9E+00
antimony	agri. soil	7440-36-0	4.1E-01	1.2E-01	9.5E-01	2.4E-01	6.7E-02
arsenic	agri. soil	7440-38-2	1.8E-01	4.8E-02	4.4E-01	1.0E-01	6.7E+00
atrazine	agri. soil	1912-24-9	3.4E+02	3.4E+01	3.0E+02	3.8E+01	6.6E+00
azinhphos-ethyl	agri. soil	2642-71-9	2.8E+03	1.1E+01	2.0E+03	8.4E+00	2.2E+02
azinhphos-methyl	agri. soil	86-50-0	1.9E+02	1.4E-01	1.0E+02	4.1E-02	9.7E-01
barium	agri. soil	7440-39-3	7.3E+00	2.4E+00	1.6E+01	4.4E+00	7.5E-01
benomyl	agri. soil	17804-35-2	4.6E+00	5.8E-03	5.9E-01	5.0E-04	3.5E+00
bentazone	agri. soil	25057-89-0	8.3E+00	3.6E-02	6.7E+00	5.5E-02	5.9E-01
Benzene	agri. soil	71-43-2	7.2E-04	2.4E-03	5.4E-04	1.1E-03	3.4E-03
benzo[a]anthracene	agri. soil	56-55-3	6.2E+01	4.4E+00	1.9E+02	1.5E+01	3.1E+01
benzo[a]pyrene	agri. soil	50-32-8	1.3E+02	6.5E+00	3.8E+02	1.9E+01	2.3E+01
benzo[ghi]perylene	agri. soil	191-24-2	5.6E+01	7.9E+00	1.8E+02	2.7E+01	8.3E+00
benzo[k]fluoranthrene	agri. soil	207-08-9	3.9E+03	8.1E+02	1.3E+04	2.5E+03	3.5E+02
benzylchloride	agri. soil	100-44-7	9.2E-01	8.2E-02	1.3E-01	1.3E-02	8.0E-01
beryllium	agri. soil	7440-41-7	4.7E+03	1.6E+03	5.4E+03	1.5E+03	4.2E+02
bifenthrin	agri. soil	82657-04-3	1.0E+02	1.1E-01	3.1E+02	4.3E-01	8.3E+01
Butylbenzylphtalate	agri. soil	85-68-7	2.5E-02	2.9E-05	8.2E-03	7.1E-06	1.0E-02
cadmium	agri. soil	22537-48-0	1.4E+01	2.6E+00	3.5E+01	6.4E+00	5.1E+00
captafol	agri. soil	2425-06-1	2.6E+04	3.7E+03	3.8E+04	5.6E+03	2.8E+01
captan	agri. soil	133-06-2	4.0E-01	6.9E-05	3.5E-03	8.4E-07	4.1E-02
carbaryl	agri. soil	63-25-2	2.3E+01	7.4E-03	6.7E+00	6.5E-04	1.1E-01
carbendazim	agri. soil	10605-21-7	2.0E+03	3.0E+01	2.0E+03	4.5E+01	4.9E+01
carbofuran	agri. soil	1563-66-2	5.8E+02	2.0E+00	3.4E+02	2.1E+00	7.5E+00
carbon disulfide	agri. soil	75-15-0	3.4E-01	1.4E+00	2.8E-01	7.9E-01	1.6E+00
Carcinogenic PAHs	agri. soil		5.3E+01	8.6E+00	1.7E+02	2.8E+01	6.2E+00
chlordan	agri. soil	57-74-9	9.3E+01	3.0E+01	9.4E+00	8.2E-01	7.3E+01
chlorfenvinphos	agri. soil	470-90-6	1.6E+01	8.5E-02	1.4E+01	1.0E-01	1.3E+00
chloridazon	agri. soil	1698-60-8	1.8E+00	8.1E-02	1.4E+00	1.0E-01	9.0E-01
chlorobenzene	agri. soil	108-90-7	3.2E-03	8.3E-02	3.0E-03	3.7E-02	1.2E-01
chlorothalonil	agri. soil	1897-45-6	1.0E+00	1.7E+00	7.3E-01	4.7E-01	6.8E-01
chlorpropham	agri. soil	101-21-3	1.8E+00	8.4E-03	1.6E+00	1.1E-02	1.3E-01
chlorpyrifos	agri. soil	2921-88-2	3.6E+02	1.4E-01	2.3E+02	1.4E-02	1.7E+01
chromium III	agri. soil	16056-83-1	3.5E-03	6.0E-04	8.7E-03	1.5E-03	7.3E+00



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chromium VI	agri. soil	18540-29-9	1.4E-02	2.4E-03	3.5E-02	6.1E-03	7.3E+00
chrysene	agri. soil	218-01-9	7.1E+01	1.0E+01	2.3E+02	3.4E+01	4.6E+00
cobalt	agri. soil	7440-48-4	1.4E+02	4.3E+01	2.3E+02	5.8E+01	2.5E+01
copper	agri. soil	15158-11-9	7.7E+00	1.7E+00	1.8E+01	3.7E+00	3.1E-01
coumaphos	agri. soil	56-72-4	9.9E+05	1.4E+05	1.4E+06	2.1E+05	1.6E+04
cyanazine	agri. soil	21725-46-2	8.1E+02	2.8E+00	6.3E+02	3.7E+00	6.9E+01
cypermethrin	agri. soil	52315-07-8	2.0E+05	3.0E+02	3.6E+05	8.0E+02	9.0E+04
cyromazine	agri. soil	66215-27-8	6.5E+03	2.5E+02	5.2E+03	3.5E+02	6.3E+02
DDT	agri. soil	50-29-3	6.6E+01	2.9E+01	7.1E+01	9.4E+00	4.6E+01
deltamethrin	agri. soil	52918-63-5	2.4E+01	6.0E-02	3.6E+01	1.2E-01	8.5E+00
demeton	agri. soil	8065-48-3	8.0E+02	3.5E+00	5.7E+02	4.5E+00	6.0E+01
desmetryn	agri. soil	1014-69-3	3.0E+00	2.4E-02	1.8E+00	2.4E-02	2.9E+00
Di(2-ethylhexyl)phthalate	agri. soil	117-81-7	1.5E-03	1.6E-05	2.0E-03	1.1E-05	1.4E-03
diazinon	agri. soil	333-41-5	1.3E+03	7.8E+00	9.3E+02	7.5E+00	1.2E+01
Dibutylphthalate	agri. soil	84-74-2	7.9E-02	1.2E-04	1.0E-02	1.1E-05	2.3E-02
Dichloromethane	agri. soil	75-09-2	1.6E-04	2.5E-03	1.1E-04	9.2E-04	2.5E-04
dichlorprop	agri. soil	120-36-5	1.3E-02	3.6E-05	6.9E-03	1.9E-05	1.4E-03
dichlorvos	agri. soil	62-73-7	7.4E+01	4.1E-02	3.3E+00	2.7E-03	2.0E+02
dieldrin	agri. soil	60-57-1	6.0E+02	7.9E+01	6.3E+01	2.8E+00	1.1E+02
Diethylphthalate	agri. soil	84-66-2	1.6E-01	7.1E-04	1.1E-01	5.6E-04	2.1E+00
Dihexylphthalate	agri. soil	84-75-3	1.8E-02	4.3E-04	4.4E-02	8.0E-04	7.3E-03
Diisodecylphthalate	agri. soil	26761-40-0	4.6E-03	8.6E-04	1.0E-02	1.4E-03	4.0E-03
Diisooctylphthalate	agri. soil	27554-26-3	6.2E-04	6.5E-05	1.4E-03	1.0E-04	5.5E-04
dimethoate	agri. soil	60-51-5	8.9E+00	3.9E-02	6.6E+00	4.8E-02	8.0E-01
Dimethylphthalate	agri. soil	133-11-3	7.4E-03	9.7E-06	1.9E-03	2.3E-06	1.4E+00
dinoseb	agri. soil	88-85-7	2.0E+04	3.9E+02	5.6E+03	1.5E+02	5.9E+02
dinoterb	agri. soil	1420-07-1	3.3E+02	8.7E+00	1.5E+02	3.1E+00	9.9E+00
Diocetylphthalate	agri. soil	117-84-0	4.2E-05	1.3E-06	7.1E-05	1.3E-06	4.8E-05
disulfothon	agri. soil	298-04-4	7.2E+01	1.4E-01	2.5E+01	4.0E-02	1.1E+01
diuron	agri. soil	330-54-1	3.5E+02	2.1E+00	3.3E+02	3.0E+00	2.3E+01
DNOC	agri. soil	534-52-1	1.2E+00	3.6E-03	2.0E-01	8.5E-04	5.2E-01
endosulfan	agri. soil	115-29-7	2.2E+00	1.4E-03	4.8E-01	9.0E-05	2.7E+00
endrin	agri. soil	72-20-8	1.4E+04	3.7E+03	4.2E+03	3.1E+02	2.8E+03
ethoprophos	agri. soil	13194-48-4	1.1E+04	2.6E+02	8.8E+03	3.6E+02	2.7E+02
Ethylbenzene	agri. soil	100-41-4	1.8E-03	4.1E-04	1.2E-03	3.2E-04	1.9E-03
Ethylene	agri. soil	74-85-1	1.1E-09	7.8E-11	7.1E-10	7.1E-11	2.3E-09
fenitrothion	agri. soil	122-14-5	7.6E+02	2.3E+00	4.2E+02	1.1E+00	8.3E+01
fenthion	agri. soil	55-38-9	3.5E+03	1.5E+01	2.5E+03	9.9E+00	2.9E+02
fentin acetate	agri. soil	900-95-8	3.8E+02	6.8E+00	6.2E+02	1.8E+01	1.2E+01
fentin chloride	agri. soil	639-58-7	2.5E+02	9.5E+01	4.1E+02	1.2E+02	1.2E+01
fentin hydroxide	agri. soil	76-87-9	3.8E+02	6.1E+00	6.2E+02	1.6E+01	1.2E+01
fluoranthrene	agri. soil	206-44-0	1.9E+01	1.3E+00	5.7E+01	4.3E+00	2.3E+00
folpet	agri. soil	133-07-3	4.5E+03	6.7E+02	6.2E+03	9.0E+02	1.1E+02
Formaldehyde	agri. soil	50-00-0	1.5E+01	1.8E-02	7.9E+00	1.8E-02	5.8E+00
glyphosate	agri. soil	1071-83-6	9.2E-01	2.8E-03	9.0E-01	2.5E-03	9.6E-02
heptachlor	agri. soil	76-44-8	2.3E+00	2.4E-02	3.2E+00	2.0E-02	5.5E+00
heptenophos	agri. soil	23560-59-0	3.1E+01	2.6E-02	3.8E+00	5.1E-03	1.6E+01
hexachloro-1,3-butadiene	agri. soil	87-68-3	7.0E+01	2.8E+04	8.0E+01	1.1E+04	5.3E+01
hexachlorobenzene	agri. soil	118-74-1	3.0E+00	4.7E+02	9.7E+00	5.0E+02	3.3E+00
hydrogen chloride	agri. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	agri. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	8.2E+01	1.2E+01	2.6E+02	4.0E+01	1.3E+01
iprodione	agri. soil	36734-19-7	2.3E-01	2.2E-05	1.9E-02	3.5E-07	1.4E-01

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isoproturon	agri. soil	34123-59-6	1.7E+02	1.8E+00	6.3E+01	1.1E+00	6.4E+00
lead	agri. soil	14280-50-3	6.4E-03	1.0E-03	1.6E-02	2.7E-03	5.4E-02
lindane	agri. soil	58-89-9	9.7E+01	1.4E+00	2.5E+01	2.9E-01	2.3E+01
linuron	agri. soil	330-55-2	6.9E+02	1.2E+01	6.9E+02	1.6E+01	2.1E+01
malathion	agri. soil	121-75-5	1.6E+02	6.6E-01	9.5E+01	3.7E-01	7.6E-02
MCPA	agri. soil	94-74-6	4.6E-01	6.2E-04	3.1E-01	7.6E-04	9.4E-02
mecoprop	agri. soil	7085-19-0	3.0E+01	5.3E-02	2.0E+01	6.9E-02	4.7E+00
mercury	agri. soil	14302-87-5	1.4E+01	6.2E+00	3.5E+01	1.3E+01	1.6E+03
metamitron	agri. soil	41394-05-2	4.1E-01	1.1E-03	2.2E-01	8.9E-04	4.2E-02
metazachlor	agri. soil	67129-08-2	3.9E+00	3.3E-02	2.8E+00	3.9E-02	1.7E-01
methabenzthiazuron	agri. soil	18691-97-9	4.4E+01	1.0E+00	4.8E+01	1.5E+00	1.1E+00
methomyl	agri. soil	16752-77-5	1.4E+04	4.4E+02	1.1E+04	5.7E+02	3.0E+02
methylbromide	agri. soil	74-83-9	1.4E-01	3.1E+00	7.2E-02	8.3E-01	3.6E-01
methyl-mercury	agri. soil	22967-92-6	3.3E+02	1.4E+02	8.1E+02	3.0E+02	1.6E+03
metobromuron	agri. soil	3060-89-7	9.4E+01	1.4E+01	9.2E+01	1.6E+01	2.2E+00
metolachlor	agri. soil	51218-45-2	1.9E+03	3.0E+01	1.7E+03	4.1E+01	5.4E-01
mevinphos	agri. soil	7786-34-7	3.5E+02	3.4E-01	4.4E+01	3.8E-02	8.7E+01
molybdenum	agri. soil	7439-98-7	1.3E+00	4.4E-01	2.9E+00	8.0E-01	2.1E-01
meta-Xylene	agri. soil	108-38-3	1.9E-03	2.5E-04	1.2E-03	2.3E-04	3.0E-03
Naphtalene	agri. soil	91-20-3	3.8E+00	5.7E-02	1.5E+00	2.0E-02	3.1E+00
nickel	agri. soil	7440-02-0	1.6E+01	4.3E+00	3.8E+01	9.1E+00	3.2E+00
nitrogen dioxide	agri. soil	10102-44-0	x	x	x	x	x
oxamyl	agri. soil	23135-22-0	3.0E+01	8.4E-03	1.3E+01	2.4E-03	5.9E+00
oxydemethon-methyl	agri. soil	301-12-2	9.7E+02	2.0E+00	2.2E+02	8.2E-01	9.2E+01
ortho-Xylene	agri. soil	95-47-6	2.5E-03	5.5E-04	2.0E-03	6.0E-04	3.4E-03
parathion-ethyl	agri. soil	56-38-2	5.0E+02	2.3E+00	3.4E+02	9.6E-01	1.7E+01
parathion-methyl	agri. soil	298-00-0	1.1E+03	5.9E+00	6.8E+01	2.5E-01	8.1E+01
pentachlorobenzene	agri. soil	608-93-5	5.9E-01	2.7E+01	8.3E-01	1.4E+01	2.1E+00
pentachloronitrobenzene	agri. soil	82-68-8	1.5E+01	2.9E+01	4.3E+00	2.1E+00	2.7E+00
pentachlorophenol	agri. soil	87-86-5	3.3E-01	5.9E-03	7.4E-01	1.1E-02	4.8E+00
permethrin	agri. soil	52645-53-1	9.2E+02	5.5E+00	1.2E+03	4.2E+00	2.5E+02
phenanthrene	agri. soil	85-01-8	2.9E-01	8.7E-03	3.2E-01	7.0E-03	3.7E-02
Phenol	agri. soil	108-95-2	3.5E+00	1.7E-03	1.3E+00	1.1E-03	4.5E-02
phoxim	agri. soil	14816-18-3	4.4E+00	3.1E-01	7.2E-01	4.1E-02	4.7E+00
Phtalic anhydride	agri. soil	85-44-9	4.8E-05	1.8E-08	9.8E-08	1.1E-10	2.6E-03
pirimicarb	agri. soil	23103-98-2	1.7E+03	7.3E+00	1.7E+03	1.1E+01	1.2E+02
dust (PM10)	agri. soil	PM10	x	x	x	x	x
propachlor	agri. soil	1918-16-7	1.7E+01	4.2E-02	9.4E+00	4.0E-02	2.5E+00
propoxur	agri. soil	114-26-1	2.0E+04	3.9E+01	1.4E+04	4.0E+01	1.8E+03
Propylene Oxide	agri. soil	75-56-9	4.2E-01	2.9E-02	2.3E-01	1.6E-02	1.4E-01
para-Xylene	agri. soil	106-42-3	1.4E-03	3.2E-04	8.6E-04	2.0E-04	1.5E-03
pyrazophos	agri. soil	13457-18-6	2.5E+02	6.8E-01	2.3E+02	6.5E-01	3.0E+01
selenium	agri. soil	7782-49-2	2.8E+02	9.8E+01	3.2E+02	9.3E+01	2.3E+01
simazine	agri. soil	122-34-9	2.3E+03	1.3E+01	2.0E+03	1.9E+01	2.9E+01
styrene	agri. soil	100-42-5	1.5E-03	1.1E-04	1.1E-03	7.6E-05	1.4E-03
sulphur dioxide	agri. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	agri. soil	127-18-4	2.2E-03	3.1E-01	2.1E-03	1.1E-01	3.0E-01
Tetrachloromethane	agri. soil	56-23-5	5.6E-04	1.1E+00	3.2E-04	3.0E-01	2.1E-03
thallium	agri. soil	7440-28-0	5.1E+01	1.6E+01	1.2E+02	3.3E+01	1.0E+01
Thiram	agri. soil	137-26-8	6.9E+02	6.5E-01	2.5E+02	5.7E-02	5.1E+01
tin	agri. soil	7440-31-5	6.8E-03	1.1E-03	3.3E-03	5.7E-04	5.0E-02
tolclophos-methyl	agri. soil	57018-04-9	3.1E+00	1.3E-01	3.3E+00	1.5E-01	1.8E+00
Toluene	agri. soil	108-88-3	1.1E-03	4.5E-04	7.5E-04	3.7E-04	1.9E-02
tri-allate	agri. soil	2303-17-5	5.0E+01	8.4E-01	1.8E+01	2.3E-01	1.3E+00

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triazophos	agri. soil	24017-47-8	5.8E+03	5.3E+01	5.4E+03	7.3E+01	2.5E+02
tributyltinoxide	agri. soil	56-35-9	1.1E+03	5.6E+02	1.5E+03	7.7E+02	3.7E+01
trichlorfon	agri. soil	52-68-6	3.3E+03	6.7E-01	6.1E+02	1.0E-01	1.9E+03
Trichloroethylene	agri. soil	79-01-6	4.6E-04	2.5E-03	3.9E-04	1.5E-03	2.1E-03
Trichloromethane	agri. soil	67-66-3	4.7E-04	4.7E-02	2.4E-04	1.3E-02	1.6E-03
trifluarin	agri. soil	1582-09-8	4.0E+01	1.2E+00	3.3E+01	4.9E-01	3.5E+01
vanadium	agri. soil	7440-62-2	5.2E+01	1.5E+01	1.2E+02	2.9E+01	2.1E+01
Vinyl Chloride	agri. soil	75-01-4	6.4E-05	1.3E-04	5.2E-05	1.2E-04	3.1E-04
zinc	agri. soil	23713-49-7	4.1E-01	7.8E-02	1.0E+00	1.9E-01	3.6E-01
zineb	agri. soil	12122-67-7	3.7E+02	3.5E+00	3.0E+02	3.8E+00	1.6E+01
chlormequat-chloride	agri. soil	999-81-5	1.4E+00	9.7E-03	5.7E-01	6.0E-03	7.0E-02
fenpropimorph	agri. soil	67306-03-0	8.2E+00	4.6E-02	8.1E+00	4.7E-02	5.3E-01
fluroxypyr	agri. soil	69377-81-7	6.2E+02	3.9E+00	4.8E+02	5.5E+00	3.3E+01
epoxiconazole	agri. soil	??	3.8E+02	5.8E+01	5.1E+02	7.5E+01	6.4E+00
ethylene oxide	agri. soil	75-21-8	7.9E-01	2.2E-01	4.8E-01	1.1E-01	2.2E-01
hydrogen fluoride	agri. soil	7664-39-3	9.4E+00	6.5E+00	7.6E+00	4.7E+00	6.0E-03
1,1,1-trichloroethane	indus. soil	71-55-6	3.7E-04	2.9E-01	3.1E-04	9.6E-02	1.5E-03
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	1.0E-01	1.5E+00	1.2E-01	6.0E-01	7.7E-01
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	1.9E-01	5.1E+00	2.1E-01	2.0E+00	1.2E+01
1,2,3-trichlorobenzene	indus. soil	87-61-6	3.0E-02	8.6E-01	3.3E-02	3.5E-01	8.0E+00
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	9.0E-02	1.8E+00	1.0E-01	7.4E-01	1.7E+01
1,2,4-trichlorobenzene	indus. soil	120-82-1	3.2E-02	7.1E-01	3.6E-02	3.0E-01	9.9E-01
1,2-dichlorobenzene	indus. soil	95-50-1	1.9E-02	5.1E-01	1.8E-02	2.1E-01	5.4E-02
1,2-dichloroethane	indus. soil	107-06-2	7.5E-04	5.8E-02	6.3E-04	2.2E-02	1.7E-03
1,3,5-trichlorobenzene	indus. soil	108-70-3	6.6E-02	1.3E+00	6.9E-02	5.5E-01	2.2E-01
1,3-Butadiene	indus. soil	106-99-0	5.7E-05	2.9E-06	3.8E-05	3.2E-06	3.1E-04
1,3-dichlorobenzene	indus. soil	541-73-1	1.8E-02	3.7E-01	1.6E-02	1.6E-01	6.2E-02
1,4-dichlorobenzene	indus. soil	106-46-7	1.4E-02	5.5E-01	1.4E-02	2.1E-01	1.0E+00
1-chloro-4-nitrobenzene	indus. soil	100-00-5	1.5E+02	1.2E+02	1.3E+02	7.9E+01	1.7E+01
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	1.2E+02	2.5E+00	1.3E+02	2.7E+00	9.7E-01
2,3,7,8-TCDD	indus. soil	1746-01-6	4.5E+05	1.2E+05	1.4E+06	3.8E+05	2.7E+04
2,4,5-T	indus. soil	93-76-5	1.5E+00	5.5E-03	1.1E+00	6.8E-03	6.4E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	9.9E+01	4.6E+00	1.2E+02	5.7E+00	3.9E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	4.8E+00	3.2E-02	4.7E+00	3.7E-02	6.8E-01
2,4-D	indus. soil	94-75-7	8.2E+01	4.6E-01	6.1E+01	6.4E-01	1.1E+00
2,4-dichlorophenol	indus. soil	120-83-2	9.2E+00	2.7E-02	3.6E+00	1.2E-02	5.4E-01
2-chlorophenol	indus. soil	95-57-8	3.1E+01	2.6E-01	2.4E+01	3.5E-01	3.7E-01
3,4-dichloroaniline	indus. soil	95-76-1	4.0E+03	5.7E+02	5.0E+03	7.3E+02	1.8E+01
3-chloroaniline	indus. soil	108-42-9	2.5E+02	1.2E+00	2.3E+02	1.6E+00	1.2E+00
4-chloroaniline	indus. soil	106-47-8	4.9E+02	2.2E+00	4.2E+02	3.3E+00	1.1E+01
acephate	indus. soil	30560-19-1	1.6E+02	2.1E+00	8.1E+01	2.0E+00	1.3E+00
Acrolein	indus. soil	107-02-8	4.5E+04	2.5E+02	3.4E+04	3.6E+02	7.0E+03
Acrylonitrile	indus. soil	107-13-1	8.1E+00	2.7E-01	5.3E+00	2.3E-01	2.1E+00
aldicarb	indus. soil	116-06-3	9.6E+04	1.6E+03	7.6E+04	2.4E+03	4.2E+03
aldrin	indus. soil	309-00-2	2.9E+02	3.3E+01	2.5E+01	3.0E+00	2.0E+01
ammonia	indus. soil	7664-41-7	x	x	x	x	x
anilazine	indus. soil	101-05-3	8.6E-01	2.0E-04	5.5E-02	8.5E-06	2.3E-01
anthracene	indus. soil	120-12-7	3.2E+02	2.5E+01	4.5E+02	3.2E+01	8.8E+00
antimony	indus. soil	7440-36-0	4.1E-01	1.2E-01	9.5E-01	2.4E-01	6.7E-02
arsenic	indus. soil	7440-38-2	1.8E-01	4.8E-02	4.4E-01	1.0E-01	6.7E+00
atrazine	indus. soil	1912-24-9	9.3E+02	9.1E+01	8.0E+02	1.0E+02	4.4E+00



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aziphos-ethyl	indus. soil	2642-71-9	3.7E+03	1.4E+01	2.7E+03	1.1E+01	7.2E+01
aziphos-methyl	indus. soil	86-50-0	8.0E+02	5.8E-01	4.1E+02	1.7E-01	1.0E+00
barium	indus. soil	7440-39-3	7.3E+00	2.4E+00	1.6E+01	4.4E+00	7.5E-01
benomyl	indus. soil	17804-35-2	1.8E+01	2.3E-02	2.4E+00	2.0E-03	3.5E+00
bentazone	indus. soil	25057-89-0	1.1E+01	4.8E-02	8.8E+00	7.2E-02	5.0E-01
Benzene	indus. soil	71-43-2	7.2E-04	2.4E-03	5.4E-04	1.1E-03	3.4E-03
benzo[a]anthracene	indus. soil	56-55-3	2.5E+02	1.8E+01	7.4E+02	5.9E+01	3.1E+01
benzo[a]pyrene	indus. soil	50-32-8	5.3E+02	2.6E+01	1.5E+03	7.7E+01	2.3E+01
benzo[ghi]perylene	indus. soil	191-24-2	2.2E+02	3.1E+01	7.2E+02	1.1E+02	8.2E+00
benzo[k]fluoranthrene	indus. soil	207-08-9	1.5E+04	3.2E+03	5.0E+04	1.0E+04	3.4E+02
benzylchloride	indus. soil	100-44-7	3.2E+00	2.9E-01	4.7E-01	4.5E-02	7.1E-01
beryllium	indus. soil	7440-41-7	4.7E+03	1.6E+03	5.4E+03	1.5E+03	4.2E+02
bifenthrin	indus. soil	82657-04-3	4.1E+02	4.5E-01	1.2E+03	1.7E+00	8.3E+01
Butylbenzylphthalate	indus. soil	85-68-7	1.0E-01	1.2E-04	3.3E-02	2.8E-05	1.0E-02
cadmium	indus. soil	22537-48-0	1.4E+01	2.6E+00	3.5E+01	6.4E+00	5.1E+00
captafol	indus. soil	2425-06-1	8.3E+04	1.2E+04	1.2E+05	1.8E+04	2.2E+01
captan	indus. soil	133-06-2	4.7E+00	8.1E-04	4.1E-02	9.9E-06	1.2E-01
carbaryl	indus. soil	63-25-2	1.2E+02	4.0E-02	3.6E+01	3.5E-03	1.4E-01
carbendazim	indus. soil	10605-21-7	6.1E+03	9.3E+01	6.2E+03	1.4E+02	3.8E+01
carbofuran	indus. soil	1563-66-2	1.8E+03	6.2E+00	1.1E+03	6.6E+00	5.9E+00
carbon disulfide	indus. soil	75-15-0	3.4E-01	1.4E+00	2.8E-01	7.9E-01	1.6E+00
Carcinogenic PAHs	indus. soil		2.1E+02	3.4E+01	6.8E+02	1.1E+02	6.2E+00
chlordane	indus. soil	57-74-9	3.7E+02	1.2E+02	3.7E+01	3.3E+00	7.3E+01
chlorfenvinphos	indus. soil	470-90-6	5.9E+01	3.1E-01	5.0E+01	3.7E-01	1.2E+00
chloridazon	indus. soil	1698-60-8	3.9E+00	1.8E-01	3.1E+00	2.2E-01	6.8E-01
chlorobenzene	indus. soil	108-90-7	3.2E-03	8.3E-02	3.0E-03	3.7E-02	1.2E-01
chlorothalonil	indus. soil	1897-45-6	3.7E+00	6.0E+00	2.6E+00	1.7E+00	6.1E-01
chlorpropham	indus. soil	101-21-3	6.4E+00	3.0E-02	5.5E+00	3.8E-02	1.2E-01
chlorpyrifos	indus. soil	2921-88-2	1.4E+03	5.8E-01	9.3E+02	5.8E-02	1.7E+01
chromium III	indus. soil	16056-83-1	3.5E-03	6.0E-04	8.7E-03	1.5E-03	7.3E+00
chromium VI	indus. soil	18540-29-9	1.4E-02	2.4E-03	3.5E-02	6.1E-03	7.3E+00
chrysene	indus. soil	218-01-9	2.8E+02	4.0E+01	8.9E+02	1.3E+02	4.5E+00
cobalt	indus. soil	7440-48-4	1.4E+02	4.3E+01	2.3E+02	5.8E+01	2.5E+01
copper	indus. soil	15158-11-9	7.7E+00	1.7E+00	1.8E+01	3.7E+00	3.1E-01
coumaphos	indus. soil	56-72-4	3.1E+06	4.4E+05	4.4E+06	6.6E+05	1.2E+04
cyanazine	indus. soil	21725-46-2	3.0E+03	1.0E+01	2.3E+03	1.4E+01	6.3E+01
cypermethrin	indus. soil	52315-07-8	6.9E+05	1.0E+03	1.3E+06	2.8E+03	7.8E+04
cyromazine	indus. soil	66215-27-8	6.5E+03	2.5E+02	5.2E+03	3.5E+02	6.3E+02
DDT	indus. soil	50-29-3	2.6E+02	1.2E+02	2.8E+02	3.7E+01	4.5E+01
deltamethrin	indus. soil	52918-63-5	9.6E+01	2.4E-01	1.5E+02	4.7E-01	8.5E+00
demeton	indus. soil	8065-48-3	2.6E+03	1.1E+01	1.8E+03	1.5E+01	4.9E+01
desmetryn	indus. soil	1014-69-3	1.1E+01	8.8E-02	6.6E+00	8.8E-02	2.6E+00
Di(2-ethylhexyl)phthalate	indus. soil	117-81-7	6.0E-03	6.2E-05	7.9E-03	4.4E-05	1.4E-03
diazinon	indus. soil	333-41-5	4.6E+03	2.7E+01	3.3E+03	2.6E+01	1.0E+01
Dibutylphthalate	indus. soil	84-74-2	3.1E-01	4.8E-04	4.1E-02	4.5E-05	2.3E-02
Dichloromethane	indus. soil	75-09-2	1.6E-04	2.5E-03	1.1E-04	9.2E-04	2.5E-04
dichlorprop	indus. soil	120-36-5	5.1E-02	1.4E-04	2.7E-02	7.4E-05	1.4E-03
dichlorvos	indus. soil	62-73-7	3.0E+02	1.6E-01	1.3E+01	1.1E-02	2.0E+02
dieldrin	indus. soil	60-57-1	2.3E+03	3.0E+02	2.4E+02	1.1E+01	1.0E+02
Diethylphthalate	indus. soil	84-66-2	6.3E-01	2.8E-03	4.1E-01	2.2E-03	2.1E+00
Dihexylphthalate	indus. soil	84-75-3	7.4E-02	1.7E-03	1.8E-01	3.2E-03	7.3E-03
Diisodecylphthalate	indus. soil	26761-40-0	1.8E-02	3.4E-03	4.1E-02	5.4E-03	4.0E-03
Diisooctylphthalate	indus. soil	27554-26-3	2.5E-03	2.6E-04	5.5E-03	4.1E-04	5.5E-04
dimethoate	indus. soil	60-51-5	2.8E+01	1.2E-01	2.0E+01	1.5E-01	6.2E-01

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Dimethylphtalate	indus. soil	133-11-3	2.9E-02	3.8E-05	7.5E-03	9.1E-06	1.4E+00
dinoseb	indus. soil	88-85-7	5.8E+04	1.1E+03	1.6E+04	4.3E+02	4.2E+02
dinoterb	indus. soil	1420-07-1	1.3E+03	3.6E+01	5.9E+02	1.3E+01	9.9E+00
Dioclyphtalate	indus. soil	117-84-0	1.7E-04	5.2E-06	2.8E-04	5.1E-06	4.8E-05
disulfothon	indus. soil	298-04-4	2.9E+02	5.6E-01	9.9E+01	1.6E-01	1.1E+01
diuron	indus. soil	330-54-1	1.1E+03	6.8E+00	1.1E+03	9.8E+00	1.9E+01
DNOC	indus. soil	534-52-1	4.5E+00	1.4E-02	7.5E-01	3.3E-03	4.9E-01
endosulfan	indus. soil	115-29-7	9.0E+00	5.5E-03	1.9E+00	3.6E-04	2.8E+00
endrin	indus. soil	72-20-8	5.1E+04	1.4E+04	1.6E+04	1.2E+03	2.6E+03
ethoprophos	indus. soil	13194-48-4	3.0E+04	7.2E+02	2.4E+04	9.7E+02	1.9E+02
Ethylbenzene	indus. soil	100-41-4	1.8E-03	4.1E-04	1.2E-03	3.2E-04	1.9E-03
Ethylene	indus. soil	74-85-1	1.1E-09	7.8E-11	7.1E-10	7.1E-11	2.3E-09
fenitrothion	indus. soil	122-14-5	3.0E+03	8.9E+00	1.7E+03	4.5E+00	8.1E+01
fenthion	indus. soil	55-38-9	1.4E+04	5.7E+01	9.9E+03	3.9E+01	2.8E+02
fentin acetate	indus. soil	900-95-8	1.5E+03	2.7E+01	2.5E+03	7.2E+01	1.1E+01
fentin chloride	indus. soil	639-58-7	9.9E+02	3.7E+02	1.6E+03	4.7E+02	1.1E+01
fentin hydroxide	indus. soil	76-87-9	1.5E+03	2.4E+01	2.5E+03	6.5E+01	1.1E+01
fluoranthrene	indus. soil	206-44-0	7.6E+01	5.3E+00	2.3E+02	1.7E+01	2.3E+00
folpet	indus. soil	133-07-3	1.3E+04	2.0E+03	1.8E+04	2.7E+03	7.8E+01
Formaldehyde	indus. soil	50-00-0	4.4E+01	5.5E-02	2.4E+01	5.5E-02	4.4E+00
glyphosate	indus. soil	1071-83-6	3.7E+00	1.1E-02	3.6E+00	9.9E-03	9.6E-02
heptachlor	indus. soil	76-44-8	8.9E+00	9.5E-02	1.3E+01	7.9E-02	5.3E+00
heptenophos	indus. soil	23560-59-0	1.2E+02	1.0E-01	1.5E+01	2.0E-02	1.6E+01
hexachloro-1,3-butadiene	indus. soil	87-68-3	8.4E+01	3.4E+04	9.7E+01	1.3E+04	4.7E+01
hexachlorobenzene	indus. soil	118-74-1	4.1E+00	6.5E+02	1.3E+01	6.9E+02	2.9E+00
hydrogen chloride	indus. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	indus. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	3.3E+02	4.7E+01	1.0E+03	1.6E+02	1.2E+01
iprodione	indus. soil	36734-19-7	1.9E+00	1.8E-04	1.6E-01	2.9E-06	3.0E-01
isoproturon	indus. soil	34123-59-6	4.0E+02	4.2E+00	1.5E+02	2.7E+00	4.6E+00
lead	indus. soil	14280-50-3	6.4E-03	1.0E-03	1.6E-02	2.7E-03	5.4E-02
lindane	indus. soil	58-89-9	3.7E+02	5.3E+00	9.7E+01	1.1E+00	2.2E+01
linuron	indus. soil	330-55-2	2.4E+03	4.4E+01	2.4E+03	5.7E+01	1.8E+01
malathion	indus. soil	121-75-5	6.5E+02	2.6E+00	3.8E+02	1.5E+00	7.5E-02
MCPA	indus. soil	94-74-6	1.7E+00	2.2E-03	1.1E+00	2.7E-03	8.6E-02
mecoprop	indus. soil	7085-19-0	7.8E+01	1.4E-01	5.3E+01	1.8E-01	3.3E+00
mercury	indus. soil	14302-87-5	1.4E+01	6.2E+00	3.5E+01	1.3E+01	1.6E+03
metamitron	indus. soil	41394-05-2	1.5E+00	4.1E-03	7.9E-01	3.2E-03	3.8E-02
metazachlor	indus. soil	67129-08-2	1.4E+01	1.1E-01	9.8E+00	1.4E-01	1.5E-01
methabenzthiazuron	indus. soil	18691-97-9	1.4E+02	3.2E+00	1.5E+02	4.7E+00	8.8E-01
methomyl	indus. soil	16752-77-5	2.8E+04	8.9E+02	2.1E+04	1.1E+03	2.2E+02
methylbromide	indus. soil	74-83-9	1.4E-01	3.1E+00	7.3E-02	8.3E-01	3.7E-01
methyl-mercury	indus. soil	22967-92-6	3.3E+02	1.4E+02	8.1E+02	3.0E+02	1.6E+03
metobromuron	indus. soil	3060-89-7	9.4E+01	1.4E+01	9.2E+01	1.6E+01	2.2E+00
metolachlor	indus. soil	51218-45-2	5.8E+03	9.1E+01	5.2E+03	1.3E+02	4.1E-01
mevinphos	indus. soil	7786-34-7	1.5E+03	1.4E+00	1.8E+02	1.6E-01	9.0E+01
molybdenum	indus. soil	7439-98-7	1.3E+00	4.4E-01	2.9E+00	8.0E-01	2.1E-01
meta-Xylene	indus. soil	108-38-3	1.9E-03	2.5E-04	1.2E-03	2.3E-04	3.0E-03
Naphtalene	indus. soil	91-20-3	1.2E+01	1.9E-01	4.9E+00	6.7E-02	2.6E+00
nickel	indus. soil	7440-02-0	1.6E+01	4.3E+00	3.8E+01	9.1E+00	3.2E+00
nitrogen dioxide	indus. soil	10102-44-0	x	x	x	x	x
oxamyl	indus. soil	23135-22-0	1.2E+02	3.4E-02	5.5E+01	9.9E-03	6.0E+00
oxydemethon-methyl	indus. soil	301-12-2	3.6E+03	7.3E+00	8.1E+02	3.0E+00	8.5E+01

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ortho-Xylene	indus. soil	95-47-6	2.5E-03	5.5E-04	2.0E-03	6.0E-04	3.4E-03
parathion-ethyl	indus. soil	56-38-2	1.9E+03	9.2E+00	1.3E+03	3.8E+00	1.7E+01
parathion-methyl	indus. soil	298-00-0	4.4E+03	2.3E+01	2.6E+02	9.8E-01	7.9E+01
pentachlorobenzene	indus. soil	608-93-5	1.1E+00	5.3E+01	1.6E+00	2.6E+01	1.7E+00
pentachloronitrobenzene	indus. soil	82-68-8	5.8E+01	1.1E+02	1.7E+01	8.3E+00	2.6E+00
pentachlorophenol	indus. soil	87-86-5	1.3E+00	2.7E-02	3.0E+00	4.9E-02	4.8E+00
permethrin	indus. soil	52645-53-1	3.7E+03	2.2E+01	4.8E+03	1.7E+01	2.5E+02
phenanthrene	indus. soil	85-01-8	1.2E+00	3.5E-02	1.3E+00	2.8E-02	3.7E-02
Phenol	indus. soil	108-95-2	1.3E+01	6.1E-03	4.7E+00	4.0E-03	4.1E-02
phoxim	indus. soil	14816-18-3	7.9E+00	5.5E-01	1.3E+00	7.2E-02	3.8E+00
Phtalic anhydride	indus. soil	85-44-9	3.1E-05	1.2E-08	6.3E-08	6.8E-11	4.2E-04
pirimicarb	indus. soil	23103-98-2	5.2E+03	2.3E+01	5.3E+03	3.5E+01	9.4E+01
dust (PM10)	indus. soil	PM10	x	x	x	x	x
propachlor	indus. soil	1918-16-7	6.4E+01	1.6E-01	3.4E+01	1.5E-01	2.3E+00
propoxur	indus. soil	114-26-1	5.4E+04	1.0E+02	3.8E+04	1.1E+02	1.3E+03
Propylene Oxide	indus. soil	75-56-9	4.8E-01	3.3E-02	2.5E-01	1.8E-02	1.2E-01
para-Xylene	indus. soil	106-42-3	1.4E-03	3.2E-04	8.7E-04	2.0E-04	1.5E-03
pyrazophos	indus. soil	13457-18-6	9.9E+02	2.6E+00	9.0E+02	2.5E+00	2.9E+01
selenium	indus. soil	7782-49-2	2.8E+02	9.8E+01	3.2E+02	9.3E+01	2.3E+01
simazine	indus. soil	122-34-9	5.6E+03	3.1E+01	4.8E+03	4.6E+01	2.1E+01
styrene	indus. soil	100-42-5	2.6E-03	1.8E-04	1.8E-03	1.3E-04	1.2E-03
sulphur dioxide	indus. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	indus. soil	127-18-4	2.2E-03	3.1E-01	2.1E-03	1.1E-01	3.0E-01
Tetrachloromethane	indus. soil	56-23-5	5.6E-04	1.1E+00	3.2E-04	3.0E-01	2.1E-03
thallium	indus. soil	7440-28-0	5.1E+01	1.6E+01	1.2E+02	3.3E+01	1.0E+01
Thiram	indus. soil	137-26-8	4.4E+03	4.2E+00	1.6E+03	3.6E-01	8.1E+01
tin	indus. soil	7440-31-5	6.8E-03	1.1E-03	3.3E-03	5.7E-04	5.0E-02
tolclophos-methyl	indus. soil	57018-04-9	9.2E+00	3.9E-01	9.9E+00	4.4E-01	1.5E+00
Toluene	indus. soil	108-88-3	1.1E-03	4.5E-04	7.5E-04	3.7E-04	1.9E-02
tri-allate	indus. soil	2303-17-5	2.0E+02	3.4E+00	7.0E+01	9.3E-01	1.3E+00
triazophos	indus. soil	24017-47-8	1.9E+04	1.7E+02	1.8E+04	2.4E+02	2.0E+02
tributyltinoxide	indus. soil	56-35-9	4.2E+03	2.2E+03	5.7E+03	3.0E+03	3.7E+01
trichlorfon	indus. soil	52-68-6	1.8E+04	3.7E+00	3.4E+03	5.6E-01	2.6E+03
Trichloroethylene	indus. soil	79-01-6	4.6E-04	2.5E-03	3.9E-04	1.5E-03	2.1E-03
Trichloromethane	indus. soil	67-66-3	4.7E-04	4.7E-02	2.4E-04	1.3E-02	1.6E-03
trifluarin	indus. soil	1582-09-8	1.6E+02	4.5E+00	1.3E+02	1.9E+00	3.4E+01
vanadium	indus. soil	7440-62-2	5.2E+01	1.5E+01	1.2E+02	2.9E+01	2.1E+01
Vinyl Chloride	indus. soil	75-01-4	6.4E-05	1.3E-04	5.2E-05	1.2E-04	3.1E-04
zinc	indus. soil	23713-49-7	4.1E-01	7.8E-02	1.0E+00	1.9E-01	3.6E-01
zineb	indus. soil	12122-67-7	1.4E+03	1.3E+01	1.1E+03	1.4E+01	1.5E+01
chlormequat-chloride	indus. soil	999-81-5	5.4E+00	3.8E-02	2.2E+00	2.3E-02	6.8E-02
fenpropimorph	indus. soil	67306-03-0	3.2E+01	1.8E-01	3.1E+01	1.8E-01	5.1E-01
fluroxypyr	indus. soil	69377-81-7	1.7E+03	1.1E+01	1.3E+03	1.5E+01	2.3E+01
epoxiconazole	indus. soil	??	1.1E+03	1.7E+02	1.5E+03	2.2E+02	4.6E+00
ethylene oxide	indus. soil	75-21-8	9.8E-01	2.7E-01	6.0E-01	1.4E-01	1.9E-01
hydrogen fluoride	indus. soil	7664-39-3	9.4E+00	6.5E+00	7.6E+00	4.7E+00	6.0E-03

x = not calculated

Source: Huijbregts, 2000; Huijbregts *et al.*, 2000a

Status: Author(s).

Equations: 
$$fresh\ water\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} FAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.11)$$

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$$\text{marine aquatic ecotoxicity} = \sum_i \sum_{ecom} MAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.12)$$

$$\text{fresh water sediment ecotoxicity} = \sum_i \sum_{ecom} FSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.13)$$

$$\text{marine sediment ecotoxicity} = \sum_i \sum_{ecom} MSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.14)$$

$$\text{terrestrial ecotoxicity} = \sum_i \sum_{ecom} TETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.15)$$

The five indicator results are expressed in kg 1,4-dichlorobenzene equivalent.  $FAETP_{ecom,i}$  is the characterisation factor for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $FAETP$  is the Fresh water Aquatic EcoToxicity Potential,  $MAETP$  is the Marine Aquatic EcoToxicity Potential,  $FSETP$  is the Fresh water Sediment EcoToxicity Potential,  $MSETP$  is the Marine Sediment EcoToxicity Potential,  $TETP$  is the Terrestrial EcoToxicity Potential, and  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ . The five indicator scores can only be added after weighting (see Part 2a, Section 4.3.8).

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU. Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.

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Table 4.3.8.4: Alternative FAETP, MAETP, FSETP, MSETP and TETP factors for characterising ecotoxic releases, for 500-year time horizon and global scale.

Substance	Comp.	CAS number	FAETP (500 yr) (kg 1,4- DCB eq./kg)	MAETP (500 yr) (kg 1,4- DCB eq./kg)	FSETP (500 yr) (kg 1,4- DCB eq./kg)	MSETP (500 yr) (kg 1,4- DCB eq./kg)	TETP (500 yr) (kg 1,4- DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	1.22E-04 <sup>1</sup>	3.04E-01	1.00E-04	1.00E-01	1.78E-04
1,2,3,4-tetrachlorobenzene	air	634-66-2	1.04E-01	1.68E+01	1.22E-01	6.94E+00	9.94E-03
1,2,3,5-tetrachlorobenzene	air	634-90-2	7.30E-02	1.79E+01	8.13E-02	7.04E+00	1.79E-01
1,2,3-trichlorobenzene	air	87-61-6	8.47E-03	2.10E+00	9.26E-03	8.48E-01	7.50E-02
1,2,4,5-tetrachlorobenzene	air	95-94-3	7.31E-02	1.50E+01	8.49E-02	6.06E+00	2.39E-01
1,2,4-trichlorobenzene	air	120-82-1	9.85E-03	2.04E+00	1.09E-02	8.40E-01	8.81E-03
1,2-dichlorobenzene	air	95-50-1	2.88E-03	6.66E-01	2.70E-03	2.78E-01	5.29E-04
1,2-dichloroethane	air	107-06-2	1.18E-04	8.18E-02	9.95E-05	3.11E-02	2.64E-05
1,3,5-trichlorobenzene	air	108-70-3	1.60E-02	3.02E+00	1.66E-02	1.28E+00	1.87E-03
1,3-Butadiene	air	106-99-0	3.25E-07	2.74E-06	2.20E-07	3.02E-06	2.32E-08
1,3-dichlorobenzene	air	541-73-1	2.37E-03	4.62E-01	2.22E-03	2.03E-01	4.35E-04
1,4-dichlorobenzene	air	106-46-7	2.38E-03	7.41E-01	2.38E-03	2.89E-01	1.23E-02
1-chloro-4-nitrobenzene	air	100-00-5	1.10E+01	3.92E+02	9.99E+00	2.44E+02	5.35E-01
2,3,4,6-tetrachlorophenol	air	58-90-2	7.95E+01	1.34E+02	8.70E+01	1.10E+02	3.14E-01
2,3,7,8-TCDD	air	1746-01-6	2.11E+06	2.97E+08	6.83E+06	8.14E+08	1.20E+04
2,4,5-T	air	93-76-5	8.54E-01	2.01E-01	6.09E-01	2.51E-01	3.24E-01
2,4,5-trichlorophenol	air	95-95-4	1.46E+01	5.30E+01	1.73E+01	4.84E+01	2.40E-01
2,4,6-trichlorophenol	air	88-06-2	5.85E+00	3.92E+00	5.72E+00	4.35E+00	3.19E-01
2,4-D	air	94-75-7	3.87E+01	5.28E+00	2.89E+01	7.27E+00	5.97E-01
2,4-dichlorophenol	air	120-83-2	1.40E+00	1.34E+00	5.53E-01	5.20E-01	3.04E-02
2-chlorophenol	air	95-57-8	1.30E+01	1.16E+01	1.04E+01	1.33E+01	5.34E-02
3,4-dichloroaniline	air	95-76-1	1.68E+03	1.73E+03	2.13E+03	2.13E+03	8.75E+00
3-chloroaniline	air	108-42-9	1.02E+02	2.30E+01	9.35E+01	3.16E+01	4.70E-01
4-chloroaniline	air	106-47-8	2.02E+00	1.65E+00	1.76E+00	2.35E+00	1.55E-02
acephate	air	30560-19-1	7.92E+01	1.94E+01	4.03E+01	1.84E+01	6.90E-01
Acrolein	air	107-02-8	5.19E+02	5.66E+02	3.88E+02	7.54E+02	1.63E+01
Acrylonitrile	air	107-13-1	4.14E-01	9.06E-01	2.70E-01	7.74E-01	8.00E-03
aldicarb	air	116-06-3	5.09E+04	8.15E+03	4.06E+04	1.18E+04	1.95E+03
aldrin	air	309-00-2	2.74E+00	6.12E+01	2.35E-01	5.42E+00	1.42E-02
ammonia	air	7664-41-7	x	x	x	x	x
anilazine	air	101-05-3	1.39E+01	8.27E+00	8.83E-01	3.44E-01	9.15E-02
anthracene	air	120-12-7	1.37E+02	1.70E+03	1.90E+02	2.08E+03	3.17E-02
antimony	air	7440-36-0	2.81E+00	3.83E+02	6.87E+00	3.71E+02	4.52E-01
arsenic	air	7440-38-2	4.39E+00	5.56E+03	1.13E+01	5.72E+03	8.45E+01
atrazine	air	1912-24-9	3.61E+02	2.79E+02	3.11E+02	3.08E+02	1.98E+00
azinphos-ethyl	air	2642-71-9	2.88E+02	1.61E+02	2.08E+02	1.26E+02	2.39E+00
azinphos-methyl	air	86-50-0	4.23E+02	1.96E+02	2.18E+02	5.71E+01	1.89E-01
barium	air	7440-39-3	3.67E+01	3.41E+03	8.33E+01	3.02E+03	4.12E+00
benomyl	air	17804-35-2	3.04E+01	2.08E+01	3.92E+00	1.80E+00	4.73E-01
bentazone	air	25057-89-0	5.63E+00	6.20E-01	4.55E+00	9.43E-01	2.53E-01
Benzene	air	71-43-2	8.37E-05	2.80E-03	6.36E-05	1.33E-03	1.56E-05
benzo[a]anthracene	air	56-55-3	4.17E+01	1.02E+03	1.27E+02	3.37E+03	2.30E-01
benzo[a]pyrene	air	50-32-8	8.78E+01	1.37E+03	2.51E+02	4.06E+03	2.41E-01
benzo[ghi]perylene	air	191-24-2	4.36E+01	1.66E+03	1.40E+02	5.73E+03	2.04E-01
benzo[k]fluoranthrene	air	207-08-9	3.85E+03	1.19E+05	1.28E+04	3.47E+05	2.97E+01
benzylchloride	air	100-44-7	7.57E-01	2.15E+00	1.11E-01	3.29E-01	1.66E-03

<sup>1</sup> Means  $1.22 \times 10^{-4}$ .

Substance	Comp.	CAS number	FAETP (500 yr) (kg 1,4- DCB eq./kg)	MAETP (500 yr) (kg 1,4- DCB eq./kg)	FSETP (500 yr) (kg 1,4- DCB eq./kg)	MSETP (500 yr) (kg 1,4- DCB eq./kg)	TETP (500 yr) (kg 1,4- DCB eq./kg)
beryllium	air	7440-41-7	1.63E+04	1.32E+06	1.91E+04	5.94E+05	1.67E+03
bifenthrin	air	82657-04-3	8.20E+02	1.02E+03	2.43E+03	3.70E+03	8.78E+00
Butylbenzylphthalate	air	85-68-7	4.01E-01	3.16E-01	1.31E-01	7.12E-02	1.31E-03
cadmium	air	22537-48-0	1.61E+02	1.27E+05	4.14E+02	1.37E+05	4.36E+01
captafol	air	2425-06-1	2.03E+04	2.74E+04	2.95E+04	3.94E+04	5.90E+00
captan	air	133-06-2	1.65E+01	1.02E+01	1.45E-01	1.24E-01	2.39E-02
carbaryl	air	63-25-2	1.11E+02	1.18E+01	3.24E+01	1.04E+00	6.30E-02
carbendazim	air	10605-21-7	2.98E+03	7.19E+02	3.03E+03	1.06E+03	1.98E+01
carbofuran	air	1563-66-2	9.02E+02	1.48E+02	5.22E+02	1.56E+02	3.02E+00
carbon disulfide	air	75-15-0	3.30E-02	1.53E+00	2.70E-02	8.56E-01	5.14E-03
Carcinogenic PAHs	air		1.71E+02	4.27E+03	5.56E+02	1.41E+04	1.02E+00
chlordane	air	57-74-9	2.67E+02	6.14E+04	2.71E+01	1.62E+03	2.23E+00
chlorfenvinphos	air	470-90-6	3.17E+01	1.14E+01	2.70E+01	1.33E+01	4.85E-01
chloridazon	air	1698-60-8	2.59E-02	2.16E-01	2.04E-02	2.60E-01	4.62E-04
chlorobenzene	air	108-90-7	4.68E-04	1.12E-01	4.36E-04	5.03E-02	7.29E-04
chlorothalonil	air	1897-45-6	2.53E+00	5.06E+01	1.77E+00	1.45E+01	7.07E-03
chlorpropham	air	101-21-3	2.30E+00	6.44E-01	1.98E+00	8.09E-01	3.72E-02
chlorpyrifos	air	2921-88-2	5.19E+02	6.21E+01	3.34E+02	5.97E+00	1.26E-01
chromium III	air	16056-83-1	1.23E-01	5.99E+02	3.15E-01	6.62E+02	1.01E+02
chromium VI	air	18540-29-9	4.90E-01	2.39E+03	1.26E+00	2.65E+03	1.01E+02
chrysene	air	218-01-9	3.89E+01	4.14E+02	1.25E+02	1.36E+03	2.15E-01
cobalt	air	7440-48-4	6.02E+02	7.14E+04	1.00E+03	4.78E+04	1.02E+02
copper	air	15158-11-9	9.79E+01	7.26E+04	2.46E+02	7.48E+04	2.91E+00
coumaphos	air	56-72-4	2.42E+05	3.36E+05	3.51E+05	4.83E+05	1.02E+03
cyanazine	air	21725-46-2	1.94E+03	6.29E+02	1.53E+03	8.13E+02	3.12E+01
cypermethrin	air	52315-07-8	8.36E+04	1.90E+04	1.52E+05	4.92E+04	8.92E+03
cyromazine	air	66215-27-8	3.52E+03	9.16E+02	2.83E+03	1.27E+03	3.08E+02
DDT	air	50-29-3	3.23E+02	8.61E+04	3.48E+02	2.55E+04	1.88E+01
deltamethrin	air	52918-63-5	1.81E+03	3.51E+03	2.73E+03	6.75E+03	7.65E-01
demeton	air	8065-48-3	2.27E+01	9.12E+00	1.61E+01	1.14E+01	3.04E-01
desmetryn	air	1014-69-3	6.79E+00	2.62E+00	4.07E+00	2.63E+00	1.24E+00
Di(2-ethylhexyl)phtalate	air	117-81-7	3.53E-01	2.45E+00	4.68E-01	1.70E+00	2.17E-04
diazinon	air	333-41-5	2.26E+02	1.18E+02	1.62E+02	1.11E+02	2.90E-01
Dibutylphtalate	air	84-74-2	5.60E-01	4.35E-01	7.31E-02	3.80E-02	3.95E-03
Dichloromethane	air	75-09-2	3.33E-05	3.84E-03	2.40E-05	1.40E-03	4.27E-06
dichlorprop	air	120-36-5	9.93E-02	6.16E-02	5.27E-02	3.22E-02	6.81E-04
dichlorvos	air	62-73-7	5.13E+02	4.06E+02	2.29E+01	2.65E+01	9.84E+00
dieldrin	air	60-57-1	1.95E+02	5.25E+03	2.04E+01	1.73E+02	1.11E+00
Diethylphtalate	air	84-66-2	4.22E-01	3.37E-01	2.77E-01	2.25E-01	5.35E-01
Dihexylphtalate	air	84-75-3	5.01E-01	1.75E+00	1.19E+00	3.19E+00	7.84E-04
Diisodecylphtalate	air	26761-40-0	5.56E-01	4.75E+00	1.23E+00	7.50E+00	9.23E-04
Diisooctylphtalate	air	27554-26-3	1.25E-01	3.60E+00	2.76E-01	5.56E+00	1.12E-04
dimethoate	air	60-51-5	1.25E+01	1.63E+00	9.27E+00	1.96E+00	3.04E-01
Dimethylphtalate	air	133-11-3	5.19E-02	2.69E-02	1.34E-02	6.17E-03	6.44E-01
dinoseb	air	88-85-7	1.04E+04	4.65E+03	2.87E+03	1.50E+03	9.74E+01
dinoterb	air	1420-07-1	2.92E+03	7.31E+03	1.31E+03	2.06E+03	3.44E+00
Diocetylphthalate	air	117-84-0	1.60E-02	5.36E-01	2.69E-02	5.19E-01	9.82E-06
disulfothon	air	298-04-4	2.68E+01	2.03E+01	9.23E+00	5.72E+00	4.30E-02
diuron	air	330-54-1	5.30E+02	1.13E+02	5.02E+02	1.61E+02	8.74E+00
DNOC	air	534-52-1	3.40E+00	1.30E+00	5.72E-01	3.05E-01	2.40E-01
endosulfan	air	115-29-7	4.55E+01	1.94E+01	9.82E+00	1.23E+00	3.59E-02
endrin	air	72-20-8	1.10E+03	4.89E+04	3.38E+02	3.54E+03	4.94E+01
ethoprophos	air	13194-48-4	2.39E+03	7.12E+02	1.89E+03	9.33E+02	1.69E+01



Substance	Comp.	CAS number	FAETP (500 yr) (kg 1,4- DCB eq./kg)	MAETP (500 yr) (kg 1,4- DCB eq./kg)	FSETP (500 yr) (kg 1,4- DCB eq./kg)	MSETP (500 yr) (kg 1,4- DCB eq./kg)	TETP (500 yr) (kg 1,4- DCB eq./kg)
Ethylbenzene	air	100-41-4	1.31E-04	7.96E-04	8.75E-05	6.14E-04	1.43E-06
Ethylene	air	74-85-1	1.43E-11	7.93E-11	8.98E-12	7.14E-11	1.35E-12
fenitrothion	air	122-14-5	2.49E+03	1.51E+03	1.39E+03	7.52E+02	2.10E+01
fenthion	air	55-38-9	2.49E+03	1.65E+03	1.80E+03	1.09E+03	1.59E+01
fentin acetate	air	900-95-8	4.26E+03	2.10E+04	6.93E+03	5.26E+04	5.34E+00
fentin chloride	air	639-58-7	1.84E+03	4.74E+04	3.00E+03	5.71E+04	2.63E-01
fentin hydroxide	air	76-87-9	4.17E+03	2.03E+04	6.81E+03	5.13E+04	5.55E+00
fluoranthrene	air	206-44-0	1.78E+01	2.00E+02	5.32E+01	6.11E+02	1.82E-02
folpet	air	133-07-3	4.05E+02	2.29E+03	5.56E+02	2.73E+03	1.68E+00
Formaldehyde	air	50-00-0	8.26E+00	1.63E+00	4.47E+00	1.52E+00	9.40E-01
glyphosate	air	1071-83-6	2.19E+01	1.68E+01	2.15E+01	1.49E+01	4.66E-02
heptachlor	air	76-44-8	1.42E+00	2.91E+00	2.01E+00	2.41E+00	8.76E-04
heptenophos	air	23560-59-0	1.22E+02	7.75E+01	1.51E+01	1.50E+01	2.22E+00
hexachloro-1,3-butadiene	air	87-68-3	4.64E+01	7.69E+04	5.36E+01	2.87E+04	4.15E+00
hexachlorobenzene	air	118-74-1	1.33E+00	2.41E+03	4.26E+00	2.76E+03	2.61E-01
hydrogen chloride	air	7647-01-0	x	x	x	x	x
hydrogen sulfide	air	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	air	193-39-5	1.65E+02	7.29E+03	5.32E+02	2.49E+04	8.03E-01
iprodione	air	36734-19-7	2.84E+00	3.24E-01	2.33E-01	5.23E-03	1.12E-01
isoproturon	air	34123-59-6	1.89E+02	3.16E+01	7.09E+01	1.99E+01	2.46E+00
lead	air	14280-50-3	1.91E-01	8.83E+02	4.92E-01	9.97E+02	7.07E-01
lindane	air	58-89-9	5.25E+01	5.23E+01	1.37E+01	9.20E+00	1.80E+00
linuron	air	330-55-2	3.95E+01	2.73E+01	3.93E+01	3.52E+01	2.01E-01
malathion	air	121-75-5	1.83E+03	1.42E+03	1.07E+03	7.80E+02	2.01E-02
MCPA	air	94-74-6	1.06E+00	2.84E-01	7.04E-01	3.47E-01	4.28E-02
mecoprop	air	7085-19-0	3.72E+01	4.09E+00	2.50E+01	5.34E+00	1.79E+00
mercury	air	14302-87-5	1.70E+02	1.62E+05	4.38E+02	1.78E+05	1.23E+04
metamitron	air	41394-05-2	9.25E-01	2.47E-01	4.86E-01	1.94E-01	1.88E-02
metazachlor	air	67129-08-2	7.43E+00	2.19E+00	5.35E+00	2.62E+00	7.44E-02
methabenzthiazuron	air	18691-97-9	7.03E+01	2.52E+01	7.65E+01	3.66E+01	4.45E-01
methomyl	air	16752-77-5	1.39E+04	3.89E+03	1.03E+04	5.00E+03	1.19E+02
methylbromide	air	74-83-9	3.27E-02	4.11E+00	1.74E-02	1.11E+00	1.28E-02
methyl-mercury	air	22967-92-6	3.92E+03	3.71E+06	1.01E+04	4.07E+06	1.23E+04
metobromuron	air	3060-89-7	4.91E+01	4.22E+01	4.77E+01	4.70E+01	9.93E-01
metolachlor	air	51218-45-2	1.47E+03	3.80E+02	1.30E+03	5.22E+02	1.13E-01
mevinphos	air	7786-34-7	9.31E+03	5.40E+03	1.18E+03	5.97E+02	4.31E+01
molybdenum	air	7439-98-7	1.75E+01	5.75E+03	3.88E+01	4.94E+03	2.46E+00
meta-Xylene	air	108-38-3	4.37E-05	3.93E-04	2.83E-05	3.54E-04	6.51E-07
Naphtalene	air	91-20-3	4.96E-01	9.12E-01	1.95E-01	3.18E-01	8.19E-04
nickel	air	7440-02-0	2.02E+02	8.12E+04	5.18E+02	8.32E+04	3.33E+01
nitrogen dioxide	air	10102-44-0	x	x	x	x	x
oxamyl	air	23135-22-0	5.58E+01	1.41E+00	2.54E+01	4.04E-01	2.88E+00
oxydemethon-methyl	air	301-12-2	2.37E+03	5.05E+02	5.34E+02	2.09E+02	4.12E+01
ortho-Xylene	air	95-47-6	9.31E-05	9.14E-04	7.44E-05	9.92E-04	1.27E-06
parathion-ethyl	air	56-38-2	2.76E+03	3.15E+03	1.86E+03	1.27E+03	1.12E+00
parathion-methyl	air	298-00-0	9.87E+02	7.24E+02	5.97E+01	3.00E+01	5.66E+00
pentachlorobenzene	air	608-93-5	3.68E-01	1.74E+02	5.21E-01	8.74E+01	3.92E-02
pentachloronitrobenzene	air	82-68-8	4.67E+01	5.97E+03	1.34E+01	4.38E+02	1.16E-01
pentachlorophenol	air	87-86-5	1.05E+01	4.00E+01	2.38E+01	6.95E+01	2.25E+00
permethrin	air	52645-53-1	1.59E+04	3.09E+04	2.10E+04	2.27E+04	2.64E+01
phenanthrene	air	85-01-8	1.26E+00	7.27E+00	1.37E+00	5.44E+00	1.35E-04
Phenol	air	108-95-2	1.52E+00	5.53E-01	5.61E-01	3.55E-01	3.31E-03

Substance	Comp.	CAS number	FAETP (500 yr) (kg 1,4- DCB eq./kg)	MAETP (500 yr) (kg 1,4- DCB eq./kg)	FSETP (500 yr) (kg 1,4- DCB eq./kg)	MSETP (500 yr) (kg 1,4- DCB eq./kg)	TETP (500 yr) (kg 1,4- DCB eq./kg)
phoxim	air	14816-18-3	4.36E-01	1.63E+00	7.13E-02	2.14E-01	1.70E-02
Phthalic anhydride	air	85-44-9	8.24E-03	8.54E-03	1.67E-05	4.92E-05	5.07E-04
pirimicarb	air	23103-98-2	2.40E+03	4.08E+02	2.42E+03	6.19E+02	4.56E+01
dust (PM10)	air	PM10	x	x	x	x	x
propachlor	air	1918-16-7	2.03E+01	7.11E+00	1.10E+01	6.45E+00	5.40E-01
propoxur	air	114-26-1	2.52E+04	1.76E+03	1.79E+04	1.83E+03	6.99E+02
Propylene Oxide	air	75-56-9	3.68E-02	1.22E-01	1.97E-02	6.36E-02	1.51E-03
para-Xylene	air	106-42-3	6.13E-05	6.12E-04	3.69E-05	3.83E-04	5.35E-07
pyrazophos	air	13457-18-6	1.82E+02	9.39E+01	1.65E+02	8.89E+01	2.32E+00
selenium	air	7782-49-2	5.41E+02	4.24E+04	6.31E+02	1.86E+04	5.31E+01
simazine	air	122-34-9	2.10E+03	2.75E+02	1.79E+03	4.09E+02	8.76E+00
styrene	air	100-42-5	5.09E-05	5.09E-04	3.50E-05	3.61E-04	1.36E-07
sulphur dioxide	air	7446-09-5	x	x	x	x	x
Tetrachloroethylene	air	127-18-4	4.13E-04	3.38E-01	3.95E-04	1.23E-01	8.11E-03
Tetrachloromethane	air	56-23-5	2.50E-04	1.15E+00	1.43E-04	3.07E-01	4.71E-04
thallium	air	7440-28-0	5.26E+02	1.07E+05	1.33E+03	1.05E+05	1.03E+02
Thiram	air	137-26-8	2.70E+03	2.18E+02	9.78E+02	1.79E+01	3.16E+01
tin	air	7440-31-5	2.02E-01	9.05E+02	1.04E-01	2.01E+02	6.48E-01
tolclophos-methyl	air	57018-04-9	1.48E-01	1.45E+00	1.60E-01	1.63E+00	3.44E-04
Toluene	air	108-88-3	7.04E-05	6.99E-04	5.04E-05	5.79E-04	1.59E-05
tri-allate	air	2303-17-5	6.12E+01	1.49E+02	2.17E+01	3.90E+01	6.88E-03
triazophos	air	24017-47-8	3.25E+03	8.46E+02	3.04E+03	1.16E+03	3.41E+01
tributyltinoxide	air	56-35-9	7.66E+03	3.08E+05	1.04E+04	3.86E+05	1.69E+01
trichlorfon	air	52-68-6	1.30E+04	1.81E+03	2.41E+03	2.73E+02	1.16E+03
Trichloroethylene	air	79-01-6	3.81E-05	2.68E-03	3.22E-05	1.66E-03	4.72E-06
Trichloromethane	air	67-66-3	9.52E-05	5.92E-02	4.90E-05	1.62E-02	4.02E-05
trifluarin	air	1582-09-8	9.87E+00	1.04E+02	8.07E+00	4.37E+01	1.67E-02
vanadium	air	7440-62-2	6.16E+02	1.89E+05	1.47E+03	1.80E+05	2.15E+02
Vinyl Chloride	air	75-01-4	2.86E-06	1.30E-04	2.32E-06	1.19E-04	2.61E-07
zinc	air	23713-49-7	5.97E+00	7.21E+03	1.53E+01	7.74E+03	3.64E+00
zineb	air	12122-67-7	9.39E+02	4.14E+02	7.43E+02	4.50E+02	7.23E+00
chlormequat-chloride	air	999-81-5	6.2E+00	3.8E+00	2.6E+00	2.3E+00	3.3E-02
fenpropimorph	air	67306-03-0	9.4E-01	7.3E-01	9.3E-01	7.4E-01	3.5E-03
fluroxypyr	air	69377-81-7	8.2E+02	1.2E+02	6.4E+02	1.7E+02	1.3E+01
epoxiconazole	air	??	1.4E+02	2.1E+02	1.9E+02	2.5E+02	6.9E-01
ethylene oxide	air	75-21-8	9.9E-02	8.5E-01	6.0E-02	4.3E-01	2.5E-03
hydrogen fluoride	air	7664-39-3	4.6E+00	2.6E+02	3.8E+00	9.0E+01	2.9E-03
1,1,1-trichloroethane	fresh water	71-55-6	1.10E-01	3.01E-01	9.04E-02	1.00E-01	1.75E-04
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.59E+01	1.59E+01	1.85E+01	6.70E+00	9.34E-03
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	1.43E+01	1.74E+01	1.59E+01	6.97E+00	1.72E-01
1,2,3-trichlorobenzene	fresh water	87-61-6	4.03E+00	2.08E+00	4.41E+00	8.70E-01	7.29E-02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	1.27E+01	1.44E+01	1.48E+01	5.89E+00	2.27E-01
1,2,4-trichlorobenzene	fresh water	120-82-1	3.48E+00	2.01E+00	3.84E+00	8.55E-01	8.55E-03
1,2-dichlorobenzene	fresh water	95-50-1	1.01E+00	6.59E-01	9.49E-01	2.85E-01	5.16E-04
1,2-dichloroethane	fresh water	107-06-2	2.28E-02	8.15E-02	1.91E-02	3.15E-02	2.62E-05
1,3,5-trichlorobenzene	fresh water	108-70-3	5.00E+00	2.98E+00	5.18E+00	1.31E+00	1.82E-03
1,3-Butadiene	fresh water	106-99-0	2.97E+00	8.67E-03	2.00E+00	9.87E-03	2.15E-08
1,3-dichlorobenzene	fresh water	541-73-1	1.23E+00	4.62E-01	1.15E+00	2.15E-01	4.25E-04
1,4-dichlorobenzene	fresh water	106-46-7	1.00E+00	7.32E-01	1.00E+00	2.95E-01	1.20E-02
1-chloro-4-nitrobenzene	fresh water	100-00-5	8.57E+02	3.71E+02	7.71E+02	2.63E+02	4.44E-01
2,3,4,6-	fresh water	58-90-2	5.18E+03	9.08E+01	5.67E+03	1.03E+02	1.67E-03



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tetrachlorophenol							
2,3,7,8-TCDD	fresh water	1746-01-6	1.72E+08	4.48E+07	5.56E+08	1.52E+08	5.88E+02
2,4,5-T	fresh water	93-76-5	1.71E+01	6.11E-02	1.22E+01	7.63E-02	3.61E-08
2,4,5-trichlorophenol	fresh water	95-95-4	1.59E+03	6.41E+01	1.88E+03	8.13E+01	6.11E-02
2,4,6-trichlorophenol	fresh water	88-06-2	2.94E+02	1.65E+00	2.87E+02	1.93E+00	6.68E-04
2,4-D	fresh water	94-75-7	4.03E+02	2.27E+00	3.01E+02	3.12E+00	9.26E-10
2,4-dichlorophenol	fresh water	120-83-2	1.73E+02	2.51E-01	6.81E+01	1.29E-01	9.58E-04
2-chlorophenol	fresh water	95-57-8	1.62E+03	1.28E+01	1.29E+03	1.70E+01	1.31E-03
3,4-dichloroaniline	fresh water	95-76-1	1.89E+04	2.83E+03	2.38E+04	3.50E+03	7.59E-04
3-chloroaniline	fresh water	108-42-9	2.48E+03	1.07E+01	2.27E+03	1.49E+01	9.40E-06
4-chloroaniline	fresh water	106-47-8	3.10E+03	1.37E+01	2.70E+03	2.00E+01	3.65E-03
acephate	fresh water	30560-19-1	1.10E+03	1.45E+01	5.59E+02	1.38E+01	2.18E-08
Acrolein	fresh water	107-02-8	2.51E+05	1.08E+03	1.88E+05	1.55E+03	5.84E+00
Acrylonitrile	fresh water	107-13-1	7.92E+01	5.41E-01	5.18E+01	5.07E-01	3.85E-03
aldicarb	fresh water	116-06-3	4.37E+05	7.43E+03	3.48E+05	1.08E+04	1.93E-01
aldrin	fresh water	309-00-2	1.17E+04	2.12E+02	1.01E+03	1.93E+01	1.37E-02
ammonia	fresh water	7664-41-7	x	x	x	x	x
anilazine	fresh water	101-05-3	1.10E+03	2.46E-01	6.98E+01	1.03E-02	5.00E-08
anthracene	fresh water	120-12-7	5.73E+04	3.02E+03	7.96E+04	4.08E+03	1.97E-02
antimony	fresh water	7440-36-0	1.96E+01	3.60E+02	4.79E+01	3.53E+02	1.66E-20
arsenic	fresh water	7440-38-2	2.05E+02	3.76E+03	5.27E+02	3.93E+03	1.04E-17
atrazine	fresh water	1912-24-9	4.96E+03	4.84E+02	4.27E+03	5.36E+02	7.62E-04
aziphos-ethyl	fresh water	2642-71-9	2.72E+05	1.00E+03	1.96E+05	7.95E+02	2.05E-02
aziphos-methyl	fresh water	86-50-0	5.17E+04	3.48E+01	2.66E+04	1.02E+01	3.28E-06
barium	fresh water	7440-39-3	2.26E+02	4.16E+03	5.13E+02	3.72E+03	5.11E-19
benomyl	fresh water	17804-35-2	6.82E+03	8.58E+00	8.81E+02	7.45E-01	8.23E-08
bentazone	fresh water	25057-89-0	5.07E+01	2.20E-01	4.09E+01	3.35E-01	1.83E-07
Benzene	fresh water	71-43-2	9.14E-02	2.66E-03	6.95E-02	1.43E-03	1.37E-05
benzo[a]anthracene	fresh water	56-55-3	1.14E+05	8.32E+03	3.46E+05	2.78E+04	1.34E-02
benzo[a]pyrene	fresh water	50-32-8	2.50E+05	1.22E+04	7.20E+05	3.62E+04	2.53E-03
benzo[ghi]perylene	fresh water	191-24-2	5.17E+04	9.08E+03	1.66E+05	3.16E+04	4.32E-04
benzo[k]fluoranthrene	fresh water	207-08-9	1.16E+06	4.36E+05	3.86E+06	1.30E+06	2.06E-01
benzylchloride	fresh water	100-44-7	1.99E+02	1.18E+00	2.91E+01	1.91E-01	8.27E-04
beryllium	fresh water	7440-41-7	9.07E+04	1.67E+06	1.07E+05	7.58E+05	3.30E-16
bifenthrin	fresh water	82657-04-3	2.44E+05	2.13E+02	7.23E+05	8.09E+02	2.10E-02
Butylbenzylphtalate	fresh water	85-68-7	7.64E+01	5.27E-02	2.50E+01	1.33E-02	6.57E-06
cadmium	fresh water	22537-48-0	1.51E+03	2.73E+04	3.89E+03	3.05E+04	1.43E-20
captafol	fresh water	2425-06-1	5.35E+05	8.02E+04	7.72E+05	1.17E+05	1.95E-07
captan	fresh water	133-06-2	2.08E+03	1.04E-01	1.82E+01	1.27E-03	6.23E-08
carbaryl	fresh water	63-25-2	4.53E+03	1.42E+00	1.32E+03	1.25E-01	2.59E-07
carbendazim	fresh water	10605-21-7	3.84E+04	5.82E+02	3.90E+04	8.62E+02	6.27E-08
carbofuran	fresh water	1563-66-2	1.32E+04	4.40E+01	7.63E+03	4.65E+01	3.54E-05
carbon disulfide	fresh water	75-15-0	1.05E+02	1.79E+00	8.63E+01	1.36E+00	4.81E-03
Carcinogenic PAHs	fresh water		2.75E+04	5.50E+03	8.89E+04	1.85E+04	2.12E-03
chlordane	fresh water	57-74-9	9.01E+04	8.95E+03	9.10E+03	2.68E+02	9.74E-02
chlorfenvinphos	fresh water	470-90-6	1.11E+03	5.74E+00	9.44E+02	6.71E+00	4.56E-05
chloridazon	fresh water	1698-60-8	3.15E+01	1.21E+00	2.49E+01	1.52E+00	3.79E-04
chlorobenzene	fresh water	108-90-7	3.60E-01	1.14E-01	3.36E-01	5.52E-02	7.16E-04
chlorothalonil	fresh water	1897-45-6	3.72E+02	3.97E+01	2.60E+02	1.16E+01	5.46E-03
chlorpropham	fresh water	101-21-3	8.29E+01	3.52E-01	7.12E+01	4.49E-01	2.48E-05
chlorpyrifos	fresh water	2921-88-2	6.41E+05	2.40E+02	4.12E+05	2.38E+01	2.13E-02
chromium III	fresh water	16056-83-1	6.86E+00	1.21E+02	1.77E+01	1.40E+02	2.27E-19
chromium VI	fresh water	18540-29-9	2.77E+01	4.85E+02	7.07E+01	5.59E+02	2.27E-19
chrysene	fresh water	218-01-9	1.85E+04	2.99E+03	5.89E+04	9.98E+03	8.37E-03

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cobalt	fresh water	7440-48-4	3.38E+03	6.20E+04	5.62E+03	4.20E+04	2.69E-18
copper	fresh water	15158-11-9	1.15E+03	2.11E+04	2.89E+03	2.22E+04	4.06E-21
coumaphos	fresh water	56-72-4	2.00E+07	3.02E+06	2.90E+07	4.39E+06	5.98E+00
cyanazine	fresh water	21725-46-2	5.44E+04	1.92E+02	4.27E+04	2.48E+02	2.25E-06
cypermethrin	fresh water	52315-07-8	7.94E+06	1.00E+04	1.45E+07	2.73E+04	1.58E+01
cyromazine	fresh water	66215-27-8	2.63E+04	1.04E+03	2.12E+04	1.44E+03	1.89E-06
DDT	fresh water	50-29-3	2.85E+04	4.44E+03	3.06E+04	1.57E+03	3.13E-01
deltamethrin	fresh water	52918-63-5	6.54E+05	9.82E+02	9.85E+05	1.96E+03	3.18E-02
demeton	fresh water	8065-48-3	2.21E+04	9.62E+01	1.57E+04	1.23E+02	1.24E-02
desmetryn	fresh water	1014-69-3	1.95E+02	1.54E+00	1.17E+02	1.55E+00	3.60E-05
Di(2-ethylhexyl)phtalate	fresh water	117-81-7	7.87E+01	3.69E-01	1.04E+02	2.69E-01	6.55E-06
diazinon	fresh water	333-41-5	1.07E+05	6.36E+02	7.70E+04	6.10E+02	4.13E-03
Dibutylphtalate	fresh water	84-74-2	7.95E+01	7.65E-02	1.04E+01	7.49E-03	1.27E-05
Dichloromethane	fresh water	75-09-2	1.23E-02	3.54E-03	8.85E-03	1.33E-03	3.90E-06
dichlorprop	fresh water	120-36-5	5.31E+00	1.47E-02	2.82E+00	7.68E-03	6.08E-12
dichlorvos	fresh water	62-73-7	1.23E+05	1.22E+01	5.51E+03	9.14E-01	1.44E-02
dieldrin	fresh water	60-57-1	7.89E+04	8.98E+03	8.17E+03	3.17E+02	2.59E-01
Diethylphtalate	fresh water	84-66-2	3.39E+01	1.14E-01	2.23E+01	9.35E-02	5.60E-03
Dihexylphtalate	fresh water	84-75-3	1.11E+02	1.18E+00	2.63E+02	2.31E+00	2.64E-04
Diisodecylphtalate	fresh water	26761-40-0	8.58E+01	2.35E+00	1.90E+02	3.79E+00	3.77E-04
Diisooctylphtalate	fresh water	27554-26-3	2.14E+01	4.34E-01	4.73E+01	7.19E-01	6.38E-06
dimethoate	fresh water	60-51-5	1.73E+02	7.52E-01	1.28E+02	9.09E-01	1.22E-05
Dimethylphtalate	fresh water	133-11-3	3.08E+00	1.72E-03	7.95E-01	4.32E-04	3.66E-04
dinoseb	fresh water	88-85-7	3.18E+05	5.86E+03	8.78E+04	2.24E+03	3.37E-01
dinoterb	fresh water	1420-07-1	2.27E+05	5.41E+03	1.02E+05	1.95E+03	1.30E-02
Diocetylphthalate	fresh water	117-84-0	2.77E+00	3.49E-02	4.66E+00	3.63E-02	1.30E-07
disulfothon	fresh water	298-04-4	6.35E+04	1.21E+02	2.19E+04	3.45E+01	1.21E-03
diuron	fresh water	330-54-1	9.42E+03	5.47E+01	8.91E+03	7.82E+01	1.68E-03
DNOC	fresh water	534-52-1	1.12E+02	3.43E-01	1.89E+01	8.03E-02	8.54E-07
endosulfan	fresh water	115-29-7	2.78E+04	1.14E+01	6.01E+03	7.72E-01	1.82E-03
endrin	fresh water	72-20-8	6.97E+05	3.42E+05	2.13E+05	2.49E+04	3.50E-01
ethoprophos	fresh water	13194-48-4	1.50E+05	3.53E+03	1.19E+05	4.76E+03	2.35E-01
Ethylbenzene	fresh water	100-41-4	5.46E-01	1.36E-03	3.64E-01	1.27E-03	1.19E-06
Ethylene	fresh water	74-85-1	2.25E-02	2.78E-05	1.42E-02	3.39E-05	1.12E-12
fenitrothion	fresh water	122-14-5	2.42E+05	6.71E+02	1.36E+05	3.39E+02	4.69E-03
fenthion	fresh water	55-38-9	9.11E+05	3.64E+03	6.56E+05	2.47E+03	8.80E-02
fentin acetate	fresh water	900-95-8	2.67E+05	3.16E+03	4.34E+05	8.65E+03	6.15E-03
fentin chloride	fresh water	639-58-7	1.74E+05	1.87E+04	2.83E+05	2.56E+04	9.25E-02
fentin hydroxide	fresh water	76-87-9	2.65E+05	3.15E+03	4.33E+05	8.64E+03	2.15E-03
fluoranthrene	fresh water	206-44-0	1.32E+04	8.68E+02	3.93E+04	2.81E+03	4.94E-03
folpet	fresh water	133-07-3	8.16E+04	1.25E+04	1.13E+05	1.65E+04	5.98E-01
Formaldehyde	fresh water	50-00-0	2.81E+02	1.90E-01	1.52E+02	2.00E-01	1.56E-03
glyphosate	fresh water	1071-83-6	1.37E+03	4.16E+00	1.34E+03	3.69E+00	2.25E-11
heptachlor	fresh water	76-44-8	1.83E+04	1.19E+01	2.59E+04	1.02E+01	5.28E-04
heptenophos	fresh water	23560-59-0	2.24E+04	1.14E+01	2.77E+03	2.29E+00	1.59E-03
hexachloro-1,3-butadiene	fresh water	87-68-3	4.54E+04	7.46E+04	5.24E+04	2.81E+04	4.01E+00
hexachlorobenzene	fresh water	118-74-1	1.52E+02	2.39E+03	4.89E+02	2.74E+03	2.59E-01
hydrogen chloride	fresh water	7647-01-0	x	x	x	x	x
hydrogen sulfide	fresh water	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	7.68E+04	1.46E+04	2.47E+05	5.05E+04	6.19E-06
iprodione	fresh water	36734-19-7	1.63E+02	1.51E-02	1.34E+01	2.44E-04	4.39E-08
isoproturon	fresh water	34123-59-6	1.90E+03	2.02E+01	7.12E+02	1.28E+01	1.64E-05

Substance	Comp.	CAS number	FAETP (500 yr) (kg 1,4- DCB eq./kg)	MAETP (500 yr) (kg 1,4- DCB eq./kg)	FSETP (500 yr) (kg 1,4- DCB eq./kg)	MSETP (500 yr) (kg 1,4- DCB eq./kg)	TETP (500 yr) (kg 1,4- DCB eq./kg)
lead	fresh water	14280-50-3	9.62E+00	1.65E+02	2.46E+01	1.96E+02	4.77E-22
lindane	fresh water	58-89-9	6.54E+03	8.74E+01	1.71E+03	1.83E+01	1.55E-01
linuron	fresh water	330-55-2	3.11E+04	5.56E+02	3.09E+04	7.30E+02	1.06E-02
malathion	fresh water	121-75-5	2.07E+05	7.69E+02	1.21E+05	4.29E+02	1.09E-05
MCPA	fresh water	94-74-6	2.72E+01	3.63E-02	1.81E+01	4.44E-02	1.35E-11
mecoprop	fresh water	7085-19-0	3.79E+02	6.69E-01	2.55E+02	8.74E-01	1.12E-08
mercury	fresh water	14302-87-5	1.70E+03	3.04E+04	4.39E+03	3.44E+04	8.06E+01
metamitron	fresh water	41394-05-2	2.31E+01	6.35E-02	1.21E+01	4.98E-02	8.51E-10
metazachlor	fresh water	67129-08-2	1.55E+02	1.29E+00	1.11E+02	1.55E+00	1.45E-06
methabenzthiazuron	fresh water	18691-97-9	1.11E+03	2.53E+01	1.21E+03	3.69E+01	1.96E-05
methomyl	fresh water	16752-77-5	1.35E+05	4.21E+03	1.01E+05	5.41E+03	2.16E-03
methylbromide	fresh water	74-83-9	1.91E+01	3.51E+00	1.02E+01	9.60E-01	1.08E-02
methyl-mercury	fresh water	22967-92-6	3.92E+04	7.00E+05	1.01E+05	7.91E+05	8.06E+01
metobromuron	fresh water	3060-89-7	4.30E+02	6.45E+01	4.18E+02	7.21E+01	4.61E-04
metolachlor	fresh water	51218-45-2	3.84E+04	5.82E+02	3.41E+04	8.11E+02	2.13E-04
mevinphos	fresh water	7786-34-7	5.86E+05	5.71E+02	7.43E+04	6.31E+01	2.26E-05
molybdenum	fresh water	7439-98-7	4.73E+02	8.69E+03	1.05E+03	7.57E+03	2.31E-18
meta-Xylene	fresh water	108-38-3	5.98E-01	2.12E-03	3.88E-01	2.09E-03	5.99E-07
Naphtalene	fresh water	91-20-3	6.59E+02	1.06E+00	2.59E+02	3.84E-01	4.91E-04
nickel	fresh water	7440-02-0	3.22E+03	5.89E+04	8.25E+03	6.13E+04	1.03E-18
nitrogen dioxide	fresh water	10102-44-0	x	x	x	x	x
oxamyl	fresh water	23135-22-0	6.52E+02	1.84E-01	2.97E+02	5.29E-02	7.07E-06
oxydemethon-methyl	fresh water	301-12-2	7.01E+04	1.41E+02	1.58E+04	5.85E+01	4.65E-04
ortho-Xylene	fresh water	95-47-6	5.65E-01	2.51E-03	4.51E-01	3.09E-03	1.17E-06
parathion-ethyl	fresh water	56-38-2	1.19E+06	5.33E+03	7.98E+05	2.19E+03	3.14E-03
parathion-methyl	fresh water	298-00-0	2.90E+05	1.46E+03	1.76E+04	6.20E+01	3.36E-02
pentachlorobenzene	fresh water	608-93-5	5.07E+01	1.72E+02	7.15E+01	8.74E+01	3.84E-02
pentachloronitrobenzene	fresh water	82-68-8	3.95E+03	2.83E+03	1.14E+03	2.17E+02	4.97E-02
pentachlorophenol	fresh water	87-86-5	7.08E+02	1.19E+01	1.60E+03	2.17E+01	3.21E-04
permethrin	fresh water	52645-53-1	5.03E+06	2.68E+04	6.65E+06	2.05E+04	3.90E-01
phenanthrene	fresh water	85-01-8	5.17E+02	1.05E+01	5.62E+02	8.63E+00	6.05E-05
Phenol	fresh water	108-95-2	2.37E+02	5.63E-02	8.77E+01	3.84E-02	2.49E-06
phoxim	fresh water	14816-18-3	2.60E+03	5.00E+00	4.26E+02	6.71E-01	1.46E-02
Phtalic anhydride	fresh water	85-44-9	5.52E-01	4.13E-06	1.12E-03	2.39E-08	1.19E-10
pirimicarb	fresh water	23103-98-2	3.58E+04	1.56E+02	3.62E+04	2.36E+02	9.34E-04
dust (PM10)	fresh water	PM10	x	x	x	x	x
propachlor	fresh water	1918-16-7	1.24E+03	2.43E+00	6.73E+02	2.32E+00	8.13E-04
propoxur	fresh water	114-26-1	2.59E+05	5.00E+02	1.84E+05	5.20E+02	3.15E-04
Propylene Oxide	fresh water	75-56-9	3.96E+00	5.77E-02	2.12E+00	3.30E-02	6.47E-04
para-Xylene	fresh water	106-42-3	5.52E-01	2.19E-03	3.32E-01	1.56E-03	4.92E-07
pyrazophos	fresh water	13457-18-6	4.93E+04	1.25E+02	4.48E+04	1.20E+02	1.65E-03
selenium	fresh water	7782-49-2	2.90E+03	5.33E+04	3.38E+03	2.37E+04	1.55E-17
simazine	fresh water	122-34-9	2.71E+04	1.44E+02	2.31E+04	2.14E+02	1.01E-03
styrene	fresh water	100-42-5	4.40E-01	2.23E-03	3.02E-01	1.64E-03	1.27E-07
sulphur dioxide	fresh water	7446-09-5	x	x	x	x	x
Tetrachloroethylene	fresh water	127-18-4	6.96E-01	3.37E-01	6.66E-01	1.29E-01	7.94E-03
Tetrachloromethane	fresh water	56-23-5	2.07E-01	1.15E+00	1.18E-01	3.08E-01	4.67E-04
thallium	fresh water	7440-28-0	7.95E+03	1.46E+05	2.02E+04	1.45E+05	3.13E-17
Thiram	fresh water	137-26-8	9.80E+04	7.44E+01	3.54E+04	6.61E+00	9.29E-02
tin	fresh water	7440-31-5	1.01E+01	1.77E+02	5.18E+00	4.11E+01	7.86E-22
tolclophos-methyl	fresh water	57018-04-9	4.96E+02	4.42E+00	5.33E+02	5.10E+00	3.17E-04
Toluene	fresh water	108-88-3	2.95E-01	1.24E-03	2.11E-01	1.27E-03	1.42E-05
tri-allate	fresh water	2303-17-5	4.86E+04	7.80E+02	1.72E+04	2.16E+02	2.66E-03

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triazophos	fresh water	24017-47-8	1.71E+05	1.51E+03	1.60E+05	2.11E+03	3.91E-02
tributyltinoxide	fresh water	56-35-9	4.53E+05	2.11E+05	6.15E+05	2.93E+05	1.13E-01
trichlorfon	fresh water	52-68-6	4.10E+05	8.34E+01	7.60E+04	1.26E+01	7.03E-05
Trichloroethylene	fresh water	79-01-6	9.70E-02	3.33E-03	8.20E-02	2.67E-03	4.59E-06
Trichloromethane	fresh water	67-66-3	4.23E-02	5.82E-02	2.18E-02	1.62E-02	3.92E-05
trifluarin	fresh water	1582-09-8	2.71E+04	4.23E+02	2.21E+04	1.81E+02	1.35E-02
vanadium	fresh water	7440-62-2	8.90E+03	1.63E+05	2.13E+04	1.58E+05	1.02E-17
Vinyl Chloride	fresh water	75-01-4	2.79E-02	3.77E-04	2.26E-02	4.91E-04	2.56E-07
zinc	fresh water	23713-49-7	9.11E+01	1.65E+03	2.34E+02	1.83E+03	2.53E-21
zineb	fresh water	12122-67-7	2.75E+04	2.51E+02	2.18E+04	2.75E+02	1.29E-03
chlormequat-chloride	fresh water	999-81-5	2.7E+02	1.9E+00	1.1E+02	1.2E+00	3.0E-11
fenpropimorph	fresh water	67306-03-0	1.6E+03	9.0E+00	1.6E+03	9.2E+00	1.1E-04
fluroxypyr	fresh water	69377-81-7	8.7E+03	5.5E+01	6.8E+03	7.7E+01	5.8E-12
epoxiconazole	fresh water	??	6.0E+03	9.0E+02	8.1E+03	1.2E+03	5.7E-02
ethylene oxide	fresh water	75-21-8	9.8E+00	6.3E-01	6.0E+00	3.4E-01	1.8E-03
hydrogen fluoride	fresh water	7664-39-3	1.9E+01	3.4E+02	1.5E+01	1.2E+02	4.7E-10
1,1,1-trichloroethane	seawater	71-55-6	7.10E-05	2.70E-01	5.86E-05	1.89E-01	1.05E-04
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	3.82E-02	1.48E+01	4.45E-02	1.16E+01	3.68E-03
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	3.00E-02	1.59E+01	3.34E-02	1.27E+01	7.42E-02
1,2,3-trichlorobenzene	seawater	87-61-6	3.90E-03	3.63E+00	4.27E-03	3.51E+00	3.49E-02
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	2.86E-02	1.33E+01	3.33E-02	1.01E+01	9.48E-02
1,2,4-trichlorobenzene	seawater	120-82-1	4.38E-03	3.13E+00	4.83E-03	2.94E+00	3.96E-03
1,2-dichlorobenzene	seawater	95-50-1	1.29E-03	9.48E-01	1.21E-03	1.03E+00	2.40E-04
1,2-dichloroethane	seawater	107-06-2	8.77E-05	9.08E-02	7.36E-05	6.10E-02	2.03E-05
1,3,5-trichlorobenzene	seawater	108-70-3	6.99E-03	4.45E+00	7.25E-03	4.53E+00	8.27E-04
1,3-Butadiene	seawater	106-99-0	5.60E-08	7.28E-01	3.78E-08	8.28E-01	4.02E-09
1,3-dichlorobenzene	seawater	541-73-1	1.09E-03	1.02E+00	1.02E-03	1.23E+00	2.03E-04
1,4-dichlorobenzene	seawater	106-46-7	1.09E-03	1.00E+00	1.09E-03	1.00E+00	5.73E-03
1-chloro-4-nitrobenzene	seawater	100-00-5	1.88E+00	3.74E+02	1.70E+00	4.44E+02	9.60E-02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	1.30E-03	2.19E+02	1.43E-03	2.48E+02	5.23E-06
2,3,7,8-TCDD	seawater	1746-01-6	1.32E+05	5.04E+08	4.28E+05	1.85E+09	8.31E+02
2,4,5-T	seawater	93-76-5	1.67E-10	3.96E-01	1.19E-10	4.94E-01	6.37E-11
2,4,5-trichlorophenol	seawater	95-95-4	5.39E-02	1.18E+02	6.36E-02	1.61E+02	9.11E-04
2,4,6-trichlorophenol	seawater	88-06-2	2.39E-04	7.63E+00	2.34E-04	8.93E+00	1.31E-05
2,4-D	seawater	94-75-7	1.14E-10	1.01E+01	8.51E-11	1.39E+01	1.76E-12
2,4-dichlorophenol	seawater	120-83-2	2.87E-04	3.71E+00	1.13E-04	2.00E+00	6.23E-06
2-chlorophenol	seawater	95-57-8	6.65E-03	4.55E+01	5.29E-03	6.09E+01	2.75E-05
3,4-dichloroaniline	seawater	95-76-1	1.15E-03	3.31E+03	1.45E-03	4.09E+03	6.70E-06
3-chloroaniline	seawater	108-42-9	3.71E-06	5.93E+01	3.40E-06	8.20E+01	1.72E-08
4-chloroaniline	seawater	106-47-8	1.11E-02	9.59E+01	9.71E-03	1.40E+02	8.58E-05
acephate	seawater	30560-19-1	6.04E-08	3.67E+01	3.07E-08	3.49E+01	5.32E-10
Acrolein	seawater	107-02-8	4.98E+00	8.89E+03	3.72E+00	1.30E+04	1.57E-01
Acrylonitrile	seawater	107-13-1	6.04E-03	3.13E+00	3.94E-03	4.00E+00	1.17E-04
aldicarb	seawater	116-06-3	1.23E-01	1.51E+04	9.83E-02	2.19E+04	4.80E-03
aldrin	seawater	309-00-2	1.26E+00	8.00E+03	1.08E-01	7.39E+02	6.68E-03
ammonia	seawater	7664-41-7	x	x	x	x	x
anilazine	seawater	101-05-3	1.06E-07	1.99E+01	6.76E-09	8.31E-01	7.00E-10
anthracene	seawater	120-12-7	1.67E+01	1.77E+04	2.32E+01	2.51E+04	4.03E-03
antimony	seawater	7440-36-0	7.57E-21	6.53E+02	1.84E-20	6.40E+02	2.96E-20



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arsenic	seawater	7440-38-2	3.82E-20	1.10E+04	9.81E-20	1.15E+04	2.96E-17
atrazine	seawater	1912-24-9	8.35E-03	5.99E+02	7.19E-03	6.63E+02	4.98E-05
aziphos-ethyl	seawater	2642-71-9	4.09E-02	5.94E+03	2.95E-02	4.71E+03	3.42E-04
aziphos-methyl	seawater	86-50-0	1.09E-04	9.95E+02	5.60E-05	2.91E+02	4.88E-08
barium	seawater	7440-39-3	2.39E-19	5.45E+03	5.42E-19	4.87E+03	6.61E-19
benomyl	seawater	17804-35-2	8.85E-08	1.48E+02	1.14E-08	1.29E+01	1.38E-09
bentazone	seawater	25057-89-0	7.41E-09	1.20E+00	5.98E-09	1.83E+00	3.34E-10
Benzene	seawater	71-43-2	9.19E-06	1.52E-02	6.99E-06	2.05E-02	1.71E-06
benzo[a]anthracene	seawater	56-55-3	1.06E+00	8.54E+04	3.23E+00	2.85E+05	6.23E-03
benzo[a]pyrene	seawater	50-32-8	2.77E-01	1.23E+05	7.98E-01	3.66E+05	7.97E-04
benzo[ghi]perylene	seawater	191-24-2	4.85E-02	6.49E+04	1.56E-01	2.26E+05	2.55E-04
benzo[k]fluoranthrene	seawater	207-08-9	9.11E+00	1.48E+06	3.00E+01	4.42E+06	8.78E-02
benzylchloride	seawater	100-44-7	1.14E-02	7.83E+00	1.67E-03	1.89E+00	2.51E-05
beryllium	seawater	7440-41-7	1.57E-16	2.00E+06	1.84E-16	9.07E+05	3.93E-16
bifenthrin	seawater	82657-04-3	5.54E-02	8.93E+03	1.64E-01	3.39E+04	5.94E-04
Butylbenzylphtalate	seawater	85-68-7	3.19E-05	1.58E+00	1.04E-05	3.99E-01	1.05E-07
cadmium	seawater	22537-48-0	2.51E-20	2.33E+05	6.45E-20	2.60E+05	1.13E-19
captafol	seawater	2425-06-1	5.00E-05	9.44E+04	7.25E-05	1.38E+05	1.61E-08
captan	seawater	133-06-2	6.46E-07	4.04E+01	5.68E-09	4.96E-01	9.37E-10
carbaryl	seawater	63-25-2	1.88E-06	2.42E+01	5.49E-07	2.14E+00	1.07E-09
carbendazim	seawater	10605-21-7	2.40E-08	1.35E+03	2.43E-08	2.00E+03	1.61E-10
carbofuran	seawater	1563-66-2	1.81E-04	2.97E+02	1.05E-04	3.14E+02	6.09E-07
carbon disulfide	seawater	75-15-0	6.53E-03	2.97E+01	5.36E-03	4.51E+01	1.02E-03
Carcinogenic PAHs	seawater		1.16E-01	2.38E+04	3.78E-01	8.01E+04	8.15E-04
chlordane	seawater	57-74-9	3.10E+01	4.71E+05	3.15E+00	1.48E+04	2.85E-01
chlorfenvinphos	seawater	470-90-6	5.62E-05	2.78E+01	4.78E-05	3.25E+01	8.64E-07
chloridazon	seawater	1698-60-8	3.47E-03	8.03E+00	2.73E-03	1.01E+01	6.40E-05
chlorobenzene	seawater	108-90-7	2.59E-04	3.51E-01	2.41E-04	4.46E-01	4.10E-04
chlorothalonil	seawater	1897-45-6	1.37E-01	3.64E+01	9.55E-02	2.27E+01	3.82E-04
chlorpropham	seawater	101-21-3	2.78E-05	1.98E+00	2.39E-05	2.53E+00	4.51E-07
chlorpyrifos	seawater	2921-88-2	2.35E-01	2.22E+03	1.51E-01	2.22E+02	5.72E-05
chromium III	seawater	16056-83-1	8.78E-23	1.18E+03	2.26E-22	1.36E+03	2.05E-18
chromium VI	seawater	18540-29-9	3.51E-22	4.72E+03	9.06E-22	5.43E+03	2.05E-18
chrysene	seawater	218-01-9	2.58E-01	7.65E+03	8.27E-01	2.56E+04	1.61E-03
cobalt	seawater	7440-48-4	1.21E-18	1.15E+05	2.00E-18	7.80E+04	4.92E-18
copper	seawater	15158-11-9	4.08E-20	1.36E+05	1.03E-19	1.43E+05	2.48E-20
coumaphos	seawater	56-72-4	1.06E+02	3.58E+06	1.54E+02	5.21E+06	4.97E-01
cyanazine	seawater	21725-46-2	2.45E-06	1.26E+03	1.93E-06	1.62E+03	3.95E-08
cypermethrin	seawater	52315-07-8	2.36E+00	1.65E+05	4.30E+00	4.47E+05	2.52E-01
cyromazine	seawater	66215-27-8	8.08E-07	1.55E+03	6.49E-07	2.16E+03	7.32E-08
DDT	seawater	50-29-3	1.45E+01	1.87E+05	1.56E+01	7.07E+04	9.58E-01
deltamethrin	seawater	52918-63-5	3.21E+00	3.61E+04	4.83E+00	7.24E+04	1.35E-03
demeton	seawater	8065-48-3	1.74E-02	5.50E+02	1.24E-02	7.01E+02	2.34E-04
desmetryn	seawater	1014-69-3	4.06E-06	5.43E+00	2.43E-06	5.45E+00	7.49E-07
Di(2-ethylhexyl)phtalate	seawater	117-81-7	1.56E-03	1.51E+01	2.07E-03	1.11E+01	9.61E-07
diazinon	seawater	333-41-5	6.39E-02	2.84E+03	4.58E-02	2.72E+03	8.22E-05
Dibutylphtalate	seawater	84-74-2	2.92E-05	1.67E+00	3.81E-06	1.64E-01	2.06E-07
Dichloromethane	seawater	75-09-2	5.02E-06	3.24E-03	3.61E-06	3.80E-03	6.46E-07
dichlorprop	seawater	120-36-5	1.56E-12	1.23E-01	8.31E-13	6.42E-02	1.08E-14
dichlorvos	seawater	62-73-7	1.13E-02	2.39E+03	5.05E-04	1.81E+02	2.16E-04
dieldrin	seawater	60-57-1	1.63E+01	5.88E+04	1.70E+00	2.10E+03	1.04E-01
Diethylphtalate	seawater	84-66-2	7.88E-05	7.95E-01	5.18E-05	6.54E-01	1.00E-04
Dihexylphtalate	seawater	84-75-3	1.11E-02	9.69E+00	2.65E-02	2.04E+01	1.75E-05

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Diisodecylphtalate	seawater	26761-40-0	3.83E-02	1.94E+01	8.47E-02	3.41E+01	6.39E-05
Diisooctylphtalate dimethoate	seawater	27554-26-3	3.93E-03	1.57E+01	8.68E-03	2.76E+01	3.53E-06
Dimethylphtalate	seawater	60-51-5	7.43E-06	3.37E+00	5.50E-06	4.07E+00	1.81E-07
dinoseb	seawater	133-11-3	3.82E-07	5.19E-02	9.84E-08	1.30E-02	4.74E-06
dinoterb	seawater	88-85-7	1.05E-01	1.31E+04	2.90E-02	4.99E+03	1.00E-03
Diocetylphthalate	seawater	1420-07-1	4.20E-02	1.24E+04	1.89E-02	4.48E+03	5.07E-05
disulfothon	seawater	117-84-0	1.43E-04	2.48E+00	2.41E-04	2.63E+00	8.83E-08
diuron	seawater	298-04-4	1.33E-02	1.46E+03	4.56E-03	4.17E+02	2.13E-05
DNOC	seawater	330-54-1	1.94E-03	2.40E+02	1.84E-03	3.43E+02	3.22E-05
endosulfan	seawater	534-52-1	2.14E-08	2.59E+00	3.59E-09	6.06E-01	1.51E-09
endrin	seawater	115-29-7	2.07E-02	3.23E+02	4.47E-03	2.20E+01	1.63E-05
ethoprophos	seawater	72-20-8	6.08E+00	2.74E+06	1.85E+00	2.00E+05	3.77E-01
Ethylbenzene	seawater	13194-48-4	9.97E-01	6.61E+03	7.91E-01	8.90E+03	7.23E-03
Ethylene	seawater	100-41-4	9.44E-06	6.16E-02	6.29E-06	6.72E-02	1.03E-07
fenitrothion	seawater	74-85-1	1.05E-12	2.58E-03	6.61E-13	3.15E-03	9.93E-14
fenthion	seawater	122-14-5	9.88E-03	5.65E+03	5.53E-03	2.85E+03	8.37E-05
fentin acetate	seawater	55-38-9	2.62E-01	2.28E+04	1.89E-01	1.54E+04	1.68E-03
fentin chloride	seawater	900-95-8	8.75E-02	3.98E+04	1.42E-01	1.09E+05	1.10E-04
fentin hydroxide	seawater	639-58-7	1.76E+01	3.98E+04	2.87E+01	1.08E+05	2.52E-03
fluoranthrene	seawater	76-87-9	2.87E-02	3.99E+04	4.70E-02	1.09E+05	3.83E-05
folpet	seawater	206-44-0	8.72E-01	4.16E+03	2.61E+00	1.35E+04	9.56E-04
Formaldehyde	seawater	133-07-3	1.56E+01	2.12E+04	2.16E+01	2.81E+04	7.42E-02
glyphosate	seawater	50-00-0	2.13E-04	5.65E+00	1.15E-04	5.97E+00	2.42E-05
heptachlor	seawater	1071-83-6	2.06E-11	3.35E+01	2.02E-11	2.97E+01	4.40E-14
heptenophos	seawater	76-44-8	3.88E-02	1.08E+03	5.48E-02	9.23E+02	2.39E-05
hexachloro-1,3-butadiene	seawater	23560-59-0	1.35E-03	4.48E+02	1.66E-04	9.06E+01	2.45E-05
hexachlorobenzene	seawater	87-68-3	2.28E+01	6.98E+04	2.63E+01	4.74E+04	2.05E+00
hydrogen chloride	seawater	118-74-1	1.13E+00	2.43E+03	3.63E+00	3.45E+03	2.36E-01
hydrogen sulfide	seawater	7647-01-0	x	x	x	x	x
indeno[1,2,3-cd]pyrene	seawater	7783-06-4	x	x	x	x	x
iprodione	seawater	193-39-5	7.42E-04	1.10E+05	2.39E-03	3.84E+05	4.07E-06
isoproturon	seawater	36734-19-7	3.78E-09	7.16E-01	3.10E-10	1.16E-02	1.49E-10
lead	seawater	34123-59-6	2.88E-05	5.92E+01	1.08E-05	3.74E+01	3.78E-07
lindane	seawater	14280-50-3	5.57E-23	1.71E+03	1.42E-22	2.03E+03	4.57E-21
linuron	seawater	58-89-9	1.13E-01	2.26E+02	2.95E-02	4.75E+01	3.92E-03
malathion	seawater	330-55-2	6.00E-02	1.27E+03	5.97E-02	1.66E+03	3.10E-04
MCPA	seawater	121-75-5	1.84E-02	5.07E+03	1.07E-02	2.83E+03	2.02E-07
mecoprop	seawater	94-74-6	5.35E-13	5.65E-01	3.56E-13	6.91E-01	2.16E-14
mercury	seawater	7085-19-0	3.78E-10	8.04E+00	2.54E-10	1.05E+01	1.82E-11
metamitron	seawater	14302-87-5	1.73E+00	2.72E+05	4.46E+00	3.06E+05	4.65E+02
metazachlor	seawater	41394-05-2	6.75E-10	4.88E-01	3.55E-10	3.83E-01	1.37E-11
methabenzthiazuron	seawater	67129-08-2	3.01E-06	4.35E+00	2.16E-06	5.22E+00	3.04E-08
methomyl	seawater	18691-97-9	9.22E-05	4.82E+01	1.00E-04	7.02E+01	5.95E-07
methylbromide	seawater	16752-77-5	8.51E-03	6.93E+03	6.34E-03	8.91E+03	7.50E-05
methyl-mercury	seawater	74-83-9	2.32E-03	2.37E+00	1.23E-03	2.02E+00	9.06E-04
metobromuron	seawater	22967-92-6	3.95E+01	6.23E+06	1.02E+02	7.02E+06	4.63E+02
metolachlor	seawater	3060-89-7	1.63E-03	7.35E+01	1.58E-03	8.22E+01	3.75E-05
mevinphos	seawater	51218-45-2	6.96E-02	1.35E+03	6.18E-02	1.88E+03	5.42E-06
molybdenum	seawater	7786-34-7	6.94E-05	1.08E+04	8.80E-06	1.20E+03	3.21E-07
meta-Xylene	seawater	7439-98-7	6.59E-19	1.10E+04	1.45E-18	9.54E+03	2.89E-18
Naphtalene	seawater	108-38-3	7.23E-06	1.41E-01	4.69E-06	1.42E-01	1.08E-07
nickel	seawater	91-20-3	1.15E-02	3.30E+01	4.50E-03	1.24E+01	1.90E-05
	seawater	7440-02-0	6.09E-19	1.53E+05	1.56E-18	1.59E+05	2.61E-18

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nitrogen dioxide	seawater	10102-44-0	x	x	x	x	x
oxamyl	seawater	23135-22-0	4.54E-07	2.79E+00	2.07E-07	8.02E-01	2.34E-08
oxydemethon-methyl	seawater	301-12-2	3.00E-04	1.03E+03	6.76E-05	4.24E+02	5.22E-06
ortho-Xylene	seawater	95-47-6	1.51E-05	1.31E-01	1.21E-05	1.72E-01	2.07E-07
parathion-ethyl	seawater	56-38-2	2.02E-01	4.09E+04	1.36E-01	1.68E+04	8.23E-05
parathion-methyl	seawater	298-00-0	1.23E-01	8.06E+03	7.43E-03	3.43E+02	7.08E-04
pentachlorobenzene	seawater	608-93-5	2.36E-01	1.68E+02	3.34E-01	1.42E+02	2.59E-02
pentachloronitrobenzene	seawater	82-68-8	1.07E+01	5.57E+03	3.10E+00	5.50E+02	2.89E-02
pentachlorophenol	seawater	87-86-5	1.20E-05	7.84E+01	2.72E-05	1.43E+02	2.61E-06
permethrin	seawater	52645-53-1	9.95E+00	2.83E+05	1.31E+01	2.17E+05	1.66E-02
phenanthrene	seawater	85-01-8	5.77E-02	7.40E+01	6.28E-02	6.36E+01	6.30E-06
Phenol	seawater	108-95-2	1.73E-05	4.66E+00	6.40E-06	3.18E+00	3.78E-08
phoxim	seawater	14816-18-3	3.29E-02	3.00E+02	5.39E-03	4.06E+01	1.29E-03
Phtalic anhydride	seawater	85-44-9	4.63E-11	1.70E-02	9.39E-14	9.88E-05	2.84E-12
pirimicarb	seawater	23103-98-2	8.88E-04	8.57E+02	8.96E-04	1.30E+03	1.70E-05
dust (PM10)	seawater	PM10	x	x	x	x	x
propachlor	seawater	1918-16-7	5.03E-04	2.67E+01	2.73E-04	2.54E+01	1.34E-05
propoxur	seawater	114-26-1	1.16E-04	3.44E+03	8.23E-05	3.58E+03	3.21E-06
Propylene Oxide	seawater	75-56-9	4.41E-04	1.45E-01	2.36E-04	1.51E-01	1.81E-05
para-Xylene	seawater	106-42-3	1.01E-05	1.31E-01	6.10E-06	9.71E-02	8.88E-08
pyrazophos	seawater	13457-18-6	2.25E-03	1.12E+03	2.04E-03	1.08E+03	2.87E-05
selenium	seawater	7782-49-2	7.38E-18	6.07E+04	8.55E-18	2.69E+04	1.76E-17
simazine	seawater	122-34-9	4.51E-03	6.73E+02	3.84E-03	1.00E+03	1.89E-05
styrene	seawater	100-42-5	1.01E-05	1.25E-01	6.96E-06	9.25E-02	2.72E-08
sulphur dioxide	seawater	7446-09-5	x	x	x	x	x
Tetrachloroethylene	seawater	127-18-4	2.02E-04	6.48E-01	1.93E-04	7.85E-01	4.01E-03
Tetrachloromethane	seawater	56-23-5	1.89E-04	1.11E+00	1.08E-04	4.57E-01	3.59E-04
thallium	seawater	7440-28-0	7.90E-18	1.97E+05	1.99E-17	1.95E+05	4.18E-17
Thiram	seawater	137-26-8	2.62E-02	4.18E+02	9.46E-03	3.72E+01	3.06E-04
tin	seawater	7440-31-5	9.46E-23	1.76E+03	4.84E-23	4.10E+02	7.25E-21
tolclophos-methyl	seawater	57018-04-9	2.87E-02	1.40E+02	3.08E-02	1.63E+02	6.70E-05
Toluene	seawater	108-88-3	8.27E-06	5.09E-02	5.91E-06	6.28E-02	1.87E-06
tri-allate	seawater	2303-17-5	1.15E+00	3.29E+03	4.05E-01	9.16E+02	1.31E-04
triazophos	seawater	24017-47-8	7.89E-02	4.90E+03	7.38E-02	6.83E+03	8.35E-04
tributyltinoxide	seawater	56-35-9	3.01E+00	5.69E+05	4.09E+00	7.90E+05	6.87E-03
trichlorfon	seawater	52-68-6	5.35E-06	3.61E+03	9.91E-07	5.45E+02	4.79E-07
Trichloroethylene	seawater	79-01-6	1.55E-05	5.67E-02	1.31E-05	8.12E-02	1.95E-06
Trichloromethane	seawater	67-66-3	4.48E-05	5.65E-02	2.31E-05	3.25E-02	1.91E-05
trifluarin	seawater	1582-09-8	1.76E+00	8.35E+03	1.44E+00	3.59E+03	3.02E-03
vanadium	seawater	7440-62-2	2.39E-18	3.53E+05	5.71E-18	3.41E+05	2.16E-17
Vinyl Chloride	seawater	75-01-4	1.41E-06	1.95E-02	1.14E-06	2.92E-02	1.31E-07
zinc	seawater	23713-49-7	1.76E-21	1.36E+04	4.51E-21	1.50E+04	1.95E-20
zineb	seawater	12122-67-7	3.64E-03	8.09E+02	2.88E-03	8.87E+02	2.83E-05
chlormequat-chloride	seawater	999-81-5	1.1E-10	7.5E+00	4.7E-11	4.6E+00	6.1E-13
fenpropimorph	seawater	67306-03-0	1.1E-04	4.4E+01	1.1E-04	4.6E+01	4.2E-07
fluroxypyr	seawater	69377-81-7	7.3E-13	2.2E+02	5.7E-13	3.2E+02	1.1E-14
epoxiconazole	seawater	??	9.1E-01	1.1E+03	1.2E+00	1.5E+03	5.1E-03
ethylene oxide	seawater	75-21-8	3.8E-03	7.4E-01	2.3E-03	8.4E-01	9.7E-05
hydrogen fluoride	seawater	7664-39-3	5.3E-08	3.4E+02	4.4E-08	1.2E+02	3.3E-10
1,1,1-trichloroethane	agri. soil	71-55-6	3.73E-04	2.91E-01	3.08E-04	9.58E-02	1.47E-03
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	2.77E-02	3.92E-01	3.23E-02	1.62E-01	8.30E-01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	8.33E-02	2.28E+00	9.28E-02	8.98E-01	1.46E+01

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tetrachlorobenzene							
1,2,3-trichlorobenzene	agri. soil	87-61-6	2.29E-02	6.55E-01	2.51E-02	2.65E-01	9.35E+00
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	2.48E-02	5.09E-01	2.88E-02	2.06E-01	1.89E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	1.95E-02	4.33E-01	2.15E-02	1.79E-01	1.21E+00
1,2-dichlorobenzene	agri. soil	95-50-1	1.92E-02	5.07E-01	1.80E-02	2.12E-01	5.40E-02
1,2-dichloroethane	agri. soil	107-06-2	7.47E-04	5.89E-02	6.27E-04	2.24E-02	1.71E-03
1,3,5-trichlorobenzene	agri. soil	108-70-3	5.42E-02	1.06E+00	5.61E-02	4.52E-01	2.50E-01
1,3-Butadiene	agri. soil	106-99-0	5.68E-05	2.87E-06	3.84E-05	3.16E-06	3.10E-04
1,3-dichlorobenzene	agri. soil	541-73-1	1.76E-02	3.67E-01	1.64E-02	1.62E-01	6.23E-02
1,4-dichlorobenzene	agri. soil	106-46-7	1.38E-02	5.46E-01	1.38E-02	2.13E-01	1.00E+00
1-chloro-4-nitrobenzene	agri. soil	100-00-5	1.47E+02	1.19E+02	1.33E+02	7.91E+01	1.72E+01
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	3.18E+01	6.23E-01	3.48E+01	6.83E-01	1.01E+00
2,3,7,8-TCDD	agri. soil	1746-01-6	1.22E+05	4.46E+04	3.95E+05	1.43E+05	2.70E+04
2,4,5-T	agri. soil	93-76-5	4.43E-01	1.58E-03	3.16E-01	1.97E-03	7.40E-01
2,4,5-trichlorophenol	agri. soil	95-95-4	2.76E+01	1.27E+00	3.26E+01	1.55E+00	4.36E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	1.24E+00	8.20E-03	1.21E+00	9.52E-03	6.98E-01
2,4-D	agri. soil	94-75-7	2.95E+01	1.66E-01	2.20E+01	2.29E-01	1.58E+00
2,4-dichlorophenol	agri. soil	120-83-2	2.53E+00	7.03E-03	9.97E-01	3.19E-03	5.87E-01
2-chlorophenol	agri. soil	95-57-8	7.92E+00	6.81E-02	6.30E+00	8.97E-02	3.78E-01
3,4-dichloroaniline	agri. soil	95-76-1	1.80E+03	2.71E+02	2.27E+03	3.34E+02	2.56E+01
3-chloroaniline	agri. soil	108-42-9	7.44E+01	3.25E-01	6.83E+01	4.49E-01	1.44E+00
4-chloroaniline	agri. soil	106-47-8	1.67E+02	7.72E-01	1.46E+02	1.12E+00	1.57E+01
acephate	agri. soil	30560-19-1	5.09E+01	6.73E-01	2.59E+01	6.39E-01	1.69E+00
Acrolein	agri. soil	107-02-8	4.54E+04	2.55E+02	3.40E+04	3.60E+02	6.98E+03
Acrylonitrile	agri. soil	107-13-1	6.47E+00	2.15E-01	4.22E+00	1.87E-01	2.47E+00
aldicarb	agri. soil	116-06-3	9.59E+04	1.64E+03	7.64E+04	2.38E+03	4.22E+03
aldrin	agri. soil	309-00-2	2.83E+02	3.23E+01	2.43E+01	2.87E+00	2.04E+01
ammonia	agri. soil	7664-41-7	x	x	x	x	x
anilazine	agri. soil	101-05-3	2.14E-01	5.02E-05	1.36E-02	2.10E-06	2.26E-01
anthracene	agri. soil	120-12-7	8.16E+01	6.23E+00	1.13E+02	8.18E+00	8.94E+00
antimony	agri. soil	7440-36-0	7.39E+00	8.28E+01	1.81E+01	8.34E+01	9.39E-01
arsenic	agri. soil	7440-38-2	6.41E+00	5.93E+01	1.64E+01	6.46E+01	1.63E+02
atrazine	agri. soil	1912-24-9	3.45E+02	3.39E+01	2.97E+02	3.75E+01	6.59E+00
azinphos-ethyl	agri. soil	2642-71-9	2.83E+03	1.06E+01	2.04E+03	8.40E+00	2.20E+02
azinphos-methyl	agri. soil	86-50-0	1.94E+02	1.41E-01	9.99E+01	4.12E-02	9.73E-01
barium	agri. soil	7440-39-3	9.75E+01	1.17E+03	2.21E+02	1.07E+03	8.55E+00
benomyl	agri. soil	17804-35-2	4.59E+00	5.77E-03	5.92E-01	5.01E-04	3.49E+00
bentazone	agri. soil	25057-89-0	8.28E+00	3.59E-02	6.69E+00	5.47E-02	5.95E-01
Benzene	agri. soil	71-43-2	7.15E-04	2.37E-03	5.44E-04	1.13E-03	3.44E-03
benzo[a]anthracene	agri. soil	56-55-3	6.17E+01	4.53E+00	1.86E+02	1.51E+01	3.11E+01
benzo[a]pyrene	agri. soil	50-32-8	1.33E+02	6.49E+00	3.82E+02	1.93E+01	2.29E+01
benzo[ghi]perylene	agri. soil	191-24-2	6.08E+01	1.07E+01	1.95E+02	3.74E+01	8.33E+00
benzo[k]fluoranthrene	agri. soil	207-08-9	5.21E+03	1.99E+03	1.72E+04	5.93E+03	3.95E+02
benzylchloride	agri. soil	100-44-7	9.17E-01	8.22E-02	1.34E-01	1.26E-02	8.02E-01
beryllium	agri. soil	7440-41-7	4.34E+04	5.77E+05	5.11E+04	2.66E+05	3.46E+03
bifenthrin	agri. soil	82657-04-3	1.03E+02	1.14E-01	3.06E+02	4.28E-01	8.33E+01
Butylbenzylphtalate	agri. soil	85-68-7	2.52E-02	2.94E-05	8.23E-03	7.11E-06	1.01E-02
cadmium	agri. soil	22537-48-0	4.13E+02	4.13E+03	1.06E+03	4.92E+03	9.05E+01
captafol	agri. soil	2425-06-1	2.66E+04	4.01E+03	3.86E+04	5.84E+03	2.85E+01
captan	agri. soil	133-06-2	4.01E-01	6.88E-05	3.53E-03	8.41E-07	4.10E-02
carbaryl	agri. soil	63-25-2	2.32E+01	7.37E-03	6.75E+00	6.51E-04	1.07E-01



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carbendazim	agri. soil	10605-21-7	2.01E+03	3.04E+01	2.04E+03	4.51E+01	4.94E+01
carbofuran	agri. soil	1563-66-2	5.85E+02	1.97E+00	3.38E+02	2.08E+00	7.50E+00
carbon disulfide	agri. soil	75-15-0	3.40E-01	1.42E+00	2.79E-01	7.94E-01	1.64E+00
Carcinogenic PAHs	agri. soil		5.81E+01	1.21E+01	1.89E+02	4.08E+01	6.35E+00
chlordane	agri. soil	57-74-9	9.35E+01	3.04E+01	9.51E+00	8.38E-01	7.39E+01
chlorfenvinphos	agri. soil	470-90-6	1.61E+01	8.54E-02	1.37E+01	9.99E-02	1.31E+00
chloridazon	agri. soil	1698-60-8	1.80E+00	8.09E-02	1.42E+00	1.01E-01	8.96E-01
chlorobenzene	agri. soil	108-90-7	3.23E-03	8.29E-02	3.01E-03	3.72E-02	1.17E-01
chlorothalonil	agri. soil	1897-45-6	1.04E+00	1.65E+00	7.25E-01	4.75E-01	6.78E-01
chlorpropham	agri. soil	101-21-3	1.81E+00	8.43E-03	1.55E+00	1.08E-02	1.33E-01
chlorpyrifos	agri. soil	2921-88-2	3.56E+02	1.44E-01	2.29E+02	1.43E-02	1.67E+01
chromium III	agri. soil	16056-83-1	1.46E-01	1.24E+00	3.74E-01	1.58E+00	1.79E+02
chromium VI	agri. soil	18540-29-9	5.82E-01	4.95E+00	1.50E+00	6.32E+00	1.79E+02
chrysene	agri. soil	218-01-9	7.37E+01	1.21E+01	2.36E+02	4.05E+01	4.64E+00
cobalt	agri. soil	7440-48-4	1.61E+03	2.10E+04	2.67E+03	1.45E+04	2.11E+02
copper	agri. soil	15158-11-9	2.44E+02	2.42E+03	6.12E+02	2.69E+03	6.01E+00
coumaphos	agri. soil	56-72-4	9.99E+05	1.52E+05	1.45E+06	2.21E+05	1.56E+04
cyazazine	agri. soil	21725-46-2	8.06E+02	2.84E+00	6.33E+02	3.68E+00	6.90E+01
cypermethrin	agri. soil	52315-07-8	1.99E+05	2.97E+02	3.63E+05	7.99E+02	8.97E+04
cyromazine	agri. soil	66215-27-8	6.45E+03	2.54E+02	5.18E+03	3.53E+02	6.34E+02
DDT	agri. soil	50-29-3	8.67E+01	4.32E+01	9.35E+01	1.36E+01	6.00E+01
deltamethrin	agri. soil	52918-63-5	2.41E+01	5.97E-02	3.63E+01	1.17E-01	8.54E+00
demeton	agri. soil	8065-48-3	7.96E+02	3.50E+00	5.65E+02	4.46E+00	5.99E+01
desmetryn	agri. soil	1014-69-3	3.01E+00	2.40E-02	1.80E+00	2.41E-02	2.89E+00
Di(2-ethylhexyl)phtalate	agri. soil	117-81-7	1.49E-03	1.56E-05	1.97E-03	1.10E-05	1.40E-03
diazinon	agri. soil	333-41-5	1.29E+03	7.81E+00	9.28E+02	7.49E+00	1.15E+01
Dibutylphtalate	agri. soil	84-74-2	7.86E-02	1.20E-04	1.03E-02	1.13E-05	2.29E-02
Dichloromethane	agri. soil	75-09-2	1.59E-04	2.52E-03	1.15E-04	9.23E-04	2.53E-04
dichlorprop	agri. soil	120-36-5	1.30E-02	3.59E-05	6.89E-03	1.88E-05	1.42E-03
dichlorvos	agri. soil	62-73-7	7.41E+01	4.09E-02	3.32E+00	2.74E-03	2.00E+02
dieldrin	agri. soil	60-57-1	5.98E+02	8.08E+01	6.26E+01	2.82E+00	1.08E+02
Diethylphtalate	agri. soil	84-66-2	1.62E-01	7.12E-04	1.06E-01	5.57E-04	2.12E+00
Dihexylphtalate	agri. soil	84-75-3	1.84E-02	4.25E-04	4.40E-02	8.04E-04	7.27E-03
Diisodecylphtalate	agri. soil	26761-40-0	4.61E-03	8.56E-04	1.02E-02	1.36E-03	4.04E-03
Diisooctylphtalate	agri. soil	27554-26-3	6.24E-04	6.51E-05	1.38E-03	1.02E-04	5.49E-04
dimethoate	agri. soil	60-51-5	8.94E+00	3.94E-02	6.62E+00	4.76E-02	8.05E-01
Dimethylphtalate	agri. soil	133-11-3	7.41E-03	9.71E-06	1.91E-03	2.31E-06	1.45E+00
dinoseb	agri. soil	88-85-7	2.01E+04	3.91E+02	5.55E+03	1.48E+02	5.88E+02
dinoterb	agri. soil	1420-07-1	3.31E+02	8.69E+00	1.49E+02	3.07E+00	9.94E+00
Diocetylphthalate	agri. soil	117-84-0	4.20E-05	1.29E-06	7.05E-05	1.29E-06	4.82E-05
disulfothon	agri. soil	298-04-4	7.25E+01	1.41E-01	2.49E+01	4.03E-02	1.15E+01
diuron	agri. soil	330-54-1	3.45E+02	2.09E+00	3.27E+02	2.99E+00	2.27E+01
DNOC	agri. soil	534-52-1	1.19E+00	3.65E-03	2.00E-01	8.54E-04	5.17E-01
endosulfan	agri. soil	115-29-7	2.21E+00	1.35E-03	4.77E-01	8.97E-05	2.75E+00
endrin	agri. soil	72-20-8	2.08E+04	1.03E+04	6.35E+03	7.50E+02	4.21E+03
ethoprophos	agri. soil	13194-48-4	1.11E+04	2.64E+02	8.77E+03	3.55E+02	2.71E+02
Ethylbenzene	agri. soil	100-41-4	1.75E-03	4.07E-04	1.17E-03	3.15E-04	1.95E-03
Ethylene	agri. soil	74-85-1	1.13E-09	7.82E-11	7.13E-10	7.10E-11	2.26E-09
fenitrothion	agri. soil	122-14-5	7.55E+02	2.27E+00	4.23E+02	1.15E+00	8.30E+01
fenthion	agri. soil	55-38-9	3.50E+03	1.46E+01	2.52E+03	9.88E+00	2.87E+02
fentin acetate	agri. soil	900-95-8	3.81E+02	6.80E+00	6.20E+02	1.81E+01	1.15E+01
fentin chloride	agri. soil	639-58-7	2.50E+02	9.47E+01	4.08E+02	1.18E+02	1.15E+01
fentin hydroxide	agri. soil	76-87-9	3.79E+02	6.14E+00	6.19E+02	1.65E+01	1.15E+01

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fluoranthrene	agri. soil	206-44-0	1.91E+01	1.33E+00	5.70E+01	4.28E+00	2.32E+00
folpet	agri. soil	133-07-3	4.48E+03	7.09E+02	6.19E+03	9.33E+02	1.06E+02
Formaldehyde	agri. soil	50-00-0	1.47E+01	1.84E-02	7.94E+00	1.84E-02	5.79E+00
glyphosate	agri. soil	1071-83-6	9.22E-01	2.80E-03	9.01E-01	2.49E-03	9.63E-02
heptachlor	agri. soil	76-44-8	2.29E+00	2.45E-02	3.23E+00	2.03E-02	5.47E+00
heptenophos	agri. soil	23560-59-0	3.09E+01	2.56E-02	3.81E+00	5.08E-03	1.60E+01
hexachloro-1,3-butadiene	agri. soil	87-68-3	6.97E+01	2.82E+04	8.05E+01	1.05E+04	5.35E+01
hexachlorobenzene	agri. soil	118-74-1	3.23E+00	7.25E+02	1.04E+01	8.29E+02	3.53E+00
hydrogen chloride	agri. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	agri. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	9.01E+01	1.71E+01	2.90E+02	5.94E+01	1.27E+01
iprodione	agri. soil	36734-19-7	2.33E-01	2.19E-05	1.92E-02	3.54E-07	1.45E-01
isoproturon	agri. soil	34123-59-6	1.68E+02	1.79E+00	6.29E+01	1.13E+00	6.44E+00
lead	agri. soil	14280-50-3	2.61E-01	2.15E+00	6.71E-01	2.86E+00	1.34E+00
lindane	agri. soil	58-89-9	9.74E+01	1.40E+00	2.55E+01	2.90E-01	2.34E+01
linuron	agri. soil	330-55-2	6.93E+02	1.25E+01	6.89E+02	1.63E+01	2.07E+01
malathion	agri. soil	121-75-5	1.62E+02	6.61E-01	9.46E+01	3.69E-01	7.57E-02
MCPA	agri. soil	94-74-6	4.63E-01	6.17E-04	3.08E-01	7.56E-04	9.45E-02
mecoprop	agri. soil	7085-19-0	3.00E+01	5.29E-02	2.02E+01	6.91E-02	4.73E+00
mercury	agri. soil	14302-87-5	4.29E+02	6.58E+03	1.10E+03	7.86E+03	2.85E+04
metamitron	agri. soil	41394-05-2	4.13E-01	1.13E-03	2.17E-01	8.90E-04	4.16E-02
metazachlor	agri. soil	67129-08-2	3.93E+00	3.28E-02	2.83E+00	3.94E-02	1.74E-01
methabenzthiazuron	agri. soil	18691-97-9	4.37E+01	9.99E-01	4.75E+01	1.45E+00	1.09E+00
methomyl	agri. soil	16752-77-5	1.41E+04	4.40E+02	1.05E+04	5.66E+02	3.05E+02
methylbromide	agri. soil	74-83-9	1.36E-01	3.07E+00	7.22E-02	8.25E-01	3.65E-01
methyl-mercury	agri. soil	22967-92-6	9.86E+03	1.51E+05	2.53E+04	1.80E+05	2.85E+04
metobromuron	agri. soil	3060-89-7	9.49E+01	1.43E+01	9.17E+01	1.59E+01	2.17E+00
metolachlor	agri. soil	51218-45-2	1.89E+03	2.98E+01	1.68E+03	4.15E+01	5.38E-01
mevinphos	agri. soil	7786-34-7	3.50E+02	3.42E-01	4.44E+01	3.78E-02	8.68E+01
molybdenum	agri. soil	7439-98-7	3.58E+01	3.38E+02	7.93E+01	3.05E+02	5.00E+00
meta-Xylene	agri. soil	108-38-3	1.89E-03	2.49E-04	1.22E-03	2.25E-04	2.95E-03
Naphtalene	agri. soil	91-20-3	3.76E+00	5.73E-02	1.47E+00	2.00E-02	3.13E+00
nickel	agri. soil	7440-02-0	4.78E+02	4.63E+03	1.23E+03	5.00E+03	6.87E+01
nitrogen dioxide	agri. soil	10102-44-0	x	x	x	x	x
oxamyl	agri. soil	23135-22-0	2.95E+01	8.42E-03	1.35E+01	2.42E-03	5.87E+00
oxydemethon-methyl	agri. soil	301-12-2	9.70E+02	1.98E+00	2.18E+02	8.18E-01	9.23E+01
ortho-Xylene	agri. soil	95-47-6	2.47E-03	5.49E-04	1.98E-03	5.97E-04	3.36E-03
parathion-ethyl	agri. soil	56-38-2	4.98E+02	2.35E+00	3.35E+02	9.64E-01	1.72E+01
parathion-methyl	agri. soil	298-00-0	1.12E+03	5.86E+00	6.75E+01	2.49E-01	8.09E+01
pentachlorobenzene	agri. soil	608-93-5	5.87E-01	2.77E+01	8.31E-01	1.39E+01	2.15E+00
pentachloronitrobenzene	agri. soil	82-68-8	1.50E+01	3.05E+01	4.33E+00	2.27E+00	2.69E+00
pentachlorophenol	agri. soil	87-86-5	3.28E-01	5.90E-03	7.43E-01	1.08E-02	4.81E+00
permethrin	agri. soil	52645-53-1	9.17E+02	5.47E+00	1.21E+03	4.17E+00	2.51E+02
phenanthrene	agri. soil	85-01-8	2.93E-01	8.70E-03	3.18E-01	6.96E-03	3.69E-02
Phenol	agri. soil	108-95-2	3.47E+00	1.65E-03	1.28E+00	1.10E-03	4.53E-02
phoxim	agri. soil	14816-18-3	4.43E+00	3.10E-01	7.25E-01	4.08E-02	4.74E+00
Phtalic anhydride	agri. soil	85-44-9	4.84E-05	1.83E-08	9.83E-08	1.05E-10	2.62E-03
pirimicarb	agri. soil	23103-98-2	1.67E+03	7.31E+00	1.69E+03	1.11E+01	1.20E+02
dust (PM10)	agri. soil	PM10	x	x	x	x	x
propachlor	agri. soil	1918-16-7	1.73E+01	4.23E-02	9.36E+00	3.99E-02	2.49E+00
propoxur	agri. soil	114-26-1	1.99E+04	3.85E+01	1.41E+04	4.01E+01	1.79E+03
Propylene Oxide	agri. soil	75-56-9	4.25E-01	2.94E-02	2.27E-01	1.56E-02	1.45E-01

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para-Xylene	agri. soil	106-42-3	1.43E-03	3.21E-04	8.61E-04	2.01E-04	1.48E-03
pyrazophos	agri. soil	13457-18-6	2.55E+02	6.77E-01	2.31E+02	6.50E-01	2.99E+01
selenium	agri. soil	7782-49-2	1.45E+03	2.22E+04	1.69E+03	9.90E+03	1.09E+02
simazine	agri. soil	122-34-9	2.33E+03	1.27E+01	1.98E+03	1.89E+01	2.93E+01
styrene	agri. soil	100-42-5	1.54E-03	1.07E-04	1.06E-03	7.62E-05	1.41E-03
sulphur dioxide	agri. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	agri. soil	127-18-4	2.23E-03	3.15E-01	2.13E-03	1.14E-01	3.02E-01
Tetrachloromethane	agri. soil	56-23-5	5.61E-04	1.14E+00	3.20E-04	3.05E-01	2.07E-03
thallium	agri. soil	7440-28-0	1.26E+03	1.23E+04	3.19E+03	1.26E+04	2.13E+02
Thiram	agri. soil	137-26-8	6.86E+02	6.50E-01	2.48E+02	5.69E-02	5.08E+01
tin	agri. soil	7440-31-5	2.76E-01	2.32E+00	1.42E-01	6.01E-01	1.22E+00
tolclophos-methyl	agri. soil	57018-04-9	3.05E+00	1.30E-01	3.28E+00	1.47E-01	1.79E+00
Toluene	agri. soil	108-88-3	1.05E-03	4.47E-04	7.53E-04	3.71E-04	1.86E-02
tri-allate	agri. soil	2303-17-5	4.96E+01	8.45E-01	1.76E+01	2.33E-01	1.31E+00
triazophos	agri. soil	24017-47-8	5.77E+03	5.25E+01	5.40E+03	7.31E+01	2.45E+02
tributyltinoxide	agri. soil	56-35-9	1.07E+03	5.59E+02	1.46E+03	7.68E+02	3.70E+01
trichlorfon	agri. soil	52-68-6	3.31E+03	6.74E-01	6.13E+02	1.01E-01	1.88E+03
Trichloroethylene	agri. soil	79-01-6	4.62E-04	2.47E-03	3.91E-04	1.53E-03	2.14E-03
Trichloromethane	agri. soil	67-66-3	4.74E-04	4.71E-02	2.44E-04	1.29E-02	1.56E-03
trifluarin	agri. soil	1582-09-8	3.98E+01	1.15E+00	3.25E+01	4.88E-01	3.52E+01
vanadium	agri. soil	7440-62-2	1.49E+03	1.45E+04	3.55E+03	1.45E+04	4.44E+02
Vinyl Chloride	agri. soil	75-01-4	6.43E-05	1.28E-04	5.20E-05	1.17E-04	3.14E-04
zinc	agri. soil	23713-49-7	1.42E+01	1.34E+02	3.66E+01	1.60E+02	7.50E+00
zineb	agri. soil	12122-67-7	3.74E+02	3.49E+00	2.95E+02	3.82E+00	1.58E+01
chlormequat-chloride	agri. soil	999-81-5	1.4E+00	9.7E-03	5.7E-01	6.0E-03	7.0E-02
fenpropimorph	agri. soil	67306-03-0	8.2E+00	4.6E-02	8.1E+00	4.7E-02	5.3E-01
fluroxypyr	agri. soil	69377-81-7	6.2E+02	3.9E+00	4.8E+02	5.5E+00	3.3E+01
epoxiconazole	agri. soil	??	3.8E+02	5.8E+01	5.1E+02	7.5E+01	6.4E+00
ethylene oxide	agri. soil	75-21-8	7.9E-01	2.2E-01	4.8E-01	1.1E-01	2.2E-01
hydrogen fluoride	agri. soil	7664-39-3	9.4E+00	1.7E+02	7.6E+00	5.9E+01	6.0E-03
1,1,1-trichloroethane	indus. soil	71-55-6	3.73E-04	2.91E-01	3.08E-04	9.58E-02	1.47E-03
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	1.03E-01	1.46E+00	1.20E-01	6.03E-01	7.73E-01
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	1.86E-01	5.10E+00	2.07E-01	2.01E+00	1.19E+01
1,2,3-trichlorobenzene	indus. soil	87-61-6	3.02E-02	8.65E-01	3.31E-02	3.50E-01	7.97E+00
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	8.97E-02	1.84E+00	1.04E-01	7.43E-01	1.71E+01
1,2,4-trichlorobenzene	indus. soil	120-82-1	3.22E-02	7.15E-01	3.55E-02	2.95E-01	9.93E-01
1,2-dichlorobenzene	indus. soil	95-50-1	1.92E-02	5.07E-01	1.80E-02	2.12E-01	5.40E-02
1,2-dichloroethane	indus. soil	107-06-2	7.47E-04	5.89E-02	6.27E-04	2.24E-02	1.71E-03
1,3,5-trichlorobenzene	indus. soil	108-70-3	6.63E-02	1.30E+00	6.87E-02	5.53E-01	2.19E-01
1,3-Butadiene	indus. soil	106-99-0	5.68E-05	2.87E-06	3.84E-05	3.16E-06	3.10E-04
1,3-dichlorobenzene	indus. soil	541-73-1	1.76E-02	3.67E-01	1.64E-02	1.62E-01	6.23E-02
1,4-dichlorobenzene	indus. soil	106-46-7	1.38E-02	5.46E-01	1.38E-02	2.13E-01	1.00E+00
1-chloro-4-nitrobenzene	indus. soil	100-00-5	1.47E+02	1.19E+02	1.33E+02	7.91E+01	1.72E+01
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	1.23E+02	2.49E+00	1.34E+02	2.70E+00	9.73E-01
2,3,7,8-TCDD	indus. soil	1746-01-6	4.88E+05	1.78E+05	1.58E+06	5.72E+05	2.69E+04
2,4,5-T	indus. soil	93-76-5	1.53E+00	5.47E-03	1.10E+00	6.83E-03	6.40E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	9.91E+01	4.64E+00	1.17E+02	5.65E+00	3.92E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	4.83E+00	3.20E-02	4.72E+00	3.71E-02	6.81E-01
2,4-D	indus. soil	94-75-7	8.20E+01	4.62E-01	6.13E+01	6.36E-01	1.10E+00
2,4-dichlorophenol	indus. soil	120-83-2	9.23E+00	2.66E-02	3.64E+00	1.20E-02	5.36E-01

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2-chlorophenol	indus. soil	95-57-8	3.07E+01	2.64E-01	2.44E+01	3.48E-01	3.67E-01
3,4-dichloroaniline	indus. soil	95-76-1	3.95E+03	6.02E+02	5.00E+03	7.43E+02	1.83E+01
3-chloroaniline	indus. soil	108-42-9	2.52E+02	1.15E+00	2.31E+02	1.59E+00	1.22E+00
4-chloroaniline	indus. soil	106-47-8	4.87E+02	2.24E+00	4.25E+02	3.26E+00	1.14E+01
acephate	indus. soil	30560-19-1	1.59E+02	2.11E+00	8.11E+01	2.00E+00	1.32E+00
Acrolein	indus. soil	107-02-8	4.54E+04	2.55E+02	3.40E+04	3.60E+02	6.98E+03
Acrylonitrile	indus. soil	107-13-1	8.10E+00	2.69E-01	5.29E+00	2.35E-01	2.14E+00
aldicarb	indus. soil	116-06-3	9.58E+04	1.64E+03	7.64E+04	2.38E+03	4.17E+03
aldrin	indus. soil	309-00-2	2.91E+02	3.32E+01	2.50E+01	2.95E+00	1.99E+01
ammonia	indus. soil	7664-41-7	x	x	x	x	x
anilazine	indus. soil	101-05-3	8.62E-01	2.03E-04	5.48E-02	8.46E-06	2.28E-01
anthracene	indus. soil	120-12-7	3.23E+02	2.46E+01	4.49E+02	3.23E+01	8.84E+00
antimony	indus. soil	7440-36-0	7.39E+00	8.28E+01	1.81E+01	8.34E+01	9.39E-01
arsenic	indus. soil	7440-38-2	6.41E+00	5.93E+01	1.64E+01	6.46E+01	1.63E+02
atrazine	indus. soil	1912-24-9	9.29E+02	9.13E+01	8.00E+02	1.01E+02	4.44E+00
aziphos-ethyl	indus. soil	2642-71-9	3.72E+03	1.39E+01	2.68E+03	1.10E+01	7.23E+01
aziphos-methyl	indus. soil	86-50-0	8.00E+02	5.80E-01	4.11E+02	1.69E-01	1.00E+00
barium	indus. soil	7440-39-3	9.75E+01	1.17E+03	2.21E+02	1.07E+03	8.55E+00
benomyl	indus. soil	17804-35-2	1.83E+01	2.30E-02	2.36E+00	2.00E-03	3.48E+00
bentazone	indus. soil	25057-89-0	1.09E+01	4.75E-02	8.82E+00	7.24E-02	5.03E-01
Benzene	indus. soil	71-43-2	7.15E-04	2.37E-03	5.44E-04	1.13E-03	3.44E-03
benzo[a]anthracene	indus. soil	56-55-3	2.50E+02	1.81E+01	7.42E+02	6.03E+01	3.10E+01
benzo[a]pyrene	indus. soil	50-32-8	5.29E+02	2.59E+01	1.52E+03	7.72E+01	2.29E+01
benzo[ghi]perylene	indus. soil	191-24-2	2.40E+02	4.28E+01	7.77E+02	1.49E+02	8.28E+00
benzo[k]fluoranthrene	indus. soil	207-08-9	2.03E+04	7.77E+03	6.76E+04	2.32E+04	3.86E+02
benzylchloride	indus. soil	100-44-7	3.23E+00	2.90E-01	4.74E-01	4.45E-02	7.07E-01
beryllium	indus. soil	7440-41-7	4.34E+04	5.77E+05	5.11E+04	2.66E+05	3.46E+03
bifenthrin	indus. soil	82657-04-3	4.12E+02	4.54E-01	1.22E+03	1.71E+00	8.32E+01
Butylbenzylphthalate	indus. soil	85-68-7	1.00E-01	1.18E-04	3.28E-02	2.84E-05	1.01E-02
cadmium	indus. soil	22537-48-0	4.13E+02	4.13E+03	1.06E+03	4.92E+03	9.05E+01
captafol	indus. soil	2425-06-1	8.25E+04	1.24E+04	1.19E+05	1.80E+04	2.19E+01
captan	indus. soil	133-06-2	4.71E+00	8.08E-04	4.14E-02	9.87E-06	1.20E-01
carbaryl	indus. soil	63-25-2	1.25E+02	3.96E-02	3.63E+01	3.51E-03	1.44E-01
carbendazim	indus. soil	10605-21-7	6.11E+03	9.27E+01	6.21E+03	1.37E+02	3.76E+01
carbofuran	indus. soil	1563-66-2	1.85E+03	6.23E+00	1.07E+03	6.57E+00	5.93E+00
carbon disulfide	indus. soil	75-15-0	3.40E-01	1.42E+00	2.79E-01	7.94E-01	1.64E+00
Carcinogenic PAHs	indus. soil		2.30E+02	4.80E+01	7.47E+02	1.61E+02	6.28E+00
chlordane	indus. soil	57-74-9	3.72E+02	1.21E+02	3.78E+01	3.33E+00	7.35E+01
chlorfenvinphos	indus. soil	470-90-6	5.93E+01	3.14E-01	5.04E+01	3.67E-01	1.21E+00
chloridazon	indus. soil	1698-60-8	3.95E+00	1.78E-01	3.11E+00	2.22E-01	6.78E-01
chlorobenzene	indus. soil	108-90-7	3.23E-03	8.29E-02	3.01E-03	3.72E-02	1.17E-01
chlorothalonil	indus. soil	1897-45-6	3.75E+00	5.97E+00	2.62E+00	1.71E+00	6.13E-01
chlorpropham	indus. soil	101-21-3	6.37E+00	2.97E-02	5.48E+00	3.79E-02	1.18E-01
chlorpyrifos	indus. soil	2921-88-2	1.45E+03	5.84E-01	9.31E+02	5.80E-02	1.70E+01
chromium III	indus. soil	16056-83-1	1.46E-01	1.24E+00	3.74E-01	1.58E+00	1.79E+02
chromium VI	indus. soil	18540-29-9	5.82E-01	4.95E+00	1.50E+00	6.32E+00	1.79E+02
chrysene	indus. soil	218-01-9	2.88E+02	4.74E+01	9.25E+02	1.58E+02	4.53E+00
cobalt	indus. soil	7440-48-4	1.61E+03	2.10E+04	2.67E+03	1.45E+04	2.11E+02
copper	indus. soil	15158-11-9	2.44E+02	2.42E+03	6.12E+02	2.69E+03	6.01E+00
coumaphos	indus. soil	56-72-4	3.05E+06	4.64E+05	4.43E+06	6.75E+05	1.19E+04
cyanazine	indus. soil	21725-46-2	2.96E+03	1.04E+01	2.33E+03	1.35E+01	6.34E+01
cypermethrin	indus. soil	52315-07-8	6.89E+05	1.03E+03	1.25E+06	2.76E+03	7.76E+04
cyromazine	indus. soil	66215-27-8	6.45E+03	2.54E+02	5.18E+03	3.53E+02	6.34E+02
DDT	indus. soil	50-29-3	3.42E+02	1.70E+02	3.69E+02	5.35E+01	5.92E+01

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deltamethrin	indus. soil	52918-63-5	9.64E+01	2.39E-01	1.45E+02	4.69E-01	8.54E+00
demeton	indus. soil	8065-48-3	2.59E+03	1.14E+01	1.84E+03	1.45E+01	4.87E+01
desmetryn	indus. soil	1014-69-3	1.10E+01	8.79E-02	6.60E+00	8.83E-02	2.64E+00
Di(2-ethylhexyl)phtalate	indus. soil	117-81-7	5.96E-03	6.23E-05	7.88E-03	4.42E-05	1.40E-03
diazinon	indus. soil	333-41-5	4.55E+03	2.75E+01	3.26E+03	2.64E+01	1.02E+01
Dibutylphtalate	indus. soil	84-74-2	3.12E-01	4.78E-04	4.08E-02	4.49E-05	2.27E-02
Dichloromethane	indus. soil	75-09-2	1.59E-04	2.52E-03	1.15E-04	9.23E-04	2.53E-04
dichlorprop	indus. soil	120-36-5	5.12E-02	1.42E-04	2.72E-02	7.41E-05	1.40E-03
dichlorvos	indus. soil	62-73-7	2.95E+02	1.63E-01	1.32E+01	1.09E-02	2.00E+02
dieldrin	indus. soil	60-57-1	2.28E+03	3.07E+02	2.38E+02	1.07E+01	1.03E+02
Diethylphtalate	indus. soil	84-66-2	6.28E-01	2.77E-03	4.12E-01	2.16E-03	2.06E+00
Dihexylphtalate	indus. soil	84-75-3	7.37E-02	1.70E-03	1.76E-01	3.21E-03	7.26E-03
Diisodecylphtalate	indus. soil	26761-40-0	1.84E-02	3.42E-03	4.08E-02	5.42E-03	4.04E-03
Diisooctylphtalate	indus. soil	27554-26-3	2.49E-03	2.61E-04	5.51E-03	4.08E-04	5.49E-04
dimethoate	indus. soil	60-51-5	2.76E+01	1.22E-01	2.04E+01	1.47E-01	6.20E-01
Dimethylphtalate	indus. soil	133-11-3	2.93E-02	3.83E-05	7.54E-03	9.14E-06	1.43E+00
dinoseb	indus. soil	88-85-7	5.76E+04	1.14E+03	1.59E+04	4.32E+02	4.22E+02
dinoterb	indus. soil	1420-07-1	1.31E+03	3.58E+01	5.91E+02	1.26E+01	9.85E+00
Diocetylphthalate	indus. soil	117-84-0	1.68E-04	5.16E-06	2.82E-04	5.15E-06	4.82E-05
disulfothon	indus. soil	298-04-4	2.88E+02	5.60E-01	9.90E+01	1.60E-01	1.14E+01
diuron	indus. soil	330-54-1	1.13E+03	6.84E+00	1.07E+03	9.79E+00	1.86E+01
DNOC	indus. soil	534-52-1	4.47E+00	1.41E-02	7.51E-01	3.29E-03	4.86E-01
endosulfan	indus. soil	115-29-7	8.98E+00	5.51E-03	1.94E+00	3.65E-04	2.79E+00
endrin	indus. soil	72-20-8	7.09E+04	3.50E+04	2.16E+04	2.55E+03	3.57E+03
ethoprophos	indus. soil	13194-48-4	3.03E+04	7.23E+02	2.40E+04	9.73E+02	1.86E+02
Ethylbenzene	indus. soil	100-41-4	1.78E-03	4.12E-04	1.18E-03	3.19E-04	1.92E-03
Ethylene	indus. soil	74-85-1	1.13E-09	7.82E-11	7.13E-10	7.10E-11	2.26E-09
fenitrothion	indus. soil	122-14-5	2.96E+03	8.91E+00	1.66E+03	4.50E+00	8.14E+01
fenthion	indus. soil	55-38-9	1.37E+04	5.71E+01	9.86E+03	3.86E+01	2.80E+02
fentin acetate	indus. soil	900-95-8	1.51E+03	2.70E+01	2.46E+03	7.16E+01	1.15E+01
fentin chloride	indus. soil	639-58-7	9.90E+02	3.74E+02	1.61E+03	4.68E+02	1.14E+01
fentin hydroxide	indus. soil	76-87-9	1.50E+03	2.44E+01	2.45E+03	6.53E+01	1.15E+01
fluoranthrene	indus. soil	206-44-0	7.56E+01	5.26E+00	2.26E+02	1.70E+01	2.30E+00
folpet	indus. soil	133-07-3	1.32E+04	2.09E+03	1.83E+04	2.74E+03	7.80E+01
Formaldehyde	indus. soil	50-00-0	4.42E+01	5.55E-02	2.39E+01	5.53E-02	4.37E+00
glyphosate	indus. soil	1071-83-6	3.67E+00	1.12E-02	3.59E+00	9.91E-03	9.60E-02
heptachlor	indus. soil	76-44-8	8.95E+00	9.55E-02	1.26E+01	7.93E-02	5.33E+00
heptenophos	indus. soil	23560-59-0	1.22E+02	1.01E-01	1.51E+01	2.01E-02	1.59E+01
hexachloro-1,3-butadiene	indus. soil	87-68-3	8.44E+01	3.42E+04	9.75E+01	1.28E+04	4.74E+01
hexachlorobenzene	indus. soil	118-74-1	4.26E+00	9.58E+02	1.37E+01	1.10E+03	3.04E+00
hydrogen chloride	indus. soil	7647-01-0	x	x	x	x	x
hydrogen sulfide	indus. soil	7783-06-4	x	x	x	x	x
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	3.56E+02	6.80E+01	1.16E+03	2.36E+02	1.26E+01
iprodione	indus. soil	36734-19-7	1.92E+00	1.81E-04	1.58E-01	2.92E-06	2.99E-01
isoproturon	indus. soil	34123-59-6	3.96E+02	4.22E+00	1.48E+02	2.66E+00	4.56E+00
lead	indus. soil	14280-50-3	2.61E-01	2.15E+00	6.71E-01	2.86E+00	1.34E+00
lindane	indus. soil	58-89-9	3.71E+02	5.34E+00	9.69E+01	1.10E+00	2.23E+01
linuron	indus. soil	330-55-2	2.43E+03	4.37E+01	2.42E+03	5.73E+01	1.82E+01
malathion	indus. soil	121-75-5	6.45E+02	2.63E+00	3.77E+02	1.47E+00	7.53E-02
MCPA	indus. soil	94-74-6	1.68E+00	2.24E-03	1.12E+00	2.74E-03	8.57E-02
mecoprop	indus. soil	7085-19-0	7.84E+01	1.38E-01	5.27E+01	1.81E-01	3.29E+00
mercury	indus. soil	14302-87-5	4.29E+02	6.58E+03	1.10E+03	7.86E+03	2.85E+04



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metamitron	indus. soil	41394-05-2	1.50E+00	4.11E-03	7.85E-01	3.22E-03	3.77E-02
metazachlor	indus. soil	67129-08-2	1.36E+01	1.14E-01	9.81E+00	1.37E-01	1.51E-01
methabenzthiazuron	indus. soil	18691-97-9	1.41E+02	3.23E+00	1.54E+02	4.70E+00	8.81E-01
methomyl	indus. soil	16752-77-5	2.84E+04	8.87E+02	2.12E+04	1.14E+03	2.23E+02
methylbromide	indus. soil	74-83-9	1.36E-01	3.08E+00	7.26E-02	8.30E-01	3.74E-01
methyl-mercury	indus. soil	22967-92-6	9.86E+03	1.51E+05	2.53E+04	1.80E+05	2.85E+04
metobromuron	indus. soil	3060-89-7	9.49E+01	1.43E+01	9.17E+01	1.59E+01	2.17E+00
metolachlor	indus. soil	51218-45-2	5.81E+03	9.13E+01	5.16E+03	1.27E+02	4.13E-01
mevinphos	indus. soil	7786-34-7	1.45E+03	1.42E+00	1.84E+02	1.57E-01	8.99E+01
molybdenum	indus. soil	7439-98-7	3.58E+01	3.38E+02	7.93E+01	3.05E+02	5.00E+00
meta-Xylene	indus. soil	108-38-3	1.89E-03	2.49E-04	1.22E-03	2.25E-04	2.95E-03
Naphtalene	indus. soil	91-20-3	1.25E+01	1.91E-01	4.90E+00	6.66E-02	2.60E+00
nickel	indus. soil	7440-02-0	4.78E+02	4.63E+03	1.23E+03	5.00E+03	6.87E+01
nitrogen dioxide	indus. soil	10102-44-0	x	x	x	x	x
oxamyl	indus. soil	23135-22-0	1.20E+02	3.44E-02	5.50E+01	9.86E-03	5.98E+00
oxydemethon-methyl	indus. soil	301-12-2	3.59E+03	7.32E+00	8.08E+02	3.02E+00	8.53E+01
ortho-Xylene	indus. soil	95-47-6	2.47E-03	5.49E-04	1.98E-03	5.97E-04	3.36E-03
parathion-ethyl	indus. soil	56-38-2	1.94E+03	9.17E+00	1.31E+03	3.77E+00	1.68E+01
parathion-methyl	indus. soil	298-00-0	4.37E+03	2.30E+01	2.65E+02	9.76E-01	7.92E+01
pentachlorobenzene	indus. soil	608-93-5	1.14E+00	5.37E+01	1.61E+00	2.70E+01	1.74E+00
pentachloronitrobenzene	indus. soil	82-68-8	5.80E+01	1.18E+02	1.68E+01	8.81E+00	2.61E+00
pentachlorophenol	indus. soil	87-86-5	1.31E+00	2.68E-02	2.97E+00	4.86E-02	4.79E+00
permethrin	indus. soil	52645-53-1	3.66E+03	2.19E+01	4.84E+03	1.67E+01	2.51E+02
phenanthrene	indus. soil	85-01-8	1.17E+00	3.46E-02	1.27E+00	2.77E-02	3.68E-02
Phenol	indus. soil	108-95-2	1.27E+01	6.06E-03	4.70E+00	4.01E-03	4.15E-02
phoxim	indus. soil	14816-18-3	7.87E+00	5.50E-01	1.29E+00	7.23E-02	3.78E+00
Phtalic anhydride	indus. soil	85-44-9	3.12E-05	1.18E-08	6.33E-08	6.77E-11	4.22E-04
pirimicarb	indus. soil	23103-98-2	5.22E+03	2.29E+01	5.27E+03	3.47E+01	9.41E+01
dust (PM10)	indus. soil	PM10	x	x	x	x	x
propachlor	indus. soil	1918-16-7	6.35E+01	1.56E-01	3.44E+01	1.47E-01	2.29E+00
propoxur	indus. soil	114-26-1	5.35E+04	1.04E+02	3.81E+04	1.08E+02	1.31E+03
Propylene Oxide	indus. soil	75-56-9	4.76E-01	3.29E-02	2.55E-01	1.75E-02	1.23E-01
para-Xylene	indus. soil	106-42-3	1.44E-03	3.23E-04	8.66E-04	2.02E-04	1.47E-03
pyrazophos	indus. soil	13457-18-6	9.88E+02	2.62E+00	8.97E+02	2.52E+00	2.90E+01
selenium	indus. soil	7782-49-2	1.45E+03	2.22E+04	1.69E+03	9.90E+03	1.09E+02
simazine	indus. soil	122-34-9	5.64E+03	3.07E+01	4.80E+03	4.57E+01	2.07E+01
styrene	indus. soil	100-42-5	2.65E-03	1.85E-04	1.82E-03	1.31E-04	1.15E-03
sulphur dioxide	indus. soil	7446-09-5	x	x	x	x	x
Tetrachloroethylene	indus. soil	127-18-4	2.23E-03	3.15E-01	2.13E-03	1.14E-01	3.02E-01
Tetrachloromethane	indus. soil	56-23-5	5.61E-04	1.14E+00	3.20E-04	3.05E-01	2.07E-03
thallium	indus. soil	7440-28-0	1.26E+03	1.23E+04	3.19E+03	1.26E+04	2.13E+02
Thiram	indus. soil	137-26-8	4.38E+03	4.16E+00	1.59E+03	3.64E-01	8.12E+01
tin	indus. soil	7440-31-5	2.76E-01	2.32E+00	1.42E-01	6.01E-01	1.22E+00
tolclophos-methyl	indus. soil	57018-04-9	9.17E+00	3.91E-01	9.87E+00	4.42E-01	1.47E+00
Toluene	indus. soil	108-88-3	1.05E-03	4.47E-04	7.53E-04	3.71E-04	1.86E-02
tri-allate	indus. soil	2303-17-5	1.97E+02	3.36E+00	6.97E+01	9.27E-01	1.30E+00
triazophos	indus. soil	24017-47-8	1.91E+04	1.74E+02	1.79E+04	2.42E+02	2.03E+02
tributyltinoxide	indus. soil	56-35-9	4.23E+03	2.21E+03	5.75E+03	3.03E+03	3.65E+01
trichlorfon	indus. soil	52-68-6	1.83E+04	3.73E+00	3.39E+03	5.62E-01	2.60E+03
Trichloroethylene	indus. soil	79-01-6	4.62E-04	2.47E-03	3.91E-04	1.53E-03	2.14E-03
Trichloromethane	indus. soil	67-66-3	4.74E-04	4.71E-02	2.44E-04	1.29E-02	1.56E-03
trifluarin	indus. soil	1582-09-8	1.55E+02	4.50E+00	1.27E+02	1.90E+00	3.43E+01
vanadium	indus. soil	7440-62-2	1.49E+03	1.45E+04	3.55E+03	1.45E+04	4.44E+02

Substance	Comp.	CAS number	FAETP (500 yr) (kg 1,4- DCB eq./kg)	MAETP (500 yr) (kg 1,4- DCB eq./kg)	FSETP (500 yr) (kg 1,4- DCB eq./kg)	MSETP (500 yr) (kg 1,4- DCB eq./kg)	TETP (500 yr) (kg 1,4- DCB eq./kg)
Vinyl Chloride	indus. soil	75-01-4	6.43E-05	1.28E-04	5.20E-05	1.17E-04	3.14E-04
zinc	indus. soil	23713-49-7	1.42E+01	1.34E+02	3.66E+01	1.60E+02	7.50E+00
zineb	indus. soil	12122-67-7	1.38E+03	1.29E+01	1.09E+03	1.41E+01	1.46E+01
chlormequat-chloride	indus. soil	999-81-5	5.4E+00	3.8E-02	2.2E+00	2.3E-02	6.8E-02
fenpropimorph	indus. soil	67306-03-0	3.2E+01	1.8E-01	3.1E+01	1.8E-01	5.1E-01
fluroxypyr	indus. soil	69377-81-7	1.7E+03	1.1E+01	1.3E+03	1.5E+01	2.3E+01
epoxiconazole	indus. soil	??	1.1E+03	1.7E+02	1.5E+03	2.2E+02	4.6E+00
ethylene oxide	indus. soil	75-21-8	9.8E-01	2.7E-01	6.0E-01	1.4E-01	1.9E-01
hydrogen fluoride	indus. soil	7664-39-3	9.4E+00	1.7E+02	7.6E+00	5.9E+01	6.0E-03

x = not calculated

Source: Huijbregts, 2000; Huijbregts *et al.*, 2000a

Status: Author(s).

Equations: 
$$fresh\ water\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} FAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.16)$$

$$marine\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} MAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.17)$$

$$fresh\ water\ sediment\ ecotoxicity = \sum_i \sum_{ecom} FSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.18)$$

$$marine\ sediment\ ecotoxicity = \sum_i \sum_{ecom} MSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.19)$$

$$terrestrial\ ecotoxicity = \sum_i \sum_{ecom} TETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.20)$$

The five indicator results are expressed in kg 1,4-dichlorobenzene equivalent.  $FAETP_{ecom,i}$  is the characterisation factor for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $FAETP$  is the Fresh water Aquatic EcoToxicity Potential,  $MAETP$  is the Marine Aquatic EcoToxicity Potential,  $FSETP$  is the Fresh water Sediment EcoToxicity Potential,  $MSETP$  is the Marine Sediment EcoToxicity Potential,  $TETP$  is the Terrestrial EcoToxicity Potential, and  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ . The five indicator scores can only be added after weighting (see Part 2a, Section 4.3.8).

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU. Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.



Table 4.3.8.5: Alternative MAETP, MSETP and TETP factors for characterising ecotoxic releases, for infinite time horizon and continental scale.

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
1,1,1-trichloroethane	air	71-55-6	3.1E-03 <sup>1</sup>	4.7E-03	7.7E-06
1,2,3,4-tetrachlorobenzene	air	634-66-2	1.8E+00	2.0E+00	2.1E-03
1,2,3,5-tetrachlorobenzene	air	634-90-2	1.3E+00	1.6E+00	3.3E-02
1,2,3-trichlorobenzene	air	87-61-6	1.7E-01	2.1E-01	1.7E-02
1,2,4,5-tetrachlorobenzene	air	95-94-3	1.3E+00	1.5E+00	4.7E-02
1,2,4-trichlorobenzene	air	120-82-1	1.9E-01	2.4E-01	2.2E-03
1,2-dichlorobenzene	air	95-50-1	5.7E-02	8.4E-02	1.2E-04
1,2-dichloroethane	air	107-06-2	3.8E-03	6.1E-03	4.4E-06
1,3,5-trichlorobenzene	air	108-70-3	3.1E-01	4.2E-01	4.7E-04
1,3-Butadiene	air	106-99-0	2.6E-06	3.0E-06	2.2E-08
1,3-dichlorobenzene	air	541-73-1	4.8E-02	7.1E-02	1.2E-04
1,4-dichlorobenzene	air	106-46-7	4.8E-02	6.7E-02	2.2E-03
1-chloro-4-nitrobenzene	air	100-00-5	8.9E+01	1.4E+02	1.7E-01
2,3,4,6-tetrachlorophenol	air	58-90-2	7.9E+01	9.5E+01	2.1E-01
2,3,7,8-TCDD	air	1746-01-6	1.2E+08	6.3E+08	9.0E+03
2,4,5-T	air	93-76-5	2.0E-01	2.5E-01	3.2E-01
2,4,5-trichlorophenol	air	95-95-4	2.6E+01	4.0E+01	1.4E-01
2,4,6-trichlorophenol	air	88-06-2	3.6E+00	4.3E+00	3.0E-01
2,4-D	air	94-75-7	5.1E+00	7.2E+00	6.0E-01
2,4-dichlorophenol	air	120-83-2	8.2E-01	4.4E-01	1.9E-02
2-chlorophenol	air	95-57-8	9.2E+00	1.3E+01	4.4E-02
3,4-dichloroaniline	air	95-76-1	1.0E+03	1.9E+03	8.7E+00
3-chloroaniline	air	108-42-9	2.2E+01	3.1E+01	4.7E-01
4-chloroaniline	air	106-47-8	1.6E+00	2.3E+00	1.5E-02
acephate	air	30560-19-1	1.8E+01	1.8E+01	6.9E-01
Acrolein	air	107-02-8	4.9E+02	7.3E+02	1.5E+01
Acrylonitrile	air	107-13-1	5.2E-01	6.7E-01	5.0E-03
aldicarb	air	116-06-3	7.5E+03	1.2E+04	1.9E+03
aldrin	air	309-00-2	5.3E+01	5.2E+00	1.4E-02
ammonia	air	7664-41-7	x	x	x
anilazine	air	101-05-3	8.2E+00	3.4E-01	9.1E-02
anthracene	air	120-12-7	1.2E+03	1.9E+03	2.6E-02
antimony	air	7440-36-0	1.6E+02	7.2E+02	4.4E-01
arsenic	air	7440-38-2	1.1E+03	5.5E+03	1.2E+03
atrazine	air	1912-24-9	1.9E+02	2.8E+02	2.0E+00
aziphos-ethyl	air	2642-71-9	1.6E+02	1.3E+02	2.3E+00
aziphos-methyl	air	86-50-0	1.9E+02	5.7E+01	1.9E-01
barium	air	7440-39-3	3.6E+03	1.5E+04	3.5E+00
benomyl	air	17804-35-2	2.1E+01	1.8E+00	4.7E-01
bentazone	air	25057-89-0	6.1E-01	9.4E-01	2.5E-01
Benzene	air	71-43-2	4.4E-04	6.1E-04	5.3E-06
benzo[a]anthracene	air	56-55-3	7.7E+02	3.1E+03	2.3E-01
benzo[a]pyrene	air	50-32-8	1.1E+03	3.9E+03	2.4E-01
benzo[ghi]perylene	air	191-24-2	9.6E+02	5.0E+03	2.0E-01
benzo[k]fluoranthrene	air	207-08-9	4.5E+04	2.6E+05	2.9E+01
benzylchloride	air	100-44-7	9.8E-01	2.4E-01	9.7E-04
beryllium	air	7440-41-7	2.2E+06	4.7E+06	1.3E+03
bifenthrin	air	82657-04-3	9.6E+02	3.7E+03	8.3E+00
Butylbenzylphtalate	air	85-68-7	2.7E-01	6.8E-02	1.1E-03
cadmium	air	22537-48-0	7.7E+03	3.8E+04	5.9E+01

<sup>1</sup> Means  $3.1 \times 10^{-3}$ .

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
captafol	air	2425-06-1	1.6E+04	3.4E+04	5.8E+00
captan	air	133-06-2	1.0E+01	1.2E-01	2.4E-02
carbaryl	air	63-25-2	1.2E+01	1.0E+00	6.3E-02
carbendazim	air	10605-21-7	6.7E+02	1.0E+03	2.0E+01
carbofuran	air	1563-66-2	1.5E+02	1.6E+02	3.0E+00
carbon disulfide	air	75-15-0	3.0E-01	4.6E-01	2.1E-03
Carcinogenic PAHs	air		2.2E+03	1.2E+04	9.9E-01
chlordane	air	57-74-9	3.1E+04	1.2E+03	1.8E+00
chlorfenvinphos	air	470-90-6	1.1E+01	1.3E+01	4.8E-01
chloridazon	air	1698-60-8	1.7E-01	2.5E-01	4.4E-04
chlorobenzene	air	108-90-7	1.1E-02	1.8E-02	2.1E-04
chlorothalonil	air	1897-45-6	7.6E+00	5.0E+00	1.6E-03
chlorpropham	air	101-21-3	6.2E-01	8.0E-01	3.6E-02
chlorpyrifos	air	2921-88-2	5.9E+01	5.9E+00	1.2E-01
chromium III	air	16056-83-1	4.2E+01	2.1E+02	2.2E+03
chromium VI	air	18540-29-9	1.7E+02	8.3E+02	2.2E+03
chrysene	air	218-01-9	2.3E+02	1.2E+03	2.1E-01
cobalt	air	7440-48-4	2.6E+04	8.2E+04	7.8E+01
copper	air	15158-11-9	5.2E+03	2.5E+04	5.0E+00
coumaphos	air	56-72-4	1.9E+05	4.2E+05	1.0E+03
cyanazine	air	21725-46-2	6.2E+02	8.1E+02	3.1E+01
cypermethrin	air	52315-07-8	1.8E+04	4.9E+04	8.5E+03
cyromazine	air	66215-27-8	7.7E+02	1.2E+03	3.1E+02
DDT	air	50-29-3	3.1E+04	1.7E+04	1.5E+01
deltamethrin	air	52918-63-5	3.3E+03	6.7E+03	7.3E-01
demeton	air	8065-48-3	8.8E+00	1.1E+01	3.0E-01
desmetryn	air	1014-69-3	2.5E+00	2.6E+00	1.2E+00
Di(2-ethylhexyl)phtalate	air	117-81-7	2.2E+00	1.7E+00	2.0E-04
diazinon	air	333-41-5	1.1E+02	1.1E+02	2.8E-01
Dibutylphtalate	air	84-74-2	3.7E-01	3.6E-02	3.4E-03
Dichloromethane	air	75-09-2	2.4E-04	3.2E-04	6.3E-07
dichlorprop	air	120-36-5	6.1E-02	3.2E-02	6.8E-04
dichlorvos	air	62-73-7	3.3E+02	2.5E+01	7.9E+00
dieldrin	air	60-57-1	2.9E+03	1.4E+02	9.6E-01
Diethylphtalate	air	84-66-2	2.5E-01	2.1E-01	4.1E-01
Dihexylphtalate	air	84-75-3	1.4E+00	3.0E+00	6.5E-04
Diisodecylphtalate	air	26761-40-0	4.0E+00	7.2E+00	8.1E-04
Diisooctylphtalate	air	27554-26-3	3.0E+00	5.3E+00	9.7E-05
dimethoate	air	60-51-5	1.6E+00	2.0E+00	3.0E-01
Dimethylphtalate	air	133-11-3	2.4E-02	6.0E-03	5.8E-01
	air	88-85-7	3.4E+03	1.4E+03	8.1E+01
dinoseb					
dinoterb	air	1420-07-1	4.4E+03	1.7E+03	2.4E+00
Diethylphtalate	air	117-84-0	4.7E-01	5.0E-01	8.9E-06
disulfothon	air	298-04-4	2.0E+01	5.7E+00	4.2E-02
diuron	air	330-54-1	1.1E+02	1.6E+02	8.7E+00
DNOC	air	534-52-1	1.3E+00	3.0E-01	2.4E-01
endosulfan	air	115-29-7	1.8E+01	1.2E+00	3.3E-02
endrin	air	72-20-8	1.4E+04	1.9E+03	4.9E+01
ethoprophos	air	13194-48-4	6.2E+02	9.1E+02	1.6E+01
Ethylbenzene	air	100-41-4	4.9E-04	5.3E-04	1.1E-06
Ethylene	air	74-85-1	5.2E-11	6.4E-11	1.0E-12
fenitrothion	air	122-14-5	1.5E+03	7.5E+02	2.1E+01
fenthion	air	55-38-9	1.6E+03	1.1E+03	1.5E+01

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
fentin acetate	air	900-95-8	1.9E+04	5.1E+04	4.8E+00
fentin chloride	air	639-58-7	1.4E+04	3.8E+04	8.5E-02
fentin hydroxide	air	76-87-9	1.8E+04	5.0E+04	5.0E+00
fluoranthrene	air	206-44-0	1.4E+02	5.6E+02	1.7E-02
folpet	air	133-07-3	1.2E+03	2.3E+03	1.5E+00
Formaldehyde	air	50-00-0	1.4E+00	1.5E+00	8.2E-01
glyphosate	air	1071-83-6	1.7E+01	1.5E+01	4.7E-02
heptachlor	air	76-44-8	2.8E+00	2.4E+00	8.4E-04
heptenophos	air	23560-59-0	7.3E+01	1.5E+01	2.1E+00
hexachloro-1,3-butadiene	air	87-68-3	1.0E+03	1.1E+03	2.1E-01
hexachlorobenzene	air	118-74-1	5.0E+01	2.6E+02	2.0E-02
hydrogen chloride	air	7647-01-0	x	x	x
hydrogen sulfide	air	7783-06-4	x	x	x
indeno[1,2,3-cd]pyrene	air	193-39-5	4.1E+03	2.1E+04	7.9E-01
iprodione	air	36734-19-7	3.2E-01	5.2E-03	1.1E-01
isoproturon	air	34123-59-6	3.0E+01	2.0E+01	2.5E+00
lead	air	14280-50-3	6.4E+01	3.2E+02	1.1E+01
lindane	air	58-89-9	3.8E+01	8.3E+00	1.4E+00
linuron	air	330-55-2	2.5E+01	3.4E+01	2.0E-01
malathion	air	121-75-5	1.4E+03	7.7E+02	2.0E-02
MCPA	air	94-74-6	2.8E-01	3.5E-01	4.3E-02
mecoprop	air	7085-19-0	4.1E+00	5.3E+00	1.8E+00
mercury	air	14302-87-5	9.8E+03	4.8E+04	1.9E+04
metamitron	air	41394-05-2	2.4E-01	1.9E-01	1.9E-02
metazachlor	air	67129-08-2	2.1E+00	2.6E+00	7.4E-02
methabenzthiazuron	air	18691-97-9	2.3E+01	3.6E+01	4.4E-01
methomyl	air	16752-77-5	3.4E+03	4.9E+03	1.2E+02
methylbromide	air	74-83-9	1.2E-01	1.1E-01	1.1E-03
methyl-mercury	air	22967-92-6	2.2E+05	1.1E+06	1.9E+04
metobromuron	air	3060-89-7	2.5E+01	4.1E+01	9.9E-01
metolachlor	air	51218-45-2	3.5E+02	5.1E+02	1.1E-01
mevinphos	air	7786-34-7	5.4E+03	6.0E+02	4.3E+01
molybdenum	air	7439-98-7	9.0E+03	3.7E+04	1.3E+01
meta-Xylene	air	108-38-3	3.4E-04	3.4E-04	5.9E-07
Naphtalene	air	91-20-3	8.2E-01	3.1E-01	7.5E-04
nickel	air	7440-02-0	1.8E+04	8.9E+04	8.4E+01
nitrogen dioxide	air	10102-44-0	x	x	x
oxamyl	air	23135-22-0	1.4E+00	4.0E-01	2.9E+00
oxydemethon-methyl	air	301-12-2	5.0E+02	2.1E+02	4.1E+01
ortho-Xylene	air	95-47-6	7.0E-04	9.3E-04	1.1E-06
parathion-ethyl	air	56-38-2	3.0E+03	1.3E+03	1.1E+00
parathion-methyl	air	298-00-0	6.8E+02	3.0E+01	5.5E+00
pentachlorobenzene	air	608-93-5	1.1E+01	2.0E+01	6.6E-03
pentachloronitrobenzene	air	82-68-8	1.1E+03	1.5E+02	3.3E-02
pentachlorophenol	air	87-86-5	3.5E+01	6.7E+01	2.1E+00
permethrin	air	52645-53-1	2.9E+04	2.2E+04	2.5E+01
phenanthrene	air	85-01-8	5.6E+00	5.1E+00	1.1E-04
Phenol	air	108-95-2	5.1E-01	3.5E-01	3.1E-03
phoxim	air	14816-18-3	1.6E+00	2.1E-01	1.7E-02
Phtalic anhydride	air	85-44-9	8.5E-03	4.9E-05	5.0E-04
pirimicarb	air	23103-98-2	4.0E+02	6.2E+02	4.6E+01
dust (PM10)	air	PM10	x	x	x
propachlor	air	1918-16-7	6.6E+00	6.4E+00	5.1E-01
propoxur	air	114-26-1	1.7E+03	1.8E+03	7.0E+02

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
Propylene Oxide	air	75-56-9	4.2E-02	4.4E-02	5.7E-04
para-Xylene	air	106-42-3	4.7E-04	3.6E-04	4.6E-07
pyrazophos	air	13457-18-6	9.1E+01	8.8E+01	2.3E+00
selenium	air	7782-49-2	9.8E+04	2.0E+05	3.9E+01
simazine	air	122-34-9	2.7E+02	4.1E+02	8.7E+00
styrene	air	100-42-5	4.7E-04	3.5E-04	1.3E-07
sulphur dioxide	air	7446-09-5	x	x	x
Tetrachloroethylene	air	127-18-4	8.8E-03	1.4E-02	8.1E-04
Tetrachloromethane	air	56-23-5	8.3E-03	8.8E-03	1.6E-05
thallium	air	7440-28-0	1.2E+05	5.6E+05	2.5E+02
Thiram	air	137-26-8	1.9E+02	1.7E+01	2.9E+01
tin	air	7440-31-5	6.3E+01	6.2E+01	1.0E+01
tolclophos-methyl	air	57018-04-9	1.3E+00	1.6E+00	3.3E-04
Toluene	air	108-88-3	4.0E-04	5.0E-04	1.1E-05
tri-allate	air	2303-17-5	1.3E+02	3.8E+01	6.4E-03
triazophos	air	24017-47-8	8.0E+02	1.2E+03	3.4E+01
tributyltinoxide	air	56-35-9	2.3E+05	3.6E+05	1.5E+01
trichlorfon	air	52-68-6	1.8E+03	2.7E+02	1.2E+03
Trichloroethylene	air	79-01-6	6.8E-04	1.0E-03	2.4E-06
Trichloromethane	air	67-66-3	2.0E-03	1.8E-03	4.3E-06
trifluarin	air	1582-09-8	9.4E+01	4.3E+01	1.6E-02
vanadium	air	7440-62-2	5.8E+04	2.7E+05	4.8E+02
Vinyl Chloride	air	75-01-4	6.2E-05	9.7E-05	1.9E-07
zinc	air	23713-49-7	4.5E+02	2.2E+03	8.6E+00
zineb	air	12122-67-7	3.9E+02	4.5E+02	7.2E+00
chlormequat-chloride	air	999-81-5	3.7E+00	2.3E+00	3.3E-02
fenpropimorph	air	67306-03-0	7.0E-01	7.3E-01	3.4E-03
fluroxypyr	air	69377-81-7	1.1E+02	1.6E+02	1.3E+01
epoxiconazole	air	??	1.1E+02	2.2E+02	6.4E-01
ethylene oxide	air	75-21-8	2.3E-01	2.7E-01	8.2E-04
hydrogen fluoride	air	7664-39-3	1.9E+05	3.0E+05	2.8E-03
1,1,1-trichloroethane	fresh water	71-55-6	1.8E+00	2.0E+00	2.0E-03
1,2,3,4-tetrachlorobenzene	fresh water	634-66-2	1.4E+00	1.8E+00	3.2E-02
1,2,3,5-tetrachlorobenzene	fresh water	634-90-2	2.0E-01	2.5E-01	1.7E-02
1,2,3-trichlorobenzene	fresh water	87-61-6	1.4E+00	1.5E+00	4.4E-02
1,2,4,5-tetrachlorobenzene	fresh water	95-94-3	2.2E-01	2.7E-01	2.1E-03
1,2,4-trichlorobenzene	fresh water	120-82-1	6.4E-02	9.5E-02	1.1E-04
1,2-dichlorobenzene	fresh water	95-50-1	4.2E-03	6.7E-03	4.4E-06
1,2-dichloroethane	fresh water	107-06-2	3.5E-01	4.7E-01	4.6E-04
1,3,5-trichlorobenzene	fresh water	108-70-3	8.5E-03	9.8E-03	2.1E-08
1,3-Butadiene	fresh water	106-99-0	5.8E-02	8.6E-02	1.1E-04
1,3-dichlorobenzene	fresh water	541-73-1	5.6E-02	7.8E-02	2.2E-03
1,4-dichlorobenzene	fresh water	106-46-7	1.1E+02	1.8E+02	1.4E-01
1-chloro-4-nitrobenzene	fresh water	100-00-5	8.4E+01	1.0E+02	1.1E-03
2,3,4,6-tetrachlorophenol	fresh water	58-90-2	2.5E+07	1.3E+08	4.4E+02
2,3,7,8-TCDD	fresh water	1746-01-6	6.0E-02	7.6E-02	3.6E-08
2,4,5-T	fresh water	93-76-5	5.1E+01	7.7E+01	3.6E-02
2,4,5-trichlorophenol	fresh water	95-95-4	1.6E+00	1.9E+00	6.2E-04
2,4,6-trichlorophenol	fresh water	88-06-2	2.2E+00	3.1E+00	9.3E-10
2,4-D	fresh water	94-75-7	2.3E-01	1.3E-01	6.1E-04
2,4-dichlorophenol	fresh water	120-83-2	1.2E+01	1.7E+01	1.1E-03
2-chlorophenol	fresh water	95-57-8	1.7E+03	3.1E+03	7.5E-04
3,4-dichloroaniline	fresh water	95-76-1	1.1E+01	1.5E+01	9.3E-06
3-chloroaniline	fresh water	108-42-9	1.3E+01	2.0E+01	3.5E-03

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
4-chloroaniline	fresh water	106-47-8	1.4E+01	1.4E+01	2.2E-08
acephate	fresh water	30560-19-1	1.0E+03	1.5E+03	5.2E+00
Acrolein	fresh water	107-02-8	3.5E-01	4.6E-01	2.4E-03
Acrylonitrile	fresh water	107-13-1	6.9E+03	1.1E+04	1.9E-01
aldicarb	fresh water	116-06-3	1.9E+02	1.9E+01	1.3E-02
aldrin	fresh water	309-00-2	2.5E-01	1.0E-02	5.0E-08
ammonia	fresh water	7664-41-7			
anilazine	fresh water	101-05-3	2.4E+03	3.9E+03	1.6E-02
anthracene	fresh water	120-12-7	1.3E+02	6.0E+02	5.7E-22
antimony	fresh water	7440-36-0	6.0E+02	2.9E+03	4.2E-19
arsenic	fresh water	7440-38-2	3.3E+02	4.9E+02	7.6E-04
atrazine	fresh water	1912-24-9	9.8E+02	7.9E+02	2.0E-02
aziphos-ethyl	fresh water	2642-71-9	3.5E+01	1.0E+01	3.3E-06
aziphos-methyl	fresh water	86-50-0	3.9E+03	1.6E+04	1.6E-20
barium	fresh water	7440-39-3	8.5E+00	7.4E-01	8.2E-08
benomyl	fresh water	17804-35-2	2.2E-01	3.3E-01	1.8E-07
bentazone	fresh water	25057-89-0	5.7E-04	7.9E-04	4.7E-06
Benzene	fresh water	71-43-2	6.4E+03	2.6E+04	1.4E-02
benzo[a]anthracene	fresh water	56-55-3	1.0E+04	3.5E+04	2.5E-03
benzo[a]pyrene	fresh water	50-32-8	5.3E+03	2.8E+04	4.3E-04
benzo[ghi]perylene	fresh water	191-24-2	1.7E+05	9.9E+05	1.9E-01
benzo[k]fluoranthrene	fresh water	207-08-9	6.0E-01	1.5E-01	4.8E-04
benzylchloride	fresh water	100-44-7	2.5E+06	5.4E+06	1.0E-17
beryllium	fresh water	7440-41-7	2.1E+02	8.1E+02	2.0E-02
bifenthrin	fresh water	82657-04-3	5.2E-02	1.3E-02	5.6E-06
Butylbenzylphtalate	fresh water	85-68-7	1.8E+03	9.0E+03	1.1E-21
cadmium	fresh water	22537-48-0	4.7E+04	1.0E+05	1.9E-07
captafol	fresh water	2425-06-1	1.0E-01	1.3E-03	6.2E-08
captan	fresh water	133-06-2	1.4E+00	1.3E-01	2.6E-07
carbaryl	fresh water	63-25-2	5.4E+02	8.5E+02	6.3E-08
carbendazim	fresh water	10605-21-7	4.3E+01	4.6E+01	3.5E-05
carbofuran	fresh water	1563-66-2	6.4E-01	9.9E-01	2.0E-03
carbon disulfide	fresh water	75-15-0	3.0E+03	1.6E+04	2.0E-03
Carcinogenic PAHs	fresh water		5.7E+03	2.3E+02	8.0E-02
chlordane	fresh water	57-74-9	5.6E+00	6.7E+00	4.5E-05
chlorfenvinphos	fresh water	470-90-6	1.0E+00	1.5E+00	3.6E-04
chloridazon	fresh water	1698-60-8	1.5E-02	2.3E-02	2.0E-04
chlorobenzene	fresh water	108-90-7	6.5E+00	4.3E+00	1.3E-03
chlorothalonil	fresh water	1897-45-6	3.4E-01	4.5E-01	2.4E-05
chlorpropham	fresh water	101-21-3	2.4E+02	2.4E+01	2.0E-02
chlorpyrifos	fresh water	2921-88-2	8.8E+00	4.3E+01	2.0E-20
chromium III	fresh water	16056-83-1	3.5E+01	1.7E+02	2.0E-20
chromium VI	fresh water	18540-29-9	1.7E+03	8.7E+03	8.1E-03
chrysene	fresh water	218-01-9	2.1E+04	6.7E+04	9.3E-20
cobalt	fresh water	7440-48-4	1.5E+03	7.3E+03	2.6E-22
copper	fresh water	15158-11-9	1.8E+06	3.8E+06	5.8E+00
coumaphos	fresh water	56-72-4	1.9E+02	2.5E+02	2.2E-06
cyanazine	fresh water	21725-46-2	1.0E+04	2.7E+04	1.5E+01
cypermethrin	fresh water	52315-07-8	8.7E+02	1.4E+03	1.9E-06
cyromazine	fresh water	66215-27-8	2.2E+03	1.2E+03	2.5E-01
DDT	fresh water	50-29-3	9.7E+02	2.0E+03	3.0E-02
deltamethrin	fresh water	52918-63-5	9.4E+01	1.2E+02	1.2E-02
demeton	fresh water	8065-48-3	1.5E+00	1.5E+00	3.6E-05
desmetryn	fresh water	1014-69-3	3.6E-01	2.7E-01	6.1E-06

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
Di(2-ethylhexyl)phtalate	fresh water	117-81-7	6.2E+02	6.1E+02	4.0E-03
diazinon	fresh water	333-41-5	7.6E-02	7.5E-03	1.1E-05
Dibutylphtalate	fresh water	84-74-2	2.5E-04	3.4E-04	5.7E-07
Dichloromethane	fresh water	75-09-2	1.4E-02	7.7E-03	6.1E-12
dichlorprop	fresh water	120-36-5	1.2E+01	9.1E-01	1.2E-02
dichlorvos	fresh water	62-73-7	5.8E+03	2.7E+02	2.2E-01
dieldrin	fresh water	60-57-1	1.1E-01	9.3E-02	4.3E-03
Diethylphtalate	fresh water	84-66-2	1.1E+00	2.3E+00	2.2E-04
Dihexylphtalate	fresh water	84-75-3	2.1E+00	3.7E+00	3.3E-04
Diisodecylphtalate	fresh water	26761-40-0	4.0E-01	7.0E-01	5.5E-06
Diisooctylphtalate	fresh water	27554-26-3	7.4E-01	9.1E-01	1.2E-05
dimethoate	fresh water	60-51-5	1.7E-03	4.3E-04	3.3E-04
Dimethylphtalate	fresh water	133-11-3	5.4E+03	2.2E+03	2.8E-01
dinoseb	fresh water	88-85-7	4.9E+03	1.9E+03	9.1E-03
dinoterb	fresh water	1420-07-1	3.4E-02	3.6E-02	1.2E-07
Diocetylphthalate	fresh water	117-84-0	1.2E+02	3.4E+01	1.2E-03
disulfothon	fresh water	298-04-4	5.3E+01	7.8E+01	1.7E-03
diuron	fresh water	330-54-1	3.4E-01	8.0E-02	8.5E-07
DNOC	fresh water	534-52-1	1.1E+01	7.7E-01	1.7E-03
endosulfan	fresh water	115-29-7	1.0E+05	1.4E+04	3.3E-01
endrin	fresh water	72-20-8	3.2E+03	4.7E+03	2.3E-01
ethoprophos	fresh water	13194-48-4	1.1E-03	1.2E-03	8.8E-07
Ethylbenzene	fresh water	100-41-4	2.8E-05	3.4E-05	8.7E-13
Ethylene	fresh water	74-85-1	6.6E+02	3.4E+02	4.6E-03
fenitrothion	fresh water	122-14-5	3.6E+03	2.5E+03	8.5E-02
fenthion	fresh water	55-38-9	3.1E+03	8.6E+03	5.5E-03
fentin acetate	fresh water	900-95-8	6.9E+03	1.9E+04	3.0E-02
fentin chloride	fresh water	639-58-7	3.1E+03	8.6E+03	1.9E-03
fentin hydroxide	fresh water	76-87-9	6.6E+02	2.6E+03	4.5E-03
fluoranthrene	fresh water	206-44-0	7.3E+03	1.4E+04	5.1E-01
folpet	fresh water	133-07-3	1.9E-01	2.0E-01	1.4E-03
Formaldehyde	fresh water	50-00-0	4.1E+00	3.7E+00	2.2E-11
glyphosate	fresh water	1071-83-6	1.2E+01	1.0E+01	5.1E-04
heptachlor	fresh water	76-44-8	1.1E+01	2.3E+00	1.5E-03
heptenophos	fresh water	23560-59-0	1.4E+03	1.5E+03	2.1E-01
hexachloro-1,3-butadiene	fresh water	87-68-3	5.3E+01	2.8E+02	2.0E-02
hexachlorobenzene	fresh water	118-74-1	8.3E+03	4.4E+04	6.0E-06
hydrogen chloride	fresh water	7647-01-0			
hydrogen sulfide	fresh water	7783-06-4			
indeno[1,2,3-cd]pyrene	fresh water	193-39-5	1.5E-02	2.4E-04	4.4E-08
iprodione	fresh water	36734-19-7	1.9E+01	1.3E+01	1.6E-05
isoproturon	fresh water	34123-59-6	1.3E+01	6.5E+01	4.7E-23
lead	fresh water	14280-50-3	8.2E+01	1.8E+01	1.2E-01
lindane	fresh water	58-89-9	5.1E+02	7.2E+02	1.0E-02
linuron	fresh water	330-55-2	7.6E+02	4.3E+02	1.1E-05
malathion	fresh water	121-75-5	3.6E-02	4.4E-02	1.4E-11
MCPA	fresh water	94-74-6	6.6E-01	8.7E-01	1.1E-08
mecoprop	fresh water	7085-19-0	2.0E+03	9.9E+03	9.2E+01
mercury	fresh water	14302-87-5	6.3E-02	5.0E-02	8.5E-10
metamitron	fresh water	41394-05-2	1.2E+00	1.5E+00	1.4E-06
metazachlor	fresh water	67129-08-2	2.3E+01	3.6E+01	2.0E-05
methabenzthiazuron	fresh water	18691-97-9	3.7E+03	5.2E+03	2.2E-03
methomyl	fresh water	16752-77-5	1.2E-01	1.2E-01	9.5E-04
methylbromide	fresh water	74-83-9	4.6E+04	2.3E+05	9.2E+01



Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
methyl-mercury	fresh water	22967-92-6	3.8E+01	6.3E+01	4.5E-04
metobromuron	fresh water	3060-89-7	5.4E+02	8.0E+02	2.1E-04
metolachlor	fresh water	51218-45-2	5.7E+02	6.3E+01	2.3E-05
mevinphos	fresh water	7786-34-7	9.7E+03	4.0E+04	7.2E-20
molybdenum	fresh water	7439-98-7	2.0E-03	2.1E-03	5.4E-07
meta-Xylene	fresh water	108-38-3	1.0E+00	3.8E-01	4.5E-04
Naphtalene	fresh water	91-20-3	1.1E+04	5.5E+04	4.0E-20
nickel	fresh water	7440-02-0	1.8E-01	5.3E-02	7.1E-06
nitrogen dioxide	fresh water	10102-44-0			
oxamyl	fresh water	23135-22-0	1.4E+02	5.8E+01	4.6E-04
oxydemethon-methyl	fresh water	301-12-2	2.3E-03	3.0E-03	9.9E-07
ortho-Xylene	fresh water	95-47-6	5.2E+03	2.2E+03	3.1E-03
parathion-ethyl	fresh water	56-38-2	1.4E+03	6.2E+01	3.2E-02
parathion-methyl	fresh water	298-00-0	1.1E+01	2.1E+01	6.4E-03
pentachlorobenzene	fresh water	608-93-5	6.7E+02	9.2E+01	1.4E-02
pentachloronitrobenzene	fresh water	82-68-8	1.1E+01	2.1E+01	3.0E-04
pentachlorophenol	fresh water	87-86-5	2.6E+04	2.0E+04	3.7E-01
permethrin	fresh water	52645-53-1	9.3E+00	8.4E+00	5.0E-05
phenanthrene	fresh water	85-01-8	5.6E-02	3.8E-02	2.3E-06
Phenol	fresh water	108-95-2	4.9E+00	6.7E-01	1.4E-02
phoxim	fresh water	14816-18-3	4.1E-06	2.4E-08	1.2E-10
Phtalic anhydride	fresh water	85-44-9	1.5E+02	2.4E+02	9.3E-04
pirimicarb	fresh water	23103-98-2	2.4E+00	2.3E+00	7.7E-04
dust (PM10)	fresh water	PM10			
propachlor	fresh water	1918-16-7	5.0E+02	5.2E+02	3.1E-04
propoxur	fresh water	114-26-1	2.3E-02	2.5E-02	2.5E-04
Propylene Oxide	fresh water	75-56-9	2.0E-03	1.5E-03	4.2E-07
para-Xylene	fresh water	106-42-3	1.2E+02	1.2E+02	1.6E-03
pyrazophos	fresh water	13457-18-6	1.2E+05	2.5E+05	4.7E-19
selenium	fresh water	7782-49-2	1.4E+02	2.1E+02	1.0E-03
simazine	fresh water	122-34-9	2.2E-03	1.6E-03	1.2E-07
styrene	fresh water	100-42-5	1.4E-02	2.3E-02	8.0E-04
sulphur dioxide	fresh water	7446-09-5			
Tetrachloroethylene	fresh water	127-18-4	1.1E-02	1.2E-02	1.6E-05
Tetrachloromethane	fresh water	56-23-5	1.2E+05	5.8E+05	9.9E-19
thallium	fresh water	7440-28-0	7.4E+01	6.6E+00	8.6E-02
Thiram	fresh water	137-26-8	1.3E+01	1.3E+01	7.4E-23
tin	fresh water	7440-31-5	4.2E+00	5.1E+00	3.0E-04
tolclophos-methyl	fresh water	57018-04-9	9.6E-04	1.2E-03	1.0E-05
Toluene	fresh water	108-88-3	7.2E+02	2.1E+02	2.5E-03
tri-allate	fresh water	2303-17-5	1.5E+03	2.1E+03	3.9E-02
triazophos	fresh water	24017-47-8	1.8E+05	2.8E+05	9.9E-02
tributyltinoxide	fresh water	56-35-9	8.3E+01	1.3E+01	7.0E-05
trichlorfon	fresh water	52-68-6	1.4E-03	2.0E-03	2.3E-06
Trichloroethylene	fresh water	79-01-6	2.3E-03	2.1E-03	4.2E-06
Trichloromethane	fresh water	67-66-3	3.9E+02	1.8E+02	1.3E-02
trifluarin	fresh water	1582-09-8	4.2E+04	1.9E+05	3.7E-19
vanadium	fresh water	7440-62-2	2.9E-04	4.6E-04	1.8E-07
Vinyl Chloride	fresh water	75-01-4	1.1E+02	5.4E+02	2.0E-22
zinc	fresh water	23713-49-7	2.4E+02	2.7E+02	1.3E-03
zineb	fresh water	12122-67-7	3.0E-03	4.5E-03	1.3E-03
chlormequat-chloride	fresh water	999-81-5	1.9E+00	1.2E+00	3.0E-11
fenpropimorph	fresh water	67306-03-0	8.7E+00	9.2E+00	1.1E-04
fluroxypyr	fresh water	69377-81-7	5.3E+01	7.7E+01	5.8E-12



Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
epoxiconazole	fresh water	??	5.3E+02	1.0E+03	5.2E-02
ethylene oxide	fresh water	75-21-8	1.9E-01	2.2E-01	5.7E-04
hydrogen fluoride	fresh water	7664-39-3	2.5E+05	4.0E+05	1.4E-06
1,1,1-trichloroethane	seawater	71-55-6	8.5E-02	1.3E-01	4.5E-06
1,2,3,4-tetrachlorobenzene	seawater	634-66-2	8.7E+00	9.6E+00	7.8E-04
1,2,3,5-tetrachlorobenzene	seawater	634-90-2	8.4E+00	1.0E+01	1.4E-02
1,2,3-trichlorobenzene	seawater	87-61-6	2.6E+00	3.2E+00	7.9E-03
1,2,4,5-tetrachlorobenzene	seawater	95-94-3	7.3E+00	8.2E+00	1.8E-02
1,2,4-trichlorobenzene	seawater	120-82-1	2.2E+00	2.6E+00	9.7E-04
1,2-dichlorobenzene	seawater	95-50-1	6.3E-01	9.3E-01	5.2E-05
1,2-dichloroethane	seawater	107-06-2	2.5E-02	4.0E-02	3.3E-06
1,3,5-trichlorobenzene	seawater	108-70-3	3.0E+00	4.1E+00	2.1E-04
1,3-Butadiene	seawater	106-99-0	7.2E-01	8.3E-01	3.9E-09
1,3-dichlorobenzene	seawater	541-73-1	7.8E-01	1.2E+00	5.3E-05
1,4-dichlorobenzene	seawater	106-46-7	6.3E-01	8.8E-01	1.0E-03
1-chloro-4-nitrobenzene	seawater	100-00-5	2.5E+02	4.0E+02	3.0E-02
2,3,4,6-tetrachlorophenol	seawater	58-90-2	2.0E+02	2.4E+02	3.4E-06
2,3,7,8-TCDD	seawater	1746-01-6	3.2E+08	1.7E+09	5.7E+02
2,4,5-T	seawater	93-76-5	3.9E-01	4.9E-01	6.3E-11
2,4,5-trichlorophenol	seawater	95-95-4	1.0E+02	1.6E+02	5.2E-04
2,4,6-trichlorophenol	seawater	88-06-2	7.4E+00	8.9E+00	1.2E-05
2,4-D	seawater	94-75-7	9.9E+00	1.4E+01	1.8E-12
2,4-dichlorophenol	seawater	120-83-2	3.7E+00	2.0E+00	4.0E-06
2-chlorophenol	seawater	95-57-8	4.4E+01	6.0E+01	2.3E-05
3,4-dichloroaniline	seawater	95-76-1	1.9E+03	3.6E+03	5.9E-06
3-chloroaniline	seawater	108-42-9	5.8E+01	8.2E+01	1.7E-08
4-chloroaniline	seawater	106-47-8	9.4E+01	1.4E+02	8.3E-05
acephate	seawater	30560-19-1	3.5E+01	3.4E+01	5.3E-10
Acrolein	seawater	107-02-8	8.7E+03	1.3E+04	1.4E-01
Acrylonitrile	seawater	107-13-1	3.1E+00	4.0E+00	7.2E-05
aldicarb	seawater	116-06-3	1.4E+04	2.2E+04	4.7E-03
aldrin	seawater	309-00-2	7.3E+03	7.2E+02	6.3E-03
ammonia	seawater	7664-41-7			
anilazine	seawater	101-05-3	2.0E+01	8.3E-01	7.0E-10
anthracene	seawater	120-12-7	1.5E+04	2.4E+04	3.2E-03
antimony	seawater	7440-36-0	2.3E+02	1.1E+03	9.0E-22
arsenic	seawater	7440-38-2	1.7E+03	8.5E+03	9.1E-19
atrazine	seawater	1912-24-9	4.1E+02	6.1E+02	4.6E-05
aziphos-ethyl	seawater	2642-71-9	5.8E+03	4.7E+03	3.3E-04
aziphos-methyl	seawater	86-50-0	9.9E+02	2.9E+02	4.9E-08
barium	seawater	7440-39-3	5.1E+03	2.1E+04	2.0E-20
benomyl	seawater	17804-35-2	1.5E+02	1.3E+01	1.4E-09
bentazone	seawater	25057-89-0	1.2E+00	1.8E+00	3.3E-10
Benzene	seawater	71-43-2	1.5E-02	2.0E-02	5.9E-07
benzo[a]anthracene	seawater	56-55-3	6.5E+04	2.7E+05	5.8E-03
benzo[a]pyrene	seawater	50-32-8	1.0E+05	3.5E+05	7.6E-04
benzo[ghi]perylene	seawater	191-24-2	3.8E+04	2.0E+05	2.2E-04
benzo[k]fluoranthrene	seawater	207-08-9	5.8E+05	3.4E+06	6.7E-02
benzylchloride	seawater	100-44-7	7.8E+00	1.9E+00	1.5E-05
beryllium	seawater	7440-41-7	3.0E+06	6.4E+06	1.2E-17
bifenthrin	seawater	82657-04-3	8.9E+03	3.4E+04	5.6E-04
Butylbenzylphtalate	seawater	85-68-7	1.6E+00	4.0E-01	8.9E-08
cadmium	seawater	22537-48-0	1.5E+04	7.6E+04	5.1E-21
captafol	seawater	2425-06-1	5.5E+04	1.2E+05	1.4E-08

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
captan	seawater	133-06-2	4.0E+01	5.0E-01	9.3E-10
carbaryl	seawater	63-25-2	2.4E+01	2.1E+00	1.1E-09
carbendazim	seawater	10605-21-7	1.3E+03	2.0E+03	1.6E-10
carbofuran	seawater	1563-66-2	2.9E+02	3.1E+02	6.1E-07
carbon disulfide	seawater	75-15-0	2.9E+01	4.5E+01	4.2E-04
Carcinogenic PAHs	seawater		1.3E+04	6.8E+04	6.8E-04
chlordane	seawater	57-74-9	3.3E+05	1.3E+04	2.1E-01
chlorfenvinphos	seawater	470-90-6	2.7E+01	3.2E+01	8.5E-07
chloridazon	seawater	1698-60-8	6.8E+00	9.8E+00	5.9E-05
chlorobenzene	seawater	108-90-7	2.7E-01	4.2E-01	1.1E-04
chlorothalonil	seawater	1897-45-6	3.4E+01	2.2E+01	8.8E-05
chlorpropham	seawater	101-21-3	1.9E+00	2.5E+00	4.4E-07
chlorpyrifos	seawater	2921-88-2	2.2E+03	2.2E+02	5.5E-05
chromium III	seawater	16056-83-1	8.4E+01	4.1E+02	1.0E-19
chromium VI	seawater	18540-29-9	3.4E+02	1.7E+03	1.0E-19
chrysene	seawater	218-01-9	4.4E+03	2.2E+04	1.4E-03
cobalt	seawater	7440-48-4	3.9E+04	1.2E+05	1.5E-19
copper	seawater	15158-11-9	9.6E+03	4.6E+04	9.4E-22
coumaphos	seawater	56-72-4	2.1E+06	4.6E+06	4.4E-01
cyazazine	seawater	21725-46-2	1.2E+03	1.6E+03	3.9E-08
cypermethrin	seawater	52315-07-8	1.6E+05	4.5E+05	2.4E-01
cyromazine	seawater	66215-27-8	1.3E+03	2.1E+03	7.1E-08
DDT	seawater	50-29-3	1.1E+05	5.9E+04	6.8E-01
deltamethrin	seawater	52918-63-5	3.6E+04	7.2E+04	1.3E-03
demeton	seawater	8065-48-3	5.4E+02	7.0E+02	2.3E-04
desmetryn	seawater	1014-69-3	5.2E+00	5.4E+00	7.4E-07
Di(2-ethylhexyl)phthalate	seawater	117-81-7	1.5E+01	1.1E+01	8.9E-07
diazinon	seawater	333-41-5	2.8E+03	2.7E+03	8.0E-05
Dibutylphthalate	seawater	84-74-2	1.7E+00	1.6E-01	1.7E-07
Dichloromethane	seawater	75-09-2	2.7E-03	3.6E-03	9.5E-08
dichlorprop	seawater	120-36-5	1.2E-01	6.4E-02	1.1E-14
dichlorvos	seawater	62-73-7	2.4E+03	1.8E+02	1.7E-04
dieldrin	seawater	60-57-1	3.9E+04	1.8E+03	8.0E-02
Diethylphthalate	seawater	84-66-2	7.8E-01	6.5E-01	7.7E-05
Dihexylphthalate	seawater	84-75-3	9.5E+00	2.0E+01	1.5E-05
Diisodecylphthalate	seawater	26761-40-0	1.9E+01	3.4E+01	5.6E-05
Diisooctylphthalate	seawater	27554-26-3	1.5E+01	2.7E+01	3.1E-06
dimethoate	seawater	60-51-5	3.3E+00	4.1E+00	1.8E-07
Dimethylphthalate	seawater	133-11-3	5.2E-02	1.3E-02	4.2E-06
dinoseb	seawater	88-85-7	1.2E+04	4.9E+03	8.2E-04
dinoterb	seawater	1420-07-1	1.1E+04	4.4E+03	3.5E-05
Diocetylphthalate	seawater	117-84-0	2.4E+00	2.6E+00	8.0E-08
disulfothon	seawater	298-04-4	1.4E+03	4.2E+02	2.1E-05
diuron	seawater	330-54-1	2.3E+02	3.4E+02	3.2E-05
DNOC	seawater	534-52-1	2.6E+00	6.0E-01	1.5E-09
endosulfan	seawater	115-29-7	3.2E+02	2.2E+01	1.5E-05
endrin	seawater	72-20-8	8.1E+05	1.1E+05	2.7E-01
ethoprophos	seawater	13194-48-4	5.9E+03	8.7E+03	6.9E-03
Ethylbenzene	seawater	100-41-4	6.1E-02	6.7E-02	7.6E-08
Ethylene	seawater	74-85-1	2.6E-03	3.1E-03	7.7E-14
fenitrothion	seawater	122-14-5	5.6E+03	2.8E+03	8.2E-05
fenthion	seawater	55-38-9	2.2E+04	1.5E+04	1.6E-03
fentin acetate	seawater	900-95-8	3.9E+04	1.1E+05	9.8E-05
fentin chloride	seawater	639-58-7	3.9E+04	1.1E+05	8.1E-04

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
fentin hydroxide	seawater	76-87-9	3.9E+04	1.1E+05	3.5E-05
fluoranthrene	seawater	206-44-0	3.2E+03	1.3E+04	8.2E-04
folpet	seawater	133-07-3	1.2E+04	2.5E+04	5.6E-02
Formaldehyde	seawater	50-00-0	5.6E+00	6.0E+00	2.1E-05
glyphosate	seawater	1071-83-6	3.3E+01	3.0E+01	4.4E-14
heptachlor	seawater	76-44-8	1.1E+03	9.2E+02	2.3E-05
heptenophos	seawater	23560-59-0	4.5E+02	9.1E+01	2.3E-05
hexachloro-1,3-butadiene	seawater	87-68-3	3.0E+04	3.3E+04	1.1E-01
hexachlorobenzene	seawater	118-74-1	2.1E+02	1.1E+03	1.7E-02
hydrogen chloride	seawater	7647-01-0			
hydrogen sulfide	seawater	7783-06-4			
indeno[1,2,3-cd]pyrene	seawater	193-39-5	6.3E+04	3.3E+05	3.5E-06
iprodione	seawater	36734-19-7	7.2E-01	1.2E-02	1.5E-10
isoproturon	seawater	34123-59-6	5.6E+01	3.7E+01	3.7E-07
lead	seawater	14280-50-3	1.3E+02	6.6E+02	2.7E-22
lindane	seawater	58-89-9	2.1E+02	4.7E+01	3.1E-03
linuron	seawater	330-55-2	1.2E+03	1.6E+03	3.0E-04
malathion	seawater	121-75-5	5.0E+03	2.8E+03	2.0E-07
MCPA	seawater	94-74-6	5.6E-01	6.9E-01	2.2E-14
mecoprop	seawater	7085-19-0	8.0E+00	1.0E+01	1.8E-11
mercury	seawater	14302-87-5	1.8E+04	8.7E+04	4.1E+02
metamitron	seawater	41394-05-2	4.8E-01	3.8E-01	1.4E-11
metazachlor	seawater	67129-08-2	4.2E+00	5.2E+00	3.0E-08
methabenzthiazuron	seawater	18691-97-9	4.3E+01	6.9E+01	5.8E-07
methomyl	seawater	16752-77-5	6.0E+03	8.6E+03	7.3E-05
methylbromide	seawater	74-83-9	2.1E+00	1.9E+00	7.9E-05
methyl-mercury	seawater	22967-92-6	4.0E+05	2.0E+06	4.1E+02
metobromuron	seawater	3060-89-7	4.3E+01	7.2E+01	3.3E-05
metolachlor	seawater	51218-45-2	1.3E+03	1.9E+03	5.3E-06
mevinphos	seawater	7786-34-7	1.1E+04	1.2E+03	3.2E-07
molybdenum	seawater	7439-98-7	1.2E+04	5.0E+04	8.6E-20
meta-Xylene	seawater	108-38-3	1.4E-01	1.4E-01	9.7E-08
Naphtalene	seawater	91-20-3	3.3E+01	1.2E+01	1.7E-05
nickel	seawater	7440-02-0	2.9E+04	1.4E+05	8.1E-20
nitrogen dioxide	seawater	10102-44-0			
oxamyl	seawater	23135-22-0	2.8E+00	8.0E-01	2.3E-08
oxydemethon-methyl	seawater	301-12-2	1.0E+03	4.2E+02	5.2E-06
ortho-Xylene	seawater	95-47-6	1.3E-01	1.7E-01	1.7E-07
parathion-ethyl	seawater	56-38-2	4.0E+04	1.7E+04	8.0E-05
parathion-methyl	seawater	298-00-0	7.9E+03	3.4E+02	6.8E-04
pentachlorobenzene	seawater	608-93-5	5.0E+01	9.3E+01	4.2E-03
pentachloronitrobenzene	seawater	82-68-8	3.1E+03	4.3E+02	7.7E-03
pentachlorophenol	seawater	87-86-5	7.3E+01	1.4E+02	2.4E-06
permethrin	seawater	52645-53-1	2.8E+05	2.2E+05	1.6E-02
phenanthrene	seawater	85-01-8	6.9E+01	6.3E+01	5.2E-06
Phenol	seawater	108-95-2	4.7E+00	3.2E+00	3.5E-08
phoxim	seawater	14816-18-3	3.0E+02	4.1E+01	1.3E-03
Phtalic anhydride	seawater	85-44-9	1.7E-02	9.9E-05	2.8E-12
pirimicarb	seawater	23103-98-2	8.4E+02	1.3E+03	1.7E-05
dust (PM10)	seawater	PM10			
propachlor	seawater	1918-16-7	2.6E+01	2.5E+01	1.3E-05
propoxur	seawater	114-26-1	3.4E+03	3.6E+03	3.2E-06
Propylene Oxide	seawater	75-56-9	1.4E-01	1.5E-01	6.9E-06
para-Xylene	seawater	106-42-3	1.3E-01	9.7E-02	7.5E-08

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
pyrazophos	seawater	13457-18-6	1.1E+03	1.1E+03	2.8E-05
selenium	seawater	7782-49-2	1.3E+05	2.8E+05	5.2E-19
simazine	seawater	122-34-9	6.6E+02	1.0E+03	1.9E-05
styrene	seawater	100-42-5	1.2E-01	9.2E-02	2.6E-08
sulphur dioxide	seawater	7446-09-5			
Tetrachloroethylene	seawater	127-18-4	4.6E-01	7.2E-01	4.0E-04
Tetrachloromethane	seawater	56-23-5	2.1E-01	2.2E-01	1.2E-05
thallium	seawater	7440-28-0	1.7E+05	7.8E+05	1.2E-18
Thiram	seawater	137-26-8	4.2E+02	3.7E+01	2.8E-04
tin	seawater	7440-31-5	1.3E+02	1.3E+02	3.9E-22
tolclophos-methyl	seawater	57018-04-9	1.4E+02	1.6E+02	6.4E-05
Toluene	seawater	108-88-3	5.0E-02	6.3E-02	1.3E-06
tri-allate	seawater	2303-17-5	3.1E+03	9.0E+02	1.2E-04
triazophos	seawater	24017-47-8	4.7E+03	6.8E+03	8.2E-04
tributyltinoxide	seawater	56-35-9	4.9E+05	7.7E+05	5.8E-03
trichlorfon	seawater	52-68-6	3.6E+03	5.4E+02	4.8E-07
Trichloroethylene	seawater	79-01-6	5.3E-02	8.0E-02	9.7E-07
Trichloromethane	seawater	67-66-3	2.7E-02	2.5E-02	2.0E-06
trifluarin	seawater	1582-09-8	7.8E+03	3.5E+03	2.9E-03
vanadium	seawater	7440-62-2	8.9E+04	4.0E+05	6.6E-19
Vinyl Chloride	seawater	75-01-4	1.8E-02	2.9E-02	9.2E-08
zinc	seawater	23713-49-7	8.9E+02	4.4E+03	8.6E-22
zineb	seawater	12122-67-7	7.8E+02	8.8E+02	2.8E-05
chlormequat-chloride	seawater	999-81-5	7.3E+00	4.6E+00	6.1E-13
fenpropimorph	seawater	67306-03-0	4.3E+01	4.5E+01	4.1E-07
fluroxypyr	seawater	69377-81-7	2.2E+02	3.2E+02	1.1E-14
epoxiconazole	seawater	??	6.7E+02	1.3E+03	4.2E-03
ethylene oxide	seawater	75-21-8	7.0E-01	8.3E-01	3.1E-05
hydrogen fluoride	seawater	7664-39-3	2.5E+05	4.0E+05	1.4E-06
1,1,1-trichloroethane	agri. soil	71-55-6	3.0E-03	4.5E-03	1.3E-03
1,2,3,4-tetrachlorobenzene	agri. soil	634-66-2	4.1E-02	4.6E-02	8.3E-01
1,2,3,5-tetrachlorobenzene	agri. soil	634-90-2	1.7E-01	2.1E-01	1.5E+01
1,2,3-trichlorobenzene	agri. soil	87-61-6	5.4E-02	6.7E-02	9.3E+00
1,2,4,5-tetrachlorobenzene	agri. soil	95-94-3	4.5E-02	5.0E-02	1.9E+01
1,2,4-trichlorobenzene	agri. soil	120-82-1	4.2E-02	5.1E-02	1.2E+00
1,2-dichlorobenzene	agri. soil	95-50-1	4.3E-02	6.4E-02	5.4E-02
1,2-dichloroethane	agri. soil	107-06-2	2.8E-03	4.4E-03	1.7E-03
1,3,5-trichlorobenzene	agri. soil	108-70-3	1.1E-01	1.5E-01	2.5E-01
1,3-Butadiene	agri. soil	106-99-0	2.7E-06	3.1E-06	3.1E-04
1,3-dichlorobenzene	agri. soil	541-73-1	3.8E-02	5.7E-02	6.2E-02
1,4-dichlorobenzene	agri. soil	106-46-7	3.6E-02	5.0E-02	9.9E-01
1-chloro-4-nitrobenzene	agri. soil	100-00-5	3.1E+01	5.0E+01	1.7E+01
2,3,4,6-tetrachlorophenol	agri. soil	58-90-2	5.5E-01	6.6E-01	1.0E+00
2,3,7,8-TCDD	agri. soil	1746-01-6	2.3E+04	1.2E+05	2.7E+04
2,4,5-T	agri. soil	93-76-5	1.6E-03	2.0E-03	7.4E-01
2,4,5-trichlorophenol	agri. soil	95-95-4	9.5E-01	1.5E+00	4.4E+00
2,4,6-trichlorophenol	agri. soil	88-06-2	7.9E-03	9.5E-03	7.0E-01
2,4-D	agri. soil	94-75-7	1.6E-01	2.3E-01	1.6E+00
2,4-dichlorophenol	agri. soil	120-83-2	5.5E-03	3.0E-03	5.9E-01
2-chlorophenol	agri. soil	95-57-8	6.5E-02	8.9E-02	3.8E-01
3,4-dichloroaniline	agri. soil	95-76-1	1.6E+02	2.9E+02	2.6E+01
3-chloroaniline	agri. soil	108-42-9	3.2E-01	4.5E-01	1.4E+00
4-chloroaniline	agri. soil	106-47-8	7.6E-01	1.1E+00	1.6E+01
acephate	agri. soil	30560-19-1	6.3E-01	6.3E-01	1.7E+00

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Acrolein	agri. soil	107-02-8	2.4E+02	3.6E+02	7.0E+03
Acrylonitrile	agri. soil	107-13-1	1.3E-01	1.6E-01	2.5E+00
aldicarb	agri. soil	116-06-3	1.5E+03	2.3E+03	4.2E+03
aldrin	agri. soil	309-00-2	2.8E+01	2.8E+00	2.0E+01
ammonia	agri. soil	7664-41-7			
anilazine	agri. soil	101-05-3	5.0E-05	2.1E-06	2.3E-01
anthracene	agri. soil	120-12-7	4.8E+00	7.7E+00	8.9E+00
antimony	agri. soil	7440-36-0	6.6E+01	3.0E+02	1.3E+00
arsenic	agri. soil	7440-38-2	3.9E+02	1.9E+03	3.3E+03
atrazine	agri. soil	1912-24-9	2.3E+01	3.4E+01	6.6E+00
aziphos-ethyl	agri. soil	2642-71-9	1.0E+01	8.4E+00	2.2E+02
aziphos-methyl	agri. soil	86-50-0	1.4E-01	4.1E-02	9.7E-01
barium	agri. soil	7440-39-3	2.0E+03	8.3E+03	1.0E+01
benomyl	agri. soil	17804-35-2	5.7E-03	5.0E-04	3.5E+00
bentazone	agri. soil	25057-89-0	3.5E-02	5.4E-02	5.9E-01
Benzene	agri. soil	71-43-2	3.8E-04	5.2E-04	3.4E-03
benzo[a]anthracene	agri. soil	56-55-3	3.5E+00	1.4E+01	3.1E+01
benzo[a]pyrene	agri. soil	50-32-8	5.4E+00	1.8E+01	2.3E+01
benzo[ghi]perylene	agri. soil	191-24-2	6.3E+00	3.3E+01	8.3E+00
benzo[k]fluoranthrene	agri. soil	207-08-9	7.9E+02	4.5E+03	3.9E+02
benzylchloride	agri. soil	100-44-7	3.8E-02	9.2E-03	8.0E-01
beryllium	agri. soil	7440-41-7	1.3E+06	2.7E+06	3.6E+03
bifenthrin	agri. soil	82657-04-3	1.1E-01	4.3E-01	8.3E+01
Butylbenzylphthalate	agri. soil	85-68-7	2.8E-05	7.0E-06	1.0E-02
cadmium	agri. soil	22537-48-0	9.3E+02	4.6E+03	1.7E+02
captafol	agri. soil	2425-06-1	2.3E+03	5.1E+03	2.8E+01
captan	agri. soil	133-06-2	6.8E-05	8.4E-07	4.1E-02
carbaryl	agri. soil	63-25-2	7.4E-03	6.5E-04	1.1E-01
carbendazim	agri. soil	10605-21-7	2.8E+01	4.4E+01	4.9E+01
carbofuran	agri. soil	1563-66-2	1.9E+00	2.1E+00	7.5E+00
carbon disulfide	agri. soil	75-15-0	2.8E-01	4.3E-01	1.6E+00
Carcinogenic PAHs	agri. soil		6.5E+00	3.5E+01	6.3E+00
chlordane	agri. soil	57-74-9	1.7E+01	6.7E-01	7.4E+01
chlorfenvinphos	agri. soil	470-90-6	8.3E-02	9.9E-02	1.3E+00
chloridazon	agri. soil	1698-60-8	6.8E-02	9.7E-02	9.0E-01
chlorobenzene	agri. soil	108-90-7	8.4E-03	1.3E-02	1.2E-01
chlorothalonil	agri. soil	1897-45-6	2.5E-01	1.6E-01	6.8E-01
chlorpropham	agri. soil	101-21-3	8.3E-03	1.1E-02	1.3E-01
chlorpyrifos	agri. soil	2921-88-2	1.4E-01	1.4E-02	1.7E+01
chromium III	agri. soil	16056-83-1	6.7E+00	3.3E+01	6.3E+03
chromium VI	agri. soil	18540-29-9	2.7E+01	1.3E+02	6.3E+03
chrysene	agri. soil	218-01-9	7.0E+00	3.5E+01	4.6E+00
cobalt	agri. soil	7440-48-4	1.1E+04	3.4E+04	2.2E+02
copper	agri. soil	15158-11-9	7.8E+02	3.7E+03	1.4E+01
coumaphos	agri. soil	56-72-4	8.9E+04	1.9E+05	1.6E+04
cyanazine	agri. soil	21725-46-2	2.8E+00	3.7E+00	6.9E+01
cypermethrin	agri. soil	52315-07-8	2.9E+02	8.0E+02	9.0E+04
cyromazine	agri. soil	66215-27-8	2.1E+02	3.4E+02	6.3E+02
DDT	agri. soil	50-29-3	1.8E+01	9.8E+00	6.0E+01
deltamethrin	agri. soil	52918-63-5	5.8E-02	1.2E-01	8.5E+00
demeton	agri. soil	8065-48-3	3.4E+00	4.4E+00	6.0E+01
desmetryn	agri. soil	1014-69-3	2.3E-02	2.4E-02	2.9E+00
Di(2-ethylhexyl)phthalate	agri. soil	117-81-7	1.5E-05	1.1E-05	1.4E-03
diazinon	agri. soil	333-41-5	7.6E+00	7.4E+00	1.2E+01

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Dibutylphthalate	agri. soil	84-74-2	1.1E-04	1.1E-05	2.3E-02
Dichloromethane	agri. soil	75-09-2	1.5E-04	2.1E-04	2.5E-04
dichlorprop	agri. soil	120-36-5	3.5E-05	1.9E-05	1.4E-03
dichlorvos	agri. soil	62-73-7	3.4E-02	2.6E-03	2.0E+02
dieldrin	agri. soil	60-57-1	5.1E+01	2.3E+00	1.1E+02
Diethylphthalate	agri. soil	84-66-2	6.6E-04	5.5E-04	2.1E+00
Dihexylphthalate	agri. soil	84-75-3	3.6E-04	7.7E-04	7.3E-03
Diisodecylphthalate	agri. soil	26761-40-0	7.3E-04	1.3E-03	4.0E-03
Diisooctylphthalate	agri. soil	27554-26-3	5.5E-05	9.8E-05	5.5E-04
dimethoate	agri. soil	60-51-5	3.9E-02	4.7E-02	8.0E-01
Dimethylphthalate	agri. soil	133-11-3	9.1E-06	2.3E-06	1.4E+00
dinoseb	agri. soil	88-85-7	3.6E+02	1.4E+02	5.9E+02
dinoterb	agri. soil	1420-07-1	7.6E+00	3.0E+00	9.9E+00
Diocetylphthalate	agri. soil	117-84-0	1.2E-06	1.3E-06	4.8E-05
disulfothon	agri. soil	298-04-4	1.4E-01	4.0E-02	1.1E+01
diuron	agri. soil	330-54-1	2.0E+00	3.0E+00	2.3E+01
DNOC	agri. soil	534-52-1	3.6E-03	8.5E-04	5.2E-01
endosulfan	agri. soil	115-29-7	1.3E-03	8.9E-05	2.7E+00
endrin	agri. soil	72-20-8	3.0E+03	4.1E+02	4.2E+03
ethoprophos	agri. soil	13194-48-4	2.4E+02	3.5E+02	2.7E+02
Ethylbenzene	agri. soil	100-41-4	2.5E-04	2.7E-04	1.9E-03
Ethylene	agri. soil	74-85-1	5.2E-11	6.4E-11	2.3E-09
fenitrothion	agri. soil	122-14-5	2.2E+00	1.1E+00	8.3E+01
fenthion	agri. soil	55-38-9	1.4E+01	9.8E+00	2.9E+02
fentin acetate	agri. soil	900-95-8	6.5E+00	1.8E+01	1.2E+01
fentin chloride	agri. soil	639-58-7	3.0E+01	8.2E+01	1.2E+01
fentin hydroxide	agri. soil	76-87-9	5.9E+00	1.6E+01	1.2E+01
fluoranthrene	agri. soil	206-44-0	1.0E+00	4.0E+00	2.3E+00
folpet	agri. soil	133-07-3	4.1E+02	8.1E+02	1.1E+02
Formaldehyde	agri. soil	50-00-0	1.7E-02	1.8E-02	5.8E+00
glyphosate	agri. soil	1071-83-6	2.8E-03	2.5E-03	9.6E-02
heptachlor	agri. soil	76-44-8	2.3E-02	2.0E-02	5.5E+00
heptenophos	agri. soil	23560-59-0	2.5E-02	5.0E-03	1.6E+01
hexachloro-1,3-butadiene	agri. soil	87-68-3	3.7E+02	4.1E+02	5.2E+01
hexachlorobenzene	agri. soil	118-74-1	1.5E+01	7.9E+01	3.5E+00
hydrogen chloride	agri. soil	7647-01-0			
hydrogen sulfide	agri. soil	7783-06-4			
indeno[1,2,3-cd]pyrene	agri. soil	193-39-5	9.8E+00	5.1E+01	1.3E+01
iprodione	agri. soil	36734-19-7	2.2E-05	3.5E-07	1.4E-01
isoproturon	agri. soil	34123-59-6	1.7E+00	1.1E+00	6.4E+00
lead	agri. soil	14280-50-3	8.9E+00	4.4E+01	3.3E+01
lindane	agri. soil	58-89-9	1.3E+00	2.8E-01	2.3E+01
linuron	agri. soil	330-55-2	1.1E+01	1.6E+01	2.1E+01
malathion	agri. soil	121-75-5	6.5E-01	3.7E-01	7.6E-02
MCPA	agri. soil	94-74-6	6.1E-04	7.5E-04	9.4E-02
mecoprop	agri. soil	7085-19-0	5.2E-02	6.9E-02	4.7E+00
mercury	agri. soil	14302-87-5	1.5E+03	7.3E+03	5.5E+04
metamitron	agri. soil	41394-05-2	1.1E-03	8.9E-04	4.2E-02
metazachlor	agri. soil	67129-08-2	3.2E-02	3.9E-02	1.7E-01
methabenzthiazuron	agri. soil	18691-97-9	9.0E-01	1.4E+00	1.1E+00
methomyl	agri. soil	16752-77-5	3.8E+02	5.5E+02	3.0E+02
methylbromide	agri. soil	74-83-9	8.7E-02	8.2E-02	3.6E-01
methyl-mercury	agri. soil	22967-92-6	3.4E+04	1.7E+05	5.5E+04
metobromuron	agri. soil	3060-89-7	8.3E+00	1.4E+01	2.2E+00



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metolachlor	agri. soil	51218-45-2	2.8E+01	4.1E+01	5.4E-01
mevinphos	agri. soil	7786-34-7	3.4E-01	3.8E-02	8.7E+01
molybdenum	agri. soil	7439-98-7	5.4E+03	2.2E+04	3.6E+01
meta-Xylene	agri. soil	108-38-3	2.1E-04	2.2E-04	3.0E-03
Naphtalene	agri. soil	91-20-3	5.2E-02	2.0E-02	3.1E+00
nickel	agri. soil	7440-02-0	5.8E+03	2.8E+04	2.4E+02
nitrogen dioxide	agri. soil	10102-44-0			
oxamyl	agri. soil	23135-22-0	8.4E-03	2.4E-03	5.9E+00
oxydemethon-methyl	agri. soil	301-12-2	2.0E+00	8.2E-01	9.2E+01
ortho-Xylene	agri. soil	95-47-6	4.2E-04	5.6E-04	3.4E-03
parathion-ethyl	agri. soil	56-38-2	2.3E+00	9.6E-01	1.7E+01
parathion-methyl	agri. soil	298-00-0	5.7E+00	2.5E-01	8.1E+01
pentachlorobenzene	agri. soil	608-93-5	1.7E+00	3.2E+00	2.1E+00
pentachloronitrobenzene	agri. soil	82-68-8	6.2E+00	8.5E-01	2.7E+00
pentachlorophenol	agri. soil	87-86-5	5.5E-03	1.1E-02	4.8E+00
permethrin	agri. soil	52645-53-1	5.3E+00	4.1E+00	2.5E+02
phenanthrene	agri. soil	85-01-8	7.4E-03	6.7E-03	3.7E-02
Phenol	agri. soil	108-95-2	1.6E-03	1.1E-03	4.5E-02
phoxim	agri. soil	14816-18-3	3.0E-01	4.0E-02	4.7E+00
Phtalic anhydride	agri. soil	85-44-9	1.8E-08	1.1E-10	2.6E-03
pirimicarb	agri. soil	23103-98-2	7.2E+00	1.1E+01	1.2E+02
dust (PM10)	agri. soil	PM10			
propachlor	agri. soil	1918-16-7	4.1E-02	4.0E-02	2.5E+00
propoxur	agri. soil	114-26-1	3.8E+01	4.0E+01	1.8E+03
Propylene Oxide	agri. soil	75-56-9	1.0E-02	1.1E-02	1.4E-01
para-Xylene	agri. soil	106-42-3	2.5E-04	1.9E-04	1.5E-03
pyrazophos	agri. soil	13457-18-6	6.7E-01	6.5E-01	3.0E+01
selenium	agri. soil	7782-49-2	5.9E+04	1.2E+05	1.1E+02
simazine	agri. soil	122-34-9	1.2E+01	1.9E+01	2.9E+01
styrene	agri. soil	100-42-5	9.9E-05	7.5E-05	1.4E-03
sulphur dioxide	agri. soil	7446-09-5	8.3E-03	1.3E-02	3.0E-01
Tetrachloroethylene	agri. soil	127-18-4	8.2E-03	8.8E-03	1.6E-03
Tetrachloromethane	agri. soil	56-23-5	6.5E+04	3.0E+05	7.0E+02
thallium	agri. soil	7440-28-0	6.3E-01	5.6E-02	5.1E+01
Thiram	agri. soil	137-26-8	9.0E+00	8.8E+00	3.0E+01
tin	agri. soil	7440-31-5	1.2E-01	1.4E-01	1.8E+00
tolclophos-methyl	agri. soil	57018-04-9	2.6E-04	3.2E-04	1.9E-02
Toluene	agri. soil	108-88-3	7.8E-01	2.3E-01	1.3E+00
tri-allate	agri. soil	2303-17-5	5.0E+01	7.3E+01	2.5E+02
triazophos	agri. soil	24017-47-8	4.8E+02	7.4E+02	3.7E+01
tributyltinoxide	agri. soil	56-35-9	6.7E-01	1.0E-01	1.9E+03
trichlorfon	agri. soil	52-68-6	6.3E-04	9.5E-04	2.1E-03
Trichloroethylene	agri. soil	79-01-6	1.6E-03	1.5E-03	1.5E-03
Trichloromethane	agri. soil	67-66-3	1.1E+00	4.8E-01	3.5E+01
trifluarin	agri. soil	1582-09-8	2.2E+04	9.8E+04	1.4E+03
vanadium	agri. soil	7440-62-2	6.1E-05	9.6E-05	3.1E-04
Vinyl Chloride	agri. soil	75-01-4	5.7E+01	2.8E+02	2.5E+01
zinc	agri. soil	23713-49-7	3.3E+00	3.8E+00	1.6E+01
zineb	agri. soil	12122-67-7	4.1E-03	6.3E-03	7.6E-06
chlormequat-chloride	agri. soil	999-81-5	9.4E-03	5.9E-03	7.0E-02
fenpropimorph	agri. soil	67306-03-0	4.5E-02	4.7E-02	5.3E-01
fluroxypyr	agri. soil	69377-81-7	3.8E+00	5.5E+00	3.3E+01
epoxiconazole	agri. soil	??	3.4E+01	6.6E+01	6.4E+00
ethylene oxide	agri. soil	75-21-8	5.9E-02	7.0E-02	2.2E-01



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hydrogen fluoride	agri. soil	7664-39-3	1.2E+05	2.0E+05	6.0E-03
1,1,1-trichloroethane	indus. soil	71-55-6	3.0E-03	4.5E-03	1.3E-03
1,2,3,4-tetrachlorobenzene	indus. soil	634-66-2	1.5E-01	1.7E-01	7.7E-01
1,2,3,5-tetrachlorobenzene	indus. soil	634-90-2	3.8E-01	4.7E-01	1.2E+01
1,2,3-trichlorobenzene	indus. soil	87-61-6	7.1E-02	8.9E-02	7.9E+00
1,2,4,5-tetrachlorobenzene	indus. soil	95-94-3	1.6E-01	1.8E-01	1.7E+01
1,2,4-trichlorobenzene	indus. soil	120-82-1	6.9E-02	8.4E-02	9.9E-01
1,2-dichlorobenzene	indus. soil	95-50-1	4.3E-02	6.4E-02	5.4E-02
1,2-dichloroethane	indus. soil	107-06-2	2.8E-03	4.4E-03	1.7E-03
1,3,5-trichlorobenzene	indus. soil	108-70-3	1.3E-01	1.8E-01	2.2E-01
1,3-Butadiene	indus. soil	106-99-0	2.7E-06	3.1E-06	3.1E-04
1,3-dichlorobenzene	indus. soil	541-73-1	3.8E-02	5.7E-02	6.2E-02
1,4-dichlorobenzene	indus. soil	106-46-7	3.6E-02	5.0E-02	9.9E-01
1-chloro-4-nitrobenzene	indus. soil	100-00-5	3.1E+01	5.0E+01	1.7E+01
2,3,4,6-tetrachlorophenol	indus. soil	58-90-2	2.2E+00	2.6E+00	9.7E-01
2,3,7,8-TCDD	indus. soil	1746-01-6	9.3E+04	4.8E+05	2.7E+04
2,4,5-T	indus. soil	93-76-5	5.4E-03	6.8E-03	6.4E-01
2,4,5-trichlorophenol	indus. soil	95-95-4	3.5E+00	5.3E+00	3.9E+00
2,4,6-trichlorophenol	indus. soil	88-06-2	3.1E-02	3.7E-02	6.8E-01
2,4-D	indus. soil	94-75-7	4.5E-01	6.3E-01	1.1E+00
2,4-dichlorophenol	indus. soil	120-83-2	2.1E-02	1.1E-02	5.4E-01
2-chlorophenol	indus. soil	95-57-8	2.5E-01	3.4E-01	3.7E-01
3,4-dichloroaniline	indus. soil	95-76-1	3.5E+02	6.5E+02	1.8E+01
3-chloroaniline	indus. soil	108-42-9	1.1E+00	1.6E+00	1.2E+00
4-chloroaniline	indus. soil	106-47-8	2.2E+00	3.2E+00	1.1E+01
acephate	indus. soil	30560-19-1	2.0E+00	2.0E+00	1.3E+00
Acrolein	indus. soil	107-02-8	2.4E+02	3.6E+02	7.0E+03
Acrylonitrile	indus. soil	107-13-1	1.6E-01	2.0E-01	2.1E+00
aldicarb	indus. soil	116-06-3	1.5E+03	2.3E+03	4.2E+03
aldrin	indus. soil	309-00-2	2.9E+01	2.8E+00	2.0E+01
ammonia	indus. soil	7664-41-7			
anilazine	indus. soil	101-05-3	2.0E-04	8.5E-06	2.3E-01
anthracene	indus. soil	120-12-7	1.9E+01	3.0E+01	8.8E+00
antimony	indus. soil	7440-36-0	6.6E+01	3.0E+02	1.3E+00
arsenic	indus. soil	7440-38-2	3.9E+02	1.9E+03	3.3E+03
atrazine	indus. soil	1912-24-9	6.2E+01	9.2E+01	4.4E+00
azinphos-ethyl	indus. soil	2642-71-9	1.4E+01	1.1E+01	7.2E+01
azinphos-methyl	indus. soil	86-50-0	5.8E-01	1.7E-01	1.0E+00
barium	indus. soil	7440-39-3	2.0E+03	8.3E+03	1.0E+01
benomyl	indus. soil	17804-35-2	2.3E-02	2.0E-03	3.5E+00
bentazone	indus. soil	25057-89-0	4.7E-02	7.2E-02	5.0E-01
Benzene	indus. soil	71-43-2	3.8E-04	5.2E-04	3.4E-03
benzo[a]anthracene	indus. soil	56-55-3	1.4E+01	5.6E+01	3.1E+01
benzo[a]pyrene	indus. soil	50-32-8	2.1E+01	7.4E+01	2.3E+01
benzo[ghi]perylene	indus. soil	191-24-2	2.5E+01	1.3E+02	8.3E+00
benzo[k]fluoranthrene	indus. soil	207-08-9	3.1E+03	1.8E+04	3.9E+02
benzylchloride	indus. soil	100-44-7	1.3E-01	3.2E-02	7.1E-01
beryllium	indus. soil	7440-41-7	1.3E+06	2.7E+06	3.6E+03
bifenthrin	indus. soil	82657-04-3	4.5E-01	1.7E+00	8.3E+01
Butylbenzylphtalate	indus. soil	85-68-7	1.1E-04	2.8E-05	1.0E-02
cadmium	indus. soil	22537-48-0	9.3E+02	4.6E+03	1.7E+02
captafol	indus. soil	2425-06-1	7.2E+03	1.6E+04	2.2E+01
captan	indus. soil	133-06-2	8.0E-04	9.9E-06	1.2E-01
carbaryl	indus. soil	63-25-2	4.0E-02	3.5E-03	1.4E-01

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
carbendazim	indus. soil	10605-21-7	8.6E+01	1.4E+02	3.8E+01
carbofuran	indus. soil	1563-66-2	6.1E+00	6.5E+00	5.9E+00
carbon disulfide	indus. soil	75-15-0	2.8E-01	4.3E-01	1.6E+00
Carcinogenic PAHs	indus. soil		2.6E+01	1.4E+02	6.3E+00
chlordane	indus. soil	57-74-9	6.6E+01	2.7E+00	7.3E+01
chlorfenvinphos	indus. soil	470-90-6	3.1E-01	3.7E-01	1.2E+00
chloridazon	indus. soil	1698-60-8	1.5E-01	2.1E-01	6.8E-01
chlorobenzene	indus. soil	108-90-7	8.4E-03	1.3E-02	1.2E-01
chlorothalonil	indus. soil	1897-45-6	9.0E-01	5.9E-01	6.1E-01
chlorpropham	indus. soil	101-21-3	2.9E-02	3.8E-02	1.2E-01
chlorpyrifos	indus. soil	2921-88-2	5.8E-01	5.8E-02	1.7E+01
chromium III	indus. soil	16056-83-1	6.7E+00	3.3E+01	6.3E+03
chromium VI	indus. soil	18540-29-9	2.7E+01	1.3E+02	6.3E+03
chrysene	indus. soil	218-01-9	2.7E+01	1.4E+02	4.5E+00
cobalt	indus. soil	7440-48-4	1.1E+04	3.4E+04	2.2E+02
copper	indus. soil	15158-11-9	7.8E+02	3.7E+03	1.4E+01
coumaphos	indus. soil	56-72-4	2.7E+05	5.9E+05	1.2E+04
cyanazine	indus. soil	21725-46-2	1.0E+01	1.3E+01	6.3E+01
cypermethrin	indus. soil	52315-07-8	1.0E+03	2.8E+03	7.8E+04
cyromazine	indus. soil	66215-27-8	2.1E+02	3.4E+02	6.3E+02
DDT	indus. soil	50-29-3	6.9E+01	3.9E+01	5.9E+01
deltamethrin	indus. soil	52918-63-5	2.3E-01	4.7E-01	8.5E+00
demeton	indus. soil	8065-48-3	1.1E+01	1.4E+01	4.9E+01
desmetryn	indus. soil	1014-69-3	8.5E-02	8.8E-02	2.6E+00
Di(2-ethylhexyl)phthalate	indus. soil	117-81-7	5.9E-05	4.4E-05	1.4E-03
diazinon	indus. soil	333-41-5	2.7E+01	2.6E+01	1.0E+01
Dibutylphthalate	indus. soil	84-74-2	4.5E-04	4.4E-05	2.3E-02
Dichloromethane	indus. soil	75-09-2	1.5E-04	2.1E-04	2.5E-04
dichlorprop	indus. soil	120-36-5	1.4E-04	7.4E-05	1.4E-03
dichlorvos	indus. soil	62-73-7	1.4E-01	1.0E-02	2.0E+02
dieldrin	indus. soil	60-57-1	1.9E+02	8.9E+00	1.0E+02
Diethylphthalate	indus. soil	84-66-2	2.6E-03	2.1E-03	2.1E+00
Dihexylphthalate	indus. soil	84-75-3	1.4E-03	3.1E-03	7.3E-03
Diisodecylphthalate	indus. soil	26761-40-0	2.9E-03	5.2E-03	4.0E-03
Diisooctylphthalate	indus. soil	27554-26-3	2.2E-04	3.9E-04	5.5E-04
dimethoate	indus. soil	60-51-5	1.2E-01	1.5E-01	6.2E-01
Dimethylphthalate	indus. soil	133-11-3	3.6E-05	9.0E-06	1.4E+00
dinoseb	indus. soil	88-85-7	1.0E+03	4.2E+02	4.2E+02
dinoterb	indus. soil	1420-07-1	3.1E+01	1.2E+01	9.9E+00
Diocetylphthalate	indus. soil	117-84-0	4.7E-06	5.0E-06	4.8E-05
disulfothon	indus. soil	298-04-4	5.5E-01	1.6E-01	1.1E+01
diuron	indus. soil	330-54-1	6.7E+00	9.7E+00	1.9E+01
DNOC	indus. soil	534-52-1	1.4E-02	3.3E-03	4.9E-01
endosulfan	indus. soil	115-29-7	5.3E-03	3.6E-04	2.8E+00
endrin	indus. soil	72-20-8	1.0E+04	1.4E+03	3.6E+03
ethoprophos	indus. soil	13194-48-4	6.5E+02	9.5E+02	1.9E+02
Ethylbenzene	indus. soil	100-41-4	2.5E-04	2.8E-04	1.9E-03
Ethylene	indus. soil	74-85-1	5.2E-11	6.4E-11	2.3E-09
fenitrothion	indus. soil	122-14-5	8.8E+00	4.5E+00	8.1E+01
fenthion	indus. soil	55-38-9	5.6E+01	3.8E+01	2.8E+02
fentin acetate	indus. soil	900-95-8	2.6E+01	7.1E+01	1.1E+01
fentin chloride	indus. soil	639-58-7	1.2E+02	3.2E+02	1.1E+01
fentin hydroxide	indus. soil	76-87-9	2.3E+01	6.5E+01	1.1E+01
fluoranthrene	indus. soil	206-44-0	4.0E+00	1.6E+01	2.3E+00

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
folpet	indus. soil	133-07-3	1.2E+03	2.4E+03	7.8E+01
Formaldehyde	indus. soil	50-00-0	5.1E-02	5.4E-02	4.4E+00
glyphosate	indus. soil	1071-83-6	1.1E-02	9.9E-03	9.6E-02
heptachlor	indus. soil	76-44-8	9.1E-02	7.8E-02	5.3E+00
heptenophos	indus. soil	23560-59-0	9.9E-02	2.0E-02	1.6E+01
hexachloro-1,3-butadiene	indus. soil	87-68-3	4.5E+02	5.0E+02	4.6E+01
hexachlorobenzene	indus. soil	118-74-1	2.0E+01	1.0E+02	2.9E+00
hydrogen chloride	indus. soil	7647-01-0			
hydrogen sulfide	indus. soil	7783-06-4			
indeno[1,2,3-cd]pyrene	indus. soil	193-39-5	3.9E+01	2.0E+02	1.3E+01
iprodione	indus. soil	36734-19-7	1.8E-04	2.9E-06	3.0E-01
isoproturon	indus. soil	34123-59-6	4.0E+00	2.6E+00	4.6E+00
lead	indus. soil	14280-50-3	8.9E+00	4.4E+01	3.3E+01
lindane	indus. soil	58-89-9	4.9E+00	1.1E+00	2.2E+01
linuron	indus. soil	330-55-2	4.0E+01	5.6E+01	1.8E+01
malathion	indus. soil	121-75-5	2.6E+00	1.5E+00	7.5E-02
MCPA	indus. soil	94-74-6	2.2E-03	2.7E-03	8.6E-02
mecoprop	indus. soil	7085-19-0	1.4E-01	1.8E-01	3.3E+00
mercury	indus. soil	14302-87-5	1.5E+03	7.3E+03	5.5E+04
metamitron	indus. soil	41394-05-2	4.1E-03	3.2E-03	3.8E-02
metazachlor	indus. soil	67129-08-2	1.1E-01	1.4E-01	1.5E-01
methabenzthiazuron	indus. soil	18691-97-9	2.9E+00	4.6E+00	8.8E-01
methomyl	indus. soil	16752-77-5	7.7E+02	1.1E+03	2.2E+02
methylbromide	indus. soil	74-83-9	8.8E-02	8.2E-02	3.7E-01
methyl-mercury	indus. soil	22967-92-6	3.4E+04	1.7E+05	5.5E+04
metobromuron	indus. soil	3060-89-7	8.3E+00	1.4E+01	2.2E+00
metolachlor	indus. soil	51218-45-2	8.5E+01	1.3E+02	4.1E-01
mevinphos	indus. soil	7786-34-7	1.4E+00	1.6E-01	9.0E+01
molybdenum	indus. soil	7439-98-7	5.4E+03	2.2E+04	3.6E+01
meta-Xylene	indus. soil	108-38-3	2.1E-04	2.2E-04	3.0E-03
Naphtalene	indus. soil	91-20-3	1.7E-01	6.5E-02	2.6E+00
nickel	indus. soil	7440-02-0	5.8E+03	2.8E+04	2.4E+02
nitrogen dioxide	indus. soil	10102-44-0			
oxamyl	indus. soil	23135-22-0	3.4E-02	9.9E-03	6.0E+00
oxydemethon-methyl	indus. soil	301-12-2	7.2E+00	3.0E+00	8.5E+01
ortho-Xylene	indus. soil	95-47-6	4.2E-04	5.6E-04	3.4E-03
parathion-ethyl	indus. soil	56-38-2	9.0E+00	3.7E+00	1.7E+01
parathion-methyl	indus. soil	298-00-0	2.2E+01	9.7E-01	7.9E+01
pentachlorobenzene	indus. soil	608-93-5	3.3E+00	6.1E+00	1.7E+00
pentachloronitrobenzene	indus. soil	82-68-8	2.4E+01	3.3E+00	2.6E+00
pentachlorophenol	indus. soil	87-86-5	2.5E-02	4.8E-02	4.8E+00
permethrin	indus. soil	52645-53-1	2.1E+01	1.7E+01	2.5E+02
phenanthrene	indus. soil	85-01-8	2.9E-02	2.7E-02	3.7E-02
Phenol	indus. soil	108-95-2	5.8E-03	4.0E-03	4.1E-02
phoxim	indus. soil	14816-18-3	5.3E-01	7.2E-02	3.8E+00
Phtalic anhydride	indus. soil	85-44-9	1.2E-08	6.8E-11	4.2E-04
pirimicarb	indus. soil	23103-98-2	2.2E+01	3.5E+01	9.4E+01
dust (PM10)	indus. soil	PM10			
propachlor	indus. soil	1918-16-7	1.5E-01	1.5E-01	2.3E+00
propoxur	indus. soil	114-26-1	1.0E+02	1.1E+02	1.3E+03
Propylene Oxide	indus. soil	75-56-9	1.2E-02	1.2E-02	1.2E-01
para-Xylene	indus. soil	106-42-3	2.5E-04	1.9E-04	1.5E-03
pyrazophos	indus. soil	13457-18-6	2.6E+00	2.5E+00	2.9E+01
selenium	indus. soil	7782-49-2	5.9E+04	1.2E+05	1.1E+02

Substance	Comp.	CAS number	MAETP (inf) (kg 1,4- DCB eq./kg)	MSETP (inf) (kg 1,4- DCB eq./kg)	TETP (inf) (kg 1,4- DCB eq./kg)
simazine	indus. soil	122-34-9	3.0E+01	4.6E+01	2.1E+01
styrene	indus. soil	100-42-5	1.7E-04	1.3E-04	1.2E-03
sulphur dioxide	indus. soil	7446-09-5			
Tetrachloroethylene	indus. soil	127-18-4	8.3E-03	1.3E-02	3.0E-01
Tetrachloromethane	indus. soil	56-23-5	8.2E-03	8.8E-03	1.6E-03
thallium	indus. soil	7440-28-0	6.5E+04	3.0E+05	7.0E+02
Thiram	indus. soil	137-26-8	4.1E+00	3.6E-01	8.1E+01
tin	indus. soil	7440-31-5	9.0E+00	8.8E+00	3.0E+01
tolclophos-methyl	indus. soil	57018-04-9	3.6E-01	4.3E-01	1.5E+00
Toluene	indus. soil	108-88-3	2.6E-04	3.2E-04	1.9E-02
tri-allate	indus. soil	2303-17-5	3.1E+00	9.1E-01	1.3E+00
triazophos	indus. soil	24017-47-8	1.7E+02	2.4E+02	2.0E+02
tributyltinoxide	indus. soil	56-35-9	1.9E+03	2.9E+03	3.7E+01
trichlorfon	indus. soil	52-68-6	3.7E+00	5.6E-01	2.6E+03
Trichloroethylene	indus. soil	79-01-6	6.3E-04	9.5E-04	2.1E-03
Trichloromethane	indus. soil	67-66-3	1.6E-03	1.5E-03	1.5E-03
trifluarin	indus. soil	1582-09-8	4.1E+00	1.9E+00	3.4E+01
vanadium	indus. soil	7440-62-2	2.2E+04	9.8E+04	1.4E+03
Vinyl Chloride	indus. soil	75-01-4	6.1E-05	9.6E-05	3.1E-04
zinc	indus. soil	23713-49-7	5.7E+01	2.8E+02	2.5E+01
zineb	indus. soil	12122-67-7	1.2E+01	1.4E+01	1.5E+01
chlormequat-chloride	indus. soil	999-81-5	3.7E-02	2.3E-02	6.8E-02
fenpropimorph	indus. soil	67306-03-0	1.7E-01	1.8E-01	5.1E-01
fluroxypyr	indus. soil	69377-81-7	1.1E+01	1.5E+01	2.3E+01
epoxiconazole	indus. soil	??	9.7E+01	1.9E+02	4.6E+00
ethylene oxide	indus. soil	75-21-8	7.4E-02	8.7E-02	1.9E-01
hydrogen fluoride	indus. soil	7664-39-3	1.2E+05	2.0E+05	6.0E-03

x = not calculated

Source: Huijbregts, 2000; Huijbregts *et al.*, 2000a

Status: Author(s).

Equations: 
$$fresh\ water\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} FAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.21)$$

$$marine\ aquatic\ ecotoxicity = \sum_i \sum_{ecom} MAETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.22)$$

$$fresh\ water\ sediment\ ecotoxicity = \sum_i \sum_{ecom} FSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.23)$$

$$marine\ sediment\ ecotoxicity = \sum_i \sum_{ecom} MSETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.24)$$

$$terrestrial\ ecotoxicity = \sum_i \sum_{ecom} TETP_{ecom,i} \times m_{ecom,i} \quad (4.3.8.25)$$

The five indicator results are expressed in kg 1,4-dichlorobenzene equivalent.  $FAETP_{ecom,i}$  is the characterisation factor for substance  $i$  emitted to emission compartment  $ecom$  (=air, fresh water, seawater, agricultural soil or industrial soil), while  $FAETP$  is the Fresh water Aquatic EcoToxicity Potential,  $MAETP$  is the Marine Aquatic EcoToxicity Potential,  $FSETP$  is the Fresh water Sediment EcoToxicity Potential,  $MSETP$  is the Marine Sediment EcoToxicity Potential,  $TETP$  is the Terrestrial EcoToxicity Potential, and  $m_{ecom,i}$  is the emission of substance  $i$  to medium  $ecom$ . The five indicator scores can only be added after weighting (see Part 2a, Section 4.3.8).

Remark: The USES-LCA model is based on the RIVM USES 2.0 model, which is an improved version of the EUSES model that serves as a screening tool for the EU.

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Data have been gathered by Huijbregts and have been subjected to a small-scale unofficial critical review. Model and parameter uncertainties are still considerable. Special care has to be taken if results depend predominantly on (essential) heavy metals (check in contribution analysis, see Section 5.4), in particular Be and Cr.

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### 4.3.9 Photo-oxidant formation

Table 4.3.9.1: High NO<sub>x</sub> POCPs for background concentrations for characterising photo-oxidant forming releases to the air.

Substance	comp	CAS-number	POCP (in kg ethylene eq./kg)
1,1,1-trichloroethane	air	71-55-6	0.009
1,2,3-Trimethyl Benzene	air	526-73-8	1.27
1,2,4-trimethylbenzene	air	95-63-6	1.28
1,3,5-trimethylbenzene	air	108-67-8	1.38
1,3-Butadiene	air	106-99-0	0.851
1-Butanol*	air	71-36-3	0.62
1-Butene	air	106-98-9	1.08
1-Butoxypropanol*	air	57018-52-7	0.463
1-Butyl Acetate*	air	123-86-4	0.269
1-Hexene	air	592-41-6	0.874
1-Methoxy-2-propanol*	air	107-98-2	0.355
1-Pentene	air	109-67-1	0.977
1-Propanol*	air	71-23-8	0.561
1-Propyl Benzene	air	103-65-1	0.636
1-Propylacetate*	air	109-60-4	0.282
1-Undecane	air	1120-21-4	0.384
2,2-Dimethylbutane	air	75-83-2	0.241
2,3-Dimethylbutane	air	79-29-8	0.541
2-butanone	air	78-93-3	0.373
2-Butoxy-Ethanol*	air	111-76-2	0.483
2-Ethoxy-Ethanol*	air	110-80-5	0.386
2-Methoxy-Ethanol*	air	109-86-4	0.307
2-Methyl-1-Butene	air	563-46-2	0.771
2-Methyl-2-Butene	air	513-35-9	0.842
2-Methylbutan-1-ol*	air	137-32-6	0.489
2-Methylbutan-2-ol*	air	75-85-4	0.228
2-Methylhexane	air	591-76-4	0.411
2-Methylpentane	air	107-83-5	0.42
3,5-Diethyltoluene	air	20-50-240	1.3
3,5-Dimethylethylbenzene	air	934-74-7	1.32
3-Methyl-1-Butene	air	563-45-1	0.671
3-Methylbutan-1-ol*	air	123-51-3	0.433
3-Methylbutan-2-ol*	air	598-75-4	0.406
3-Methylhexane	air	589-34-4	0.364
3-Methylpentane	air	96-14-0	0.479
3-Pentanol*	air	584-02-1	0.595
Acetaldehyde	air	75-07-0	0.641
Acetic acid	air	64-19-7	0.097
Acetone	air	67-64-1	0.094
Acetylene	air	74-86-2	0.085
Benzaldehyde	air	100-52-7	-0.092
Benzene	air	71-43-2	0.218
Butane	air	106-97-8	0.352
Butane (unspec.)	air	106-97-8	0.352
Butyraldehyde	air	123-72-8	0.795
Carbon monoxide**	air	630-08-0	0.027
cis-2-Butene	air	590-8-1	1.15
cis-2-Hexene	air	7688-21-3	1.07
cis-2-Pentene	air	627-20-3	1.12
cis-Dichloroethene	air	156-59-2	0.447
Cyclohexane	air	110-82-7	0.29

Substance	comp	CAS-number	POCP (in kg ethylene eq./kg)
Cyclohexanol*	air	108-93-0	0.518
Cyclohexanone	air	108-94-1	0.299
Decane	air	124-18-5	0.384
Diacetone alcohol*	air	123-42-2	0.307
Dichloromethane	air	75-09-2	0.068
Diethyl Ether*	air	60-29-7	0.445
Diethylketone	air	96-22-0	0.414
Diisopropylether*	air	108-20-3	0.398
Dimethyl Ether*	air	115-10-6	0.189
Dodecane	air	112-40-3	0.357
Ethane	air	74-84-0	0.123
Ethanol*	air	64-17-5	0.399
Ethyl Acetate*	air	141-78-6	0.209
Ethyl- trans-Butyl Ether*	air	637-92-3 0	0.244
Ethylbenzene	air	100-41-4	0.73
Ethylene	air	74-85-1	1
Ethylene Glycol*	air	107-21-1	0.373
Formaldehyde	air	50-00-0	0.519
Formic acid	air	64-18-6	0.032
Heptane	air	142-82-5	0.494
Hexan-2-one	air	591-78-6	0.572
Hexan-3-one	air	589-38-8	0.599
Hexane	air	110-54-3	0.482
isobutane	air	75-28-5	0.307
isobutanol*	air	78-83-1	0.360
isobutene	air	115-11-7	0.627
isobutyraldehyde	air	78-84-2	0.514
isopentane	air	78-78-4	0.405
isoprene	air	78-79-5	1.09
isopropanol*	air	67-63-0	0.188
isopropyl acetate*	air	108-21-4	0.211
isopropyl benzene	air	98-82-8	0.5
meta-Ethyltoluene	air	620-14-4	1.02
meta-Xylene	air	108-38-3	1.11
Methane	air	74-82-8	0.006
Methanol*	air	67-56-1	0.14
Methyl Acetate*	air	79-20-9	0.059
Methyl Chloride	air	74-87-3	0.005
Methyl Formate*	air	107-31-3	0.027
Methyl Isobutyl Ketone	air	108-10-1	0.49
Methyl propyl Ketone	air	107-87-9	0.548
Methyl tert-Butyl Ether*	air	1634-04-4	0.175
Methyl tert-butylketone	air	75-97-8	0.323
Methyl-Isopropylketone	air	563-80-4	0.364
Neopentane	air	463-82-1	0.173
Nitrogen dioxide**	air	10102-44-0	0.028
Nitrogen mono oxide**	air	10102-43-9	-0.427
Nonane	air	111-84-2	0.414
Octane	air	111-65-9	0.453
ortho-Ethyltoluene	air	611-14-3	0.898
ortho-Xylene	air	95-47-6	1.05
para-Ethyltoluene	air	622-96-8	0.906
para-Xylene	air	106-42-3	1.01
Pentanaldehyde	air	110-62-3	0.765
Pentane	air	109-66-0	0.395
Propane	air	74-98-6	0.176



Substance	comp	CAS-number	POCP (in kg ethylene eq./kg)
Propanoic acid	air	79-09-4	0.15
Propionaldehyde	air	123-38-6	0.798
Propylene	air	115-07-1	1.12
Propylene Glycol*	air	57-55-6	0.457
sec-Butanol*	air	78-92-2	0.447
sec-Butyl Acetate*	air	105-46-4	0.275
Sulphur dioxide**	air	7446-09-5	0.048
styrene	air	100-42-5	0.142
tertiary-Butanol*	air	75-65-0	0.106
tertiary-Butyl Acetate*	air	540-88-5	0.053
Tetrachloroethylene	air	127-18-4	0.029
Toluene	air	108-88-3	0.637
trans-2-Butene	air	624-64-6	1.13
trans-2-Hexene	air	4050-45-7	1.07
trans-2-Pentene	air	646-04-8	1.12
trans-dichloroethene	air	156-60-5	0.392
Trichloroethylene	air	79-01-6	0.325
Trichloromethane	air	67-66-3	0.023
dimethoxy methane*	air	109-87-5	0.164
dimethyl carbonate*	air	616-38-6	0.025

Source: Derwent *et al.*, 1998 unless specified otherwise:  
\* value is updated in Jenkin & Hayman, 1999  
\*\* value for inorganic substances from Derwent *et al.*, 1996

Status: Authors

Equation: 
$$\text{oxidant formation} = \sum_i \text{POCP}_i \times m_i \quad (4.3.9.1)$$

The indicator result is expressed in kg of the reference substance, ethylene.  $\text{POCP}_i$  is the Photochemical Ozone Creation Potential for substance  $i$ , while  $m_i$  (kg) is the quantity of substance  $i$  emitted.

Remark: Note that in this case it is of specific importance to specify  $\text{NO}_x$  emissions in terms of its constituent NO and  $\text{NO}_2$  emissions since the POCP values for these two chemical species are extremely different !

Table 4.3.9.2: Alternative MIRs, MOIRs and EBIRs for characterising photo-oxidant forming releases to the air.

Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
1,1,2-Trichloroethane	79-00-5	0.02	0.04	0.05
1,1-Dichloroethane	???	0.02	0.04	0.06
1,1-Dichloroethene	75-35-4	0.47	0.72	0.91
1,2,3-Trimethyl Benzene	526-73-8	3.03	2.36	2.08
1,2,4-trimethylbenzene	95-63-6	1.31	0.96	0.61
1,2-Butanediol	584-03-2	0.41	0.6	0.75
1,2-dichloroethane	107-06-2	0.18	0.31	0.4
1,2-Dichloropropane	78-87-5	0.07	0.13	0.17
1,2-Dihydroxy Hexane	6920-22-5	0.41	0.59	0.73
1,3,5-Triethylcyclohexane	???	0.4	0.62	0.7
1,3,5-trimethylbenzene	108-67-8	3.37	2.58	2.3
1,3,5-Tripropylcyclohexane	???	0.32	0.49	0.53
1,3-Butadiene	106-99-0	3.08	3.28	3.91
1,3-Diethyl-5-methylcyclohexane	???	0.43	0.65	0.73
1,3-Diethyl-5-pentylcyclohexane	???	0.37	0.57	0.64
1,3-Diethylcyclohexane	???	0.38	0.61	0.63
1,3-Dimethylcyclohexane	591-21-9	0.47	0.75	0.82
1,3-Dimethylcyclopentane	2453-00-1	0.73	1.12	1.28
1,3-Dipropyl-5-ethylcyclohexane	???	0.34	0.53	0.58
1,4-dichlorobenzene	106-46-7	0.03	0.03	0.01
1-Butanol	71-36-3	0.79	1.15	1.4
1-Butene	106-98-9	2.61	2.88	3.43
1-Butyl Acetate	123-86-4	0.24	0.42	0.48
1-Butyl Benzene	104-51-8	0.44	0.19	-
1-Butyl Bromide	109-65-9	0.35	0.16	-0.19
1-Chlorobutane	109-69-3	0.24	0.44	0.55
1-Ethoxy-2-propanol	1569-02-4	0.57	0.79	0.96
1-Ethyl-4-methylcyclohexane	6236-88-0	0.46	0.74	0.79
1-Heptanol	111-70-6	0.45	0.69	0.85
1-Heptene	592-76-7	1.12	1.28	1.43
1-Hexene	592-41-6	1.4	1.59	1.79
1-Methoxy-2-propanol	107-98-2	0.59	0.81	1.03
1-Methyl-2-pyrrolidone	872-50-4	0.57	0.91	1.02
1-Nonene	124-11-8	0.74	0.87	0.94
1-Octanol	111-87-5	0.42	0.62	0.74
1-Octene	111-66-0	0.89	1.04	1.14
1-Pentadecane	629-62-9	0.09	0.19	0.16
1-Pentene	109-67-1	1.78	2.01	2.29
1-Propanol	71-23-8	0.67	1.02	1.24
1-Propyl Benzene	103-65-1	0.44	0.18	-0.3
1-Propyl Bromide	106-94-5	0.24	-	-0.35
1-Propylacetate	109-60-4	0.28	0.5	0.62
1-Tetradecane	629-59-4	0.09	0.19	0.16
1-Tridecane	629-50-5	0.1	0.2	0.17
1-Undecane	1120-21-4	0.12	0.24	0.19
2- Octanol	123-96-6	0.22	0.37	0.43
2-(2-Butoxyethoxy)-Ethanol	112-34-5	0.46	0.61	0.72
2-(2-Ethoxyethoxy)-Ethanol	111-90-0	0.59	0.76	0.93
2,2,3 trimethylbutane	464-06-2	0.34	0.55	0.68

Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
2,2,3,3-tetramethylbutane	594-82-1	0.11	0.2	0.23
2,2,4-Trimethylpentane	540-84-1	0.33	0.53	0.61
2,2,5-Trimethylhexane	3522-94-9	0.33	0.56	0.61
2,2-Dimethylbutane	75-83-2	0.31	0.53	0.64
2,3 Dimethyl Pentane	565-59-3	0.36	0.63	0.74
2,3,3-Trimethyl-1-butene	594-56-9	0.95	0.99	-
2,3,4-Trimethyl Pentane	565-75-3	0.35	0.6	0.69
2,3-Dimethyl-2-Butene	563-79-1	2.66	2.09	1.96
2,3-Dimethylhexane	584-94-1	0.35	0.6	0.68
2,3-Dimethylnaphthalene	581-40-8	1.19	0.81	0.46
2,4-Dimethyl Hexane	589-43-5	0.51	0.82	0.97
2,4-Dimethyl Pentane	108-08-7	0.42	0.7	0.84
2,4-Dimethylheptane	2213-23-2	0.44	0.72	0.81
2,5-Dimethyl Hexane	592-13-2	0.5	0.82	0.99
2,6-Diethyloctane	???	0.34	0.55	0.63
2.3- Dimethylbutane	79-29-8	0.3	0.52	0.64
2-butanone	78-93-3	0.35	0.49	0.6
2-Butoxy-Ethanol	111-76-2	0.57	0.81	0.96
2-Butyltetrahydrofuran	???	0.9	1.24	1.55
2-Chloromethyl-3-chloropropene	???	0.56	0.56	0.64
2-Ethoxy-Ethanol	110-80-5	0.9	1.08	1.29
2-Ethoxyethyl Acetate	111-15-9	0.42	0.63	0.77
2-Ethyl-1-Hexanol	104-76-7	0.42	0.66	0.81
2-Heptenes	6443-92-1	1.89	1.89	2.13
2-Hexenes	592-43-8	2.27	2.27	2.57
2-Methoxy-Ethanol	109-86-4	0.75	0.94	1.13
2-Methyl-1-Butene	563-46-2	1.32	1.38	1.53
2-Methyl-1-Pentene	763-29-1	1.1	1.15	-
2-Methyl-2-Butene	513-35-9	2.74	2.39	2.5
2-Methyl-2-Pentene	625-27-4	2.29	1.98	-
2-Methylheptane	592-27-8	0.3	0.53	0.57
2-Methylpentane	107-83-5	0.46	0.79	0.95
2-Pentenes	109-68-2	2.84	2.81	3.21
3- Octanol	20296-29-1	0.22	0.36	0.42
3-(Chloromethyl)-heptane	???	0.24	0.44	0.49
3,4-Propylheptane	???	0.3	0.49	0.53
3,5-Diethylheptane	???	0.45	0.7	0.81
3,7-Diethylnonane	???	0.34	0.53	0.58
3,8 Diethyldecane	???	0.2	0.34	0.37
3,9-Diethylundecane	???	0.17	0.3	0.32
3-Carene	13466-78-9	0.6	0.72	0.82
3-Methyl-1-Butene	563-45-1	1.78	2.01	2.29
3-Methylheptane	589-81-1	0.33	0.56	0.63
3-Methylhexane	589-34-4	0.43	0.73	0.82
3-Methylpentane	96-14-0	0.49	0.85	1.03
3-Nonenes	20063-92-7	1.56	1.62	1.83
3-Octenes	14919-01-8	1.81	1.86	2.13
4-Ethylheptane	???	0.34	0.57	0.61
4-Methylheptane	589-53-7	0.35	0.59	0.64
Acetaldehyde	75-07-0	1.54	1.67	2.1
Acetone	67-64-1	0.12	0.13	0.14
Acetylene	74-86-2	0.09	0.13	0.15
Acrolein	107-02-8	0.89	0.96	1.22

Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
Acrylonitrile	107-13-1	0.52	0.69	0.85
Alkyl Phenols	-	0.62	-0.44	-2.49
alpha Methyl Tetrahydrofuran	96-47-9	1.27	1.7	2.11
alpha-Methyl Styrene	98-83-0	0.49	-0.33	-
alpha-Pinene	7785-26-4	0.96	0.95	1.06
Benzene	71-43-2	0.2	0.17	0.07
Benzaldehyde	100-52-7	-0.04	-1	-3.11
Benzotrifluoride	98-08-8	0.09	0.07	0.02
Beta-Pinene	19902-08-0	0.47	0.55	0.6
Biacetyl	431-03-8	4.31	3.4	3.5
Branched E Alkanes	-	0.3	0.49	-
Branched C11 Alkanes	-	0.45	0.7	-
Branched C12 Alkanes	-	0.34	0.55	-
Branched C13 Alkanes	-	0.34	0.53	-
Branched C14 Alkanes	-	0.2	0.34	-
Branched C15 Alkanes	-	0.17	0.3	-
Branched C16 Alkanes	-	0.16	0.28	-
Branched C17 Alkanes	-	0.15	0.26	-
Branched C18 Alkanes	-	0.14	0.25	-
Branched C5 Alkanes	-	0.42	0.74	-
Branched C6 Alkanes	-	0.46	0.79	-
Branched C7 Alkanes	-	0.43	0.73	-
Branched C8 Alkanes	-	0.35	0.59	-
Branched C9 Alkanes	-	0.34	0.57	-
Butane	106-97-8	0.29	0.55	0.68
E 3-Alkenes	-	1.38	1.42	1.6
E Bicycloalkanes	-	0.38	0.61	-
E Cyclic Ketones	-	0.16	0.23	-
E Cyclic or di-olefins	-	1.4	1.44	-
E Cycloalkanes	-	0.38	0.61	-
E Disub. Benzenes	-	2.76	2.17	-
E Internal Alkenes	-	1.38	1.42	-
E Ketones	-	0.16	0.23	-
E Monosub. Benzenes	-	0.44	0.19	-
E Styrenes	-	0.44	-0.3	-
E Tetrasub. Benzenes	-	3.02	2.31	-
E Trisub. Benzenes	-	3.02	2.31	-
C11 3-Alkenes	-	1.24	1.28	1.45
C11 Bicycloalkanes	-	0.43	0.66	-
C11 Cyclic or di-olefins	-	1.26	1.3	-
C11 Cycloalkanes	-	0.43	0.65	-
C11 Disub. Benzenes	-	2.5	1.96	-
C11 Internal Alkenes	-	1.24	1.28	-
C11 Monosub. Benzenes	-	0.4	0.17	-
C11 Pentasub. Benzenes	-	2.73	2.09	-
C11 Pentasub. Benzenes	-	2.49	1.91	-
C11 Tetralin or Indane	-	0.23	0.08	-
C11 Tetrasub. Benzenes	-	2.73	2.09	-
C11 Trisub. Benzenes	-	2.73	2.09	-
C12 2-Alkenes	-	1.13	1.17	-
C12 3-Alkenes	-	1.13	1.17	1.33
C12 Bicycloalkanes	-	0.41	0.63	-
C12 Cyclic or di-olefins	-	1.14	1.19	-
C12 Cycloalkanes	-	0.4	0.62	-

Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
C12 Disub. Benzenes	-	2.28	1.79	-
C12 Disub. Naphthalenes	-	1.19	0.81	-
C12 Hexaasub. Benzenes	-	2.49	1.91	-
C12 Internal Alkenes	-	1.13	1.17	-
C12 Monosub. Benzenes	-	0.36	0.15	-
C12 Monosub. Naphth.	-	0.71	0.42	-
C12 Tetrasub. Benzenes	-	2.49	1.91	-
C12 Trisub. Benzenes	-	2.49	1.91	-
C13 3-Alkenes	-	1.04	1.07	1.23
C13 Bicycloalkanes	-	0.37	0.57	-
C13 Cyclic or di-olefins	-	1.05	1.09	-
C13 Cycloalkanes	-	0.37	0.57	-
C13 Disub. Benzenes	-	2.1	1.65	-
C13 Disub. Naphthalenes	-	1.09	0.74	-
C13 Internal Alkenes	-	1.04	1.07	-
C13 Monosub. Benzenes	-	0.33	0.14	-
C13 Monosub. Naphth.	-	0.66	0.38	-
C13 Trisub. Benzenes	-	2.3	1.76	-
C13 Trisub. Naphthalenes	-	1.09	0.74	-
C14 Bicycloalkanes	-	0.35	0.53	-
C14 Cycloalkanes	-	0.34	0.53	-
C15 Bicycloalkanes	-	0.32	0.5	-
C15 Cycloalkanes	-	0.32	0.49	-
C3 Adehydes	-	1.85	2.05	2.55
C4 Aldehydes	-	1.48	1.65	-
C4 Internal Alkenes	-	3.24	3.14	-
C5 Adehydes	-	1.24	1.38	-
C5 Cyclic Ketones	-	0.3	0.42	-
C5 Internal Alkenes	-	2.84	2.81	-
C5 Ketones	-	0.29	0.41	-
C5 Terminal Alkenes	-	1.78	2.01	-
C6 Adehydes	-	1.07	1.19	-
C6 Cyclic Ketones	-	0.26	0.36	-
C6 Cyclic or di-olefins	-	2.33	2.32	-
C6 Cycloalkanes	-	0.41	0.71	-
C6 Internal Alkenes	-	2.27	2.27	-
C6 Ketones	-	0.25	0.36	-
C6 Terminal Alkenes	-	1.4	1.59	-
C7 Adehydes	-	0.94	1.04	-
C7 Cyclic Ketones	-	0.23	0.32	-
C7 Cyclic or di-olefins	-	1.93	1.93	-
C7 Cycloalkanes	-	0.48	0.78	-
C7 Internal Alkenes	-	1.89	1.89	-
C7 Ketones	-	0.22	0.31	-
C7 Terminal Alkenes	-	1.12	1.28	-
C8 Aldehydes	-	0.83	0.93	-
C8 Cyclic Ketones	-	0.2	0.28	-
C8 Cyclic or di-olefins	-	1.84	1.89	-
C8 Cycloalkanes	-	0.42	0.69	-
C8 Disub. Benzenes	-	3.49	2.75	-
C8 Internal Alkenes	-	1.81	1.86	-
C8 Ketones	-	0.2	0.28	-
C8 Terminal Alkenes	-	0.89	1.04	-
C9 Bicycloalkanes	-	0.47	0.75	-

Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
C9 Cyclic Ketones	-	0.18	0.25	-
C9 Cyclic or di-olefins	-	1.59	1.65	-
C9 Cycloalkanes	-	0.46	0.74	-
C9 Disub. Benzenes	-	3.08	2.42	-
C9 Internal Alkenes	-	1.56	1.62	-
C9 Ketones	-	0.18	0.25	-
C9 Monosub. Benzenes	-	0.49	0.21	-
C9 Styrenes	-	0.49	-0.33	-
C9 Terminal Alkenes	-	0.74	0.87	-
C9 Trisub. Benzenes	-	3.37	2.58	-
Carbon Monoxide	630-08-0	0.016	0.029	0.037
chlorobenzene	108-90-7	0.08	0.07	0.03
Chloropicrin	76-06-2	0.26	0.44	1.12
cis-2-Butene	590-8-1	3.11	3.11	3.66
cis-2-Pentene	627-20-3	2.84	2.81	-
Crotonaldehyde	123-73-9	1.53	1.7	-
Cyclobutane	-	0.28	0.55	0.7
Cyclohexane	110-82-7	0.41	0.71	0.79
Cyclohexene	110-83-8	1.4	1.52	1.81
Cyclopentadiene	-	3.01	2.98	-
Cyclopentane	287-92-3	0.65	1.14	1.39
Cyclopentene	142-29-0	2.21	1.94	1.99
Cyclopropane	75-19-4	0.02	0.05	0.06
Decane	124-18-5	0.13	0.26	0.21
Diacetone alcohol	123-42-2	0.15	0.26	0.3
Dibutyl Ether	142-96-1	0.71	1.03	1.26
Dichloromethane	75-09-2	0.01	0.03	0.04
Diethyl Ether	60-29-7	0.91	1.2	1.43
Dimethyl Adipate	627-93-0	0.33	0.5	0.52
Dimethyl Ether	115-10-6	0.22	0.43	0.6
Dimethyl Glutarate	1119-40-0	0.1	0.2	0.2
Dimethyl Naphthalenes	28804-88-8	1.19	0.81	-
Dimethyl Succinate	106-65-0	0.05	0.11	0.14
d-Limonene	138-86-3	0.72	0.74	0.81
Dodecane	112-40-3	0.1	0.22	0.16
Ethane	74-84-0	0.08	0.15	0.19
Ethanol	64-17-5	0.42	0.66	0.79
Ethyl Acetate	141-78-6	0.17	0.29	0.38
Ethyl Acetylene	107-00-6	2.71	2.99	-
Ethyl Acrylate	140-88-5	1.46	1.62	-
Ethyl Amine	75-04-7	1.7	2.17	2.77
Ethyl Chloride	75-00-3	0.05	0.1	0.13
Ethyl Cyclopentane	1640-89-7	0.73	1.14	1.32
Ethyl Isopropyl Ether	???	0.89	1.12	1.36
Ethyl- trans-Butyl Ether	637-92-3 0	0.53	0.74	0.92
Ethylbenzene	100-41-4	0.55	0.24	-0.35
Ethylcyclohexane	1678-91-7	0.42	0.69	0.72
Ethylene	74-85-1	2.05	2.31	2.62
Ethylene Dibromide	106-93-4	0.09	0.17	0.21
Ethylene Glycol	107-21-1	0.56	0.83	1
Ethylene Oxide	75-21-8	0.01	0.02	0.03
Formaldehyde	50-00-0	1.62	1.16	1.01
Furan	110-00-9	5.44	4.28	-
Glyoxal	107-22-2	0.51	0.43	0.46

Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
Heptane	142-82-5	0.22	0.41	0.45
hexadecane	544-76-3	0.08	0.18	0.16
Hexane	110-54-3	0.29	0.54	0.62
Hexylcyclohexane	???	0.2	0.36	0.36
Indan	496-11-7	0.29	0.09	-
isoamyl isobutyrate	2050-01-3	0.3	0.5	0.61
isobutane	75-28-5	0.32	0.54	0.69
isobutanol	78-83-1	0.55	0.8	0.99
isobutene	115-11-7	1.42	1.32	1.42
isobutyl acetate	110-19-0	0.33	0.59	0.71
isobutyl isobutyrate	97-85-8	0.23	0.42	0.48
isopentane	78-78-4	0.42	0.74	0.93
isoprene	78-79-5	2.3	2.46	2.91
isopropanol	67-63-0	0.18	0.27	0.35
isopropyl acetate	108-21-4	0.29	0.43	0.53
isopropyl benzene	98-82-8	0.46	0.19	-0.3
meta-Cresol	108-39-4	0.62	-0.44	-
meta-Xylene	108-38-3	3.49	2.75	2.38
Methacrolein	78-85-3	1.31	1.3	1.59
Methane	74-82-8	0.004	0.007	0.009
Methanol	67-56-1	0.16	0.2	0.22
Methyl Acetate	79-20-9	0.03	0.06	0.08
Methyl Acetylene	74-99-7	1.23	1.97	2.48
Methyl Acrylate	96-33-3	1.7	1.88	-
Methyl Bromide	74-83-9	0.01	0.01	0.02
Methyl Chloride	74-87-3	0.01	0.02	0.02
Methyl cyclohexane	108-87-2	0.48	0.78	0.85
Methyl cyclopentane	96-37-7	0.8	1.26	1.48
Methyl Glyoxal	???	3.35	2.54	2.49
Methyl Isobutyl Ketone	108-10-1	0.85	1.02	1.19
Methyl iso-butyrate	547-63-7	0.18	0.31	0.39
Methyl Naphthalenes	-	0.78	0.46	0.04
Methyl Nitrite	624-91-9	1.93	2.01	3.7
Methyl tert-Butyl Ether	1634-04-4	0.18	0.31	0.41
Methylvinyl Ketone	78-94-4	1.68	1.67	1.98
Naphtalene	91-20-3	0.31	0.04	-0.46
Neopentane	463-82-1	0.16	0.27	0.34
Nitrobenzene	98-95-3	0.02	0.02	0.01
Nonane	111-84-2	0.14	0.28	0.23
Octane	111-65-9	0.17	0.34	0.3
Octyl Cyclohexane	???	0.15	0.28	0.28
ortho-Cresol	95-48-7	0.62	-0.44	-
ortho-Xylene	95-47-6	2.08	1.63	1.23
para-Cresol	106-44-5	0.62	-0.44	-
para-Trifluoromethyl-Cl-Benzene	939-99-1	0.04	0.03	0.01
para-Xylene	106-42-3	0.71	0.46	0.04
Pentane	109-66-0	0.36	0.65	0.81
Pentanol	???	0.6	0.91	1.13
Phenol	108-95-2	0.34	-0.32	-1.63
Propane	74-98-6	0.14	0.27	0.36
Propyl Cyclopentane	???	0.6	0.95	1.06
Propylene	115-07-1	2.72	2.9	3.4
Propylene Carbonate	108-32-7	0.11	0.14	0.15



Substance	CAS number	MIR (in kg formed ozone/kg)	MOIR (in kg formed ozone/kg)	EBIR (in kg formed ozone/kg)
Propylene Glycol	57-55-6	0.61	0.84	1.05
Propylene Glycol Methyl Ether Acetate	108-65-6	0.3	0.43	0.55
Propylene Oxide	75-56-9	0.1	0.19	0.24
Sabinene	3387-41-5	0.53	0.57	0.61
sec-Butanol	78-92-2	0.39	0.62	0.78
sec-Butyl Benzene	135-98-8	0.39	0.16	-0.27
styrene	100-42-5	0.56	-0.38	-2.28
Subst. C7 Ester (C12)	-	0.22	0.38	0.46
Sucts. C9 Ester (C12)	-	0.22	0.36	0.44
tertiary-Butanol	75-65-0	0.1	0.15	0.18
tertiary-Butyl Acetate	540-88-5	0.04	0.06	0.08
Tetrachloroethylene	127-18-4	0.01	0.02	0.02
Tetralin	119-64-2	0.26	0.08	-0.27
Tolualdehyde	122-78-1	-0.04	-0.88	-
Toluene	108-88-3	1.26	0.87	0.24
trans-1,2-Dichloroethene	540-59-0	0.15	0.26	0.34
trans-2-Butene	624-64-6	3.24	3.14	3.63
trans-2-Pentene	646-04-8	2.84	2.81	-
Trichloroethylene	79-01-6	0.24	0.3	0.34
Trichloromethane	67-66-3	0.01	0.01	0.02
Trimethylamine	75-50-3	1.92	1.66	1.73
Vinyl Acetate	108-05-4	1.7	1.88	-
Vinyl Chloride	75-01-4	0.63	1	1.28

Source: Carter *et al.*, 1997

Status: Authors

Equation: 
$$\text{oxidant formation} = \sum_i \text{MIR}_i \times m_i \quad (4.3.9.2)$$

$$\text{oxidant formation} = \sum_i \text{MOIR}_i \times m_i \quad (4.3.9.3)$$

$$\text{oxidant formation} = \sum_i \text{EBIR}_i \times m_i \quad (4.3.9.4)$$

The indicator results are expressed in kg ozone formed.  $\text{MIR}_i$  is the Maximum Incremental Reactivity for substance  $i$ , while  $\text{MOIR}_i$  is the Maximum Ozone Incremental Reactivity for substance  $i$ ,  $\text{EBIR}_i$  is the Equal Benefit Incremental Reactivity for substance  $i$ , and  $m_i$  (kg) is the quantity of substance  $i$  emitted.

Table 4.3.9.3: Alternative low NO<sub>x</sub> POCPs for characterising photo-oxidant forming releases to the air.

Substance	CAS-number	POCP (in kg ethylene eq./kg)
1,1,1-trichloroethane	71-55-6	0.002
1,2,3-Trimethyl Benzene	526-73-8	0.3
1,2,4-trimethylbenzene	95-63-6	0.3
1,2-Butanediol	584-03-2	0.3
1,3,5-trimethylbenzene	108-67-8	0.3
1-Butanol	71-36-3	0.2
1-Butene	106-98-9	0.5
1-Butyl Acetate	123-86-4	0.3
1-Methoxy-2-propanol	107-98-2	0.5
1-Pentene	109-67-1	0.4
1-Propyl Benzene	103-65-1	0.5
1-Undecane	1120-21-4	0.4
2,2-Dimethylbutane	75-83-2	0.3
2,3- Dimethylbutane	79-29-8	0.4
2-butanone	78-93-3	0.2
2-Methyl-1-Butene	563-46-2	0.2
2-Methyl-2-Butene	513-35-9	0.5
2-Methylheptane	592-27-8	0.5
2-Methylhexane	591-76-4	0.5
2-Methylnonane	871-83-0	0.4
2-Methyloctane	3221-61-2	0.5
2-Methylpentane	107-83-5	0.5
3-Methyl-1-Butene	563-45-1	0.5
3-Methylhexane	589-34-4	0.5
3-Methylpentane	96-14-0	0.4
Acetaldehyde	75-07-0	0.2
Acetone	67-64-1	0.1
Acetylene	74-86-2	0.4
Acrolein	107-02-8	0.8
Allyl chloride	107-05-1	0.5
Benzene	71-43-2	0.4
Butane	106-97-8	0.5
Butane (unspec.)	106-97-8	0.5
Butyraldehyde	123-72-8	0.2
Carbon Monoxide	630-08-0	0.04
Decane	124-18-5	0.4
Dichloromethane	75-09-2	0.02
Dimethyl Ether	115-10-6	0.3
Dodecane	112-40-3	0.3
Ethane	74-84-0	0.1
Ethanol	64-17-5	0.2
Ethyl Acetate	141-78-6	0.3
Ethylbenzene	100-41-4	0.5
Ethylene	74-85-1	1
Formaldehyde	50-00-0	0.3
Heptane	142-82-5	0.5
Hexane	110-54-3	0.5
isobutane	75-28-5	0.4
isobutanol	78-83-1	0.3
isobutene	115-11-7	0.6
isobutyl acetate	110-19-0	0.4
isobutyraldehyde	78-84-2	0.3
isopentane	78-78-4	0.3
isoprene	78-79-5	0.6

Substance	CAS-number	POCP (in kg ethylene eq./kg)
isopropanol	67-63-0	0.2
isopropyl acetate	108-21-4	0.2
isopropyl benzene	98-82-8	0.5
meta-Ethyltoluene	620-14-4	0.4
meta-Xylene	108-38-3	0.5
Methane	74-82-8	0.007
Methanol	67-56-1	0.2
Methyl Acetate	79-20-9	0.1
Methyl cyclohexane	108-87-2	0.5
Methyl Isobutyl Ketone	108-10-1	0.3
Nonane	111-84-2	0.4
Octane	111-65-9	0.5
ortho-Ethyltoluene	611-14-3	0.4
ortho-Xylene	95-47-6	0.2
para-Ethyltoluene	622-96-8	0.4
para-Xylene	106-42-3	0.5
Pentane	109-66-0	0.3
Propane	74-98-6	0.5
Propionaldehyde	123-38-6	0.2
Propylene	115-07-1	0.6
Propylene Glycol Methyl Ether Acetate	108-65-6	0.2
Tetrachloroethylene	127-18-4	0.01
Toluene	108-88-3	0.5
trans-2-Butene	624-64-6	0.4
trans-2-Pentene	646-04-8	0.4
Trichloroethylene	79-01-6	0.1
Trichloromethane	67-66-3	0.004
Valeraldehyde	110-62-3	0.3
XYLENE (unspecified)		0.4

Source: Andersson-Sköld *et al.*, 1992

Status: Authors

Equation: 
$$\text{oxidant formation} = \sum_i \text{POCP}_i \times m_i \quad (4.3.9.5)$$

The indicator result is expressed in kg of the reference substance, ethylene.  $\text{POCP}_i$  is the Photochemical Ozone Creation Potential for substance  $i$ , while  $m_i$  (kg) is the quantity of substance  $i$  emitted.

### 4.3.10 Acidification

Table 4.3.10.1: Average European AP factors for characterising acidifying releases to the air.

Substance	Compartment	CAS number	AP in kg SO <sub>2</sub> eq. in Switzerland /kg
ammonia	air	7664-41-7	1.6
nitrogen oxides (as NO <sub>2</sub> )	air	10102-44-0	0.5
sulphur dioxide	air	7446-09-5	1.2

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Source: Huijbregts, 1999a

Status: Author

Equation:  $acidification = \sum_i AP_i \times m_i$  (4.3.10.1)

The indicator result is expressed in kg SO<sub>2</sub> emitted in Switzerland equivalent.  $AP_i$  is the Acidification Potential for substance  $i$  emitted to the air, while  $m_i$  is the emission of substance  $i$  to the air.

Table 4.3.10.2: Alternative generic AP factors for characterising acidifying releases to the air.

Substance	CAS number	AP (in kg SO <sub>2</sub> eq./kg)
ammonia	7664-41-7	1.88
hydrogen chloride	7664-01-0	0.88
hydrogen fluoride	7664-39-3	1.60
hydrogen sulfide	7783-06-4	1.88
nitric acid	7697-37-2	0.51
nitrogen dioxide	10102-44-0	0.70
nitrogen monoxide	10102-43-9	1.07
nitrogen oxides	10102-44-0	0.70
phosphoric acid	7664-38-2	0.98
sulfur dioxide	7446-09-5	1.00
sulfur trioxide	7446-11-9	0.80
sulphuric acid	7664-93-9	0.65

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Source: Heijungs *et al.*, 1992 (updated with Hauschild & Wenzel, 1998)

Status: authors

Equation:  $acidification = \sum_i AP_i \times m_i$  (4.3.10.2)

The indicator result is expressed in kg SO<sub>2</sub>-equivalents.  $AP_i$  is the Acidification Potential for substance  $i$  emitted to the air; while  $m_i$  is the emission of substance  $i$  to the air.

Table 4.3.10.3: Additional region- (or site-) dependent AP factors for characterising acidifying releases to the air.

	Acidification potentials (in kg SO <sub>2</sub> eq. in Switzerland/kg)														
	Ammonia (NH <sub>3</sub> ) casnr. 7664-41-7				Nitrogen Oxide (NO <sub>x</sub> ) casnr. 10102-44-0				Sulphur dioxide (SO <sub>2</sub> ) cas nr. 7446-09-5						
	A&B	OA	OA	OA	OA	A&B	OA	OA	OA	OA	A&B	OA	OA	OA	OA
		1990	1995	2010 BL	2010 NP		1990	1995	2010 BL	2010 NP		1990	1995	2010 BL	2010 NP
<b>West European Regions</b>															
Austria	1.3E+00 <sup>1</sup>	8.4E-01	6.0E-01	7.2E-02	7.4E-02	2.7E-01	1.4E-01	8.6E-02	1.9E-02	1.9E-02	1.0E+00	6.9E-01	5.2E-01	2.2E-01	2.2E-01
Belgium	1.0E+00	7.1E-01	5.0E-01	1.4E-01	1.4E-01	4.9E-01	2.9E-01	1.8E-01	5.9E-02	5.8E-02	1.0E+00	7.1E-01	5.0E-01	1.8E-01	1.8E-01
Denmark	1.5E+00	7.8E-01	5.4E-01	2.7E-01	2.7E-01	8.8E-01	3.9E-01	2.3E-01	1.1E-01	1.1E-01	1.8E+00	1.0E+00	7.2E-01	3.5E-01	3.5E-01
Finland	6.4E+00	2.2E+00	7.4E-01	4.6E-01	4.1E-01	1.9E+00	6.2E-01	1.9E-01	1.1E-01	1.0E-01	5.0E+00	2.0E+00	7.7E-01	5.1E-01	4.7E-01
France	2.0E+00	9.5E-01	3.9E-01	5.3E-02	5.3E-02	4.3E-01	2.1E-01	1.2E-01	2.9E-02	2.9E-02	1.1E+00	6.3E-01	3.7E-01	9.2E-02	9.2E-02
Germany (new)	1.6E+00	1.1E+00	7.7E-01	1.6E-01	1.6E-01	5.7E-01	3.1E-01	1.9E-01	5.3E-02	5.3E-02	1.2E+00	7.6E-01	5.2E-01	1.7E-01	1.7E-01
Germany (old)	1.4E+00	1.0E+00	7.6E-01	1.8E-01	1.9E-01	5.1E-01	2.9E-01	1.9E-01	5.5E-02	5.4E-02	1.3E+00	9.3E-01	6.8E-01	2.2E-01	2.2E-01
Greece	1.3E-01	8.7E-03	3.9E-03	1.2E-03	1.1E-03	3.7E-02	4.1E-03	1.9E-03	5.2E-04	4.8E-04	6.6E-02	1.0E-02	6.8E-03	3.9E-03	3.8E-03
Ireland	7.9E-01	4.0E-01	2.8E-01	9.7E-02	9.4E-02	3.4E-01	1.9E-01	1.3E-01	6.0E-02	5.9E-02	5.7E-01	3.3E-01	2.4E-01	1.0E-01	1.0E-01
Italy	5.9E-01	2.7E-01	1.7E-01	2.3E-02	2.3E-02	1.3E-01	5.5E-02	3.3E-02	5.8E-03	5.7E-03	4.6E-01	2.3E-01	1.6E-01	3.4E-02	3.4E-02
Luxembourg	1.5E+00	1.0E+00	5.1E-01	9.2E-02	9.3E-02	5.0E-01	3.1E-01	1.9E-01	4.5E-02	4.5E-02	1.3E+00	9.0E-01	5.9E-01	1.5E-01	1.5E-01
Netherlands	1.0E+00	7.0E-01	5.4E-01	2.1E-01	2.1E-01	5.1E-01	2.9E-01	1.9E-01	7.3E-02	7.2E-02	9.2E-01	6.3E-01	4.6E-01	1.9E-01	1.9E-01
Norway	6.0E+00	3.2E+00	2.6E+00	1.8E+00	1.8E+00	1.2E+00	5.4E-01	3.6E-01	2.2E-01	2.2E-01	3.8E+00	2.2E+00	1.7E+00	1.1E+00	1.1E+00
Portugal	2.8E-01	2.1E-02	1.2E-02	3.0E-03	3.0E-03	8.0E-02	2.0E-02	1.1E-02	2.6E-03	2.6E-03	1.8E-01	2.3E-02	1.4E-02	3.4E-03	3.3E-03
Spain	2.7E-01	5.3E-02	3.2E-02	5.3E-03	5.3E-03	1.0E-01	3.3E-02	1.9E-02	3.7E-03	3.6E-03	2.2E-01	8.0E-02	5.0E-02	1.1E-02	1.1E-02
Sweden	4.4E+00	1.9E+00	1.3E+00	5.3E-01	5.2E-01	1.3E+00	4.9E-01	2.6E-01	1.4E-01	1.3E-01	3.8E+00	1.8E+00	1.2E+00	7.1E-01	6.9E-01
Switzerland	1.3E+00	7.4E-01	5.6E-01	1.1E-01	1.1E-01	2.8E-01	1.5E-01	9.9E-02	1.8E-02	1.9E-02	1.0E+00	6.1E-01	4.5E-01	1.1E-01	1.1E-01
United Kingdom	1.5E+00	1.0E+00	7.9E-01	3.1E-01	2.9E-01	4.3E-01	2.5E-01	1.8E-01	8.4E-02	8.2E-02	8.6E-01	5.9E-01	4.6E-01	2.3E-01	2.2E-01
Baltic sea	x	x	x	x	x	1.1E+00	4.0E-01	1.8E-01	8.8E-02	8.5E-02	2.2E+00	1.0E+00	5.5E-01	2.7E-01	2.6E-01
North sea	x	x	x	x	x	5.3E-01	2.9E-01	1.9E-01	8.5E-02	8.4E-02	9.9E-01	6.5E-01	4.5E-01	2.2E-01	2.2E-01
Atlantic ocean	x	x	x	x	x	1.6E-01	7.4E-02	4.6E-02	1.8E-02	1.8E-02	2.7E-01	1.3E-01	8.3E-02	3.4E-02	3.3E-02
Mediterranean sea	x	x	x	x	x	1.5E-02	3.1E-03	1.9E-03	4.6E-04	4.5E-04	2.5E-02	5.4E-03	3.5E-03	7.4E-04	7.3E-04
<b>East European Regions</b>															
Albania	1.6E-01	1.1E-02	5.6E-03	1.7E-03	1.6E-03	4.9E-02	7.2E-03	3.7E-03	1.0E-03	9.3E-04	1.3E-01	2.5E-02	1.7E-02	9.9E-03	9.6E-03
Belarus	2.0E+00	7.6E-01	3.1E-01	1.6E-01	7.4E-02	9.2E-01	2.3E-01	6.5E-02	3.2E-02	2.2E-02	2.2E+00	6.7E-01	2.8E-01	1.9E-01	6.3E-02
Bosnia-Herzegovina	2.3E-01	5.0E-02	2.5E-02	8.3E-03	7.8E-03	1.0E-01	3.0E-02	1.5E-02	4.6E-03	4.3E-03	2.5E-01	8.5E-02	5.8E-02	3.6E-02	3.5E-02
Bulgaria	3.9E-01	2.6E-02	1.0E-02	3.5E-03	3.0E-03	1.1E-01	1.5E-02	5.6E-03	1.9E-03	1.6E-03	2.0E-01	3.4E-02	1.8E-02	1.1E-02	9.8E-03

<sup>1</sup> Means 1.3 x 10<sup>0</sup>.

	Acidification potentials (in kg SO <sub>2</sub> eq. in Switzerland/kg)															
	Ammonia (NH <sub>3</sub> ) casnr. 7664-41-7					Nitrogen Oxide (NO <sub>x</sub> ) casnr. 10102-44-0					Sulphur dioxide (SO <sub>2</sub> ) cas nr. 7446-09-5					
	A&B	OA		OA		A&B	OA		OA		A&B	OA		OA		
		1990	1995	2010 BL	2010 NP		1990	1995	2010 BL	2010 NP		1990	1995	2010 BL	2010 NP	
Croatia	3.1E-01	9.5E-02	5.0E-02	1.5E-02	1.4E-02	1.6E-01	5.9E-02	3.1E-02	8.9E-03	8.4E-03	3.9E-01	1.9E-01	1.3E-01	7.4E-02	7.3E-02	
Czech Republic	1.4E+00	1.1E+0	8.3E-01	8.5E-02	8.5E-02	4.5E-01	2.4E-01	1.5E-01	3.5E-02	3.4E-02	1.2E+00	8.3E-01	6.1E-01	1.9E-01	1.9E-01	
Estonia	3.0E+00	1.2E+0	2.2E-01	1.2E-01	1.1E-01	1.5E+00	4.9E-01	1.1E-01	5.9E-02	5.4E-02	4.1E+00	1.7E+00	3.1E-01	1.9E-01	1.7E-01	
Hungary	6.2E-01	3.0E-01	1.9E-01	8.0E-02	7.6E-02	3.1E-01	1.2E-01	6.1E-02	2.2E-02	2.0E-02	1.0E+00	6.6E-01	5.4E-01	4.2E-01	4.2E-01	
Latvia	2.5E+00	6.9E-01	1.5E-01	7.9E-02	6.8E-02	1.2E+00	3.4E-01	9.1E-02	4.7E-02	4.2E-02	2.4E+00	7.5E-01	2.5E-01	1.5E-01	1.3E-01	
Lithuania	1.7E+00	5.0E-01	1.6E-01	7.3E-02	6.1E-02	9.8E-01	2.8E-01	8.6E-02	4.2E-02	3.7E-02	1.9E+00	6.2E-01	2.6E-01	1.4E-01	1.2E-01	
Macedonia	1.8E-01	1.1E-02	5.8E-03	2.0E-03	1.9E-03	5.2E-02	7.6E-03	4.0E-03	1.3E-03	1.2E-03	1.5E-01	2.5E-02	1.8E-02	1.1E-02	1.1E-02	
Moldavia	5.9E-01	1.2E-01	3.7E-02	1.3E-02	1.0E-02	3.4E-01	6.9E-02	2.0E-02	8.1E-03	6.6E-03	6.8E-01	1.6E-01	7.1E-02	4.1E-02	3.5E-02	
Poland	1.7E+00	1.0E+00	5.0E-01	8.2E-02	9.1E-02	5.9E-01	2.4E-01	1.1E-01	3.4E-02	3.3E-02	1.3E+00	7.4E-01	4.3E-01	1.5E-01	1.5E-01	
Romania	4.5E-01	8.6E-02	3.4E-02	1.3E-02	1.1E-02	2.0E-01	4.6E-02	1.9E-02	6.8E-03	6.1E-03	4.6E-01	1.4E-01	8.2E-02	5.0E-02	4.7E-02	
Russia (Kalingrad region)	2.3E+00	5.9E-01	2.0E-01	7.9E-02	7.4E-02	8.9E-01	2.8E-01	1.0E-01	4.6E-02	4.2E-02	1.9E+00	6.6E-01	3.0E-01	1.5E-01	1.3E-01	
Russia (Kola, Karelia)	1.0E+01	4.2E+00	7.5E-01	2.3E-01	2.3E-01	2.0E+00	7.6E-01	2.7E-01	7.2E-02	7.4E-02	7.2E+00	4.3E+00	2.3E+00	4.2E-01	4.5E-01	
Russia (St. Petersburg region)	6.0E+00	1.7E+00	1.6E-01	7.4E-02	6.1E-02	1.9E+00	5.2E-01	8.1E-02	4.0E-02	3.6E-02	5.2E+00	1.6E+00	2.5E-01	1.3E-01	1.2E-01	
Russia (Remaining)	3.7E+00	4.3E-01	2.3E-02	1.0E-02	6.8E-03	1.1E+00	1.6E-01	1.2E-02	5.5E-03	4.4E-03	3.0E+00	4.2E-01	3.4E-02	1.7E-02	1.3E-02	
Slovakia	1.1E+00	6.8E-01	4.4E-01	1.7E-01	1.6E-01	3.5E-01	1.4E-01	7.7E-02	2.6E-02	2.4E-02	1.5E+00	1.0E+00	8.6E-01	6.6E-01	6.6E-01	
Slovenia	6.8E-01	3.7E-01	1.3E-01	2.8E-02	2.8E-02	1.7E-01	8.4E-02	4.4E-02	9.4E-03	9.3E-03	5.7E-01	3.4E-01	1.8E-01	7.7E-02	7.7E-02	
Ukraine	9.4E-01	1.9E-01	5.5E-02	2.2E-02	1.8E-02	5.6E-01	8.7E-02	1.8E-02	7.9E-03	6.2E-03	1.1E+00	1.8E-01	5.4E-02	2.9E-02	2.3E-02	
Yugoslavia	2.8E-01	4.9E-02	2.3E-02	8.0E-03	7.5E-03	1.3E-01	3.3E-02	1.5E-02	4.9E-03	4.6E-03	3.4E-01	1.3E-01	8.7E-02	5.7E-02	5.5E-02	
Averages	A&B	OA				A&B	OA				A&B	OA				
West	1990	1.4	7.6E-01				4.2E-01	2.1E-01				9.1E-01	5.5E-01			
Europe	1995	1.3	4.8E-01				4.1E-01	1.2E-01				7.9E-01	3.3E-01			
	2010BL	1.3	1.3E-01				4.0E-01	4.8E-02				8.0E-01	1.3E-01			
	2010NP	1.3	1.2E-01				4.1E-01	4.8E-02				8.4E-01	1.3E-01			
East	1990	2.0	4.6E-01				7.4E-01	1.7E-01				1.7	5.9E-01			
Europe	1995	1.8	1.6E-01				7.0E-01	5.4E-02				1.6	3.0E-01			
	2010BL	1.9	4.2E-02				7.8E-01	1.5E-02				2.0	1.1E-01			
	2010NP	1.9	3.7E-02				7.6E-01	1.4E-02				1.6	1.1E-01			
Total	1990	1.7	6.1E-01				5.5E-01	1.9E-01				1.3	5.7E-01			
Europe																

	Acidification potentials (in kg SO <sub>2</sub> eq. in Switzerland/kg)													
	Ammonia (NH <sub>3</sub> ) casnr. 7664-41-7					Nitrogen Oxide (NO <sub>x</sub> ) casnr. 10102-44-0					Sulphur dioxide (SO <sub>2</sub> ) cas nr. 7446-09-5			
	A&B	OA		OA		A&B	OA		OA		A&B	OA		OA
		1990	1995	2010 BL	2010 NP		1990	1995	2010 BL	2010 NP		1990	1995	2010 BL
1995	1.6	3.2E-01				5.0E-01	1.0E-01				1.2	3.1E-01		
2010BL	1.6	8.2E-02				5.7E-01	3.3E-02				1.5	1.2E-01		
2010NP	1.6	8.0E-02				5.6E-01	3.3E-02				1.3	1.2E-01		

- x = Potential not calculated;
- A&B = Scenario in which 'above and below threshold' marginal changes in the hazard index are summed;
- OA\_1990 = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 1990 emissions as the starting point;
- OA\_1995 = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 1995 emissions as the starting point;
- OA\_2010-BL = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 2010 Baseline forecast emissions as the starting point;
- OA\_2010-NP = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 2010 New Policy forecast emissions as the starting point.

Source: Huijbregts, 1999a

Status: Author

Equation: 
$$acidification = \sum_r \sum_i AP_{i,r} \times m_{i,r} \quad (4.3.10.3)$$

The indicator result is expressed in kg SO<sub>2</sub> emitted in Switzerland equivalent.  $AP_{i,r}$  is the Acidification Potential for substance  $i$  emitted to the air in region  $r$ , while  $m_i$  is the emission of substance  $i$  to the air in that region.



### 4.3.11 Eutrophication

Table 4.3.11.1: Generic EP factors for characterising eutrophying releases to air, water and soil.

Substance	CAS number	EP (in kg PO <sub>4</sub> <sup>3-</sup> eq./kg)
ammonia	7664-41-7	0.35
ammonium	14798-03-9	0.33
nitrate	14797-55-8	0.1
nitric acid	7697-37-2	0.1
nitrogen	7727-37-9	0.42
nitrogen dioxide	10102-44-0	0.13
nitrogen monoxide	10102-43-9	0.2
nitrogen oxides	10102-44-0	0.13
phosphate	7664-38-2	1
phosphoric acid (H <sub>3</sub> PO <sub>4</sub> )	7664-38-2	0.97
phosphorus (P)	7723-14-0	3.06
phosphorus(V) oxide (P <sub>2</sub> O <sub>5</sub> )	1314-56-3	1.34
chemical oxygen demand (COD) <sup>1</sup>	-	0.022

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Source: Heijungs *et al.*, 1992 with some modifications

Status: authors

Equation: 
$$eutrophication = \sum_i EP_i \times m_i \quad (4.3.11.1)$$

The indicator result is expressed in kg PO<sub>4</sub><sup>3-</sup> equivalent.  $EP_i$  is the Eutrophication Potential for substance  $i$  emitted to air, water or soil, while  $m_i$  is the emission of substance  $i$  to air, water or soil.

Remark: If the Biological Oxygen Demand (BOD)<sup>2</sup> is specified it can generally be converted to a COD. The conversion factor will depend on the situation.

<sup>1</sup> The amount of oxygen required to oxidize the organic compounds in a water sample to carbon dioxide and water; it is measured utilizing a strong chemical oxidant.

<sup>2</sup> The amount of oxygen used by micro-organisms in the biochemical oxidation of organic matter.

Table 4.3.11.2: Alternative average and additional region- (site-) dependent European EP factors for characterising eutrophying releases to the air.

	Eutrophication potentials (in kg NO <sub>x</sub> eq. in Switzerland/kg)									
	Ammonia (NH <sub>3</sub> )					Nitrogen Oxide (NO <sub>x</sub> )				
	A&B	OA 1990	OA 1995	OA 2010 BL	OA 2010 NP	A&B	OA 1990	OA 1995	OA 2010 BL	OA 2010 NP
<b>West European Regions</b>										
Austria	4.2	3.9	3.6	2.4	2.3	8.9·10 <sup>-1</sup>	7.1·10 <sup>-1</sup>	6.3·10 <sup>-1</sup>	4.8·10 <sup>-1</sup>	4.6·10 <sup>-1</sup>
Belgium	2.9	2.6	2.5	2.2	2.2	1.2	1.0	9.3·10 <sup>-1</sup>	7.8·10 <sup>-1</sup>	7.8·10 <sup>-1</sup>
Denmark	2.5	1.6	1.3	9.3·10 <sup>-1</sup>	8.7·10 <sup>-1</sup>	1.6	9.1·10 <sup>-1</sup>	6.9·10 <sup>-1</sup>	5.5·10 <sup>-1</sup>	5.1·10 <sup>-1</sup>
Finland	1.5·10 <sup>1</sup>	9.2	6.4	3.6	2.8	3.5	1.6	9.9·10 <sup>-1</sup>	7.5·10 <sup>-1</sup>	6.2·10 <sup>-1</sup>
France	6.4	6.2	6.0	5.3	5.3	1.3	1.2	1.1	8.9·10 <sup>-1</sup>	8.9·10 <sup>-1</sup>
Germany (new)	4.6	4.0	3.8	3.5	3.4	1.5	1.2	1.0	9.2·10 <sup>-1</sup>	9.0·10 <sup>-1</sup>
Germany (old)	3.7	3.3	3.1	2.6	2.6	1.3	1.0	9.4·10 <sup>-1</sup>	7.9·10 <sup>-1</sup>	7.7·10 <sup>-1</sup>
Greece	1.5	6.6·10 <sup>-1</sup>	4.3·10 <sup>-1</sup>	3.9·10 <sup>-1</sup>	2.4·10 <sup>-1</sup>	2.7·10 <sup>-1</sup>	1.4·10 <sup>-1</sup>	9.1·10 <sup>-2</sup>	8.2·10 <sup>-2</sup>	6.6·10 <sup>-2</sup>
Ireland	1.0	4.7·10 <sup>-1</sup>	4.2·10 <sup>-1</sup>	2.9·10 <sup>-1</sup>	2.9·10 <sup>-1</sup>	5.2·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	2.8·10 <sup>-1</sup>	2.1·10 <sup>-1</sup>	2.1·10 <sup>-1</sup>
Italy	2.8	2.2	2.1	1.4	1.4	6.0·10 <sup>-1</sup>	4.5·10 <sup>-1</sup>	4.1·10 <sup>-1</sup>	2.9·10 <sup>-1</sup>	2.8·10 <sup>-1</sup>
Luxembourg	4.4	4.1	4.0	3.4	3.3	1.4	1.2	1.1	9.5·10 <sup>-1</sup>	9.5·10 <sup>-1</sup>
Netherlands	2.3	2.0	1.8	1.6	1.6	1.1	8.4·10 <sup>-1</sup>	7.5·10 <sup>-1</sup>	6.3·10 <sup>-1</sup>	6.2·10 <sup>-1</sup>
Norway	6.2	1.6	1.2	3.4·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	1.6	5.7·10 <sup>-1</sup>	3.8·10 <sup>-1</sup>	2.5·10 <sup>-1</sup>	2.2·10 <sup>-1</sup>
Portugal	2.4	1.5	1.6	1.2	1.1	4.9·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	2.3·10 <sup>-1</sup>	2.1·10 <sup>-1</sup>
Spain	2.0	1.2	1.1	6.7·10 <sup>-1</sup>	6.5·10 <sup>-1</sup>	5.2·10 <sup>-1</sup>	3.5·10 <sup>-1</sup>	3.3·10 <sup>-1</sup>	2.2·10 <sup>-1</sup>	2.2·10 <sup>-1</sup>
Sweden	5.7	2.7	2.0	1.3	1.2	2.1	1.0	6.8·10 <sup>-1</sup>	5.1·10 <sup>-1</sup>	4.5·10 <sup>-1</sup>
Switzerland	5.0	4.8	4.7	3.8	3.8	1.0	8.9·10 <sup>-1</sup>	8.4·10 <sup>-1</sup>	6.6·10 <sup>-1</sup>	6.6·10 <sup>-1</sup>
United Kingdom	1.7	9.1·10 <sup>-1</sup>	7.9·10 <sup>-1</sup>	4.9·10 <sup>-1</sup>	4.8·10 <sup>-1</sup>	7.6·10 <sup>-1</sup>	5.0·10 <sup>-1</sup>	4.4·10 <sup>-1</sup>	3.5·10 <sup>-1</sup>	3.4·10 <sup>-1</sup>
Baltic sea	X	x	x	x	x	2.1	1.2	8.4·10 <sup>-1</sup>	6.9·10 <sup>-1</sup>	6.2·10 <sup>-1</sup>
North sea	X	x	x	x	x	1.1	7.4·10 <sup>-1</sup>	6.5·10 <sup>-1</sup>	5.4·10 <sup>-1</sup>	5.2·10 <sup>-1</sup>
N.E. Atlantic ocean	X	x	x	x	x	4.0·10 <sup>-1</sup>	2.8·10 <sup>-1</sup>	2.6·10 <sup>-1</sup>	2.1·10 <sup>-1</sup>	2.1·10 <sup>-1</sup>
Mediterranean sea	X	x	x	x	x	1.2·10 <sup>-1</sup>	6.5·10 <sup>-2</sup>	6.4·10 <sup>-2</sup>	3.5·10 <sup>-2</sup>	3.3·10 <sup>-2</sup>
<b>East European Regions</b>										
Albania	2.8	1.4	1.1	9.3·10 <sup>-1</sup>	8.7·10 <sup>-1</sup>	5.0·10 <sup>-1</sup>	2.9·10 <sup>-1</sup>	2.1·10 <sup>-1</sup>	1.8·10 <sup>-1</sup>	1.6·10 <sup>-1</sup>
Belarus	4.5	2.4	1.8	1.6	1.5	2.0	9.7·10 <sup>-1</sup>	6.3·10 <sup>-1</sup>	6.0·10 <sup>-1</sup>	5.4·10 <sup>-1</sup>
Bosnia-Herzegovina	2.9	2.5	2.3	1.4	1.4	6.1·10 <sup>-1</sup>	4.5·10 <sup>-1</sup>	3.8·10 <sup>-1</sup>	2.7·10 <sup>-1</sup>	2.6·10 <sup>-1</sup>
Bulgaria	2.8	2.5	1.3	1.3	9.6·10 <sup>-1</sup>	5.6·10 <sup>-1</sup>	3.9·10 <sup>-1</sup>	2.3·10 <sup>-1</sup>	2.2·10 <sup>-1</sup>	1.8·10 <sup>-1</sup>
Croatia	1.5	1.1	9.8·10 <sup>-1</sup>	6.7·10 <sup>-1</sup>	6.4·10 <sup>-1</sup>	6.7·10 <sup>-1</sup>	4.9·10 <sup>-1</sup>	4.1·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	3.0·10 <sup>-1</sup>
Czech Republic	4.2	3.7	3.5	3.0	3.0	1.3	1.0	9.1·10 <sup>-1</sup>	8.0·10 <sup>-1</sup>	7.7·10 <sup>-1</sup>
Estonia	8.7	5.9	4.2	3.7	3.3	3.3	1.7	1.1	9.9·10 <sup>-1</sup>	8.6·10 <sup>-1</sup>
Hungary	2.2	1.7	1.4	1.1	1.0	1.0	7.3·10 <sup>-1</sup>	5.8·10 <sup>-1</sup>	4.9·10 <sup>-1</sup>	4.6·10 <sup>-1</sup>
Latvia	7.3	5.0	3.9	3.8	3.5	2.6	1.4	9.1·10 <sup>-1</sup>	8.3·10 <sup>-1</sup>	7.3·10 <sup>-1</sup>
Lithuania	4.9	3.3	2.6	2.5	2.4	2.2	1.1	7.8·10 <sup>-1</sup>	7.2·10 <sup>-1</sup>	6.5·10 <sup>-1</sup>
Macedonia	2.3	1.6	1.0	8.5·10 <sup>-1</sup>	7.8·10 <sup>-1</sup>	4.7·10 <sup>-1</sup>	3.4·10 <sup>-1</sup>	2.4·10 <sup>-1</sup>	2.0·10 <sup>-1</sup>	1.8·10 <sup>-1</sup>
Moldavia	1.6	7.8·10 <sup>-1</sup>	5.1·10 <sup>-1</sup>	5.1·10 <sup>-1</sup>	4.6·10 <sup>-1</sup>	9.1·10 <sup>-1</sup>	4.6·10 <sup>-1</sup>	2.9·10 <sup>-1</sup>	3.0·10 <sup>-1</sup>	2.6·10 <sup>-1</sup>
Poland	6.1	5.2	4.8	4.6	4.5	1.6	1.1	9.0·10 <sup>-1</sup>	8.3·10 <sup>-1</sup>	7.9·10 <sup>-1</sup>
Romania	2.3	1.6	9.4·10 <sup>-1</sup>	8.8·10 <sup>-1</sup>	8.2·10 <sup>-1</sup>	7.5·10 <sup>-1</sup>	4.8·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	2.9·10 <sup>-1</sup>	2.6·10 <sup>-1</sup>
Russia (Kalingrad region)	6.7	4.7	2.4	2.2	2.1	2.0	1.1	7.8·10 <sup>-1</sup>	7.1·10 <sup>-1</sup>	6.5·10 <sup>-1</sup>
Russia (Kola, Karelia)	1.6·10 <sup>1</sup>	3.4	1.9	1.6	1.4	3.2	8.3·10 <sup>-1</sup>	2.8·10 <sup>-1</sup>	2.6·10 <sup>-1</sup>	2.2·10 <sup>-1</sup>
Russia (St. Petersburg region)	1.4·10 <sup>1</sup>	8.5	6.0	5.7	4.9	3.8	1.8	1.1	9.9·10 <sup>-1</sup>	8.6·10 <sup>-1</sup>
Russia (Remaining)	8.4	3.2	1.6	2.0	1.7	2.3	9.1·10 <sup>-1</sup>	4.1·10 <sup>-1</sup>	5.1·10 <sup>-1</sup>	4.2·10 <sup>-1</sup>
Slovakia	4.0	3.4	3.0	2.3	2.2	1.1	8.1·10 <sup>-1</sup>	6.7·10 <sup>-1</sup>	5.7·10 <sup>-1</sup>	5.4·10 <sup>-1</sup>
Slovenia	2.8	2.3	2.0	9.8·10 <sup>-1</sup>	9.6·10 <sup>-1</sup>	6.4·10 <sup>-1</sup>	5.1·10 <sup>-1</sup>	4.5·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>	3.1·10 <sup>-1</sup>
Ukraine	3.0	1.8	1.3	1.3	1.1	1.5	6.7·10 <sup>-1</sup>	3.7·10 <sup>-1</sup>	4.3·10 <sup>-1</sup>	3.6·10 <sup>-1</sup>
Yugoslavia	2.8	2.2	1.8	1.3	1.2	7.0·10 <sup>-1</sup>	5.0·10 <sup>-1</sup>	3.8·10 <sup>-1</sup>	3.0·10 <sup>-1</sup>	2.7·10 <sup>-1</sup>
Averages	A&B	OA				A&B	OA			
West 1990	3.8	3.2				1.0	7.2·10 <sup>-1</sup>			
Europe 1995	3.7	2.9				9.9·10 <sup>-1</sup>	6.2·10 <sup>-1</sup>			
2010BL	3.8	2.4				9.5·10 <sup>-1</sup>	4.6·10 <sup>-1</sup>			

		Eutrophication potentials (in kg NO <sub>x</sub> eq. in Switzerland/kg)									
		Ammonia (NH <sub>3</sub> )					Nitrogen Oxide (NO <sub>x</sub> )				
		A&B	OA	OA	OA	OA	A&B	OA	OA	OA	OA
			1990	1995	2010 BL	2010 NP		1990	1995	2010 BL	2010 NP
	2010NP	3.8	2.4				9.5·10 <sup>-1</sup>	4.5·10 <sup>-1</sup>			
East	1990	5.4	3.0				1.8	8.6·10 <sup>-1</sup>			
Europe	1995	5.0	2.0				1.7	5.7·10 <sup>-1</sup>			
	2010BL	5.3	2.2				1.8	5.3·10 <sup>-1</sup>			
	2010NP	5.2	2.0				1.8	4.6·10 <sup>-1</sup>			
Total	1990	4.6	3.1				1.3	7.7·10 <sup>-1</sup>			
Europe	1995	4.3	2.5				1.2	6.0·10 <sup>-1</sup>			
	2010BL	4.6	2.3				1.3	4.9·10 <sup>-1</sup>			
	2010NP	4.5	2.2				1.3	4.5·10 <sup>-1</sup>			

- x = Potential not calculated;
- A&B = Scenario in which 'above and below threshold' marginal changes in the hazard index are summed;
- OA\_1990 = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 1990 emissions as the starting point;
- OA\_1995 = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 1995 emissions as the starting point;
- OA\_2010-BL = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 2010 Baseline forecast emissions as the starting point;
- OA\_2010-NP = Scenario in which 'only above threshold' marginal changes in the hazard index are summed, taking 2010 New Policy forecast emissions as the starting point.

Source: Huijbregts, 1999b

Status: Author

Equation: 
$$eutrophication = \sum_r \sum_i EP_{i,r} \times m_{i,r} \quad (4.3.11.2)$$

The indicator result is expressed in kg NO<sub>x</sub> emitted in Switzerland equivalent.  $EP_{i,r}$  is the Eutrophication Potential for substance  $i$  emitted to the air in region  $r$ , while  $m_i$  is the emission of substance  $i$  to the air in that region.

#### 4.3.12 Waste heat

Characterisation factor is 1 for all waste heat interventions.

### 4.3.13 Odour

#### 4.3.13.1 Malodorous air

Table 4.3.13.1: Inverse OTV factors for characterising odour releases to air.

Substance	Compartment	CAS number	1/OTV (in m <sup>3</sup> /kg)
1,1,1-trichloroethane	air	71-55-6	1.89E5 <sup>1</sup>
1,2,4-trimethylbenzene	air	95-63-6	7.14E6
1,3,5-trimethylbenzene	air	108-67-8	5.56E6
1-Butanol	air	71-36-3	1.3E7
1-Butyl Acetate	air	123-86-4	3.23E7
1-butylpropionate	air	590-01-2	1.16E7
2-butanone	air	78-93-3	1.47E6
2-ethyl-5,5-dimethyl-1,3-dioxane	air	???	1.79E11
2-methylpropanoic acid	air	79-31-2	2E8
3-methylbutanoic acid	air	503-74-2	4.55E9
Acetaldehyde	air	75-07-0	3.7E9
Acetic acid	air	64-19-7	1.64E7
Acetone	air	67-64-1	13900
Acrolein	air	107-02-8	1.45E7
ammonia	air	7664-41-7	1E6
butanoic acid	air	107-92-6	2.86E9
butylacrylate	air	141-32-2	6.67E8
Butyraldehyde	air	123-72-8	1.19E9
carbon disulfide	air	75-15-0	5.56E6
chlorobenzene	air	108-90-7	1E6
decaline	air	-	3.57E5
Dichloromethane	air	75-09-2	1560
diethylamine	air	109-89-7	1.11E7
dimethylamine	air	124-40-3	7.14E8
ethanethiol	air	75-08-1	2.27E10
Ethanol	air	64-17-5	1.56E6
Ethyl Acetate	air	141-78-6	4.76E5
Ethyl Acrylate	air	140-88-5	1.22E9
ethylbutyrate	air	105-54-4	3.33E10
ethylthioethane	air	352-93-2	7.14E8
Formaldehyde	air	50-00-0	2.04E6
hydrogen sulfide	air	7783-06-4	2.33E9
isobutanol	air	78-83-1	2.86E7
isobutene	air	115-11-7	66700
isopentylacetate	air	123-92-2	1.33E7
isopropyl benzene	air	98-82-8	1.37E7
isopropyl propionate	air	637-78-5	3.13E6
meta-Cresol	air	108-39-4	1.75E9
meta-Xylene	air	108-38-3	1.85E6
methanethiol	air	74-93-1	4.17E9
Methanol	air	67-56-1	13700
Methyl Acetate	air	79-20-9	45500
Methyl Acrylate	air	96-33-3	1E8
Methyl Bromide	air	74-83-9	8.33E8
methyl dithiomethane	air	???	6.67E8
Methyl Isobutyl Ketone	air	108-10-1	1.45E6
methyl methacrylate	air	80-62-6	1.59E6

<sup>1</sup> Means 1.89x 10<sup>5</sup>.

Substance	Compartment	CAS number	1/OTV (in m <sup>3</sup> /kg)
methyl propionate	air	554-12-1	2.86E5
methyl thiomethane	air	75-18-3	3.33E9
ortho-Cresol	air	95-48-7	5.56E8
ortho-Xylene	air	95-47-6	1.28E6
para-Cresol	air	106-44-5	5.56E9
para-Xylene	air	106-42-3	1.92E6
Phenol	air	108-95-2	2.56E7
Propanoic acid	air	79-09-4	1.92E8
Propionaldehyde	air	123-38-6	2.86E8
pyridine	air	110-86-1	8.33E6
styrene	air	100-42-5	1.47E7
terephthaloyldichloride	air	100-20-9	3.13E8
Tetrachloroethylene	air	127-18-4	1.2E5
Toluene	air	108-88-3	2.63E5
Trichloroethylene	air	79-01-6	2.56E5
Trimethylamine	air	75-50-3	3.85E9
Valeraldehyde	air	110-62-3	4.17E8

Source: Roos, 1989.

Status: Author.

Equation: 
$$odour = \sum_i 1/OTV_i \times m_i \quad (4.3.13.1)$$

The indicator result is expressed in m<sup>3</sup>. 1/OTV is the characterisation factor for odour for substance *i* emitted to air, while *m<sub>i</sub>* (kg) is the quantity of substance *i* emitted.

#### 4.3.13.2 Malodorous water

To be inserted

#### 4.3.14 Noise

To be inserted

#### 4.3.15 Impacts of ionising radiation

Table 4.3.15.1: Damage factors for characterising radioactive releases.

Substance	comp.	Damage factor yr.kBq <sup>-1</sup>
Carbon-14 (C-14)	air	2.10E-7 <sup>1</sup>
Cesium-134 (Cs-134)	air	1.20E-8
Cesium-137 (Cs-137)	air	1.30E-8
Cobalt-58 (Co-58)	air	4.30E-10
Cobalt-60 (Co-60)	air	1.60E-8
hydrogen-3 (H-3)	air	1.40E-11
Iodine-129 (I-129)	air	9.40E-7

<sup>1</sup> Means 2.10 x 10<sup>-7</sup>.

Substance	comp.	Damage factor yr·kBq <sup>-1</sup>
Iodine-131 (I-131)	air	1.60E-10
Iodine-133 (I-133)	air	9.40E-12
Krypton-85 (Kr-85)	air	1.40E-13
Lead-210 (Pb-210)	air	1.50E-9
Plutonium alpha (Pu alpha)	air	8.30E-8
Plutonium-238 (Pu-238)	air	6.70E-8
Polonium-210 (Po-210)	air	1.50E-9
Radium-226 (Ra-226)	air	9.10E-10
Radon-222 (Rn-222)	air	2.40E-11
Th-230	air	4.50E-8
Uranium-234 (U-234)	air	9.70E-8
Uranium-235 (U-235)	air	2.10E-8
Uranium-238 (U-238)	air	8.20E-9
Xe-133	air	1.40E-13
Ag-110m	fresh water	5.10E-10
Antimony-124 (Sb-124)	fresh water	8.20E-10
Cesium-134 (Cs-134)	fresh water	1.40E-7
Cesium-137 (Cs-137)	fresh water	1.70E-7
Cobalt-58 (Co-58)	fresh water	4.10E-11
Cobalt-60 (Co-60)	fresh water	4.40E-8
H-3	fresh water	4.50E-13
Iodine-131 (I-131)	fresh water	5.10E-10
manganese-54 (Mn-54)	fresh water	3.10E-10
Radium-226 (Ra-226)	fresh water	1.30E-10
Uranium-234 (U-234)	fresh water	2.40E-9
Uranium-235 (U-235)	fresh water	2.30E-9
Uranium-238 (U-238)	fresh water	2.30E-9
Am-241	sea water	3.10E-8
Antimony-125 (Sb-125)	sea water	1.50E-11
Carbon-14 (C-14)	sea water	1.20E-9
Cesium-134 (Cs-134)	sea water	7.90E-8
Cesium-137 (Cs-137)	sea water	7.90E-8
Cm alpha	sea water	5.70E-8
Cobalt-60 (Co-60)	sea water	3.90E-10
H-3	sea water	6.90E-14
Iodine-129 (I-129)	sea water	1.00E-7
Plutonium alpha (Pu alpha)	sea water	7.40E-9
Ru-106	sea water	1.40E-10
Sr-90	sea water	4.00E-12
Uranium-234 (U-234)	sea water	2.30E-11
Uranium-235 (U-235)	sea water	2.50E-11
Uranium-238 (U-238)	sea water	2.30E-11

Source: Frischknecht *et al.*, 2000

Status: Authors, method also used for the Eco-indicator '99.

Equation: 
$$radiation = \sum_{ecomp} \sum_i DamageFactor_{ecomp,i} \times a_{ecomp,i} \quad (4.3.15.1)$$

The indicator result is expressed in yr.  $DamageFactor_{ecomp,i}$  (yr·kBq<sup>-1</sup>) is the characterisation factor substance *i* emitted to *ecomp* based on DALYs, while  $a_{ecomp,i}$  (kBq) is the activity of substance *i* emitted to compartment *ecomp*.

Note that we have used the unit 'yr' for the indicator result and 'yr·kBq<sup>-1</sup>' for the characterisation factor, while Frischknecht *et al.* (2000) use 'DALYs' and



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'DALYs·kBq<sup>-1</sup>'. This has been done in agreement with Section 2.4, which stipulates that SI units are to be used. In fact, 'DALY' can be regarded as the name of the quantity (like 'length'), and 'yr' as one possible unit of measurement (like 'metre').

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Table 4.3.15.2: Screening factors for characterising radioactive releases (level I).

Substance	Compartment	Screening factor (Sv·m <sup>3</sup> ·Bq <sup>-1</sup> ·yr <sup>-1</sup> )
Ac-225	air	2.50E-02 <sup>1</sup>
Ac-227	air	1.00E+01
Ag-108m	air	3.60E-01
Am-241	air	1.00E+00
Be-10	air	2.60E-03
Bi-210m	air	1.20E-01
C-14	air	2.60E-04
Ca-41	air	2.40E-03
Cd-113m	air	8.30E-02
Ce-144	air	5.20E-03
Cl-36	air	6.50E-01
Cm-244	air	5.40E-01
Co-60	air	1.70E-01
Cs-134	air	1.30E-01
Cs-135	air	2.00E-02
Cs-137	air	2.20E-01
Eu-152	air	1.40E-01
Eu-154	air	1.20E-01
Fe-55	air	2.80E-04
H-3	air	1.90E-06
I-129	air	5.60E-01
K-40	air	9.40E-02
Kr-85	air	2.80E-09
Mn-54	air	9.70E-03
Mo-93	air	2.10E-03
Nb-94	air	3.80E-01
Nb-95	air	1.20E-03
Ni-59	air	6.80E-04
Ni-63	air	1.60E-03
Np-237	air	1.30E+00
P-32	air	7.30E-03
Pa-231	air	3.00E+00
Pa-233	air	6.70E-04
Pb-210	air	7.10E-01
Pd-107	air	1.30E-04
Pm-147	air	3.20E-04
Po-210	air	1.60E-01
Pu-238	air	8.90E-01
Pu-239	air	1.00E+00
Pu-240	air	1.00E+00
Pu-241	air	2.00E-02
Pu-242	air	9.50E-01
Ra-223	air	5.60E-02
Ra-225	air	4.70E-02
Ra-226	air	8.30E-01
Ra-228	air	4.20E-01
Rb-87	air	1.60E-02
Re-187	air	1.80E-05
Ru-106	air	9.60E-03
Sb-125	air	1.60E-02
Se-79	air	1.70E-02
Si-32	air	6.80E-02

<sup>1</sup> Means  $2.5 \times 10^{-2}$ .

Substance	Compartment	Screening factor (Sv·m <sup>3</sup> ·Bq <sup>-1</sup> ·yr <sup>-1</sup> )
Sm-151	air	1.60E-04
Sn-126	air	5.20E-01
Sr-90	air	1.90E-01
Tc-99	air	3.40E-02
Te-125m	air	6.90E-04
Th-227	air	6.40E-02
Th-228	air	8.00E-01
Th-229	air	3.40E+00
Th-230	air	4.90E-01
Th-232	air	2.60E+00
Th-234	air	1.80E-03
U-232	air	1.90E+00
U-233	air	3.20E-01
U-234	air	3.10E-01
U-235	air	3.40E-01
U-236	air	3.00E-01
U-238	air	2.90E-01
Zr-93	air	7.40E-04
Zr-95	air	4.10E-03
Ac-225	fresh water	4.90E-08
Ac-227	fresh water	6.80E-06
Ag-108m	fresh water	1.30E-06
Am-241	fresh water	2.00E-06
Be-10	fresh water	8.40E-09
Bi-210m	fresh water	3.30E-07
C-14	fresh water	5.60E-07
Ca-41	fresh water	1.00E-08
Cd-113m	fresh water	2.70E-07
Ce-144	fresh water	3.70E-08
Cl-36	fresh water	1.30E-06
Cm-244	fresh water	9.00E-07
Co-60	fresh water	6.10E-07
Cs-134	fresh water	1.10E-06
Cs-135	fresh water	1.20E-07
Cs-137	fresh water	1.10E-06
Eu-152	fresh water	5.00E-07
Eu-154	fresh water	4.20E-07
Fe-55	fresh water	1.50E-09
H-3	fresh water	1.40E-11
I-129	fresh water	1.40E-06
K-40	fresh water	1.10E-06
Kr-85	fresh water	5.10E-13
Mn-54	fresh water	3.40E-07
Mo-93	fresh water	2.20E-09
Nb-94	fresh water	1.40E-06
Nb-95	fresh water	7.00E-09
Ni-59	fresh water	1.70E-09
Ni-63	fresh water	3.70E-09
Np-237	fresh water	2.40E-06
P-32	fresh water	8.20E-07
Pa-231	fresh water	5.10E-06
Pa-233	fresh water	2.90E-09
Pb-210	fresh water	6.80E-06
Pd-107	fresh water	2.50E-10
Pm-147	fresh water	1.00E-09

Substance	Compartment	Screening factor (Sv·m <sup>3</sup> ·Bq <sup>-1</sup> ·yr <sup>-1</sup> )
Po-210	fresh water	8.20E-07
Pu-238	fresh water	1.50E-06
Pu-239	fresh water	1.70E-06
Pu-240	fresh water	1.70E-06
Pu-241	fresh water	3.80E-08
Pu-242	fresh water	1.60E-06
Ra-223	fresh water	2.20E-07
Ra-225	fresh water	1.40E-07
Ra-226	fresh water	4.70E-06
Ra-228	fresh water	3.90E-06
Rb-87	fresh water	8.50E-08
Re-187	fresh water	1.10E-09
Ru-106	fresh water	2.20E-08
Sb-125	fresh water	1.00E-08
Se-79	fresh water	4.10E-08
Si-32	fresh water	1.30E-07
Sm-151	fresh water	4.50E-10
Sn-126	fresh water	6.80E-07
Sr-90	fresh water	4.30E-07
Tc-99	fresh water	6.90E-08
Te-125m	fresh water	6.90E-09
Th-227	fresh water	8.40E-08
Th-228	fresh water	5.70E-07
Th-229	fresh water	3.80E-06
Th-230	fresh water	3.70E-05
Th-232	fresh water	8.90E-06
Th-234	fresh water	1.30E-08
U-232	fresh water	2.40E-06
U-233	fresh water	8.50E-08
U-234	fresh water	8.10E-08
U-235	fresh water	3.90E-07
U-236	fresh water	7.70E-08
U-238	fresh water	1.80E-07
Zr-93	fresh water	3.00E-09
Zr-95	fresh water	7.40E-08
Ac-225	seawater	8.80E-09
Ac-227	seawater	4.20E-06
Ag-108m	seawater	3.20E-06
Am-241	seawater	1.20E-05
Be-10	seawater	1.00E-08
Bi-210m	seawater	7.60E-07
C-14	seawater	1.40E-07
Ca-41	seawater	4.90E-11
Cd-113m	seawater	5.90E-05
Ce-144	seawater	4.70E-08
Cl-36	seawater	2.50E-11
Cm-244	seawater	7.20E-07
Co-60	seawater	1.30E-05
Cs-134	seawater	3.90E-07
Cs-135	seawater	2.50E-09
Cs-137	seawater	8.70E-07
Eu-152	seawater	1.20E-05
Eu-154	seawater	1.00E-05
Fe-55	seawater	2.40E-08
H-3	seawater	5.20E-13

Substance	Compartment	Screening factor (Sv·m <sup>3</sup> ·Bq <sup>-1</sup> ·yr <sup>-1</sup> )
I-129	seawater	1.50E-07
K-40	seawater	7.80E-07
Kr-85	seawater	5.10E-13
Mn-54	seawater	8.10E-07
Mo-93	seawater	1.10E-08
Nb-94	seawater	3.30E-05
Nb-95	seawater	8.80E-08
Ni-59	seawater	9.20E-09
Ni-63	seawater	2.10E-09
Np-237	seawater	7.00E-06
P-32	seawater	6.40E-07
Pa-231	seawater	3.00E-05
Pa-233	seawater	1.50E-08
Pb-210	seawater	5.60E-06
Pd-107	seawater	1.20E-09
Pm-147	seawater	4.60E-09
Po-210	seawater	4.20E-05
Pu-238	seawater	5.30E-07
Pu-239	seawater	5.80E-07
Pu-240	seawater	5.90E-07
Pu-241	seawater	2.00E-08
Pu-242	seawater	5.60E-07
Ra-223	seawater	1.10E-07
Ra-225	seawater	7.30E-08
Ra-226	seawater	8.90E-06
Ra-228	seawater	7.80E-06
Rb-87	seawater	5.20E-10
Re-187	seawater	3.90E-12
Ru-106	seawater	1.90E-07
Sb-125	seawater	3.60E-08
Se-79	seawater	1.40E-07
Si-32	seawater	1.10E-09
Sm-151	seawater	1.70E-09
Sn-126	seawater	6.90E-07
Sr-90	seawater	3.70E-09
Tc-99	seawater	6.80E-09
Te-125m	seawater	7.20E-08
Th-227	seawater	1.00E-06
Th-228	seawater	1.40E-05
Th-229	seawater	1.00E-04
Th-230	seawater	1.60E-05
Th-232	seawater	9.40E-05
Th-234	seawater	4.90E-07
U-232	seawater	4.70E-06
U-233	seawater	9.30E-09
U-234	seawater	5.00E-09
U-235	seawater	7.40E-07
U-236	seawater	4.70E-09
U-238	seawater	2.50E-07
Zr-93	seawater	1.30E-08
Zr-95	seawater	3.10E-07

Source: Solberg-Johansen, 1998

Status: Author.

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Equation:  $radiation = \sum_j \sum_i a_i \times \gamma_{ij} \times ScreeningFactor_{ij} \times F$

for emissions to surface water:  $g_{ij} = \frac{1}{V_j}$  (4.3.15.2)

for emissions to air:  $g_{ij} = \frac{0.25}{V_j}$

The indicator result is dimensionless.

$a_i$  = activity of the emission pulse of radionuclide  $i$  (Bq).  $\gamma_{ij}$  = dispersion factor for radionuclide  $i$  in environmental medium  $j$  ( $yr \cdot m^{-3}$ ). *Screening Factor* <sub>$ij$</sub>  = screening factor for  $i$  in  $j$  ( $Sv \cdot m^3 \cdot Bq^{-1} \cdot yr^{-1}$ );  $V_j$  = volume flow rate of discharge to medium  $j$  ( $m^3 \cdot yr^{-1}$ ).  $F$  = probability coefficient for effects ( $Sv^{-1}$ ) = 7.3E-2 for the whole population.

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#### 4.3.16 Casualties

Characterisation factor is 1 for all interventions in this impact category.

#### 4.3.17 Interventions for which characterisation factors are lacking

##### **INTERVENTIONS FOR WHICH CHARACTERISATION FACTORS ARE LACKING, BUT WHICH ARE KNOWN TO CONTRIBUTE TO ONE OR MORE IMPACT CATEGORIES**

Examples of such interventions are:

- SO<sub>2</sub>, which is known to reduce climate change (i.e. negative GWP)
- numerous chemicals with known toxic effects:
  - ammonia
  - benzo[a]anthracene
  - benzo[a]pyrene
  - benzo[ghi]perylene
  - benzo[k]fluoranthrene
  - chrysene
  - dust (PM10)
  - fluoranthrene
  - hydrogen chloride
  - hydrogen sulphide
  - indeno[1,2,3-cd]pyrene
  - nitrogen dioxide
  - phenanthrene
  - sulphur dioxide
  - many other chemicals .....

*Note that this list of examples is far from complete!!*

##### **ESTIMATION OF POTENTIAL IMPACT**

If characterisation factors are lacking, consider:

- the use of estimates based on the scientific and engineering expertise of experts (e.g., QSARs),
- using best available data of similar emissions (same chemical structure/chemical class) with similar impacts.

Source: Christiansen *et al.* , 1997.

#### 4.3.18 Economic flows not followed to system boundary

To be inserted



## 4.4 Classification

Table 4.4.1: All interventions for which baseline characterisation factors are available.

Substance	cas no.	group	initial emission or extraction	unit
actinium (Ac)	7440-34-8	element	resources	kg
aluminium (Al)	7429-90-5	element	resources	kg
antimony (Sb)	7440-36-0	element	resources	kg
argon (Ar)	7440-37-1	element	resources	kg
arsenic (As)	7440-38-2	element	resources	kg
barium (Ba)	7440-39-3	element	resources	kg
beryllium (Be)	7440-41-7	element	resources	kg
bismuth (Bi)	7440-69-9	element	resources	kg
boron (B)	7440-42-8	element	resources	kg
bromine (Br)	7726-95-6	element	resources	kg
cadmium (Cd)	7440-43-9	element	resources	kg
calcium (Ca)	7440-70-2	element	resources	kg
cerium (Ce)	7440-45-1	element	resources	kg
cesium (Cs)	7440-46-2	element	resources	kg
chlorine (Cl)	7782-50-5	element	resources	kg
chromium (Cr)	7440-47-3	element	resources	kg
cobalt (Co)	7440-48-4	element	resources	kg
copper (Cu)	7440-50-8	element	resources	kg
dysprosium (Dy)	7429-91-6	element	resources	kg
erbium (Er)	7440-52-0	element	resources	kg
europium (Eu)	7440-53-1	element	resources	kg
fluorine (F)	7782-41-4	element	resources	kg
gadolinium (Gd)	7440-54-2	element	resources	kg
gallium (Ga)	7440-55-3	element	resources	kg
germanium (Ge)	7440-56-4	element	resources	kg
gold (Au)	7440-57-5	element	resources	kg
hafnium (Hf)	7440-58-6	element	resources	kg
helium (He)	7440-59-7	element	resources	kg
holmium (Ho)	7440-60-0	element	resources	kg
indium (In)	7440-74-6	element	resources	kg
iodine (I)	7553-56-2	element	resources	kg
iridium (Ir)	7439-88-5	element	resources	kg
iron (Fe)	7439-89-6	element	resources	kg
kalium (K;potassium)	7440-09-7	element	resources	kg
krypton (Kr)	7439-90-9	element	resources	kg
lanthanum (La)	7439-91-0	element	resources	kg
lead (Pb)	7439-92-1	element	resources	kg
lithium (Li)	7439-93-2	element	resources	kg
lutetium (Lu)	7439-94-3	element	resources	kg
magnesium (Mg)	7439-95-4	element	resources	kg
manganese (Mn)	7439-96-5	element	resources	kg
mercury (Hg)	7439-97-6	element	resources	kg
molybdenum (Mo)	7439-98-7	element	resources	kg
neodymium (Nd)	7440-00-8	element	resources	kg
neon (Ne)	7440-01-9	element	resources	kg
nickel (Ni)	7440-02-0	element	resources	kg
niobium (Nb)	7440-03-1	element	resources	kg
osmium (Os)	7440-04-2	element	resources	kg
palladium (Pd)	7440-05-3	element	resources	kg
phosphorus (P)	7723-14-0	element	resources	kg
platinum (Pt)	7440-06-4	element	resources	kg

Substance	cas no.	group	initial emission or extraction	unit
polonium (Po)	7440-08-6	element	resources	kg
praseodymium (Pr)	7440-10-0	element	resources	kg
protactinium (Pa)	1004-29-1	element	resources	kg
radium (Ra)	7440-14-4	element	resources	kg
radon (Rn)	10043-92-2	element	resources	kg
rhenium (Re)	7440-15-5	element	resources	kg
rhodium (Rh)	7440-16-6	element	resources	kg
rubidium (Rb)	7440-17-7	element	resources	kg
ruthenium (Ru)	7440-18-8	element	resources	kg
samarium (Sm)	7440-19-9	element	resources	kg
scandium (Sc)	7440-20-2	element	resources	kg
selenium (Se)	7782-49-2	element	resources	kg
silicium (Si; silicon)	7440-21-3	element	resources	kg
silver (Ag)	7440-22-4	element	resources	kg
Sodium (Na)	7440-23-5	element	resources	kg
strontium (Sr)	7440-24-6	element	resources	kg
sulfur (S)	7704-34-9	element	resources	kg
tantalum (Ta)	7440-25-7	element	resources	kg
tellurium (Te)	13494-80-9	element	resources	kg
terbium (Tb)	7440-27-9	element	resources	kg
thallium (Tl)	7440-28-0	element	resources	kg
thorium (Th)	7440-29-1	element	resources	kg
thulium (Tm)	7440-30-4	element	resources	kg
tin (Sn)	7440-31-5	element	resources	kg
titanium (Ti)	7440-32-6	element	resources	kg
tungsten (W); wolfram	7440-33-7	element	resources	kg
uranium (U)	7440-61-1	element	resources	kg
vanadium (V)	7440-62-2	element	resources	kg
xenon (Xe)	7440-63-3	element	resources	kg
ytterbium (Yb)	7440-64-4	element	resources	kg
yttrium (Y)	7440-65-5	element	resources	kg
zinc (Zn)	7440-66-6	element	resources	kg
Zirconium (Zr)	7440-67-7	element	resources	kg
coal hard	coal hard	fossil fuel	resources	kg
coal soft, lignite	coal soft	fossil fuel	resources	kg
natural gas	nat. gas	fossil fuel	resources	m <sup>3</sup>
oil crude	8012-95-1	fossil fuel	resources	kg
bauxite	7429-90-5(o)	ore	resources	kg
chromium (ore)	7440-47-3(o)	ore	resources	kg
copper (ore)	7440-50-8(o)	ore	resources	kg
iron (ore)	7439-89-6(o)	ore	resources	kg
lead (ore)	7439-92-1(o)	ore	resources	kg
manganese (ore)	7439-96-5(o)	ore	resources	kg
molybdenum (ore)	7439-98-7(o)	ore	resources	kg
nickel (ore)	7440-02-0(o)	ore	resources	kg
tin (ore)	7440-31-5(o)	ore	resources	kg
zinc (ore)	7440-66-6(o)	ore	resources	kg
1,1,1-trichloroethane	71-55-6	halogenated nonaromatic	air	kg
1,2,3,4-tetrachlorobenzene	634-66-2	halogenated aromatic	air	kg
1,2,3,5-tetrachlorobenzene	634-90-2	halogenated aromatic	air	kg
1,2,3-trichlorobenzene	87-61-6	halogenated aromatic	air	kg
1,2,3-Trimethyl Benzene	526-73-8	halogenated aromatic	air	kg
1,2,4,5-tetrachlorobenzene	95-94-3	halogenated aromatic	air	kg
1,2,4-trichlorobenzene	120-82-1	halogenated aromatic	air	kg
1,2,4-trimethylbenzene	95-63-6	halogenated aromatic	air	kg

Substance	cas no.	group	initial emission or extraction	unit
1,2-dichlorobenzene	95-50-1	halogenated aromatic	air	kg
1,2-dichloroethane	107-06-2	halogenated nonaromatic (alkane)	air	kg
1,3,5-trichlorobenzene	108-70-3	halogenated aromatic	air	kg
1,3,5-trimethylbenzene	108-67-8	aromatic	air	kg
1,3-Butadiene	106-99-0	nonaromatic (alkene)	air	kg
1,3-dichlorobenzene	541-73-1	halogenated aromatic	air	kg
1,4-dichlorobenzene	106-46-7	halogenated aromatic	air	kg
1-Butanol	71-36-3	nonaromatic (alcohol)	air	kg
1-Butene	106-98-9	nonaromatic (alkane)	air	kg
1-Butoxypropanol	57018-52-7	nonaromatic (alcohol)	air	kg
1-Butyl Acetate	123-86-4	nonaromatic (ester)	air	kg
1-butylpropionate	590-01-2	nonaromatic (ester)	air	kg
1-chloro-4-nitrobenzene	100-00-5	halogenated aromatic	air	kg
1-Hexene	592-41-6	nonaromatic (alkene)	air	kg
1-Methoxy-2-propanol	107-98-2	nonaromatic (alcohol)	air	kg
1-Pentene	109-67-1	nonaromatic (alkene)	air	kg
1-Propanol	71-23-8	nonaromatic (alcohol)	air	kg
1-Propyl Benzene	103-65-1	aromatic	air	kg
1-Propylacetate	109-60-4	nonaromatic (ester)	air	kg
1-Undecane	1120-21-4	nonaromatic (alkane)	air	kg
2,2-Dimethylbutane	75-83-2	nonaromatic (alkane)	air	kg
2,3,4,6-tetrachlorophenol	58-90-2	halogenated aromatic	air	kg
2,3,7,8-TCDD	1746-01-6	halogenated aromatic	air	kg
2,4,5-T	93-76-5	pesticide	air	kg
2,4,5-trichlorophenol	95-95-4	halogenated aromatic	air	kg
2,4,6-trichlorophenol	88-06-2	halogenated aromatic	air	kg
2,4-D	94-75-7	pesticide	air	kg
2,4-dichlorophenol	120-83-2	halogenated aromatic	air	kg
2,3- Dimethylbutane	79-29-8	nonaromatic (alkane)	air	kg
2-butanone	78-93-3	nonaromatic (ketone)	air	kg
2-Butoxy-Ethanol	111-76-2	nonaromatic (alkane)	air	kg
2-chlorophenol	95-57-8	halogenated aromatic	air	kg
2-Ethoxy-Ethanol	110-80-5	nonaromatic (alcohol)	air	kg
2-ethyl-5,5-dimethyl-1,3-dioxane	???		air	kg
2-Methoxy-Ethanol	109-86-4	nonaromatic (alcohol)	air	kg
2-Methyl-1-Butene	563-46-2	nonaromatic (alkene)	air	kg
2-Methyl-2-Butene	513-35-9	nonaromatic (alkene)	air	kg
2-Methylbutan-1-ol	137-32-6	nonaromatic (alcohol)	air	kg
2-Methylbutan-2-ol	75-85-4	nonaromatic (alcohol)	air	kg
2-Methylhexane	591-76-4	nonaromatic (alkane)	air	kg
2-Methylpentane	107-83-5	nonaromatic (alkane)	air	kg
2-methylpropanoic acid	79-31-2	nonaromatic (carboxylic acid)	air	kg
3,4-dichloroaniline	95-76-1	halogenated aromatic	air	kg
3,5-Diethyltoluene	25550-13-4	aromatic	air	kg
3,5-Dimethylethylbenzene	29224-55-3	aromatic	air	kg
3-chloroaniline	108-42-9	halogenated aromatic	air	kg
3-Methyl-1-Butene	563-45-1	nonaromatic (alkene)	air	kg

Substance	cas no.	group	initial emission or extraction	unit
3-Methylbutan-1-ol	123-51-3	nonaromatic (alcohol)	air	kg
3-Methylbutan-2-ol	598-75-4	nonaromatic (alcohol)	air	kg
3-methylbutanoic acid	503-74-2	nonaromatic (carboxylic acid)	air	kg
3-Methylhexane	589-34-4	nonaromatic (alkane)	air	kg
3-Methylpentane	96-14-0	nonaromatic (alkane)	air	kg
3-Pentanol	584-02-1	nonaromatic (alcohol)	air	kg
4-chloroaniline	106-47-8	halogenated aromatic	air	kg
acephate	30560-19-1	pesticide	air	kg
Acetaldehyde	75-07-0	nonaromatic (alkane)	air	kg
Acetic acid	64-19-7	nonaromatic (carboxylic acid)	air	kg
Acetone	67-64-1	nonaromatic (ketone)	air	kg
Acetylene	74-86-2	nonaromatic (alkyne)	air	kg
Acrolein	107-02-8	nonaromatic (aldehyde)	air	kg
Acrylonitrile	107-13-1	nonaromatic (nitrogen compounds)	air	kg
aldicarb	116-06-3	pesticide	air	kg
aldrin	309-00-2	pesticide	air	kg
ammonia	7664-41-7	inorganic	air	kg
ammonium	14798-03-9	inorganic	air	kg
anilazine	101-05-3	pesticide	air	kg
anthracene	120-12-7	PAH	air	kg
antimony	7440-36-0	metal	air	kg
arsenic	7440-38-2	metal	air	kg
atrazine	1912-24-9	pesticide	air	kg
azinphos-ethyl	2642-71-9	pesticide	air	kg
azinphos-methyl	86-50-0	pesticide	air	kg
barium	7440-39-3	metal	air	kg
benomyl	17804-35-2	pesticide	air	kg
bentazone	25057-89-0	pesticide	air	kg
Benzaldehyde	100-52-7	aromatic	air	kg
Benzene	71-43-2	aromatic	air	kg
benzo[a]anthracene	56-55-3	PAH	air	kg
benzo[a]pyrene	50-32-8	PAH	air	kg
benzo[ghi]perylene	191-24-2	PAH	air	kg
benzo[k]fluoranthrene	207-08-9	PAH	air	kg
benzylchloride	100-44-7	halogenated aromatic	air	kg
beryllium	7440-41-7	metal	air	kg
bifenthrin	82657-04-3	pesticide	air	kg
Butane (unspec.)	106-97-8	nonaromatic (alkane)	air	kg
butanoic acid	107-92-6	nonaromatic (carboxylic acid)	air	kg
butylacrylate	141-32-2	nonaromatic (ester)	air	kg
Butylbenzylphthalate	85-68-7	aromatic	air	kg
Butyraldehyde	123-72-8	nonaromatic (aldehyde)	air	kg
cadmium (II) ion	22537-48-0	metal	air	kg
captafol	2425-06-1	pesticide	air	kg
captan	133-06-2	pesticide	air	kg
carbaryl	63-25-2	pesticide	air	kg
carbendazim	10605-21-7	pesticide	air	kg

Substance	cas no.	group	initial emission or extraction	unit
carbofuran	1563-66-2	pesticide	air	kg
Carbon dioxide	124-38-9	inorganic	air	kg
carbon disulfide	75-15-0	inorganic	air	kg
Carbon Monoxide	630-08-0	inorganic	air	kg
Carbon-14 (C-14)	14762-75-5	radioactive	air	KBq
Cesium-134 (Cs-134)	13967-70-9	radioactive	air	KBq
Cesium-137 (Cs-137)	10045-97-3	radioactive	air	KBq
CFC-11	75-69-4	halogenated nonaromatic	air	kg
CFC-113	26523-64-8	halogenated nonaromatic	air	kg
CFC-114	1320-37-2	halogenated nonaromatic	air	kg
CFC-115	76-15-3	halogenated nonaromatic	air	kg
CFC-12	75-71-8	halogenated nonaromatic	air	kg
CFC-13	75-72-9	halogenated nonaromatic	air	kg
chlordane	57-74-9	pesticide	air	kg
chlorfenvinphos	470-90-6	pesticide	air	kg
chloridazon	1698-60-8	pesticide	air	kg
chlorobenzene	108-90-7	halogenated aromatic	air	kg
chlorothalonil	1897-45-6	pesticide	air	kg
chlorpropham	101-21-3	pesticide	air	kg
chlorpyriphos	2921-88-2	pesticide	air	kg
chromium (III) ion	16065-83-1	metal	air	kg
chromium (VI) ion	18540-29-9	metal	air	kg
chrysene	218-01-9	PAH	air	kg
cis-2-Butene	590-18-1	nonaromatic (alkene)	air	kg
cis-2-Hexene	???	nonaromatic (alkene)	air	kg
cis-2-Pentene	627-20-3	nonaromatic (alkene)	air	kg
cis-Dichloroethene	156-59-2	halogenated nonaromatic	air	kg
cobalt	7440-48-4	metal	air	kg
Cobalt-58 (Co-58)	13981-38-9	radioactive	air	KBq
Cobalt-60 (Co-60)	10198-40-0	radioactive	air	KBq
copper (II) ion	15158-11-9	metal	air	kg
coumaphos	56-72-4	pesticide	air	kg
cyanazine	21725-46-2	pesticide	air	kg
Cyclohexane	110-82-7	nonaromatic (alkane)	air	kg
Cyclohexanol	108-93-0	nonaromatic (alcohol)	air	kg
Cyclohexanone	108-94-1	nonaromatic (alkane)	air	kg
cypermethrin	52315-07-8	pesticide	air	kg
cyromazine	66215-27-8	pesticide	air	kg
DDT	50-29-3	pesticide	air	kg
decaline	14727-56-1	nonaromatic (alkane)	air	kg
Decane	124-18-5	nonaromatic (alkane)	air	kg
deltamethrin	52918-63-5	pesticide	air	kg
demeton	8065-48-3	pesticide	air	kg
desmetryn	1014-69-3	pesticide	air	kg
Di(2-ethylhexyl)phtalate	117-81-7	aromatic	air	kg
Diacetone alcohol	123-42-2	nonaromatic (alcohol)	air	kg
diazinon	333-41-5	pesticide	air	kg
Dibutylphtalate	84-74-2	aromatic	air	kg

Substance	cas no.	group	initial emission or extraction	unit
Dichloromethane	75-09-2	halogenated nonaromatic	air	kg
dichlorprop	120-36-5	pesticide	air	kg
dichlorvos	62-73-7	pesticide	air	kg
dieldrin	60-57-1	pesticide	air	kg
Diethyl Ether	60-29-7	nonaromatic (ether)	air	kg
diethylamine	109-89-7	nonaromatic (nitrogen compounds)	air	kg
Diethylketone	96-22-0	nonaromatic (ketone)	air	kg
Diethylphtalate	84-66-2	aromatic	air	kg
Dihexylphtalate	84-75-3	aromatic	air	kg
Diisodecylphtalate	26761-40-0	aromatic	air	kg
Diisooctylphtalate	27554-26-3	aromatic	air	kg
Diisopropylether	108-20-3	nonaromatic (ether)	air	kg
dimethoate	60-51-5	pesticide	air	kg
Dimethoxy methane	109-87-5		air	kg
Dimethyl carbonate	616-38-6		air	kg
Dimethyl Ether	115-10-6	nonaromatic (ether)	air	kg
dimethylamine	124-40-3	nonaromatic (nitrogen compounds)	air	kg
Dimethylphtalate	133-11-3	aromatic	air	kg
Dinitrogen oxide	10024-97-2	inorganic	air	kg
dinoseb	88-85-7	pesticide	air	kg
dinoterb	1420-07-1	pesticide	air	kg
Dioctylphtalate	117-84-0	aromatic	air	kg
dioxins (unspec.)	dioxines	halogenated aromatic	air	kg
disulfothon	298-04-4	pesticide	air	kg
diuron	330-54-1	pesticide	air	kg
DNOC	534-52-1	pesticide	air	kg
Dodecane	112-40-3	nonaromatic (alkane)	air	kg
dust (PM10)	PM10	inorganic	air	kg
endosulfan	115-29-7	pesticide	air	kg
endrin	72-20-8	pesticide	air	kg
Ethane	74-84-0	nonaromatic (alkane)	air	kg
ethanethiol	75-08-1		air	kg
Ethanol	64-17-5	nonaromatic (alcohol)	air	kg
ethoprophos	13194-48-4	pesticide	air	kg
Ethyl Acetate	141-78-6	nonaromatic (ester)	air	kg
Ethyl Acrylate	140-88-5	nonaromatic (ester)	air	kg
Ethyl- trans-Butyl Ether	637-92-3 0	nonaromatic (ether)	air	kg
Ethylbenzene	100-41-4	aromatic	air	kg
ethylbutyrate	105-54-4	nonaromatic (ester)	air	kg
Ethylene	74-85-1	nonaromatic (alkene)	air	kg
Ethylene Glycol	107-21-1	nonaromatic (ester)	air	kg
Ethylene Oxide	75-21-8	nonaromatic (ester)	air	kg
ethylthioethane	352-93-2	nonaromatic (alkane)	air	kg
fenitrothion	122-14-5	pesticide	air	kg
fenthion	55-38-9	pesticide	air	kg
fentin acetate	900-95-8	pesticide	air	kg
fentin chloride	639-58-7	pesticide	air	kg
fentin hydroxide	76-87-9	pesticide	air	kg
fluoranthrene	206-44-0	PAH	air	kg
folpet	133-07-3	pesticide	air	kg

Substance	cas no.	group	initial emission or extraction	unit
Formaldehyde	50-00-0	nonaromatic (aldehyde)	air	kg
Formic acid	64-18-6	nonaromatic (carboxylic acid)	air	kg
glyphosate	1071-83-6	pesticide	air	kg
HALON	???	halogenated nonaromatic	air	kg
HALON-1201	???	halogenated nonaromatic	air	kg
HALON-1202	75-61-6	halogenated nonaromatic	air	kg
HALON-1211	353-59-3	halogenated nonaromatic	air	kg
HALON-1301	75-63-8	halogenated nonaromatic	air	kg
HALON-2311	???	halogenated nonaromatic	air	kg
HALON-2402	25497-30-7	halogenated nonaromatic	air	kg
HCFC-123	306-83-2	halogenated nonaromatic	air	kg
HCFC-124	63938-10-3	halogenated nonaromatic	air	kg
HCFC-141b	27156-03-2	halogenated nonaromatic	air	kg
HCFC-142b	75-68-3	halogenated nonaromatic	air	kg
HCFC-22	75-45-6	halogenated nonaromatic	air	kg
HCFC-225ca	422-56-0	halogenated nonaromatic	air	kg
HCFC-225cb	507-55-1	halogenated nonaromatic	air	kg
heptachlor	76-44-8	pesticide	air	kg
Heptane	142-82-5	nonaromatic (alkane)	air	kg
heptenophos	23560-59-0	pesticide	air	kg
hexachloro-1,3-butadiene	87-68-3	halogenated nonaromatic	air	kg
hexachlorobenzene	118-74-1	halogenated aromatic	air	kg
Hexan-2-one	591-78-6	nonaromatic (ketone)	air	kg
Hexan-3-one	589-38-8	nonaromatic (ketone)	air	kg
Hexane	110-54-3	nonaromatic (alkane)	air	kg
HFC-125	354-33-6	halogenated nonaromatic	air	kg
HFC-134	811-97-2	halogenated nonaromatic	air	kg
HFC-134a	811-97-2 (a)	halogenated nonaromatic	air	kg
HFC-143	430-66-0	halogenated nonaromatic	air	kg
HFC-143a	420-46-2	halogenated nonaromatic	air	kg
HFC-152a	75-37-6	halogenated nonaromatic	air	kg
HFC-227ea	431-89-0	halogenated nonaromatic	air	kg
HFC-23	75-46-7	halogenated nonaromatic	air	kg
HFC-236fa	690-39-1	halogenated	air	kg



Substance	cas no.	group	initial emission or extraction	unit
HFC-245ca	679-86-7	nonaromatic halogenated	air	kg
HFC-32	75-10-5	nonaromatic halogenated	air	kg
HFC-41	593-53-3	nonaromatic halogenated	air	kg
HFC-43-10mee	138495-42-8	nonaromatic halogenated	air	kg
hydrogen chloride	7647-01-0	inorganic	air	kg
hydrogen fluoride	7664-39-3	inorganic	air	kg
hydrogen sulfide	7783-06-4	inorganic	air	kg
hydrogen-3 (H-3)	1333-74-0	radioactive	air	KBq
indeno[1,2,3-cd]pyrene	(radioactive 3) 193-39-5	PAH	air	kg
Iodine-129 (I-129)	10043-66-0	radioactive	air	KBq
Iodine-131 (I-131)	24267-56-9	radioactive	air	KBq
Iodine-133 (I-133)	14834-67-4	radioactive	air	KBq
iprodione	36734-19-7	pesticide	air	kg
isobutane	75-28-5	nonaromatic (alkane)	air	kg
isobutanol	78-83-1	nonaromatic (alcohol)	air	kg
isobutene	115-11-7	nonaromatic (alkene)	air	kg
isobutyraldehyde	78-84-2	nonaromatic (aldehyde)	air	kg
isopentane	78-78-4	nonaromatic (alkane)	air	kg
isopentylacetate	123-92-2	nonaromatic (ester)	air	kg
isoprene	78-79-5	nonaromatic (alkene)	air	kg
isopropanol	67-63-0	nonaromatic (alcohol)	air	kg
isopropyl acetate	108-21-4	nonaromatic (ester)	air	kg
isopropyl benzene	98-82-8	aromatic	air	kg
isopropyl propionate	637-78-5	nonaromatic (alkane)	air	kg
isoproturon	34123-59-6	pesticide	air	kg
Krypton-85 (Kr-85)	7439-90-9	radioactive	air	KBq
lead (II) ion	14280-50-3	metal	air	kg
Lead-210 (Pb-210)	14255-04-0	radioactive	air	KBq
lindane	58-89-9	pesticide	air	kg
linuron	330-55-2	pesticide	air	kg
malathion	121-75-5	pesticide	air	kg
MCPA	94-74-6	pesticide	air	kg
mecoprop	7085-19-0	pesticide	air	kg
mercury (II) ion	14302-87-5	metal	air	kg
meta-Cresol	108-39-4	aromatic	air	kg
meta-Ethyltoluene	620-14-4	aromatic	air	kg
metamitron	41394-05-2	pesticide	air	kg
meta-Xylene	108-38-3	aromatic	air	kg
metazachlor	67129-08-2	pesticide	air	kg
methabenzthiazuron	18691-97-9	pesticide	air	kg
Methane	74-82-8	nonaromatic (alkane)	air	kg
methanethiol	74-93-1	nonaromatic (alkane)	air	kg
Methanol	67-56-1	nonaromatic (alcohol)	air	kg
methomyl	16752-77-5	pesticide	air	kg
Methyl Acetate	79-20-9	nonaromatic (ester)	air	kg

Substance	cas no.	group	initial emission or extraction	unit
Methyl Acrylate	96-33-3	nonaromatic (ester)	air	kg
Methyl Chloride	74-87-3	halogenated nonaromatic	air	kg
methyl dithiomethane	???	nonaromatic (alkane)	air	kg
Methyl Formate	107-31-3	nonaromatic (ester)	air	kg
Methyl Isobutyl Ketone	108-10-1	nonaromatic (ketone)	air	kg
methyl methacrylate	80-62-6	nonaromatic (ester)	air	kg
methyl propionate	554-12-1		air	kg
Methyl propyl Ketone	107-87-9	nonaromatic (ketone)	air	kg
Methyl tert-Butyl Ether	1634-04-4	nonaromatic (ether)	air	kg
Methyl tert-butylketone	75-97-8	nonaromatic (ketone)	air	kg
methyl thiomethane	75-18-3	nonaromatic (alkane)	air	kg
methylbromide	74-83-9	pesticide	air	kg
Methyl-Isopropylketone	563-80-4	nonaromatic (ketone)	air	kg
methyl-mercury	22967-92-6	metal	air	kg
metobromuron	3060-89-7	pesticide	air	kg
metolachlor	51218-45-2	pesticide	air	kg
mevinphos	7786-34-7	pesticide	air	kg
molybdenum	7439-98-7	metal	air	kg
Naphtalene	91-20-3	PAH	air	kg
Neopentane	463-82-1	nonaromatic (alkane)	air	kg
nickel	7440-02-0	metal	air	kg
Nitrate	14797-55-8	inorganic	air	kg
nitric acid	7697-37-2	inorganic	air	kg
nitrogen	7727-37-9	inorganic	air	kg
nitrogen dioxide	10102-44-0	inorganic	air	kg
nitrogen mono oxide	10102-43-9	inorganic	air	kg
nitrogen oxides (as NO2)	10102-44-0 (as NO2)	inorganic	air	kg
Nonane	111-84-2	nonaromatic (alkane)	air	kg
Octane	111-65-9	nonaromatic (alkane)	air	kg
ortho-Cresol	95-48-7	aromatic	air	kg
ortho-Ethyltoluene	611-14-3	aromatic	air	kg
ortho-Xylene	95-47-6	aromatic	air	kg
oxamyl	23135-22-0	pesticide	air	kg
oxydemethon-methyl	301-12-2	pesticide	air	kg
para-Cresol	106-44-5	aromatic	air	kg
para-Ethyltoluene	622-96-8	aromatic	air	kg
parathion-ethyl	56-38-2	pesticide	air	kg
parathion-methyl	298-00-0	pesticide	air	kg
para-Xylene	106-42-3	aromatic	air	kg
pentachlorobenzene	608-93-5	halogenated aromatic	air	kg
pentachloronitrobenzene	82-68-8	halogenated aromatic	air	kg
pentachlorophenol	87-86-5	halogenated aromatic	air	kg
Pentanaldehyde	???	nonaromatic (aldehyde)	air	kg
Pentane	109-66-0	nonaromatic (alkane)	air	kg
Perfluorobutane	355-25-9	halogenated nonaromatic	air	kg
Perfluorocyclobutane	115-25-3	halogenated nonaromatic	air	kg
Perfluoroethane	76-16-4	halogenated nonaromatic	air	kg
Perfluorohexane	355-42-0	halogenated nonaromatic	air	kg
Perfluoromethane	75-73-0	halogenated nonaromatic	air	kg

Substance	cas no.	group	initial emission or extraction	unit
Perfluoropentane	678-26-2	halogenated nonaromatic	air	kg
Perfluoropropane	76-19-7	halogenated nonaromatic	air	kg
permethrin	52645-53-1	pesticide	air	kg
phenanthrene	85-01-8	PAH	air	kg
Phenol	108-95-2	aromatic	air	kg
phosphate	14265-44-2	inorganic	air	kg
phosphoric acid	7664-38-2	inorganic	air	kg
Phosphorus	7723-14-0	inorganic	air	kg
phosphorus(V) oxide (P2O5)	1314-56-3	inorganic	air	kg
phoxim	14816-18-3	pesticide	air	kg
Phtalic anhydride	85-44-9	aromatic	air	kg
pirimicarb	23103-98-2	pesticide	air	kg
Plutonium alpha (Pu alpha)	7440-07-5	radioactive	air	KBq
Plutonium-238 (Pu-238)	13981-16-3	radioactive	air	KBq
Polonium-210 (Po-210)	13981-52-7	radioactive	air	KBq
Polycyclic Aromatic Hydrocarbons Carcinogenic- (carcinogenic-PAH)	PAH carc.	PAH	air	kg
propachlor	1918-16-7	pesticide	air	kg
Propane	74-98-6	nonaromatic (alkane)	air	kg
Propanoic acid	79-09-4	nonaromatic (carboxylic acid)	air	kg
Propionaldehyde	123-38-6	nonaromatic (aldehyde)	air	kg
propoxur	114-26-1	pesticide	air	kg
Propylene	115-07-1	nonaromatic (alkene)	air	kg
Propylene Glycol	57-55-6	nonaromatic (ester)	air	kg
Propylene Oxide	75-56-9	nonaromatic (ester)	air	kg
pyrazophos	13457-18-6	pesticide	air	kg
pyridine	110-86-1	aromatic	air	kg
Radium-226 (Ra-226)	13982-63-3	radioactive	air	KBq
Radon-222 (Rn-222)	14859-67-7	radioactive	air	KBq
sec-Butanol	78-92-2	nonaromatic (alcohol)	air	kg
sec-Butyl Acetate	105-46-4	nonaromatic (ester)	air	kg
selenium	7782-49-2	metal	air	kg
simazine	122-34-9	pesticide	air	kg
styrene	100-42-5	aromatic	air	kg
sulphur dioxide	7446-09-5	inorganic	air	kg
Sulphur hexafluoride	2551-62-4	inorganic	air	kg
terephthaloyldichloride	100-20-9	halogenated nonaromatic	air	kg
tertiary-Butanol	75-65-0	nonaromatic (alcohol)	air	kg
tertiary-Butyl Acetate	540-88-5	nonaromatic (ester)	air	kg
Tetrachloroethylene	127-18-4	halogenated nonaromatic	air	kg
Tetrachloromethane	56-23-5	halogenated nonaromatic	air	kg
thallium	7440-28-0	metal	air	kg
Thiram	137-26-8	pesticide	air	kg
Thorium-230	7440-29-1 (radioactive 230)	radioactive	air	KBq
tin	7440-31-5	metal	air	kg
tolclophos-methyl	57018-04-9	pesticide	air	kg

Substance	cas no.	group	initial emission or extraction	unit
Toluene	108-88-3	aromatic	air	kg
trans-2-Butene	624-64-6	nonaromatic (alkene)	air	kg
trans-2-Hexene	4050-45-7	nonaromatic (alkene)	air	kg
trans-2-Pentene	646-04-8	nonaromatic (alkene)	air	kg
trans-dichloroethene	156-60-5	halogenated nonaromatic	air	kg
tri-allate	2303-17-5	pesticide	air	kg
triazophos	24017-47-8	pesticide	air	kg
tributyltin oxide	56-35-9	pesticide	air	kg
trichlorfon	52-68-6	pesticide	air	kg
Trichloroethylene	79-01-6	halogenated nonaromatic	air	kg
Trichloromethane	67-66-3	halogenated nonaromatic	air	kg
trifluarin	1582-09-8	pesticide	air	kg
Trimethylamine	75-50-3	nonaromatic (nitrogen compounds)	air	kg
Uranium-234 (U-234)	13966-29-5	radioactive	air	KBq
Uranium-235 (U-235)	7440-61-1 (radioactive 235)	radioactive	air	KBq
Uranium-238 (U-238)	7440-61-1 (radioactive 238)	radioactive	air	KBq
Valeraldehyde	110-62-3	nonaromatic (aldehyde)	air	kg
vanadium	7440-62-2	metal	air	kg
Vinyl Chloride	75-01-4	halogenated nonaromatic	air	kg
Xenon-133	7440-63-3 (radioactive 133)	radioactive	air	KBq
zinc (II) ion	23713-49-7	metal	air	kg
zineb	12122-67-7	pesticide	air	kg
1,1,1-trichloroethane	71-55-6	halogenated nonaromatic	fresh water	kg
1,2,3,4-tetrachlorobenzene	634-66-2	halogenated aromatic	fresh water	kg
1,2,3,5-tetrachlorobenzene	634-90-2	halogenated aromatic	fresh water	kg
1,2,3-trichlorobenzene	87-61-6	halogenated aromatic	fresh water	kg
1,2,4,5-tetrachlorobenzene	95-94-3	halogenated aromatic	fresh water	kg
1,2,4-trichlorobenzene	120-82-1	halogenated aromatic	fresh water	kg
1,2-dichlorobenzene	95-50-1	halogenated aromatic	fresh water	kg
1,2-dichloroethane	107-06-2	halogenated nonaromatic	fresh water	kg
1,3,5-trichlorobenzene	108-70-3	halogenated aromatic	fresh water	kg
1,3-butadiene	106-99-0	nonaromatic (alkene)	fresh water	kg
1,3-dichlorobenzene	541-73-1	halogenated aromatic	fresh water	kg
1,4-dichlorobenzene	106-46-7	halogenated aromatic	fresh water	kg
1-chloro-4-nitrobenzene	100-00-5	halogenated aromatic	fresh water	kg
2,3,4,6-tetrachlorophenol	58-90-2	halogenated aromatic	fresh water	kg
2,3,7,8-TCDD	1746-01-6	halogenated aromatic	fresh water	kg
2,4,5-T	93-76-5	pesticide	fresh water	kg
2,4,5-trichlorophenol	95-95-4	halogenated aromatic	fresh water	kg
2,4,6-trichlorophenol	88-06-2	halogenated aromatic	fresh water	kg
2,4-D	94-75-7	pesticide	fresh water	kg
2,4-dichlorophenol	120-83-2	halogenated aromatic	fresh water	kg

Substance	cas no.	group	initial emission or extraction	unit
2-chlorophenol	95-57-8	halogenated aromatic	fresh water	kg
3,4-dichloroaniline	95-76-1	halogenated aromatic	fresh water	kg
3-chloroaniline	108-42-9	halogenated aromatic	fresh water	kg
4-chloroaniline	106-47-8	halogenated aromatic	fresh water	kg
acephate	30560-19-1	pesticide	fresh water	kg
Acrolein	107-02-8	nonaromatic (aldehyde)	fresh water	kg
acrylonitrile	107-13-1	nonaromatic (nitrogen compounds)	fresh water	kg
Ag-110m	14391-76-5	radioactive	fresh water	KBq
aldicarb	116-06-3	pesticide	fresh water	kg
aldrin	309-00-2	pesticide	fresh water	kg
ammonia	7664-41-7	inorganic	fresh water	kg
ammonium	14798-03-9	inorganic	fresh water	kg
anilazine	101-05-3	pesticide	fresh water	kg
anthracene	120-12-7	PAH	fresh water	kg
antimony	7440-36-0	metal	fresh water	kg
Antimony-124 (Sb-124)	14234-35-6	radioactive	fresh water	KBq
arsenic	7440-38-2	metal	fresh water	kg
atrazine	1912-24-9	pesticide	fresh water	kg
azinphos-ethyl	2642-71-9	pesticide	fresh water	kg
azinphos-methyl	86-50-0	pesticide	fresh water	kg
barium	7440-39-3	metal	fresh water	kg
benomyl	17804-35-2	pesticide	fresh water	kg
bentazone	25057-89-0	pesticide	fresh water	kg
benzene	71-43-2	aromatic	fresh water	kg
benzo[a]anthracene	56-55-3	PAH	fresh water	kg
benzo[a]pyrene	50-32-8	PAH	fresh water	kg
benzo[ghi]perylene	191-24-2	PAH	fresh water	kg
benzo[k]fluoranthrene	207-08-9	PAH	fresh water	kg
benzylchloride	100-44-7	halogenated aromatic	fresh water	kg
beryllium	7440-41-7	metal	fresh water	kg
bifenthrin	82657-04-3	pesticide	fresh water	kg
Butylbenzylphtalate	85-68-7	aromatic	fresh water	kg
cadmium (II) ion	22537-48-0	metal	fresh water	kg
captafol	2425-06-1	pesticide	fresh water	kg
captan	133-06-2	pesticide	fresh water	kg
carbaryl	63-25-2	pesticide	fresh water	kg
carbendazim	10605-21-7	pesticide	fresh water	kg
carbofuran	1563-66-2	pesticide	fresh water	kg
carbon disulfide	75-15-0	inorganic	fresh water	kg
Cesium-134 (Cs-134)	13967-70-9	radioactive	fresh water	KBq
Cesium-137 (Cs-137)	10045-97-3	radioactive	fresh water	KBq
Chemical oxygen demand (COD)	COD		fresh water	kg
chlordane	57-74-9	pesticide	fresh water	kg
chlorfenvinphos	470-90-6	pesticide	fresh water	kg
chloridazon	1698-60-8	pesticide	fresh water	kg
chlorobenzene	108-90-7	halogenated aromatic	fresh water	kg
chlorothalonil	1897-45-6	pesticide	fresh water	kg
chlorpropham	101-21-3	pesticide	fresh water	kg
chlorpyrifos	2921-88-2	pesticide	fresh water	kg
chromium III	16065-83-1	metal	fresh water	kg
chromium VI	18540-29-9	metal	fresh water	kg
chrysene	218-01-9	PAH	fresh water	kg
cobalt	7440-48-4	metal	fresh water	kg

Substance	cas no.	group	initial emission or extraction	unit
Cobalt-58 (Co-58)	13981-38-9	radioactive	fresh water	KBq
Cobalt-60 (Co-60)	10198-40-0	radioactive	fresh water	KBq
copper (II) ion	15158-11-9	metal	fresh water	kg
coumaphos	56-72-4	pesticide	fresh water	kg
cyanazine	21725-46-2	pesticide	fresh water	kg
cypermethrin	52315-07-8	pesticide	fresh water	kg
cyromazine	66215-27-8	pesticide	fresh water	kg
DDT	50-29-3	pesticide	fresh water	kg
deltamethrin	52918-63-5	pesticide	fresh water	kg
demeton	8065-48-3	pesticide	fresh water	kg
desmetryn	1014-69-3	pesticide	fresh water	kg
Di(2-ethylhexyl)phtalate	117-81-7	aromatic	fresh water	kg
diazinon	333-41-5	pesticide	fresh water	kg
Dibutylphtalate	84-74-2	aromatic	fresh water	kg
Dichloromethane	75-09-2	halogenated nonaromatic	fresh water	kg
dichlorprop	120-36-5	pesticide	fresh water	kg
dichlorvos	62-73-7	pesticide	fresh water	kg
dieldrin	60-57-1	pesticide	fresh water	kg
Diethylphtalate	84-66-2	aromatic	fresh water	kg
Dihexylphtalate	84-75-3	aromatic	fresh water	kg
Diisodecylphtalate	26761-40-0	aromatic	fresh water	kg
Diisooctylphtalate	27554-26-3	aromatic	fresh water	kg
dimethoate	60-51-5	pesticide	fresh water	kg
Dimethylphtalate	133-11-3	aromatic	fresh water	kg
dinoseb	88-85-7	pesticide	fresh water	kg
dinoterb	1420-07-1	pesticide	fresh water	kg
Dioctylphtalate	117-84-0	aromatic	fresh water	kg
dioxins (TEQ)	dioxine	halogenated aromatic	fresh water	kg
disulfothon	298-04-4	pesticide	fresh water	kg
diuron	330-54-1	pesticide	fresh water	kg
DNOC	534-52-1	pesticide	fresh water	kg
endosulfan	115-29-7	pesticide	fresh water	kg
endrin	72-20-8	pesticide	fresh water	kg
ethoprophos	13194-48-4	pesticide	fresh water	kg
ethylbenzene	100-41-4	aromatic	fresh water	kg
ethylene	74-85-1	nonaromatic (alkene)	fresh water	kg
ethylene oxide	75-21-8	nonaromatic (ester)	fresh water	kg
fenitrothion	122-14-5	pesticide	fresh water	kg
fenthion	55-38-9	pesticide	fresh water	kg
fentin acetate	900-95-8	pesticide	fresh water	kg
fentin chloride	639-58-7	pesticide	fresh water	kg
fentin hydroxide	76-87-9	pesticide	fresh water	kg
fluoranthrene	206-44-0	PAH	fresh water	kg
folpet	133-07-3	pesticide	fresh water	kg
Formaldehyde	50-00-0	nonaromatic (aldehyde)	fresh water	kg
glyphosate	1071-83-6	pesticide	fresh water	kg
H-3	1333-74-0 (radioactive 3)	radioactive	fresh water	KBq
heptachlor	76-44-8	pesticide	fresh water	kg
heptenophos	23560-59-0	pesticide	fresh water	kg
hexachloro-1,3-butadiene	87-68-3	halogenated nonaromatic	fresh water	kg
hexachlorobenzene	118-74-1	halogenated aromatic	fresh water	kg
hydrogen fluoride	7664-39-3	inorganic	fresh water	kg

Substance	cas no.	group	initial emission or extraction	unit
indeno[1,2,3-cd]pyrene	193-39-5	PAH	fresh water	kg
Iodine-131 (I-131)	24267-56-9	radioactive	fresh water	KBq
iprodione	36734-19-7	pesticide	fresh water	kg
isoproturon	34123-59-6	pesticide	fresh water	kg
lead (II) ion	14280-50-3	metal	fresh water	kg
lindane	58-89-9	pesticide	fresh water	kg
linuron	330-55-2	pesticide	fresh water	kg
malathion	121-75-5	pesticide	fresh water	kg
manganese-54 (Mn-54)	18476-92-1	radioactive	fresh water	KBq
MCPA	94-74-6	pesticide	fresh water	kg
mecoprop	7085-19-0	pesticide	fresh water	kg
mercury (II) ion	14302-87-5	metal	fresh water	kg
metamitron	41394-05-2	pesticide	fresh water	kg
meta-xylene	108-38-3	aromatic	fresh water	kg
metazachlor	67129-08-2	pesticide	fresh water	kg
methabenzthiazuron	18691-97-9	pesticide	fresh water	kg
methomyl	16752-77-5	pesticide	fresh water	kg
methylbromide	74-83-9	pesticide	fresh water	kg
methyl-mercury	22967-92-6	metal	fresh water	kg
metobromuron	3060-89-7	pesticide	fresh water	kg
metolachlor	51218-45-2	pesticide	fresh water	kg
mevinphos	7786-34-7	pesticide	fresh water	kg
molybdenum	7439-98-7	metal	fresh water	kg
naphtalene	91-20-3	PAH	fresh water	kg
nickel	7440-02-0	metal	fresh water	kg
Nitrate	14797-55-8	inorganic	fresh water	kg
nitric acid	7697-37-2	inorganic	fresh water	kg
Nitrogen	7727-37-9	inorganic	fresh water	kg
ortho-xylene	95-47-6	aromatic	fresh water	kg
oxamyl	23135-22-0	pesticide	fresh water	kg
oxydemethon-methyl	301-12-2	pesticide	fresh water	kg
parathion-ethyl	56-38-2	pesticide	fresh water	kg
parathion-methyl	298-00-0	pesticide	fresh water	kg
para-xylene	106-42-3	aromatic	fresh water	kg
pentachlorobenzene	608-93-5	halogenated aromatic	fresh water	kg
pentachloronitrobenzene	82-68-8	halogenated aromatic	fresh water	kg
pentachlorophenol	87-86-5	halogenated aromatic	fresh water	kg
permethrin	52645-53-1	pesticide	fresh water	kg
phenanthrene	85-01-8	PAH	fresh water	kg
phenol	108-95-2	aromatic	fresh water	kg
phosphate	14265-44-2	inorganic	fresh water	kg
phosphoric acid	7664-38-2	inorganic	fresh water	kg
Phosphorus	7723-14-0	inorganic	fresh water	kg
phosphorus(V) oxide (P2O5)	1314-56-3	inorganic	fresh water	kg
phoxim	14816-18-3	pesticide	fresh water	kg
Phtalic anhydride	85-44-9	aromatic	fresh water	kg
pirimicarb	23103-98-2	pesticide	fresh water	kg
Polycyclic Aromatic Hydrocarbons Carcinogenic- (carcinogenic-PAH)	PAH carc.	PAH	fresh water	kg
propachlor	1918-16-7	pesticide	fresh water	kg
propoxur	114-26-1	pesticide	fresh water	kg
propylene oxide	75-56-9	nonaromatic (ester)	fresh water	kg
pyrazophos	13457-18-6	pesticide	fresh water	kg
Radium-226 (Ra-226)	13982-63-3	radioactive	fresh water	KBq
selenium	7782-49-2	metal	fresh water	kg
simazine	122-34-9	pesticide	fresh water	kg



Substance	cas no.	group	initial emission or extraction	unit
styrene	100-42-5	aromatic	fresh water	kg
tetrachloroethylene	127-18-4	halogenated nonaromatic	fresh water	kg
Tetrachloromethane	56-23-5	halogenated nonaromatic	fresh water	kg
thallium	7440-28-0	metal	fresh water	kg
Thiram	137-26-8	pesticide	fresh water	kg
tin	7440-31-5	metal	fresh water	kg
tolclophos-methyl	57018-04-9	pesticide	fresh water	kg
toluene	108-88-3	aromatic	fresh water	kg
tri-allate	2303-17-5	pesticide	fresh water	kg
triazophos	24017-47-8	pesticide	fresh water	kg
tributyltin oxide	56-35-9	pesticide	fresh water	kg
trichlorfon	52-68-6	pesticide	fresh water	kg
Trichloroethylene (tri)	79-01-6	halogenated nonaromatic	fresh water	kg
Trichloromethane	67-66-3	halogenated nonaromatic	fresh water	kg
trifluarin	1582-09-8	pesticide	fresh water	kg
Uranium-234 (U-234)	13966-29-5	radioactive	fresh water	KBq
Uranium-235 (U-235)	7440-61-1 (radioactive 235)	radioactive	fresh water	KBq
Uranium-238 (U-238)	7440-61-1 (radioactive 238)	radioactive	fresh water	KBq
vanadium	7440-62-2	metal	fresh water	kg
Vinyl Chloride	75-01-4	halogenated nonaromatic	fresh water	kg
zinc (II) ion	23713-49-7	metal	fresh water	kg
zineb	12122-67-7	pesticide	fresh water	kg
1,1,1-trichloroethane	71-55-6	halogenated nonaromatic	sea water	kg
1,2,3,4-tetrachlorobenzene	634-66-2	halogenated aromatic	sea water	kg
1,2,3,5-tetrachlorobenzene	634-90-2	halogenated aromatic	sea water	kg
1,2,3-trichlorobenzene	87-61-6	halogenated aromatic	sea water	kg
1,2,4,5-tetrachlorobenzene	95-94-3	halogenated aromatic	sea water	kg
1,2,4-trichlorobenzene	120-82-1	halogenated aromatic	sea water	kg
1,2-dichlorobenzene	95-50-1	halogenated aromatic	sea water	kg
1,2-dichloroethane	107-06-2	halogenated nonaromatic	sea water	kg
1,3,5-trichlorobenzene	108-70-3	halogenated aromatic	sea water	kg
1,3-butadiene	106-99-0	nonaromatic (alkene)	sea water	kg
1,3-dichlorobenzene	541-73-1	halogenated aromatic	sea water	kg
1,4-dichlorobenzene	106-46-7	halogenated aromatic	sea water	kg
1-chloro-4-nitrobenzene	100-00-5	halogenated aromatic	sea water	kg
2,3,4,6-tetrachlorophenol	58-90-2	halogenated aromatic	sea water	kg
2,3,7,8-TCDD	1746-01-6	halogenated aromatic	sea water	kg
2,4,5-T	93-76-5	pesticide	sea water	kg
2,4,5-trichlorophenol	95-95-4	halogenated aromatic	sea water	kg
2,4,6-trichlorophenol	88-06-2	halogenated aromatic	sea water	kg
2,4-D	94-75-7	pesticide	sea water	kg
2,4-dichlorophenol	120-83-2	halogenated aromatic	sea water	kg
2-chlorophenol	95-57-8	halogenated aromatic	sea water	kg
3,4-dichloroaniline	95-76-1	halogenated aromatic	sea water	kg
3-chloroaniline	108-42-9	halogenated aromatic	sea water	kg
4-chloroaniline	106-47-8	halogenated aromatic	sea water	kg

Substance	cas no.	group	initial emission or extraction	unit
acephate	30560-19-1	pesticide	sea water	kg
Acrolein	107-02-8	nonaromatic (aldehyde)	sea water	kg
acrylonitrile	107-13-1	nonaromatic (nitrogen compounds)	sea water	kg
aldicarb	116-06-3	pesticide	sea water	kg
aldrin	309-00-2	pesticide	sea water	kg
Am-241	86954-36-1	radioactive	sea water	KBq
ammonia	7664-41-7	inorganic	sea water	kg
ammonium	14798-03-9	inorganic	sea water	kg
anilazine	101-05-3	pesticide	sea water	kg
anthracene	120-12-7	PAH	sea water	kg
antimony	7440-36-0	metal	sea water	kg
Antimony-125 (Sb-125)	14683-10-4	radioactive	sea water	KBq
arsenic	7440-38-2	metal	sea water	kg
atrazine	1912-24-9	pesticide	sea water	kg
azinphos-ethyl	2642-71-9	pesticide	sea water	kg
azinphos-methyl	86-50-0	pesticide	sea water	kg
barium	7440-39-3	metal	sea water	kg
benomyl	17804-35-2	pesticide	sea water	kg
bentazone	25057-89-0	pesticide	sea water	kg
benzene	71-43-2	aromatic	sea water	kg
benzo[a]anthracene	56-55-3	PAH	sea water	kg
benzo[a]pyrene	50-32-8	PAH	sea water	kg
benzo[ghi]perylene	191-24-2	PAH	sea water	kg
benzo[k]fluoranthrene	207-08-9	PAH	sea water	kg
benzylchloride	100-44-7	halogenated aromatic	sea water	kg
beryllium	7440-41-7	metal	sea water	kg
bifenthrin	82657-04-3	pesticide	sea water	kg
Butylbenzylphthalate	85-68-7	aromatic	sea water	kg
cadmium (II) ion	22537-48-0	metal	sea water	kg
captafol	2425-06-1	pesticide	sea water	kg
captan	133-06-2	pesticide	sea water	kg
carbaryl	63-25-2	pesticide	sea water	kg
carbendazim	10605-21-7	pesticide	sea water	kg
carbofuran	1563-66-2	pesticide	sea water	kg
carbon disulfide	75-15-0	inorganic	sea water	kg
Carbon-14 (C-14)	14762-75-5	radioactive	sea water	KBq
Cesium-134 (Cs-134)	13967-70-9	radioactive	sea water	KBq
Cesium-137 (Cs-137)	10045-97-3	radioactive	sea water	KBq
Chemical oxygen demand (COD)	COD		sea water	kg
chlordane	57-74-9	pesticide	sea water	kg
chlorfenvinphos	470-90-6	pesticide	sea water	kg
chloridazon	1698-60-8	pesticide	sea water	kg
chlorobenzene	108-90-7	halogenated aromatic	sea water	kg
chlorothalonil	1897-45-6	pesticide	sea water	kg
chlorpropham	101-21-3	pesticide	sea water	kg
chlorpyrifos	2921-88-2	pesticide	sea water	kg
chromium (III) ion	16065-83-1	metal	sea water	kg
chromium (VI) ion	18540-29-9	metal	sea water	kg
chrysene	218-01-9	PAH	sea water	kg
Cm alpha		radioactive	sea water	KBq
cobalt	7440-48-4	metal	sea water	kg
Cobalt-60 (Co-60)	10198-40-0	radioactive	sea water	KBq
copper (II) ion	15158-11-9	metal	sea water	kg

Substance	cas no.	group	initial emission or extraction	unit
coumaphos	56-72-4	pesticide	sea water	kg
cyanazine	21725-46-2	pesticide	sea water	kg
cypermethrin	52315-07-8	pesticide	sea water	kg
cyromazine	66215-27-8	pesticide	sea water	kg
DDT	50-29-3	pesticide	sea water	kg
deltamethrin	52918-63-5	pesticide	sea water	kg
demeton	8065-48-3	pesticide	sea water	kg
desmetryn	1014-69-3	pesticide	sea water	kg
Di(2-ethylhexyl)phtalate	117-81-7	aromatic	sea water	kg
diazinon	333-41-5	pesticide	sea water	kg
Dibutylphtalate	84-74-2	aromatic	sea water	kg
Dichloromethane	75-09-2	halogenated nonaromatic	sea water	kg
dichlorprop	120-36-5	pesticide	sea water	kg
dichlorvos	62-73-7	pesticide	sea water	kg
dieldrin	60-57-1	pesticide	sea water	kg
Diethylphtalate	84-66-2	aromatic	sea water	kg
Dihexylphtalate	84-75-3	aromatic	sea water	kg
Diisodecylphtalate	26761-40-0	aromatic	sea water	kg
Diisooctylphtalate	27554-26-3	aromatic	sea water	kg
dimethoate	60-51-5	pesticide	sea water	kg
Dimethylphtalate	133-11-3	aromatic	sea water	kg
dinoseb	88-85-7	pesticide	sea water	kg
dinoterb	1420-07-1	pesticide	sea water	kg
Dioctylphtalate	117-84-0	aromatic	sea water	kg
disulfothon	298-04-4	pesticide	sea water	kg
diuron	330-54-1	pesticide	sea water	kg
DNOC	534-52-1	pesticide	sea water	kg
endosulfan	115-29-7	pesticide	sea water	kg
endrin	72-20-8	pesticide	sea water	kg
ethoprophos	13194-48-4	pesticide	sea water	kg
ethylbenzene	100-41-4	aromatic	sea water	kg
ethylene	74-85-1	nonaromatic (alkene)	sea water	kg
ethylene oxide	75-21-8	nonaromatic (ester)	sea water	kg
fenitrothion	122-14-5	pesticide	sea water	kg
fenthion	55-38-9	pesticide	sea water	kg
fentin acetate	900-95-8	pesticide	sea water	kg
fentin chloride	639-58-7	pesticide	sea water	kg
fentin hydroxide	76-87-9	pesticide	sea water	kg
fluoranthrene	206-44-0	PAH	sea water	kg
folpet	133-07-3	pesticide	sea water	kg
Formaldehyde	50-00-0	nonaromatic (aldehyde)	sea water	kg
glyphosate	1071-83-6	pesticide	sea water	kg
H-3	1333-74-0 (radioactive 3)	radioactive	sea water	KBq
heptachlor	76-44-8	pesticide	sea water	kg
heptenophos	23560-59-0	pesticide	sea water	kg
hexachloro-1,3-butadiene	87-68-3	halogenated nonaromatic	sea water	kg
hexachlorobenzene	118-74-1	halogenated aromatic	sea water	kg
hydrogen fluoride	7664-39-3	inorganic	sea water	kg
indeno[1,2,3-cd]pyrene	193-39-5	PAH	sea water	kg
Iodine-129 (I-129)	10043-66-0	radioactive	sea water	KBq
iprodione	36734-19-7	pesticide	sea water	kg
isoproturon	34123-59-6	pesticide	sea water	kg

Substance	cas no.	group	initial emission or extraction	unit
lead (II) ion	14280-50-3	metal	sea water	kg
lindane	58-89-9	pesticide	sea water	kg
linuron	330-55-2	pesticide	sea water	kg
malathion	121-75-5	pesticide	sea water	kg
MCPA	94-74-6	pesticide	sea water	kg
mecoprop	7085-19-0	pesticide	sea water	kg
mercury (II) ion	14302-87-5	metal	sea water	kg
metamitron	41394-05-2	pesticide	sea water	kg
meta-xylene	108-38-3	aromatic	sea water	kg
metazachlor	67129-08-2	pesticide	sea water	kg
methabenzthiazuron	18691-97-9	pesticide	sea water	kg
methomyl	16752-77-5	pesticide	sea water	kg
methylbromide	74-83-9	pesticide	sea water	kg
methyl-mercury	22967-92-6	metal	sea water	kg
metobromuron	3060-89-7	pesticide	sea water	kg
metolachlor	51218-45-2	pesticide	sea water	kg
mevinphos	7786-34-7	pesticide	sea water	kg
molybdenum	7439-98-7	metal	sea water	kg
naphtalene	91-20-3	PAH	sea water	kg
nickel	7440-02-0	metal	sea water	kg
Nitrate	14797-55-8	inorganic	sea water	kg
nitric acid	7697-37-2	inorganic	sea water	kg
Nitrogen	7727-37-9	inorganic	sea water	kg
ortho-xylene	95-47-6	aromatic	sea water	kg
oxamyl	23135-22-0	pesticide	sea water	kg
oxydemethon-methyl	301-12-2	pesticide	sea water	kg
parathion-ethyl	56-38-2	pesticide	sea water	kg
parathion-methyl	298-00-0	pesticide	sea water	kg
para-xylene	106-42-3	aromatic	sea water	kg
pentachlorobenzene	608-93-5	halogenated aromatic	sea water	kg
pentachloronitrobenzene	82-68-8	halogenated aromatic	sea water	kg
pentachlorophenol	87-86-5	halogenated aromatic	sea water	kg
permethrin	52645-53-1	pesticide	sea water	kg
phenanthrene	85-01-8	PAH	sea water	kg
phenol	108-95-2	aromatic	sea water	kg
phosphate	14265-44-2	inorganic	sea water	kg
phosphoric acid	7664-38-2	inorganic	sea water	kg
Phosphorus	7723-14-0	inorganic	sea water	kg
phosphorus(V) oxide (P2O5)	1314-56-3	inorganic	sea water	kg
phoxim	14816-18-3	pesticide	sea water	kg
Phtalic anhydride	85-44-9	aromatic	sea water	kg
pirimicarb	23103-98-2	pesticide	sea water	kg
Plutonium alpha (Pu alpha)	7440-07-5	radioactive	sea water	KBq
Polycyclic Aromatic Hydrocarbons Carcinogenic- (carcinogenic-PAH)	PAH carc.	PAH	sea water	kg
propachlor	1918-16-7	pesticide	sea water	kg
propoxur	114-26-1	pesticide	sea water	kg
propylene oxide	75-56-9	nonaromatic (ester)	sea water	kg
pyrazophos	13457-18-6	pesticide	sea water	kg
Ruthenium-106	13967-48-1	radioactive	sea water	KBq
selenium	7782-49-2	metal	sea water	kg
simazine	122-34-9	pesticide	sea water	kg
Strontium-90	10098-97-2	radioactive	sea water	KBq
styrene	100-42-5	aromatic	sea water	kg
tetrachloroethylene	127-18-4	halogenated nonaromatic	sea water	kg

Substance	cas no.	group	initial emission or extraction	unit
Tetrachloromethane	56-23-5	halogenated nonaromatic	sea water	kg
thallium	7440-28-0	metal	sea water	kg
Thiram	137-26-8	pesticide	sea water	kg
tin	7440-31-5	metal	sea water	kg
tolclophos-methyl	57018-04-9	pesticide	sea water	kg
toluene	108-88-3	aromatic	sea water	kg
tri-allate	2303-17-5	pesticide	sea water	kg
triazophos	24017-47-8	pesticide	sea water	kg
tributyltin oxide	56-35-9	pesticide	sea water	kg
trichlorfon	52-68-6	pesticide	sea water	kg
Trichloroethylene (tri)	79-01-6	halogenated nonaromatic	sea water	kg
Trichloromethane	67-66-3	halogenated nonaromatic	sea water	kg
trifluarin	1582-09-8	pesticide	sea water	kg
Uranium-234 (U-234)	13966-29-5	radioactive	sea water	KBq
Uranium-235 (U-235)	7440-61-1 (radioactive 235)	radioactive	sea water	KBq
Uranium-238 (U-238)	7440-61-1 (radioactive 238)	radioactive	sea water	KBq
vanadium	7440-62-2	metal	sea water	kg
Vinyl Chloride	75-01-4	halogenated nonaromatic	sea water	kg
zinc (II) ion	23713-49-7	metal	sea water	kg
zineb	12122-67-7	pesticide	sea water	kg
1,1,1-trichloroethane	71-55-6	halogenated nonaromatic	agric. soil	kg
1,2,3,4-tetrachlorobenzene	634-66-2	halogenated aromatic	agric. soil	kg
1,2,3,5-tetrachlorobenzene	634-90-2	halogenated aromatic	agric. soil	kg
1,2,3-trichlorobenzene	87-61-6	halogenated aromatic	agric. soil	kg
1,2,4,5-tetrachlorobenzene	95-94-3	halogenated aromatic	agric. soil	kg
1,2,4-trichlorobenzene	120-82-1	halogenated aromatic	agric. soil	kg
1,2-dichlorobenzene	95-50-1	halogenated aromatic	agric. soil	kg
1,2-dichloroethane	107-06-2	halogenated nonaromatic	agric. soil	kg
1,3,5-trichlorobenzene	108-70-3	halogenated aromatic	agric. soil	kg
1,3-butadiene	106-99-0	nonaromatic (alkene)	agric. soil	kg
1,3-dichlorobenzene	541-73-1	halogenated aromatic	agric. soil	kg
1,4-dichlorobenzene	106-46-7	halogenated aromatic	agric. soil	kg
1-chloro-4-nitrobenzene	100-00-5	halogenated aromatic	agric. soil	kg
2,3,4,6-tetrachlorophenol	58-90-2	halogenated aromatic	agric. soil	kg
2,3,7,8-TCDD	1746-01-6	halogenated aromatic	agric. soil	kg
2,4,5-T	93-76-5	pesticide	agric. soil	kg
2,4,5-trichlorophenol	95-95-4	halogenated aromatic	agric. soil	kg
2,4,6-trichlorophenol	88-06-2	halogenated aromatic	agric. soil	kg
2,4-D	94-75-7	pesticide	agric. soil	kg
2,4-dichlorophenol	120-83-2	halogenated aromatic	agric. soil	kg
2-chlorophenol	95-57-8	halogenated aromatic	agric. soil	kg
3,4-dichloroaniline	95-76-1	halogenated aromatic	agric. soil	kg
3-chloroaniline	108-42-9	halogenated aromatic	agric. soil	kg
4-chloroaniline	106-47-8	halogenated aromatic	agric. soil	kg
acephate	30560-19-1	pesticide	agric. soil	kg
Acrolein	107-02-8	nonaromatic (ester)	agric. soil	kg
acrylonitrile	107-13-1	nonaromatic	agric. soil	kg

Substance	cas no.	group	initial emission or extraction	unit
		(nitrogen compound)		
aldicarb	116-06-3	pesticide	agric. soil	kg
aldrin	309-00-2	pesticide	agric. soil	kg
ammonia	7664-41-7	inorganic	agric. soil	kg
ammonium	14798-03-9	inorganic	agric. soil	kg
anilazine	101-05-3	pesticide	agric. soil	kg
anthracene	120-12-7	PAH	agric. soil	kg
antimony	7440-36-0	metal	agric. soil	kg
arsenic	7440-38-2	metal	agric. soil	kg
atrazine	1912-24-9	pesticide	agric. soil	kg
azinphos-ethyl	2642-71-9	pesticide	agric. soil	kg
azinphos-methyl	86-50-0	pesticide	agric. soil	kg
barium	7440-39-3	metal	agric. soil	kg
benomyl	17804-35-2	pesticide	agric. soil	kg
bentazone	25057-89-0	pesticide	agric. soil	kg
benzene	71-43-2	aromatic	agric. soil	kg
benzo[a]anthracene	56-55-3	PAH	agric. soil	kg
benzo[a]pyrene	50-32-8	PAH	agric. soil	kg
benzo[ghi]perylene	191-24-2	PAH	agric. soil	kg
benzo[k]fluoranthrene	207-08-9	PAH	agric. soil	kg
benzylchloride	100-44-7	halogenated aromatic	agric. soil	kg
beryllium	7440-41-7	metal	agric. soil	kg
bifenthrin	82657-04-3	pesticide	agric. soil	kg
Butylbenzylphthalate	85-68-7	aromatic	agric. soil	kg
cadmium (II) ion	22537-48-0	metal	agric. soil	kg
captafol	2425-06-1	pesticide	agric. soil	kg
captan	133-06-2	pesticide	agric. soil	kg
carbaryl	63-25-2	pesticide	agric. soil	kg
carbendazim	10605-21-7	pesticide	agric. soil	kg
carbofuran	1563-66-2	pesticide	agric. soil	kg
carbon disulfide	75-15-0	inorganic	agric. soil	kg
chlordane	57-74-9	pesticide	agric. soil	kg
chlorfenvinphos	470-90-6	pesticide	agric. soil	kg
chloridazon	1698-60-8	pesticide	agric. soil	kg
chlorobenzene	108-90-7	halogenated aromatic	agric. soil	kg
chlorothalonil	1897-45-6	pesticide	agric. soil	kg
chlorpropham	101-21-3	pesticide	agric. soil	kg
chlorpyrifos	2921-88-2	pesticide	agric. soil	kg
chromium (III) ion	16065-83-1	metal	agric. soil	kg
chromium (VI) ion	18540-29-9	metal	agric. soil	kg
chrysene	218-01-9	PAH	agric. soil	kg
cobalt	7440-48-4	metal	agric. soil	kg
copper (II) ion	15158-11-9	metal	agric. soil	kg
coumaphos	56-72-4	pesticide	agric. soil	kg
cyanazine	21725-46-2	pesticide	agric. soil	kg
cypermethrin	52315-07-8	pesticide	agric. soil	kg
cyromazine	66215-27-8	pesticide	agric. soil	kg
DDT	50-29-3	pesticide	agric. soil	kg
deltamethrin	52918-63-5	pesticide	agric. soil	kg
demeton	8065-48-3	pesticide	agric. soil	kg
desmetryn	1014-69-3	pesticide	agric. soil	kg
Di(2-ethylhexyl)phtalate	117-81-7	aromatic	agric. soil	kg
diazinon	333-41-5	pesticide	agric. soil	kg
Dibutylphtalate	84-74-2	aromatic	agric. soil	kg
Dichloromethane	75-09-2	halogenated nonaromatic	agric. soil	kg

Substance	cas no.	group	initial emission or extraction	unit
dichlorprop	120-36-5	pesticide	agric. soil	kg
dichlorvos	62-73-7	pesticide	agric. soil	kg
dieldrin	60-57-1	pesticide	agric. soil	kg
Diethylphtalate	84-66-2	aromatic	agric. soil	kg
Dihexylphtalate	84-75-3	aromatic	agric. soil	kg
Diisodecylphtalate	26761-40-0	aromatic	agric. soil	kg
Diisooctylphtalate	27554-26-3	aromatic	agric. soil	kg
dimethoate	60-51-5	pesticide	agric. soil	kg
Dimethylphtalate	133-11-3	aromatic	agric. soil	kg
dinoseb	88-85-7	pesticide	agric. soil	kg
dinoterb	1420-07-1	pesticide	agric. soil	kg
Diocetylphthalate	117-84-0	aromatic	agric. soil	kg
disulfothon	298-04-4	pesticide	agric. soil	kg
diuron	330-54-1	pesticide	agric. soil	kg
DNOC	534-52-1	pesticide	agric. soil	kg
endosulfan	115-29-7	pesticide	agric. soil	kg
endrin	72-20-8	pesticide	agric. soil	kg
ethoprophos	13194-48-4	pesticide	agric. soil	kg
ethylbenzene	100-41-4	aromatic	agric. soil	kg
ethylene	74-85-1	nonaromatic (alkene)	agric. soil	kg
ethylene oxide	75-21-8	nonaromatic (ester)	agric. soil	kg
fenitrothion	122-14-5	pesticide	agric. soil	kg
fenthion	55-38-9	pesticide	agric. soil	kg
fentin acetate	900-95-8	pesticide	agric. soil	kg
fentin chloride	639-58-7	pesticide	agric. soil	kg
fentin hydroxide	76-87-9	pesticide	agric. soil	kg
fluoranthrene	206-44-0	PAH	agric. soil	kg
folpet	133-07-3	pesticide	agric. soil	kg
Formaldehyde	50-00-0	nonaromatic (aldehyde)	agric. soil	kg
glyphosate	1071-83-6	pesticide	agric. soil	kg
heptachlor	76-44-8	pesticide	agric. soil	kg
heptenophos	23560-59-0	pesticide	agric. soil	kg
hexachloro-1,3-butadiene	87-68-3	halogenated nonaromatic	agric. soil	kg
hexachlorobenzene	118-74-1	halogenated aromatic	agric. soil	kg
hydrogen fluoride	7664-39-3	inorganic	agric. soil	kg
indeno[1,2,3-cd]pyrene	193-39-5	PAH	agric. soil	kg
iprodione	36734-19-7	pesticide	agric. soil	kg
isoproturon	34123-59-6	pesticide	agric. soil	kg
lead (II) ion	14280-50-3	metal	agric. soil	kg
lindane	58-89-9	pesticide	agric. soil	kg
linuron	330-55-2	pesticide	agric. soil	kg
malathion	121-75-5	pesticide	agric. soil	kg
MCPA	94-74-6	pesticide	agric. soil	kg
mecoprop	7085-19-0	pesticide	agric. soil	kg
mercury (II) ion	14302-87-5	metal	agric. soil	kg
metamitron	41394-05-2	pesticide	agric. soil	kg
meta-xylene	108-38-3	aromatic	agric. soil	kg
metazachlor	67129-08-2	pesticide	agric. soil	kg
methabenzthiazuron	18691-97-9	pesticide	agric. soil	kg
methomyl	16752-77-5	pesticide	agric. soil	kg
methylbromide	74-83-9	pesticide	agric. soil	kg
methyl-mercury	22967-92-6	metal	agric. soil	kg
metobromuron	3060-89-7	pesticide	agric. soil	kg
metolachlor	51218-45-2	pesticide	agric. soil	kg



Substance	cas no.	group	initial emission or extraction	unit
mevinphos	7786-34-7	pesticide	agric. soil	kg
molybdenum	7439-98-7	metal	agric. soil	kg
naphtalene	91-20-3	PAH	agric. soil	kg
nickel	7440-02-0	metal	agric. soil	kg
Nitrate	14797-55-8	inorganic	agric. soil	kg
nitric acid	7697-37-2	inorganic	agric. soil	kg
Nitrogen	7727-37-9	inorganic	agric. soil	kg
ortho-xylene	95-47-6	aromatic	agric. soil	kg
oxamyl	23135-22-0	pesticide	agric. soil	kg
oxydemethon-methyl	301-12-2	pesticide	agric. soil	kg
parathion-ethyl	56-38-2	pesticide	agric. soil	kg
parathion-methyl	298-00-0	pesticide	agric. soil	kg
para-xylene	106-42-3	aromatic	agric. soil	kg
pentachlorobenzene	608-93-5	halogenated aromatic	agric. soil	kg
pentachloronitrobenzene	82-68-8	halogenated aromatic	agric. soil	kg
pentachlorophenol	87-86-5	halogenated aromatic	agric. soil	kg
permethrin	52645-53-1	pesticide	agric. soil	kg
phenanthrene	85-01-8	PAH	agric. soil	kg
phenol	108-95-2	aromatic	agric. soil	kg
phosphate	14265-44-2	inorganic	agric. soil	kg
phosphoric acid	7664-38-2	inorganic	agric. soil	kg
Phosphorus	7723-14-0	inorganic	agric. soil	kg
phosphorus(V) oxide (P2O5)	1314-56-3	inorganic	agric. soil	kg
phoxim	14816-18-3	pesticide	agric. soil	kg
Phtalic anhydride	85-44-9	aromatic	agric. soil	kg
pirimicarb	23103-98-2	pesticide	agric. soil	kg
Polycyclic Aromatic Hydrocarbons Carcinogenic- (carcinogenic-PAH)	PAH carc.	PAH	agric. soil	kg
propachlor	1918-16-7	pesticide	agric. soil	kg
propoxur	114-26-1	pesticide	agric. soil	kg
propylene oxide	75-56-9	nonaromatic (ester)	agric. soil	kg
pyrazophos	13457-18-6	pesticide	agric. soil	kg
selenium	7782-49-2	metal	agric. soil	kg
simazine	122-34-9	pesticide	agric. soil	kg
styrene	100-42-5	aromatic	agric. soil	kg
tetrachloroethylene (PER)	127-18-4	halogenated nonaromatic	agric. soil	kg
Tetrachloromethane (carbon tetrachloride) (HC-10)	(carbon 56-23-5	halogenated nonaromatic	agric. soil	kg
thallium	7440-28-0	metal	agric. soil	kg
Thiram	137-26-8	pesticide	agric. soil	kg
tin	7440-31-5	metal	agric. soil	kg
tolclophos-methyl	57018-04-9	pesticide	agric. soil	kg
toluene	108-88-3	aromatic	agric. soil	kg
tri-allate	2303-17-5	pesticide	agric. soil	kg
triazophos	24017-47-8	pesticide	agric. soil	kg
tributyltinoxide	56-35-9	pesticide	agric. soil	kg
trichlorfon	52-68-6	pesticide	agric. soil	kg
Trichloroethylene	79-01-6	halogenated nonaromatic	agric. soil	kg
Trichloromethane	67-66-3	halogenated nonaromatic	agric. soil	kg
trifluarin	1582-09-8	pesticide	agric. soil	kg
vanadium	7440-62-2	metal	agric. soil	kg
Vinyl Chloride	75-01-4	halogenated nonaromatic	agric. soil	kg

Substance	cas no.	group	initial emission or extraction	unit
zinc (II) ion	23713-49-7	metal	agric. soil	kg
zineb	12122-67-7	pesticide	agric. soil	kg
1,1,1-trichloroethane	71-55-6	halogenated nonaromatic	indus. soil	kg
1,2,3,4-tetrachlorobenzene	634-66-2	halogenated aromatic	indus. soil	kg
1,2,3,5-tetrachlorobenzene	634-90-2	halogenated aromatic	indus. soil	kg
1,2,3-trichlorobenzene	87-61-6	halogenated aromatic	indus. soil	kg
1,2,4,5-tetrachlorobenzene	95-94-3	halogenated aromatic	indus. soil	kg
1,2,4-trichlorobenzene	120-82-1	halogenated aromatic	indus. soil	kg
1,2-dichlorobenzene	95-50-1	halogenated aromatic	indus. soil	kg
1,2-dichloroethane	107-06-2	halogenated nonaromatic	indus. soil	kg
1,3,5-trichlorobenzene	108-70-3	halogenated aromatic	indus. soil	kg
1,3-butadiene	106-99-0	nonaromatic (alkene)	indus. soil	kg
1,3-dichlorobenzene	541-73-1	halogenated aromatic	indus. soil	kg
1,4-dichlorobenzene	106-46-7	halogenated aromatic	indus. soil	kg
1-chloro-4-nitrobenzene	100-00-5	halogenated aromatic	indus. soil	kg
2,3,4,6-tetrachlorophenol	58-90-2	halogenated aromatic	indus. soil	kg
2,3,7,8-TCDD	1746-01-6	halogenated aromatic	indus. soil	kg
2,4,5-T	93-76-5	pesticide	indus. soil	kg
2,4,5-trichlorophenol	95-95-4	halogenated aromatic	indus. soil	kg
2,4,6-trichlorophenol	88-06-2	halogenated aromatic	indus. soil	kg
2,4-D	94-75-7	pesticide	indus. soil	kg
2,4-dichlorophenol	120-83-2	halogenated aromatic	indus. soil	kg
2-chlorophenol	95-57-8	halogenated aromatic	indus. soil	kg
3,4-dichloroaniline	95-76-1	halogenated aromatic	indus. soil	kg
3-chloroaniline	108-42-9	halogenated aromatic	indus. soil	kg
4-chloroaniline	106-47-8	halogenated aromatic	indus. soil	kg
acephate	30560-19-1	pesticide	indus. soil	kg
Acrolein	107-02-8	nonaromatic (ester)	indus. soil	kg
acrylonitrile	107-13-1	nonaromatic (nitrogen compound)	indus. soil	kg
aldicarb	116-06-3	pesticide	indus. soil	kg
aldrin	309-00-2	pesticide	indus. soil	kg
ammonia	7664-41-7	inorganic	indus. soil	kg
ammonium	14798-03-9	inorganic	indus. soil	kg
anilazine	101-05-3	pesticide	indus. soil	kg
anthracene	120-12-7	PAH	indus. soil	kg
antimony	7440-36-0	metal	indus. soil	kg
arsenic	7440-38-2	metal	indus. soil	kg
atrazine	1912-24-9	pesticide	indus. soil	kg
azinphos-ethyl	2642-71-9	pesticide	indus. soil	kg
azinphos-methyl	86-50-0	pesticide	indus. soil	kg
barium	7440-39-3	metal	indus. soil	kg
benomyl	17804-35-2	pesticide	indus. soil	kg
bentazone	25057-89-0	pesticide	indus. soil	kg
benzene	71-43-2	aromatic	indus. soil	kg
benzo[a]anthracene	56-55-3	PAH	indus. soil	kg
benzo[a]pyrene	50-32-8	PAH	indus. soil	kg
benzo[ghi]perylene	191-24-2	PAH	indus. soil	kg
benzo[k]fluoranthrene	207-08-9	PAH	indus. soil	kg
benzylchloride	100-44-7	halogenated aromatic	indus. soil	kg
beryllium	7440-41-7	metal	indus. soil	kg
bifenthrin	82657-04-3	pesticide	indus. soil	kg
Butylbenzylphtalate	85-68-7	aromatic	indus. soil	kg
cadmium (II) ion	22537-48-0	metal	indus. soil	kg

Substance	cas no.	group	initial emission or extraction	unit
captafol	2425-06-1	pesticide	indus. soil	kg
captan	133-06-2	pesticide	indus. soil	kg
carbaryl	63-25-2	pesticide	indus. soil	kg
carbendazim	10605-21-7	pesticide	indus. soil	kg
carbofuran	1563-66-2	pesticide	indus. soil	kg
carbon disulfide	75-15-0	inorganic	indus. soil	kg
chlordane	57-74-9	pesticide	indus. soil	kg
chlorfenvinphos	470-90-6	pesticide	indus. soil	kg
chloridazon	1698-60-8	pesticide	indus. soil	kg
chlorobenzene	108-90-7	halogenated aromatic	indus. soil	kg
chlorothalonil	1897-45-6	pesticide	indus. soil	kg
chlorpropham	101-21-3	pesticide	indus. soil	kg
chlorpyrifos	2921-88-2	pesticide	indus. soil	kg
chromium (III) ion	16065-83-1	metal	indus. soil	kg
chromium (VI) ion	18540-29-9	metal	indus. soil	kg
chrysene	218-01-9	PAH	indus. soil	kg
cobalt	7440-48-4	metal	indus. soil	kg
copper (II) ion	15158-11-9	metal	indus. soil	kg
coumaphos	56-72-4	pesticide	indus. soil	kg
cyanazine	21725-46-2	pesticide	indus. soil	kg
cypermethrin	52315-07-8	pesticide	indus. soil	kg
cyromazine	66215-27-8	pesticide	indus. soil	kg
DDT	50-29-3	pesticide	indus. soil	kg
deltamethrin	52918-63-5	pesticide	indus. soil	kg
demeton	8065-48-3	pesticide	indus. soil	kg
desmetryn	1014-69-3	pesticide	indus. soil	kg
Di(2-ethylhexyl)phtalate	117-81-7	aromatic	indus. soil	kg
diazinon	333-41-5	pesticide	indus. soil	kg
Dibutylphtalate	84-74-2	aromatic	indus. soil	kg
Dichloromethane	75-09-2	halogenated nonaromatic	indus. soil	kg
dichlorprop	120-36-5	pesticide	indus. soil	kg
dichlorvos	62-73-7	pesticide	indus. soil	kg
dieldrin	60-57-1	pesticide	indus. soil	kg
Diethylphtalate	84-66-2	aromatic	indus. soil	kg
Dihexylphtalate	84-75-3	aromatic	indus. soil	kg
Diisodecylphtalate	26761-40-0	aromatic	indus. soil	kg
Diisooctylphtalate	27554-26-3	aromatic	indus. soil	kg
dimethoate	60-51-5	pesticide	indus. soil	kg
Dimethylphtalate	133-11-3	aromatic	indus. soil	kg
dinoseb	88-85-7	pesticide	indus. soil	kg
dinoterb	1420-07-1	pesticide	indus. soil	kg
Dioctylphtalate	117-84-0	aromatic	indus. soil	kg
disulfothon	298-04-4	pesticide	indus. soil	kg
diuron	330-54-1	pesticide	indus. soil	kg
DNOC	534-52-1	pesticide	indus. soil	kg
endosulfan	115-29-7	pesticide	indus. soil	kg
endrin	72-20-8	pesticide	indus. soil	kg
ethoprophos	13194-48-4	pesticide	indus. soil	kg
ethylbenzene	100-41-4	aromatic	indus. soil	kg
ethylene	74-85-1	nonaromatic (alkene)	indus. soil	kg
ethylene oxide (ind.)	75-21-8	nonaromatic (ester)	indus. soil	kg
fenitrothion	122-14-5	pesticide	indus. soil	kg
fenthion	55-38-9	pesticide	indus. soil	kg
fentin acetate	900-95-8	pesticide	indus. soil	kg
fentin chloride	639-58-7	pesticide	indus. soil	kg

Substance	cas no.	group	initial emission or extraction	unit
fentin hydroxide	76-87-9	pesticide	indus. soil	kg
fluoranthrene	206-44-0	PAH	indus. soil	kg
folpet	133-07-3	pesticide	indus. soil	kg
Formaldehyde	50-00-0	nonaromatic (aldehyde)	indus. soil	kg
glyphosate	1071-83-6	pesticide	indus. soil	kg
heptachlor	76-44-8	pesticide	indus. soil	kg
heptenophos	23560-59-0	pesticide	indus. soil	kg
hexachloro-1,3-butadiene	87-68-3	halogenated nonaromatic	indus. soil	kg
hexachlorobenzene	118-74-1	halogenated aromatic	indus. soil	kg
hydrogen fluoride	7664-39-3	inorganic	indus. soil	kg
indeno[1,2,3-cd]pyrene	193-39-5	PAH	indus. soil	kg
iprodione	36734-19-7	pesticide	indus. soil	kg
isoproturon	34123-59-6	pesticide	indus. soil	kg
lead (II) ion	14280-50-3	metal	indus. soil	kg
lindane	58-89-9	pesticide	indus. soil	kg
linuron	330-55-2	pesticide	indus. soil	kg
malathion	121-75-5	pesticide	indus. soil	kg
MCPA	94-74-6	pesticide	indus. soil	kg
mecoprop	7085-19-0	pesticide	indus. soil	kg
mercury (II) ion	14302-87-5	metal	indus. soil	kg
metamitron	41394-05-2	pesticide	indus. soil	kg
meta-xylene	108-38-3	aromatic	indus. soil	kg
metazachlor	67129-08-2	pesticide	indus. soil	kg
methabenzthiazuron	18691-97-9	pesticide	indus. soil	kg
methomyl	16752-77-5	pesticide	indus. soil	kg
methylbromide	74-83-9	pesticide	indus. soil	kg
methyl-mercury	22967-92-6	metal	indus. soil	kg
metobromuron	3060-89-7	pesticide	indus. soil	kg
metolachlor	51218-45-2	pesticide	indus. soil	kg
mevinphos	7786-34-7	pesticide	indus. soil	kg
molybdenum	7439-98-7	metal	indus. soil	kg
naphtalene	91-20-3	PAH	indus. soil	kg
nickel	7440-02-0	metal	indus. soil	kg
Nitrate	14797-55-8	inorganic	indus. soil	kg
nitric acid	7697-37-2	inorganic	indus. soil	kg
Nitrogen	7727-37-9	inorganic	indus. soil	kg
ortho-xylene	95-47-6	aromatic	indus. soil	kg
oxamyl	23135-22-0	pesticide	indus. soil	kg
oxydemethon-methyl	301-12-2	pesticide	indus. soil	kg
parathion-ethyl	56-38-2	pesticide	indus. soil	kg
parathion-methyl	298-00-0	pesticide	indus. soil	kg
para-xylene	106-42-3	aromatic	indus. soil	kg
pentachlorobenzene	608-93-5	halogenated aromatic	indus. soil	kg
pentachloronitrobenzene	82-68-8	halogenated aromatic	indus. soil	kg
pentachlorophenol	87-86-5	halogenated aromatic	indus. soil	kg
permethrin	52645-53-1	pesticide	indus. soil	kg
phenanthrene	85-01-8	PAH	indus. soil	kg
phenol	108-95-2	aromatic	indus. soil	kg
phosphate	14265-44-2	inorganic	indus. soil	kg
phosphoric acid	7664-38-2	inorganic	indus. soil	kg
Phosphorus	7723-14-0	inorganic	indus. soil	kg
phosphorus(V) oxide (P2O5)	1314-56-3	inorganic	indus. soil	kg
phoxim	14816-18-3	pesticide	indus. soil	kg
Phtalic anhydride	85-44-9	aromatic	indus. soil	kg

Substance	cas no.	group	initial emission or extraction	unit
pirimicarb	23103-98-2	pesticide	indus. soil	kg
Polycyclic Aromatic Hydrocarbons Carcinogenic- (carcinogenic-PAH)	PAH carc.	PAH	indus. soil	kg
propachlor	1918-16-7	pesticide	indus. soil	kg
propoxur	114-26-1	pesticide	indus. soil	kg
propylene oxide	75-56-9	nonaromatic (ester)	indus. soil	kg
pyrazophos	13457-18-6	pesticide	indus. soil	kg
selenium	7782-49-2	metal	indus. soil	kg
simazine	122-34-9	pesticide	indus. soil	kg
styrene	100-42-5	aromatic	indus. soil	kg
tetrachloroethylene (PER)	127-18-4	halogenated nonaromatic	indus. soil	kg
Tetrachloromethane	56-23-5	halogenated nonaromatic	indus. soil	kg
thallium	7440-28-0	metal	indus. soil	kg
Thiram	137-26-8	pesticide	indus. soil	kg
tin	7440-31-5	metal	indus. soil	kg
tolclophos-methyl	57018-04-9	pesticide	indus. soil	kg
toluene	108-88-3	aromatic	indus. soil	kg
tri-allate	2303-17-5	pesticide	indus. soil	kg
triazophos	24017-47-8	pesticide	indus. soil	kg
tributyltin oxide	56-35-9	pesticide	indus. soil	kg
trichlorfon	52-68-6	pesticide	indus. soil	kg
Trichloroethylene	79-01-6	halogenated nonaromatic	indus. soil	kg
Trichloromethane	67-66-3	halogenated nonaromatic	indus. soil	kg
trifluarin	1582-09-8	pesticide	indus. soil	kg
vanadium	7440-62-2	metal	indus. soil	kg
Vinyl Chloride	75-01-4	halogenated nonaromatic	indus. soil	kg
zinc (II) ion	23713-49-7	metal	indus. soil	kg
zineb	12122-67-7	pesticide	indus. soil	kg

## 4.5 Characterisation

For characterisation equations, we refer to the specific equations provided with each table of characterisation factors given in Section 4.3.

The following form may be used to report baseline indicator results and any other relevant information:

impact category	amount	unit
depletion of abiotic resources	.....	kg (antimony eq.)
effects of land use		
land competition	.....	m <sup>2</sup> .yr
climate change	.....	kg (CO <sub>2</sub> eq.)
stratospheric ozone depletion	.....	kg (CFC-11 eq.)
human toxicity	.....	kg (1,4-DCB eq.)
ecotoxicity		
fresh water aquatic ecotoxicity	.....	kg (1,4-DCB eq.)
marine ecotoxicity	.....	kg (1,4-DCB eq.)
terrestrial ecotoxicity	.....	kg (1,4-DCB eq.)
photo-oxidant formation	.....	kg (C <sub>2</sub> H <sub>4</sub> eq.)
acidification	.....	kg (SO <sub>2</sub> eq.)
eutrophication	.....	kg (PO <sub>4</sub> <sup>3-</sup> eq.)
-----		
interventions for which characterisation factors are lacking		
...	...	...
...	...	...
...	...	...
-----		
economic flows not followed to system boundary		
...	.....	...
...	...	...
...	...	...
-----		
other remarks (including qualitative assessment, 'red flags', etc.)		

## 4.6 Normalisation

Table 4.6.1: Factors for normalisation with the annual extent of the baseline impact categories and characterisation methods for different reference regions.

impact category	Netherlands , 1997	West-Europe, 1995	World, mid 1995	World, 1990	
depletion of abiotic resources	1.71E+09 <sup>1</sup>	1.06E+10	1.57E+11	1.58E+11	kg (antimony eq).yr <sup>-1</sup>
effects of land use					
land competition	P.M.	P.M.	P.M.	P.M.	P.M.
climate change	2.51E+11	4.73E+12	3.86E+13	4.45E+13	kg (CO2 eq). yr <sup>-1</sup>
stratospheric ozone depletion	9.77E+05	8.30E+07	5.15E+08	1.14E+09	kg (CFC-11 eq). yr <sup>-1</sup>
human toxicity	1.88E+11	7.57E+12	4.98E+13	5.71E+13	kg (1,4-DCB eq). yr <sup>-1</sup>
ecotoxicity					
fresh water aquatic ecotoxicity	7.54E+09	5.05E+11	2.03E+12	1.98E+12	kg (1,4-DCB eq). yr <sup>-1</sup>
marine ecotoxicity	4.26E+12	1.14E+14	5.12E+14	9.11E+13	kg (1,4-DCB eq). yr <sup>-1</sup>
terrestrial ecotoxicity	9.59E+08	4.73E+10	2.68E+11	2.06E+11	kg (1,4-DCB eq). yr <sup>-1</sup>
photo-oxidant formation	1.82E+08	8.24E+09	4.55E+10	1.07E+11	kg (C <sub>2</sub> H <sub>4</sub> eq). yr <sup>-1</sup>
acidification	6.69E+08	2.74E+10	2.99E+11	3.13E+11	kg (SO <sub>2</sub> eq). yr <sup>-1</sup>
eutrophication	5.02E+08	1.25E+10	1.29E+11	1.32E+11	kg (PO <sub>4</sub> <sup>3-</sup> eq). yr <sup>-1</sup>

Source: Huijbregts *et al.* (in prep.).

$$indicator\ result_{cat,ref} = \sum_i m_{i,ref} \times characterisation\ factor_{i,cat} \quad (4.6.1)$$

$$normalised\ indicator\ result_{cat} = \frac{indicator\ result_{cat}}{indicator\ result_{cat,ref}} \quad (4.6.2)$$

indicator result <sub>cat,ref</sub>	indicator result for impact category <i>cat</i> and reference system <i>ref</i> (i.c. kg·yr <sup>-1</sup> ); the reciprocal of indicator result <sub>cat,ref</sub> is here referred to as the normalisation factor for impact category <i>cat</i> and reference system <i>ref</i> ;
m <sub>i,ref</sub>	magnitude of intervention <i>i</i> (emission, resource extraction or land use) associated with the reference system <i>ref</i> (i.c. kg·yr <sup>-1</sup> );
characterisation factor <sub>i,cat</sub>	characterisation factor for intervention <i>i</i> and impact category <i>cat</i> (i.c. kg·kg <sup>-1</sup> );
normalised indicator result <sub>cat</sub>	normalised indicator result for impact category <i>cat</i> (yr);
indicator result <sub>cat</sub>	indicator result for impact category <i>cat</i> (i.c. kg).

More normalisation data and factors (e.g. for non-baseline alternatives) including underlying interventions can be found in the impact assessment spreadsheet, which can be downloaded from: <http://www.leidenuniv.nl/cml/lca2/index.html>

<sup>1</sup> Means 1.71 x 10<sup>9</sup>.



Table 4.6.2: Factors for normalisation with the annual per-capita extent of the baseline impact categories and characterisation methods for different reference regions.

impact categories	Netherlands, 1997	West-Europe, 1995	World, mid 1995	World, 1990	
depletion of abiotic resources	1.10E+02 <sup>1</sup>	3.26E+01	2.77E+01	3.01E+01	kg (antimony eq).yr <sup>-1</sup> .capita <sup>-1</sup>
effects of land use					
land competition	P.M.	P.M.	P.M.	P.M.	P.M.
climate change	1.61E+04	1.46E+04	6.83E+03	8.46E+03	kg (CO2 eq). yr <sup>-1</sup> .capita <sup>-1</sup>
stratospheric ozone depletion	6.26E-02	2.56E-01	9.11E-02	2.17E-01	kg (CFC-11 eq). yr <sup>-1</sup> .capita <sup>-1</sup>
human toxicity	1.21E+04	2.33E+04	8.80E+03	1.09E+04	kg (1,4-DCB eq). yr <sup>-1</sup> .capita <sup>-1</sup>
ecotoxicity					
fresh water aquatic ecotoxicity	4.83E+02	1.55E+03	3.59E+02	3.76E+02	kg (1,4- DCB eq). yr <sup>-1</sup> .capita <sup>-1</sup>
marine ecotoxicity	2.73E+05	3.49E+05	9.05E+04	1.73E+04	kg (1,4- DCB eq). yr <sup>-1</sup> .capita <sup>-1</sup>
terrestrial ecotoxicity	6.15E+01	1.46E+02	4.74E+01	9.93E+01	kg (1,4- DCB eq). yr <sup>-1</sup> .capita <sup>-1</sup>
photo-oxidant formation	1.17E+01	2.54E+01	8.04	2.03E+01	kg (C <sub>2</sub> H <sub>4</sub> eq). yr <sup>-1</sup> .capita <sup>-1</sup>
acidification	4.29E+01	8.42E+01	5.29E+01	5.95E+01	kg (SO <sub>2</sub> eq). yr <sup>-1</sup> .capita <sup>-1</sup>
eutrophication	3.21E+01	3.84E+01	2.28E+01	2.51E+01	kg (PO <sub>4</sub> - eq). yr <sup>-1</sup> .capita <sup>-1</sup>

Source: Huijbregts *et al.* (in prep.).

$$indicator\ result_{cat,ref} = \sum_i m_{i,ref} \times characterisation\ factor_{i,cat} \quad (4.6.3)$$

$$normalised\ indicator\ result_{cat} = \frac{indicator\ result_{cat}}{indicator\ result_{cat,ref}} \quad (4.6.4)$$

indicator result<sub>cat,ref</sub> indicator result for impact category *cat* and reference system *ref* (i.c. kg·yr<sup>-1</sup>·capita<sup>-1</sup>); the reciprocal of indicator result<sub>cat,ref</sub> is here referred to as the normalisation factor for impact category *cat* and reference system *ref*;

m<sub>i,ref</sub> magnitude of intervention *i* (emission, resource extraction or land use) associated with the reference system *ref* (i.c. kg·yr<sup>-1</sup>·capita<sup>-1</sup>);

characterisation factor<sub>i,cat</sub> characterisation factor for intervention *i* and impact category *cat* (i.c. kg·kg<sup>-1</sup>);

normalised indicator result<sub>cat</sub> normalised indicator result for impact category *cat* (yr·capita);

indicator result<sub>cat</sub> indicator result for impact category *cat* (i.c. kg).

More normalisation data and factors (e.g. for non-baseline alternatives) including underlying interventions can be found in the impact assessment spreadsheet, which can be downloaded from: <http://www.leidenuniv.nl/cml/lca2/index.html>

<sup>1</sup> Means 1.10 x 10<sup>2</sup>.

The following form may be used to report the normalised indicator results for the baseline impact categories and category indicators:

impact category	amount	unit
depletion of abiotic resources	.....	yr or yr.capita <sup>1</sup>
effects of land use		
land competition	.....	m <sup>2</sup> .yr
climate change	.....	yr or yr.capita
stratospheric ozone depletion	.....	yr or yr.capita
human toxicity	.....	yr or yr.capita
ecotoxicity		
fresh water aquatic ecotoxicity	.....	yr or yr.capita
marine ecotoxicity	.....	yr or yr.capita
terrestrial ecotoxicity	.....	yr or yr.capita
photo-oxidant formation	.....	yr or yr.capita
acidification	.....	yr or yr.capita
eutrophication	.....	yr or yr.capita
-----		
interventions for which characterisation factors are lacking <sup>2</sup>		
...	...	...
...	...	...
...	...	...
-----		
economic flows not followed to system boundary <sup>2</sup>		
...	....	...
...	...	...
...	...	...
-----		
other remarks (including qualitative assessment, 'red flags', etc.)		

<sup>1</sup> yr when using Table 4.6.1, yr.capita when using Table 4.6.2.

<sup>2</sup> "Interventions for which characterisation factors are lacking" and "Economic flows not followed to system boundary" are not normalised.

#### **4.7 Grouping**

To be inserted

#### **4.8 Weighting**

To be inserted

## 5. Interpretation

### 5.1 Procedures

To be inserted

### 5.2 Consistency check

Examples of inconsistencies are (ISO 14043, 2000):

- differences in data sources, e.g., Option A is based on literature data, whereas Option B is based on primary data;
- differences in data accuracy, e.g., a very detailed modularisation is available for Option A, whereas option B is described as an accumulated black box system;
- differences in technical level, e.g., data for Option A are based on an experimental process (e.g., a new catalyst with higher process efficiency at pilot plant level), whereas data for Option B are based on existing large-scale technology;
- temporal differences, e.g., data for Option A describe a recently developed technology, whereas Option B is described by a mixture of technologies, including recently built and old plants;
- differences in data age, e.g., data for Option A are 5-year-old primary data, whereas data for Option B have been recently collected;
- differences in geographical representation, e.g., data for Option A describe a representative European technology mix, whereas Option B is representative of one EU member country with a high level of environmental protection policy or one single plant;
- differences in functions performed by the two products or options.

### 5.3 Completeness check

To be inserted

### 5.4 Contribution analysis

For further (technical) information on how to conduct a contribution analysis (previously also called “dominance analysis”), see Heijungs *et al.* (1992) and Heijungs (1994), and/or use the CMLCA software: <http://www.leidenuniv.nl/interfac/cml/ssp/cmlca.html>

### 5.5 Perturbation analysis

For further (technical) information on how to conduct a perturbation analysis (previously also called “marginal analysis”), see Heijungs *et al.* (1992) and Heijungs (1994), and/or use the CMLCA software: <http://www.leidenuniv.nl/interfac/cml/ssp/cmlca.html>

### 5.6 Sensitivity analysis and uncertainty analysis

For further (technical) information on how to conduct a sensitivity analysis, please consult and/or use the CMLCA software: <http://www.leidenuniv.nl/interfac/cml/ssp/cmlca.html>

For further (technical) information on how to conduct uncertainty analyses, please consult Huijbregts (1998a), Huijbregts (1998b) and Huijbregts *et al.* (2000b).

#### CONDUCTING A SENSITIVITY ANALYSIS

The effects of altering the choices for these issues on the results of the LCA must be calculated.

The results of the study are highly sensitive to changes in economic flows near the FU. Thus, the product system specification probably represents the most important data for the results of the study. These data must therefore be carefully checked and submitted to a sensitivity analysis. With regard to data uncertainties in a simplified LCA, practitioners should focus on those processes and flows found to be the most important in the contribution and/or perturbation analysis. The data for these processes and flows should be checked and a partial sensitivity analysis should be conducted for variations in these data.

**CHECKLIST OF ISSUES FOR SENSITIVITY ANALYSIS FOR SIMPLIFIED LCA STUDIES:**

- product system specification (composition of the product, trip rates, recycling rates, lifespan etc.);
- rules for allocation;
- characterisation method;
- weighting method, if applied.

This checklist includes those model choices known to have a major influence on the results of the study. The checklist does not imply that the practitioner is not obliged to check for other issues of major importance for the specific LCA study in hand.

**CHECKLIST OF ISSUES FOR SENSITIVITY ANALYSIS FOR DETAILED LCA STUDIES:**

- product system specification (composition of the product, trip rates, recycling rates, lifespan etc.);
- rules for allocation;
- characterisation method;
- weighting method and data;
- cut-off criteria;
- boundary setting and system definition;
- data;
- normalisation data.

This checklist includes model choices known to have a significant influence on the results of the study. The checklist does not imply that the practitioner is not obliged to check for other issues of major importance for the specific LCA study in hand.

## 5.7 Conclusions and recommendations

To be inserted

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