

Oppdatering av stoffdata for forbindelser i forurenset grunn

UPDATING OF BACKGROUND DATA FOR
COMPOUNDS IN CONTAMINATED SOIL

DOC.NO. 20160648-04-R

REV.NO. 1 / 2017-01-02/2020-03-31

Neither the confidentiality nor the integrity of this document can be guaranteed following electronic transmission. The addressee should consider this risk and take full responsibility for use of this document.

This document shall not be used in parts, or for other purposes than the document was prepared for. The document shall not be copied, in parts or in whole, or be given to a third party without the owner's consent. No changes to the document shall be made without consent from NGI.

Ved elektronisk overføring kan ikke konfidensialiteten eller autenticiteten av dette dokumentet garanteres. Adressaten bør vurdere denne risikoen og ta fullt ansvar for bruk av dette dokumentet.

Dokumentet skal ikke benyttes i utdrag eller til andre formål enn det dokumentet omhandler. Dokumentet må ikke reproduseres eller leveres til tredjemann uten eiers samtykke. Dokumentet må ikke endres uten samtykke fra NGI.

Project

Project title: Oppdatering av stoffdata for forbindelser i forurenset grunn
Document title: Updating of background data for compounds in contaminated soil
Document no.: 20160648-04-R
Date: 2017-01-02
Revision no. /rev. date: 1/2020-03-31

Client

Client: Miljødirektoratet
Client contact person: Karianne Slåtta Haugen
Contract reference: Proj. 20160648, signed Oct 3, 2016

for NGI

Project manager: Hans Peter Arp
Prepared by: Hans Peter Arp, Erlend Sørmo, Gijs Breedveld
Reviewed by: Amy Oen

Summary

The Norwegian Geotechnical Institute (NGI) has reviewed the existing compound specific data that are used in risk assessment of contaminated soil. This is the first such revision since 2007 for most substances. Since 2007, there have been several substantial advances regarding data availability within Europe. This includes the revision of the European Union's and Norway's Water Framework Directive, the implementation of REACH (The Registration, Evaluation, Authorisation and Restriction of Chemicals), new chemicals of concern being prioritized, improved analytical techniques and the publication of several new risk assessment reports and studies on soil contamination. This report considers these new advances in reviewing the compound specific data that are used to predict fate and transport of the contaminants as well as their potential risk. The data reported here were collected in 2016, for PFOS and PFOA data were revised in the autumn of 2019 and a recent proposal from the European Food Safety Authority on PFAS (24-02-2020) was included in the data compilation.

Compound specific data for the following new compounds not previously included in the risk assessment framework have been compiled:

- ↗ D5
- ↗ PFOA
- ↗ Triclosane
- ↗ TCEP
- ↗ Dodecylphenols
- ↗ Diuron
- ↗ Irgarol
- ↗ Antimony
- ↗ Galaxolide
- ↗ Tonalide
- ↗ Sum trichlorobenzenes (instead of 1,2,4-trichlorobenzene, 1,2,3-trichlorobenzene and 1,3,5-trichlorobenzene as done previously, individually, to be consistent with Water Framework Directive 2013/39 EU and Norway's updated sediment and water quality standards M-608/2016)
- ↗ Brominated diphenyl ethers as the sum of BDE 28, 47, 99, 100, 153 and 154 (instead of just BDE 99 and BDE 154 individually, again to be consistent with Directive 2013/39 EU and M-608/2016)

Contents

1	Introduction	8
2	Methodology of deriving compound specific data	9
2.1	Relevant parameters	9
2.2	Estimating parameters	10
3	Approach for reviewing of available literature	10
4	Revised compound specific data	12
4.1	Arsenic	12
4.2	Lead	13
4.3	Cadmium	14
4.4	Mercury	15
4.5	Copper	16
4.6	Zinc	17
4.7	Chromium (III)	18
4.8	Chromium (VI)	19
4.9	Chromium total (III + VI)	20
4.10	Nickel	21
4.11	Cyanide	22
4.12	PCB 7	23
4.13	Lindane	24
4.14	DDT	25
4.15	Monochlorobenzene	26
4.16	1,2-dichlorobenzene	27
4.17	1,4-dichlorobenzene	28
4.18	Trichlorobenzenes	29
4.19	1,2,4,5-Tetrachlorobenzene	30
4.20	Pentachlorobenzene	31
4.21	Hexachlorobenzene	32
4.22	Dichloromethane	33
4.23	Trichloromethane	34
4.24	Trichloroethene	35
4.25	Tetrachloromethane	36
4.26	Tetrachloroethene	37
4.27	1,2-dichloroethane	38
4.28	1,2-dibromoethane	39
4.29	1,1,1-trichloroethane	40
4.30	1,1,2-trichloroethane	41
4.31	Phenol	42
4.32	Sum mono-tetrachlorophenols	43
4.33	Pentachlorophenol	44
4.34	Naphthalene	45
4.35	Acenaphthylene	46
4.36	Acenaphthene	47
4.37	Phenanthrene	48
4.38	Anthracene	49

4.39	Fluorene	50
4.40	Fluoranthene	51
4.41	Pyrene	52
4.42	Benzo(a)anthracene	53
4.43	Chrysene	54
4.44	Benzo(b)fluoranthene	55
4.45	Benzo(k)fluoranthene	56
4.46	Benzo(a)pyrene	57
4.47	Indeno(1,2,3-cd)pyrene	58
4.48	Dibenzo(a,h)anthracene	59
4.49	Benzo(g,h,i)perylene	60
4.50	PAH total	61
4.51	Benzene	62
4.52	Toluene	63
4.53	Ethylbenzene	64
4.54	Xylene	65
4.55	Aliphatics C5-C6	66
4.56	Aliphatics > C6-C8	67
4.57	Aliphatics > C8-C10	68
4.58	Sum aliphatics > C5-C10	69
4.59	Aliphatics > C10-C12	70
4.60	Aliphatics > C12-C35	71
4.61	MTBE	72
4.62	Tetraethyl-lead	73
4.63	Brominated diphenylethers	74
4.64	PBDE-209	75
4.65	HBCDD	76
4.66	Tetrabromobisphenol A	77
4.67	Bisphenol A	78
4.68	PFOS	79
4.69	Nonylphenols and their ethoxylates	80
4.70	Octylphenols and their ethoxylates	81
4.71	Tributyltin compounds	82
4.72	Triphenyltin compounds	83
4.73	DEHP	84
4.74	MCCP	85
4.75	SCCP	86
4.76	Polychlorinated naphthalenes	87
4.77	Tricresyl phosphate	88
4.78	Dioxins	89
4.79	D5	90
4.80	PFOA	91
4.81	Triclosane	92
4.82	TCEP	93
4.83	Dodecylphenols	94
4.84	Diuron	95

4.85	Irgarol	96
4.86	Antimony	97
4.87	Galaxolide	98
4.88	Tonalide	99
5	Summary table of compound specific parameters	100
6	References	104

Review and reference page

1 Introduction

The Norwegian Environment Agency (Miljødirektorat) first introduced a system for risk assessment of contaminated soil in the 1999 guideline "Veiledning om risikovurdering av forurenset grunn" (TA-1629/1999). This guideline used compound specific data to describe expected fate and transport of the contaminants as well as their potential risk for humans and the environment. In 2007, a suggestion for revision was introduced based on the latest available data at that time, and included a new list of substances, such as brominated flame retardants, PFOS, chlorinated paraffins, alkyl-phenols and phthalates (Aquateam 2007), which were later put into effect in a revision of the risk assessment tool. In 2013, organotin substances were also added (Aquateam 2011).

This report presents a further revision of the compound specific data conducted by the Norwegian Geotechnical Institute (NGI) in 2016 (PFOS and PFOA data were revised in 2019). Compound specific data were reviewed and updated with the newest data, particularly in relation to the EU Water Framework Directive (Directive 2013/39 EU) updated in August 2013, and the Norwegian water and sediment guideline concentrations updated in 2016 (M-608/2016). This included the following new substances not previously included in terrestrial risk assessment in Norway:

- ↗ D5
- ↗ PFOA
- ↗ Triclosane
- ↗ TCEP
- ↗ Dodecylphenols
- ↗ Diuron
- ↗ Irgarol
- ↗ Antimony
- ↗ Galaxolide
- ↗ Tonalide
- ↗ Sum trichlorobenzenes (instead of 1,2,4-trichlorobenzene, 1,2,3-trichlorobenzene and 1,3,5-trichlorobenzene, individually, to be consistent with Directive 2013/39 EU and M-608/2016)
- ↗ Brominated diphenyl ethers as the sum of BDE 28, 47, 99, 100, 153 and 154 (instead of just BDE 99 and BDE 154 individually, to be consistent with Directive 2013/39 EU and M-608/2016)
- ↗ Sum nonylphenols and their ethoxylates (as nonylphenoethoxylates eventually degrade to nonylphenols)
- ↗ Sum octylphenols and their ethoxylates (as octylphenoethoxylates eventually degrade to octylphenols)

The following substance was not revised due to lack of data:

- ↗ 1,2,4,5-tetrachlorobenzene

2 Methodology of deriving compound specific data

2.1 Relevant parameters

The key chemical background parameters needed to be able to calculate human health risk following the Norwegian guideline for risk assessment of human health are listed in (Table 1). All these parameters were included in the literature review for updating and revision.

Table 1 Overview of properties needed to derive QS_{soil} (human health)

Parameter	Definition	Comments
log Pow (l/l)	Octanol-water partition coefficient	Not relevant for metals
Koc(l/kg TS)	Organic carbon-water partition coefficient	Not relevant for metals; in many cases it is estimated from log Pow
K_D(l/kg TS)	Soil-water distribution coefficient	Directly measured for metals. Estimated here for organic compounds as 0.01 Koc, based on the assumption that typical Norwegian soil is 1% organic carbon (OC)
Henry (-)	Henry's law coefficient	Describes air-water transfer
BCF fish (l/kg w.w.)	Bioconcentration factor in fish	If not available from the literature it is estimated according to equation 1
BCF stem (l/kg w.w.)	Bioconcentration factor in plant stems	If not available from the literature it is estimated from equation 2
BCF root (l/kg w.w.)	Bioconcentration in plant roots	If it is not available from the literature it is estimated from equation 3
MTDI (mg/kg/d)	Maximum tolerable daily intake	For human toxicity
MTDI cancer (mg/kg/d)	Maximum tolerable daily intake for a carcinogen	For human toxicity
RfC (mg/m³)	Toxic reference concentration (air)	For human toxicity
RfC cancer (mg/m³)	Toxic reference concentration for mutagenic/ carcinogenic substances	For human toxicity
Skin contact: f_{du}	Dermal absorption factor	For human toxicity

2.2 Estimating parameters

In the absence of applicable literature data on specific parameters, values have been estimated using the equations derived from the Norwegian risk assessment guideline (SFT, 1999) and given below:

Equation 1:

$$\begin{aligned} \log \text{BCF}_{\text{fish}} &= 0.85 \log \text{Pow} - 0.7 && (\log \text{Pow from 2 to 6}) \\ \log \text{BCF}_{\text{fish}} &= -0.2(\log \text{Pow})^2 + 2.74 \log \text{Pow} - 4.72 && (\text{for } \log \text{Pow} > 6) \end{aligned}$$

Equation 2:

$$\text{BCF}_{\text{stem}} = 0.784(0.82 + 10^{0.95 \log \text{Pow} - 0.05}) \left(10^{-0.434 \frac{(\log \text{Pow} - 1.78)^2}{2.44}} \right)$$

Equation 3:

$$\text{BCF}_{\text{root}} = 10^{(0.77 \log \text{Pow} - 1.52)} + 0.82$$

Soil-water partition coefficient, K_D in this report are presented for a "typical Norwegian" soil with 1% OC (dry weight) following the description in the Norwegian risk assessment guideline (SFT, 1999).

3 Approach for reviewing of available literature

Within Europe there has been several new advances in how environmental risk is regulated this has generated several new data sets to consider, since the last time the compound specific data were evaluated in 2007.

Some of the key developments are:

- The Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) legislation of EU, which requires producers and importers of chemicals, under certain conditions, to provide toxicity, ecotoxicity and physical chemical data to register their chemicals in Europe. The data base of REACH registered chemicals has compiled thousands of physical-chemical properties and toxicity studies (<https://echa.europa.eu/information-on-chemicals/registered-substances>).
- Several new ecotoxicity studies and risk assessment reports at the national, European and international level have been published.

A feature of these developments is that there is a European-wide centralized assembly of key physical-chemical property data, and evaluation of toxicity studies. This makes it possible to coordinate the use of background data used for risk assessment across different European countries. This is in contrast to earlier times, in the absence of such centralized data base, when individual studies put together their own compilations of data. To make good use of this it was key that the background parameters used here were as synchronized as possible to the recently published water and sediment quality guideline values in Norway (M-241, M-608), as well as the water framework directive (2013/39 EU). Therefor the sources for new information were obtained using the priority presented in Table 9.

Table 9. Overview of parameters presented.

Priority	Types of Sources
1.	Background reports to the EU water framework directive (Directive 2013/39 EU) and new Norwegian EQS values (M-608/2016) for water and sediments
2.	Newest EU risk assessment reports (EQS dossier, EU RAR, SVHC dossiers, etc., national reports), recent Norwegian reports (after 2007), or the peer-reviewed literature
3.	Data obtained from the REACH registration dossiers https://echa.europa.eu/information-on-chemicals/registered-substances
4.	Previous data from Aquateam 2007 and 2011.

Data from all four types of sources were compiled in the preparation of this report, but only data corresponding to the highest priority in the table above is presented.

Regarding the REACH data, only human toxicology data from the "toxicological summary" section of the "toxicological summary" was considered, with the exception of dermal absorption factor(f_{du}) which was acquired from the dermal absorption datasheet (within the toxicokinetics, metabolism and distribution data sheet within the toxicological information). Other data was obtained from the "Physical & chemical property" and "Environmental fate & pathways" data bases.

REACH data is also registered with a reliability score, with a score of 1 meaning "reliable without restriction", 2 "reliable with restrictions", 3 "not reliable" and 4 "not assignable". As there are no real rules to guide what reliability score to assign, and it is often up to the opinion of the REACH registrant, it is difficult to ascertain the relationship of this reliability score with data quality. Nevertheless, the reliability scores were provided for data obtained from the REACH registration dossiers.

4 Revised compound specific data

Data are presented for each of the compounds in a table that provides background parameters and concentrations. New data under the column "new review" is presented in bold, blue font. Otherwise data in this column is the same as previous values from Aquateam (2007) and Aquateam (2011).

4.1 Arsenic

Background Parameters and Concentrations

Substance	Arsenic		
CAS #		7440-38-2	
M.W. (g/mol)		75	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	UK Environment Agency (As)
K _{oc} (l/kg TS)	-	-	
K _D (l/kg TS)	100	6607	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	50	4	UK Environment Agency (As): 4 (fish), 12 (snegl), 140 - 3688 (algæ og planter)
BCF stem	0.03	0.03	REACH As(III) = 0.0022; 30% of TDI in RIVM (2001) = 0.0003
BCF root	0.015	0.015	
MTDI (mg/kg/d)	0.001	0.0003	REACH (AS(III) chronic = 0.0025)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	-	0.0025	
RfC cancer (mg/m³)	0.0000067	0.0000067	TA-2863 median natural background Oslo & Trondheim
Skin contact: f _{du}	0.03	0.03	
Background			
Freshwater (µg/L)	-	0.15	TA-2361 (slightly above average of 0.134 µg/L)
Coastal water (µg/L)	-	0.15	TA-2361 (slightly above average of 0.134 µg/L)
Sediment (mg/kg)	-	15	OSPAR (2006)
Soil (mg/kg)	0.07-58	4.9	

4.2 Lead

Background Parameters and Concentrations

Substance	Lead		
CAS #		7439-92-1	
M.W. (g/mol)		207	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	EU dossier (Pb)
Koc(l/kg TS)	-	-	
KD(l/kg TS)	1000	154882	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	300	424	median in EU dossier (Pb)
BCF stem	0.03	0.03	30% of TDI in RIVM (2001) = 0.00108
BCF root	0.001	0.001	
MTDI (mg/kg/d)	0.00105	0.00108	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	0.00015	0.00015	REACH Reliability 2, exp, median used (0,0005; 0,0013)
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.006	0.0009	
Background			
Freshwater (µg/L)	-	0.02	EU dossier (Pb)
Coastal water (µg/L)	-	0.02	EU dossier (Pb)
Sediment (mg/kg)	-	25	Ospar (2006), similar to EU dossier (Pb)
Soil (mg/kg)	5-157	10.25	TA-2863 median natural background Oslo & Trondheim

4.3 Cadmium

Background parameters and concentrations

Substance	Cadmium		
CAS #		7440-43-9	
M.W. (g/mol)		112	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	dependant on CO ₃ and salt cons.
K _{oc} (l/kg TS)	-	-	
K _d (l/kg TS)	100	130000	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	200	623	EU dossier (Cd) worst case: BCF from 0.51 to 623 (whole fish)
BCF stem	0.7	0.7	
BCF root	0.15	0.15	30% of TDI in RIVM (2001) = 0.00015; REACH chronic = 0.001
MTDI (mg/kg/d)	0.000125	0.00015	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.000005	0.000005	
RfC cancer (mg/m ³)	0.0000056	0.0000056	
Skin contact: f _{du}	0.14	0.14	
Background			
Freshwater (µg/L)	-	0.003	EU dossier (Cd) (dissolved)
Coastal water (µg/L)	-	0.025	EU dossier (Cd) for marine vann
Sediment (mg/kg)	-	0.2	Ospar (2006)
Soil (mg/kg)	<0.01-1.8	0.065	TA-2863 median natural background Oslo & Trondheim

4.4 Mercury

Background parameters and concentrations

Substance	Mercury		
CAS #		7439-97-6	
M.W. (g/mol)		201	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	<i>Variable</i> EU dossier (Hg) 30% of REACH chronic value of 0.0074 (other values: RIVM (2001) - 0.0001 organic; EU dossier (Hg) 0.00047 organic (0.00071 total)) REACH
Koc(l/kg TS)	-	-	
K _D (l/kg TS)	500	<i>100000</i>	
Henry (-)	0.3	0.3	
BCF fish (l/kg w.w.)	200	200	
BCF stem	0.03	0.03	
BCF root	0.015	0.015	
MTDI (mg/kg/d)	0.0001	<i>0.00222</i>	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	0.001	<i>0.004</i>	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.05	0.05	
Background			
Freshwater (µg/L)	-	<i>0.001</i>	EU dossier (Hg)
Coastal water (µg/L)	-	<i>0.001</i>	EU dossier (Hg)
Sediment (mg/kg)	-	<i>0.05</i>	Ospar (2006)
Soil (mg/kg)	0.005-0.2	<i>0.210</i>	TA-2863 median of maximum natural background values in different areas of Norway (ranging from 0.1 to 0.45)

4.5 Copper

Background parameters and concentrations

Substance	Copper		
CAS #		7440-50-8	
M.W. (g/mol)		64	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	<i>Variable</i> very uncertain (varies with soil properties) EU RAR (Cu) RIVM (2001) = 140 µg/kg/d; EU RAR (Cu b) = 163 µg/kg/d REACH Reliability 1 exp, median used (0,098; 0,157; 0,193; 0,128; 0,126; 0,147; 0,086; 0,046; 0,097; 0,136; 0,038)
K _{oc} (l/kg TS)	-	-	
K _D (l/kg TS)	500	<i>24409</i>	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	200	200	
BCF stem	0.1	0.1	
BCF root	0.1	0.1	
MTDI (mg/kg/d)	0.5	<i>0.163</i>	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.02	<i>0.112</i>	
Background			
Freshwater (µg/L)	-	<i>0.3</i>	TA-2361
Coastal water (µg/L)	-	<i>0.3</i>	TA-2361
Sediment (mg/kg)	-	<i>20</i>	
Soil (mg/kg)	1-246	<i>29</i>	TA-2863 median natural background Oslo & Trondheim

4.6 Zinc

Background parameters and concentrations

Substance	Zinc		
CAS #		7440-66-6	
M.W. (g/mol)		65	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	
K _{oc} (l/kg TS)	-	-	
K _d (l/kg TS)	200	110000	Kd 110000 used the most in EU RAR (Zn)
Henry (-)	-	-	
BCF fish (l/kg w.w.)	1000	1000	Variable no value suggested in EU RAR (Zn)
BCF stem	0.4	0.4	
BCF root	0.1	0.1	
MTDI (mg/kg/d)	0.3	0.5	RIVM (2001) = 0.5; REACH chronic = 0.83
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	2.5	REACH = 2.5
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.02	0.02	
Background			
Freshwater (µg/L)	-	1.5	TA-2803
Coastal water (µg/L)	-	1.5	TA-2803
Sediment (mg/kg)	-	90	OSPAR (2006)
Soil (mg/kg)	1.7-1000	80	TA-2863 median natural background Oslo & Trondheim

4.7 Chromium (III)

Background parameters and concentrations

Substance	Chromium (III)		
CAS #		10588-01-9 (Na2Cr2O7); 7789-09-5 ((NH4)2Cr2O7); 7778-50-9 (K2Cr2O7)	
M.W. (g/mol)		52	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	EU RAR (Cr), veldig variabelt med pH, redox, og andre parameter.
Koc(l/kg TS)	-	-	
KD(l/kg TS)	2000	<i>11000</i>	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	200	200	
BCF stem	0.02	0.02	30% of TDI in RIVM (2001) = 0.0015
BCF root	0.002	0.002	
MTDI (mg/kg/d)	1	<i>0.0015</i>	
MTDI cancer (mg/kg/d)	-	-	REACH
RfC (mg/m³)	-	<i>0.5</i>	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.04	0.04	
Background			
Freshwater (µg/L)	-	-	TA-2863 median natural background Oslo & Trondheim (total Cr)
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	2.6-246	<i>46.5</i>	

4.8 Chromium (VI)

Background parameters and concentrations

Substance	Chromium (VI)		
CAS #		1333-82-0 (CrO3); 7775-11-3 (Na2CrO4);	
M.W. (g/mol)		52	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	30% of TDI in RIVM (2001) = 0.0015
Koc(l/kg TS)	-	-	
KD(l/kg TS)	30	30	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	200	200	
BCF stem	0.02	0.02	
BCF root	0.002	0.002	
MTDI (mg/kg/d)	0.003	<i>0.0015</i>	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	0.000008	0.000008	
RfC cancer (mg/m³)	0.00000025	0.00000025	
Skin contact: f _{du}	0.09	0.09	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	<0.01-0.09	<0.01-0.09	

4.9 Chromium total (III + VI)

Background parameters and concentrations

Substance	Chromium total (III + VI)		
CAS #		7440-47-3 (Cr metall)	
M.W. (g/mol)		52	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	EU RAR (Cr), veldi variable med pH, redox, og andre parameter. Verdi presentert er for Cr(III), fordi mest Cr i sediment skal være redusert til Cr(III).
K _{oc} (l/kg TS)	-	-	
K _d (l/kg TS)	30	<i>11000</i>	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	200	<i>50</i>	fish: 1 (Cr III), 100 (Cr IV) variable (pH and species dependent, shellfish 2800 - 9100, alga 500 - 130000)
BCF stem	0.002	0.002	30% of TDI in RIVM (2001) for Cr(VI) or Cr(III) = 0.0015
BCF root	0.02	0.02	
MTDI (mg/kg/d)	1	<i>0.0015</i>	
MTDI cancer (mg/kg/d)	-	-	REACH local = 0.027
RfC (mg/m ³)	0.00005	<i>0.027</i>	
RfC cancer (mg/m ³)	0.0000003	0.0000003	
Skin contact: f _{du}	0.09	0.09	
Background			
Freshwater (µg/L)	-	<i>0.1</i>	TA-2361 (slightly above average of 0.09 µg/L)
Coastal water (µg/L)	-	<i>0.1</i>	TA-2361 (slightly above average of 0.09 µg/L)
Sediment (mg/kg)	-	<i>60</i>	OSPAR (2006)
Soil (mg/kg)	2.6-246	<i>46.5</i>	TA-2863 median natural background Oslo & Trondheim

4.10 Nickel

Background parameters and concentrations

Substance	Nickel		
CAS #		7440-02-0	
M.W. (g/mol)		59	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	for bivalves EQS Dossier (Ni) 30% of TDI in RIVM (2001) = 0.05; EU dossier (Ni) = 0.015; REACH chronic = 0.02 (acute = 0.012)
K _{oc} (l/kg TS)	-	-	
K _d (l/kg TS)	200	7079	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	100	270	
BCF stem	0.1	0.1	
BCF root	0.07	0.07	
MTDI (mg/kg/d)	0.005	0.015	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.000025	0.000025	
RfC cancer (mg/m ³)	0.000012	0.000012	
Skin contact: f _{du}	0.35	0.35	
Background			
Freshwater (µg/L)	-	0.5	EU dossier (Ni)
Coastal water (µg/L)	-	0.5	EU dossier (Ni)
Sediment (mg/kg)	-	30	Ospar (2006) = 30, EU dossier (2011) median = 33
Soil (mg/kg)	2-1100	42.5	TA-2863 median natural background Oslo & Trondheim

4.11 Cyanide

Background parameters and concentrations

Substance	free cyanide		
CAS #		57-12-5	
M.W. (g/mol)		26.02	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-0.25	REACH Reliability 2 (20 °C)
Koc(l/kg TS)	-	2.8	REACH Reliability 2 (estimated)
Kd(l/kg TS)	1	0.028	0.01 Koc
Henry (-)	0.0013	0.005	REACH Reliability 2
BCF fish (l/kg w.w.)	10	0.12	calculated EU-TGD (2011)
BCF stem	0.883	0.12	based on new Pow
BCF root	0.798	0.84	based on new Pow
MTDI (mg/kg/d)	0.012	0.012	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.025	0.025	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.3	0.3	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	m.d	m.d	

4.12 PCB 7

Background parameters and concentrations

Substance	PCB 7		
CAS #		1336-36-3	
M.W. (g/mol)		375.7 (average)	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6	5.7	ATSDR (1997, from 4.7 to 6.8:

4.13 Lindane

Background parameters and concentrations

Substance	lindane		
CAS #		608-73-1	
M.W. (g/mol)		291	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.61	3.5	EU dossier (HCH)
K _{oc} (l/kg TS)	1080	3715	variable (650 - 7000)
K _d (l/kg TS)	33	37	0.01 K _{oc}
Henry (-)	0.00000292	0.00000292	
BCF fish (l/kg w.w.)	730	1300	whole fish
BCF stem	0.15	0.15	estimated value = 5
BCF root	0.86	0.86	estimated value = 16
MTDI (mg/kg/d)	0.00033	0.001	RIVM (2001) (1 for α -HCH, 0.02 for β -HCH, and 0.04 for lindane) = 0.001
MTDI cancer (mg/kg/d)	0.0000075	0.0000075	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.000026	0.000026	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	0.002-0.03	0.002-0.03	

4.14 DDT

Background parameters and concentrations

Substance	DDT		
CAS #		50-29-3 for p,p-DDT	
M.W. (g/mol)		354	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.2	6.91	p,p-DDT (EPI Suite)
K _{oc} (l/kg TS)	408600	6215857	eq
K _D (l/kg TS)	4086	62159	0.01 K _{oc}
Henry (-)	0.0023	0.0023	
BCF fish (l/kg w.w.)	30000	30000	12000 – 100000 USDHHS (2002),
BCF stem	0.05	0.05	estimated value = 1
BCF root	0.002	0.002	estimated value = 6321
MTDI (mg/kg/d)	0.0005	0.01	0.01 from TA-2802; RIVM (2001) = 0.0005
MTDI cancer (mg/kg/d)	0.000029	0.000029	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.007	0.007	
Skin contact: f _{au}	-	-	
Background			
Freshwater (µg/L)	-	0	0
Coastal water (µg/L)	-	0	0
Sediment (mg/kg)	-	0	0
Soil (mg/kg)	0.0003-0.02	0.0003-0.02	

4.15 Monochlorobenzene

Background parameters and concentrations

Substance	monochloro-benzene		
CAS #		108-90-7	
M.W. (g/mol)		113	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.9	2.89	REACH Reliability 2
K _{oc} (l/kg TS)	219	398	REACH Reliability 4 (median 2.68;2.52)
K _d (l/kg TS)	2.2	4	0.01 K _{oc}
Henry (-)	0.13	0.15	REACH (reliability not given)
BCF fish (l/kg w.w.)	40	57	calculated EU-TGD (2011)
BCF stem	2.48	2.74	RIVM (2001) = 0.2; REACH acute = 3
BCF root	5.07	5.89	
MTDI (mg/kg/d)	0.02	0.2	
MTDI cancer (mg/kg/d)	-	-	REACH
RfC (mg/m ³)	-	1	
RfC cancer (mg/m ³)	0.071	0.071	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.16 1,2-dichlorobenzene

Background parameters and concentrations

Substance	1,2-dichlorobenzene		
CAS #		95-50-1	
M.W. (g/mol)		147	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.5	<i>3.43</i>	REACH Reliability 2
K _{oc} (l/kg TS)	398	398	
K _d (l/kg TS)	4	<i>4</i>	0.01 K _{oc}
Henry (-)	0.058	<i>0.079</i>	REACH (reliability not given)
BCF fish (l/kg w.w.)	230	<i>164</i>	calculated EU-TGD (2011)
BCF stem	4.41	<i>4.37</i>	
BCF root	14.4	<i>14.0</i>	
MTDI (mg/kg/d)	0.43	0.43	RIVM (2001) = 0.43; REACH chronic = 0.6 (acute = 3)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>1</i>	REACH chronic = 1; (acute = 5)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.17 1,4-dichlorobenzene

Background parameters and concentrations

Substance	1,4-dichlorobenzene		
CAS #		106-46-7	
M.W. (g/mol)		147	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.5	<i>3.37</i>	REACH Reliability 2
K _{oc} (l/kg TS)	661	<i>372</i>	REACH Reliability 2 (median 2.56 - 2.58)
K _d (l/kg TS)	6.6	<i>3.7</i>	0.01 K _{oc}
Henry (-)	0.093	<i>0.10</i>	REACH Reliability 2
BCF fish (l/kg w.w.)	1800	<i>146</i>	calculated EU-TGD (2011)
BCF stem	4.31	<i>4.17</i>	
BCF root	13.6	<i>12.7</i>	
MTDI (mg/kg/d)	0.11	<i>0.1</i>	RIVM (2001) = 0.1; REACH chronic = 0.7 (acute = 3.5)
MTDI cancer (mg/kg/d)	0.0004	0.0004	
RfC (mg/m ³)	0.13	<i>8.2</i>	REACH chronic = 8.2 (acute = 300)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.18 Trichlorobenzenes

Background parameters and concentrations

Substance	trichlorobenzenes		
CAS #		12002-48-1	
M.W. (g/mol)		181	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.1	<i>4.05</i>	EU dossier (TCB)
Koc(l/kg TS)	2089	<i>1400</i>	EU dossier (TCB)
K _D (l/kg TS)	21	<i>14</i>	0.01 Koc
Henry (-)	0.0039	0.0039	
BCF fish (l/kg w.w.)	1200	<i>1140</i>	(Naturvårdsverket, 2005); EU dossier (TCB) used 2000
BCF stem	5.92	<i>6.04</i>	
BCF root	36.4	<i>40.5</i>	
MTDI (mg/kg/d)	0.0077	<i>0.008</i>	RIVM (2001) = 0.008; EU dossier (trichlorobenzenes) = 0.060
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.008	0.008	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.08	0.08	
Background			
Freshwater (µg/L)	-	<i>0</i>	
Coastal water (µg/L)	-	<i>0</i>	
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	0.017 (1,2,4-trichloro)	0.017 (1,2,4-trichloro)	

4.19 1,2,4,5-Tetrachlorobenzene

Background parameters and concentrations

Substance	1,2,4,5-tetrachlorobenzene		
CAS #		95-94-3	<i>not revised due to lack of data</i>
M.W. (g/mol)		216	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.6		
K _{oc} (l/kg TS)	5888		
K _D (l/kg TS)	59		
Henry (-)	0.54		
BCF fish (l/kg w.w.)	4830		
BCF stem	6.22		
BCF root	126.4		
MTDI (mg/kg/d)	0.0003		
MTDI cancer (mg/kg/d)	-		
RfC (mg/m ³)	-		
RfC cancer (mg/m ³)	-		
Skin contact: f _{du}	0.1		
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.20 Pentachlorobenzene

Background parameters and concentrations

Substance	pentachlorobenzen e		
CAS #		608-93-5	
M.W. (g/mol)		250	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.2	5.2	5.03 - 5.2 EU dossier (pentachlorobenzene)
K _{oc} (l/kg TS)	8318	<i>40000</i>	variable (25120 - 129000), EU dossier (pentachlorobenzene)
K _d (l/kg TS)	83	<i>400</i>	0.01 K _{oc}
Henry (-)	0.15	0.15	
BCF fish (l/kg w.w.)	260000	<i>5300</i>	variable (3000 - 20000), "intermediate" value used in EU dossier (pentachlorobenzene)
BCF stem	5.15	<i>5.06</i>	
BCF root	289.8	<i>306</i>	
MTDI (mg/kg/d)	0.0008	<i>0.0005</i>	EU dossier (pentachlorobenzene) = 0.0005, 0.0008
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	<i>0</i>	
Coastal water (µg/L)	-	<i>0</i>	
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	-	-	

4.21 Hexachlorobenzene

Background parameters and concentrations

Substance	hexachlorobenzene		
CAS #		118-74-1	
M.W. (g/mol)		285	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.7	5.7	EPISuite
Koc(l/kg TS)	11482	<i>130000</i>	EU dossier (HCB)
K _D (l/kg TS)	115	<i>1300</i>	0.01 Koc
Henry (-)	0.0064	0.0064	
BCF fish (l/kg w.w.)	30000	<i>42000</i>	EU dossier (HCB) as BAF
BCF stem	4.05	<i>3.36</i>	
BCF root	522.1	<i>740</i>	
MTDI (mg/kg/d)	0.00003	<i>0.00016</i>	RIVM (2001) CR _{oral} = 0.00016
MTDI cancer (mg/kg/d)	0.000033	0.000033	
RfC (mg/m ³)	0.003	0.003	
RfC cancer (mg/m ³)	0.00075	0.00075	
Skin contact: f _{du}	0.13	0.13	
Background			
Freshwater (µg/L)	-	<i>0</i>	
Coastal water (µg/L)	-	<i>0</i>	
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	0.0004-0.006	0.0004-0.006	

4.22 Dichloromethane

Background parameters and concentrations

Substance	dichloromethane		
CAS #		75-09-2	
M.W. (g/mol)		85	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	1.25	<i>1.3</i>	EU dossier (dichloromethane)
K _{oc} (l/kg TS)	16.6	<i>8.8</i>	EU dossier (dichloromethane)
K _D (l/kg TS)	0.17	<i>0.088</i>	0.01 K _{oc}
Henry (-)	0.0861	<i>0.11</i>	EU dossier (dichloromethane)
BCF fish (l/kg w.w.)	5	<i>2.5</i>	calculated EU-TGD (2011)
BCF stem	1.06	<i>0.69</i>	RIVM (2001) = 0.06; REACH chronic = 0.06
BCF root	1.65	<i>1.12</i>	
MTDI (mg/kg/d)	0.006	<i>0.06</i>	
MTDI cancer (mg/kg/d)	0.0013	0.0013	
RfC (mg/m ³)	0.45	<i>88.3</i>	REACH chronic =88.3 (acute = 353)
RfC cancer (mg/m ³)	0.05	0.05	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.23 Trichloromethane

Background parameters and concentrations

Substance	trichloromethane		
CAS #		67-66-3	
M.W. (g/mol)		119	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	1.97	1.97	EU dossier (trichloromethane)
K _{oc} (l/kg TS)	46	<i>185</i>	EU dossier (trichloromethane)
K _d (l/kg TS)	0.46	<i>1.9</i>	0.01 K _{oc}
Henry (-)	0.11	<i>0.11</i>	EU dossier (trichloromethane)
BCF fish (l/kg w.w.)	13	13	EU dossier (trichloromethane)
BCF stem	1.13	<i>1.15</i>	
BCF root	1.78	<i>1.81</i>	
MTDI (mg/kg/d)	0.013	<i>0.03</i>	RIVM (2001) = 0.03
MTDI cancer (mg/kg/d)	0.000164	0.000164	
RfC (mg/m ³)	0.045	<i>0.18</i>	REACH = 0.18
RfC cancer (mg/m ³)	0.024	0.024	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.24 Trichloroethene

Background parameters and concentrations

Substance	trichloroethene		
CAS #		79-01-6	
M.W. (g/mol)		131	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.6	2.5	REACH Reliability 2 (20 °C)
K _{oc} (l/kg TS)	115	141	REACH Reliability 2
K _d (l/kg TS)	1.15	1.4	0.01 K _{oc}
Henry (-)	0.28	0.42	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	17	28	calculated EU-TGD (2011)
BCF stem	1.74	1.92	
BCF root	3.08	3.50	
MTDI (mg/kg/d)	0.0015	0.05	RIVM (2001) = 0.05
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.023	0.023	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.25 Tetrachloromethane

Background parameters and concentrations

Substance	tetrachloro-methane		
CAS #		56-23-5	
M.W. (g/mol)		154	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.7	<i>2.83</i>	REACH Reliability 2 (25 °C)
K _{oc} (l/kg TS)	174	<i>84.1</i>	REACH Reliability 2 (median 1.69-2.16)
K _d (l/kg TS)	1.7	<i>0.8</i>	0.01 K _{oc}
Henry (-)	1.25	<i>1.21</i>	REACH Reliability 2
BCF fish (l/kg w.w.)	17	<i>51</i>	calculated EU-TGD (2011)
BCF stem	-	<i>2.58</i>	
BCF root	-	<i>5.38</i>	
MTDI (mg/kg/d)	0.007	<i>0.004</i>	RIVM (2001) = 0.004
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.0061	<i>0.107</i>	REACH = 0.107
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	<i>0.00046</i>	REACH Reliability 4
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.26 Tetrachloroethene

Background parameters and concentrations

Substance	tetrachloroethene		
CAS #		127-18-4	
M.W. (g/mol)		166	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.4	2.53	REACH Reliability 2 (23 °C)
K _{oc} (l/kg TS)	263	141	REACH Reliability 3
K _d (l/kg TS)	2.6	1.4	0.01 K _{oc}
Henry (-)	0.93	0.87	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	77.1	28	calculated EU-TGD (2011)
BCF stem	1.96	1.92	
BCF root	3.61	3.51	
MTDI (mg/kg/d)	0.014	0.016	RIVM (2001) = 0.016; REACH chronic = 1.3
MTDI cancer (mg/kg/d)	0.0002	0.0002	
RfC (mg/m ³)	0.25	34.5	REACH chronic= 34.5 (acute = 138)
RfC cancer (mg/m ³)	0.0055	0.0055	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.27 1,2-dichloroethane

Background parameters and concentrations

Substance	1,2-dichloroethane		
CAS #		540-59-0	
M.W. (g/mol)		97	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	1.477	<i>1.45</i>	EU dossier (1,2-DCE)
K _{oc} (l/kg TS)	30.9	<i>116</i>	EU dossier (1,2-DCE)
K _d (l/kg TS)	0.3	<i>1.2</i>	0.01 K _{oc}
Henry (-)	0.03	<i>0.045</i>	EU dossier (1,2-DCE)
BCF fish (l/kg w.w.)	3	<i>2</i>	EU dossier (1,2-DCE)
BCF stem	0.79	<i>0.77</i>	
BCF root	1.23	<i>1.21</i>	
MTDI (mg/kg/d)	-	<i>0.014</i>	RIVM (2001) CR _{oral} = 0.014
MTDI cancer (mg/kg/d)	0.00012	0.00012	
RfC (mg/m ³)	-	<i>0.0029</i>	REACH = 0.0029
RfC cancer (mg/m ³)	0.0036	0.0036	
Skin contact: f _{du}	0.1	<i>1</i>	REACH Reliability 2 exp, Values >100%, used 100%
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.28 1,2-dibromoethane

Background parameters and concentrations

Substance	1,2-dibromoethane		
CAS #		106-93-4	
M.W. (g/mol)		188	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	1.96	<i>1.96</i>	REACH Reliability 2
K _{oc} (l/kg TS)	43.8	<i>40.7</i>	REACH Reliability 2 (median 1.11;1.61;1.65)
K _d (l/kg TS)	0.44	<i>0.41</i>	0.01 K _{oc}
Henry (-)	0.03	<i>0.03</i>	REACH Reliability 2 (estimated median)
BCF fish (l/kg w.w.)	9.1	<i>9.2</i>	calculated EU-TGD (2011)
BCF stem	1.13	<i>1.14</i>	
BCF root	1.79	<i>1.80</i>	
MTDI (mg/kg/d)	-	-	
MTDI cancer (mg/kg/d)	0.000035	0.000035	
RfC (mg/m ³)	-	<i>1.15</i>	REACH chronic = 1.15 (acute = 2)
RfC cancer (mg/m ³)	0.00005	0.00005	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.29 1,1,1-trichloroethane

Background parameters and concentrations

Substance	1,1,1-trichloro-ethane		
CAS #		71-55-6	
M.W. (g/mol)		133	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.49	2.5	REACH Reliability 2 0.01 Koc REACH (reliability not given) calculated EU-TGD (2011)
K _{OC} (l/kg TS)	110	110	
K _D (l/kg TS)	1.1	1.1	
Henry (-)	0.71	0.0007	
BCF fish (l/kg w.w.)	9	27	
BCF stem	1.72	1.86	
BCF root	3.03	3.36	
MTDI (mg/kg/d)	0.58	0.58	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	0.8	0.8	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.30 1,1,2-trichloroethane

Background parameters and concentrations

Substance	1,1,2-trichloro-ethane		
CAS #		79-00-5	
M.W. (g/mol)		133	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	1.89	2.27	REACH Reliability 2 (20 °C, median used 2.05-2.49) 0.01 Koc REACH Reliability 2 (estimated, median used) calculated EU-TGD (2011)
K _{OC} (l/kg TS)	80	80	
K _D (l/kg TS)	0.8	0.8	
Henry (-)	0.9	0.04	
BCF fish (l/kg w.w.)	-	17	
BCF stem	-	1.49	
BCF root	-	2.51	
MTDI (mg/kg/d)	0.004	0.004	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	-	-	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.31 Phenol

Background parameters and concentrations

Substance	phenol		
CAS #		108-95-2	
M.W. (g/mol)		94	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	1.47	1.47	REACH Reliability 2 (30 °C)
K _{oc} (l/kg TS)	30	30	
K _D (l/kg TS)	0.3	0.3	0.01 K _{oc}
Henry (-)	0.000000218	<i>0.000013</i>	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	17.5	<i>3.5</i>	calculated EU-TGD (2011)
BCF stem	-	<i>0.79</i>	
BCF root	-	<i>1.23</i>	
MTDI (mg/kg/d)	0.04	0.04	RIVM (2001) = 0.04; REACH chronic value = 0.4
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>1.32</i>	REACH value = 1.32
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.26	<i>0.8</i>	REACH Reliability 2 exp
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.32 Sum mono-tetrachlorophenols

Background parameters and concentrations

Substance	sum mon-tetrachlorophenols		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.7	3.7	0.01 Koc calculated EU-TGD (2011) RIVM (2001) mono, di, tri and tetrachlorophenols are individually = 0.003
K _{OC} (l/kg TS)	30	30	
K _D (l/kg TS)	0.3	0.3	
Henry (-)	0.00004	0.00004	
BCF fish (l/kg w.w.)	-	279	
BCF stem	-	5.20	
BCF root	-	22.2	
MTDI (mg/kg/d)	0.0067	0.003	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	-	-	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.26	0.26	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

n.a. = not applicable

4.33 Pentachlorophenol

Background parameters and concentrations

Substance	pentachlorophenol		
CAS #		87-86-5	
M.W. (g/mol)		266	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.1	3	at pH 7 (log Pow can range from 5 – 1 in soil, depending on the pH)
K _{oc} (l/kg TS)	1585	3400	706 - 53000 variable with pH - EU dossier (pentachlorophenol)
K _d (l/kg TS)	16	34	0.01 K _{oc}
Henry (-)	0.000226	0.000226	
BCF fish (l/kg w.w.)	1250	770	770 used as worst case (EU dossier pentachlorophenol), values range from 91 - 1000 (variable)
BCF stem	5.42	3.04	
BCF root	247.3	247	estimated value = 7.0
MTDI (mg/kg/d)	0.003	0.003	RIVM (2001); EU dossier (pentachlorophenol) = 30 = 0.003
MTDI cancer (mg/kg/d)	0.000083	0.000083	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.0000075	0.0000075	
Skin contact: f _{du}	0.11	0.11	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	<0.005	<0.005	

4.34 Naphthalene

Background parameters and concentrations

Substance	naphthalene		
CAS #		91-20-3	
M.W. (g/mol)		128	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.3	3.3	EU dossier (naphthalene)
K _{oc} (l/kg TS)	995	<i>1349</i>	Karickhoff et al., (1979)
K _d (l/kg TS)	10	<i>13</i>	0.01 K _{oc}
Henry (-)	0.0117	0.0117	
BCF fish (l/kg w.w.)	229	<i>515</i>	EU dossier (naphthalene)
BCF stem	4.14	<i>3.95</i>	
BCF root	12.5	<i>11.3</i>	
MTDI (mg/kg/d)	0.04	0.04	RIVM (2001) = 0.04
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.003	0.003	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	<i>0.83</i>	REACH Reliability 2 exp, median used (0,876; 0,78)
Background			
Freshwater (µg/L)	-	<i>0.000661</i>	assumed same as coastal water
Coastal water (µg/L)	-	<i>0.000661</i>	OSPAR (2006) Max North, North Sea
Sediment (mg/kg)	-	<i>0.002</i>	OSPAR (2006)
Soil (mg/kg)	m.d	<i>0.011</i>	Nam et al. (2008)

4.35 Acenaphthylene

Background parameters and concentrations

Substance	acenaphthylene		
CAS #		208-96-8	
M.W. (g/mol)		152	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.9	3.55	RIVM (2012)
K _{oc} (l/kg TS)	2951	2570	EU RAR (coal tar pitch) – after Karickhoff et al., (1979)
K _D (l/kg TS)	30	26	0.01 K _{oc}
Henry (-)	0.029	0.029	
BCF fish (l/kg w.w.)	-	509	RIVM (2009) - Cyprinus carpio (fish), 5% norm
BCF stem	-	4.74	
BCF root	-	17.2	
MTDI (mg/kg/d)	0.04	0.05	RIVM (2001) = 0.05
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.18	0.18	
Background			
Freshwater (µg/L)	-	0.00001	(OSPAR 2006 N North Sea)
Coastal water (µg/L)	-	0.00001	(OSPAR 2006)
Sediment (mg/kg)	-	0.0016	(OSPAR 2006 N North Sea)
Soil (mg/kg)	-	-	

4.36 Acenaphthene

Background parameters and concentrations

Substance	acenaphthene		
CAS #		83-32-9	
M.W. (g/mol)		154	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.9	3.92	RIVM (2012)
K _{oc} (l/kg TS)	3388	5129	EU RAR (coal tar pitch)
K _D (l/kg TS)	34	51	0.01 K _{oc}
Henry (-)	0.011	0.011	
BCF fish (l/kg w.w.)	-	1000	RIVM (2009) - Cyprinus carpio (fish), 5% norm
BCF stem	-	5.77	
BCF root	-	32.3	
MTDI (mg/kg/d)	0.04	0.5	RIVM (2001) = 0.5
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0.000034	(OSPAR 2006)
Coastal water (µg/L)	-	0.000034	(OSPAR 2006)
Sediment (mg/kg)	-	0.0024	(OSPAR 2006),TA-2803 = 4.8
Soil (mg/kg)	-	0.0032	Nam et al. (2008)

4.37 Phenanthrene

Background parameters and concentrations

Substance	phenanthrene		
CAS #		85-01-8	
M.W. (g/mol)		178	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.47	<i>4.502</i>	RIVM (2012)
K _{oc} (l/kg TS)	16982	<i>37154</i>	EU RAR (coal tar pitch)
K _D (l/kg TS)	170	<i>372</i>	0.01 K _{oc}
Henry (-)	0.00135	0.00135	
BCF fish (l/kg w.w.)	1476	<i>4751</i>	RIVM (2009) - 4751 fish, 14893 crustaceans
BCF stem	-	<i>6.39</i>	
BCF root	-	<i>89.2</i>	
MTDI (mg/kg/d)	0.04	0.04	RIVM (2001) = 0.04
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.18	0.18	
Background			
Freshwater (µg/L)	-	<i>0.000254</i>	(OSPAR 2006)
Coastal water (µg/L)	-	<i>0.000254</i>	(OSPAR 2006)
Sediment (mg/kg)	-	<i>0.0068</i>	(OSPAR 2006)
Soil (mg/kg)	-	<i>0.04</i>	Nam et al. (2008)

4.38 Anthracene

Background parameters and concentrations

Substance	anthracene		
CAS #		120-12-7	
M.W. (g/mol)		178	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.45	4.68	EU dossier (anthracene)
K _{oc} (l/kg TS)	19953	29512	EU dossier (anthracene) (uses Karickhoff et al., 1979 log K _{oc} = log K _{ow} - 0.21)
K _D (l/kg TS)	200	295	0.01 K _{oc}
Henry (-)	0.0009	0.0021	REACH Reliability 4
BCF fish (l/kg w.w.)	1409	3042	EU dossier (anthracene)
BCF stem	-	6.25	
BCF root	-	122	
MTDI (mg/kg/d)	0.04	0.04	RIVM (2001) = 0.04
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0.004	assumed same as coastal water
Coastal water (µg/L)	-	0.004	OSPAR (2006) Max
Sediment (mg/kg)	-	0.0012	OSPAR (2006)
Soil (mg/kg)	-	0.0034	Nam et al. (2008)

4.39 Fluorene

Background parameters and concentrations

Substance	fluorene		
CAS #		86-73-7	
M.W. (g/mol)		166	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.21005085	<i>4.18</i>	RIVM (2012)
Koc(l/kg TS)	5886	<i>10233</i>	EU RAR (2008c)
K _D (l/kg TS)	59	<i>102</i>	0.01 Koc
Henry (-)	0.00619	0.00619	
BCF fish (l/kg w.w.)	-	<i>1658</i>	RIVM (2009) - <i>Pimephales promelas</i> (fish), 5% norm
BCF stem	-	<i>6.24</i>	
BCF root	-	<i>50.8</i>	
MTDI (mg/kg/d)	0.04	0.04	RIVM (2001) = 0.04
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	<i>0.00019</i>	(OSPAR 2006)
Coastal water (µg/L)	-	<i>0.00019</i>	(OSPAR 2006)
Sediment (mg/kg)	-	<i>0.0068</i>	(OSPAR 2006 N North Sea)
Soil (mg/kg)	-	<i>0.0068</i>	Nam et al. (2008)

4.40 Fluoranthene

Background parameters and concentrations

Substance	fluoranthene		
CAS #		206-44-0	
M.W. (g/mol)		202	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.120573931	5.2	EU dossier (fluoranthene)
K _{oc} (l/kg TS)	141336	97724	EU dossier (fluoranthene) (uses Karickhoff et al., 1979 log K _{oc} = log K _{ow} - 0.21)
K _d (l/kg TS)	1514	977	0.01 K _{oc}
Henry (-)	0.00163	0.00163	
BCF fish (l/kg w.w.)	13200	4800	EU dossier (fluoranthene)
BCF stem	5.3	5.06	
BCF root	266	306	
MTDI (mg/kg/d)	0.0125	0.05	RIVM (2001) = 0.05
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.000012	0.000012	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0.00029	assumed same as coastal water
Coastal water (µg/L)	-	0.00029	OSPAR (2006) Max
Sediment (mg/kg)	-	0.008	OSPAR (2006)
Soil (mg/kg)	-	0.014	Nam et al. (2008)

4.41 Pyrene

Background parameters and concentrations

Substance	pyrene		
CAS #		129-00-0	
M.W. (g/mol)		202	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.11058971	4.96	RIVM (2012)
K _{oc} (l/kg TS)	67608	58884	EU RAR (2008c)
K _D (l/kg TS)	676	589	0.01 K _{oc}
Henry (-)	0.0000749	0.0000749	
BCF fish (l/kg w.w.)	-	88157	RIVM (2009) - 1474 fish, 44500 mollusks, 88157 crustaceans (benthic fauna recommended for large PAHs, see Directive 2013/39/EU)
BCF stem	-	5.73	
BCF root	-	200	
MTDI (mg/kg/d)	0.03	0.5	RIVM (2001) = 0.5
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0.000053	(OSPAR 2006)
Coastal water (µg/L)	-	0.000053	(OSPAR 2006)
Sediment (mg/kg)	-	0.0052	(OSPAR 2006)
Soil (mg/kg)	-	0.013	Nam et al. (2008)

4.42 Benzo(a)anthracene

Background parameters and concentrations

Substance	benzo(a)-anthracene		
CAS #		56-55-3	
M.W. (g/mol)		228	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.54	<i>5.91</i>	RIVM (2012)
K _{oc} (l/kg TS)	616595	<i>501187</i>	RIVM (2012)
K _d (l/kg TS)	6172	<i>5012</i>	0.01 K _{oc}
Henry (-)	0.0000017	0.0000017	
BCF fish (l/kg w.w.)	17337	<i>33457</i>	RIVM (2009) - 260 fish, 33457 crustaceans (benthic fauna recommended for large PAHs, see Directive 2013/39/EU)
BCF stem	-	<i>2.66</i>	
BCF root	-	<i>1074</i>	
MTDI (mg/kg/d)	0.005	0.005	RIVM (2001) = 0.005
MTDI cancer (mg/kg/d)	0.00023	0.00023	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.0000077	0.0000077	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	<i>0.000006</i>	(OSPAR 2006)
Coastal water (µg/L)	-	<i>0.000006</i>	(OSPAR 2006)
Sediment (mg/kg)	-	<i>0.0036</i>	(OSPAR 2006)
Soil (mg/kg)	-	<i>0.0045</i>	Nam et al. (2008)

4.43 Chrysene

Background parameters and concentrations

Substance	chrysene		
CAS #		218-01-9	
M.W. (g/mol)		228	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.81	5.81	RIVM (2012)
K _{oc} (l/kg TS)	524807	398107	RIVM (2012)
K _d (l/kg TS)	5253	3981	0.01 K _{oc}
Henry (-)	0.0000047	0.0000047	
BCF fish (l/kg w.w.)	32283	6088	RIVM (2009) - crustaceans
BCF stem	-	2.99	
BCF root	-	900	
MTDI (mg/kg/d)	-	0.05	RIVM (2001) = 0.05
MTDI cancer (mg/kg/d)	0.0023	0.0023	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.0000012	0.0000012	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0.000056	(OSPAR 2006)
Coastal water (µg/L)	-	0.000056	(OSPAR 2006)
Sediment (mg/kg)	-	0.0044	(OSPAR 2006)
Soil (mg/kg)	-	0.014	Nam et al. (2008)

4.44 Benzo(b)fluoranthene

Background parameters and concentrations

Substance	benzo(b)-fluoranthene		
CAS #		205-99-2	
M.W. (g/mol)		252	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.78	5.78	EU dossier (5,6-ring PAHs)
K _{oc} (l/kg TS)	218776	<i>831864</i>	EU dossier (5,6-ring PAHs) (uses Karickhoff et al., 1979 log K _{oc} = log K _{ow} - 0.21, but the estimated K _{ow} of 2.12)
K _p (l/kg TS)	2188	<i>8319</i>	0.01 K _{oc}
Henry (-)	0.0000028	0.0000028	
BCF fish (l/kg w.w.)	50000	<i>11138</i>	EU dossier (5,6-ring PAHs): 135 (fish) 11138 (crustaceans) 57981 (mollusks), WFD recommends crustaceans and mollusks as basis
BCF stem	-	<i>3.09</i>	
BCF root	-	<i>853</i>	
MTDI (mg/kg/d)	0.005	0.005	RIVM (2001) = 0.005
MTDI cancer (mg/kg/d)	0.00023	0.00023	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.00000083	0.00000083	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	<i>0.000017</i>	assumed same as coastal water
Coastal water (µg/L)	-	<i>0.000017</i>	OSPAR (2006) Max
Sediment (mg/kg)	-	<i>0.0916</i>	OSPAR (2006) - N North Sea benzo(b + k)fluoranthene divided by two
Soil (mg/kg)	-	<i>0.016</i>	Nam et al. (2008)

4.45 Benzo(k)fluoranthene

Background parameters and concentrations

Substance	benzo(k)-fluoranthene		
CAS #		207-08-9	
M.W. (g/mol)		252	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.11	6.11	EU dossier (5,6-ring PAHs)
K _{oc} (l/kg TS)	1737801	794328	EU dossier (5,6-ring PAHs) (uses Karickhoff et al., 1979 log K _{oc} = log K _{ow} - 0.21)
K _d (l/kg TS)	17395	7943	0.01 K _{oc}
Henry (-)	0.0000028	0.0000028	
BCF fish (l/kg w.w.)	50000	11138	EU dossier (5,6-ring PAHs), 135 (fish) 11138 (crustaceans) 57981 (mollusks), WFD recommends crustaceans and mollusks as basis
BCF stem	-	2.06	
BCF root	-	1531	
MTDI (mg/kg/d)	-	0.005	RIVM (2001) = 0.005
MTDI cancer (mg/kg/d)	0.00023	0.00023	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.0000012	0.0000012	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0.000017	assumed same as coastal water
Coastal water (µg/L)	-	0.000017	OSPAR (2006) assumed same as Benzo(b)fluoranthene
Sediment (mg/kg)	-	0.0916	OSPAR (2006) - N North Sea benzo(b + k)fluoranthene divided by two
Soil (mg/kg)	-	0.0031	Nam et al. (2008)

4.46 Benzo(a)pyrene

Background parameters and concentrations

Substance	benzo(a)pyrene		
CAS #		50-32-8	
M.W. (g/mol)		252	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.4	<i>6.11</i>	EU dossier (5,6-ring PAHs)
K _{oc} (l/kg TS)	660693	<i>831764</i>	EU dossier (5,6-ring PAHs): (uses Karickhoff et al., 1979 , but used log K _{oc} = log K _{ow} - 0.19 instead of log K _{oc} = log K _{ow} - 0.21)
K _d (l/kg TS)	-	<i>8318</i>	0.01 K _{oc}
Henry (-)	0.000034	0.000034	
BCF fish (l/kg w.w.)	28200	<i>11138</i>	EU dossier (5,6-ring PAHs): 135 (fish) 11138 (crustaceans) 57981 (mollusks), WFD recommends crustaceans and mollusks as basis
BCF stem	2.01	<i>2.06</i>	
BCF root	1584	<i>1531</i>	
MTDI (mg/kg/d)	0.00001	<i>0.0005</i>	RIVM (2001) = 0.0005
MTDI cancer (mg/kg/d)	0.00001	0.00001	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.00000011	0.00000011	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	<i>0.000005</i>	assumed same as coastal water
Coastal water (µg/L)	-	<i>0.000005</i>	OSPAR (2006) Max
Sediment (mg/kg)	-	<i>0.006</i>	OSPAR (2006)
Soil (mg/kg)	<0.01-0.16	<i>0.0053</i>	Nam et al. (2008)

4.47 Indeno(1,2,3-cd)pyrene

Background parameters and concentrations

Substance	indeno(1,2,3-cd)-pyrene		
CAS #		193-39-5	
M.W. (g/mol)		276	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.87	<i>6.7</i>	EU dossier (5,6-ring PAHs)
Koc(l/kg TS)	1047129	<i>2344229</i>	EU dossier (5,6-ring PAHs) (uses Karickhoff et al., 1979 , but used log Koc = log Kow - 0.33 instead of log Koc = log Kow - 0.21)
Kd(l/kg TS)	10482	<i>23442</i>	0.01 Koc
Henry (-)	0.00000117	0.00000117	
BCF fish (l/kg w.w.)	50000	<i>11138</i>	EU dossier (5,6-ring PAHs): 135 (fish) 11138 (crustaceans) 57981 (mollusks), WFD recommends crustaceans and mollusks as basis
BCF stem	-	<i>0.80</i>	
BCF root	-	<i>4356</i>	
MTDI (mg/kg/d)	0.005	0.005	RIVM (2001) = 0.005
MTDI cancer (mg/kg/d)	0.00023	0.00023	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.0000005	0.0000005	
Skin contact: f _{au}	0.18	0.18	
Background			
Freshwater (µg/L)	-	<i>0.000017</i>	assumed same as coastal water
Coastal water (µg/L)	-	<i>0.000017</i>	OSPAR (2006) Max
Sediment (mg/kg)	-	<i>0.02</i>	OSPAR (2006)
Soil (mg/kg)	-	-	

4.48 Dibenzo(a,h)anthracene

Background parameters and concentrations

Substance	dibenzo(a,h)-anthracene		
CAS #		53-70-3	
M.W. (g/mol)		278	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	7.11	<i>6.55</i>	RIVM (2012)
K _{oc} (l/kg TS)	1380384	<i>1949845</i>	RIVM (2012)
K _d (l/kg TS)	18804	<i>19498</i>	0.01 K _{oc}
Henry (-)	0.000038	0.000038	
BCF fish (l/kg w.w.)	50000	<i>50119</i>	RIVM (2009) - crustaceans
BCF stem	-	<i>1.05</i>	
BCF root	-	<i>3339</i>	
MTDI (mg/kg/d)	-	<i>0.0005</i>	RIVM (2001) = 0.0005
MTDI cancer (mg/kg/d)	0.000023	0.000023	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	0.000000023	0.000000023	
Skin contact: f _{du}	0.09	0.09	
Background			
Freshwater (µg/L)	-	<i>0.000001</i>	(OSPAR 2006) max "<0.000001 µg/L)
Coastal water (µg/L)	-	<i>0.000001</i>	(OSPAR 2006) max "<0.000001 µg/L)
Sediment (mg/kg)	-	<i>0.012</i>	(OSPAR 2006 N North Sea)
Soil (mg/kg)	-	<i>0.0012</i>	Nam et al. (2008)

4.49 Benzo(g,h,i)perylene

Background parameters and concentrations

Substance	benzo(g,h,i)perylene		
CAS #		191-24-2	
M.W. (g/mol)		276	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.22	6.63	EU dossier (5,6-ring PAHs)
Koc(l/kg TS)	2691535	1023293	EU dossier (5,6-ring PAHs) (uses Karickhoff et al., 1979 , but used log Koc = log Kow - 0.62 instead of log Koc = log Kow - 0.21)
Kd(l/kg TS)	26942	10233	0.01 Koc
Henry (-)	0.000004	0.000004	
BCF fish (l/kg w.w.)	50000	11138	EU dossier (5,6-ring PAHs): 135 (fish) 11138 (crustaceans) 57981 (mollusks), WFD recommends crustaceans and mollusks as basis
BCF stem	-	0.91	
BCF root	-	3848	
MTDI (mg/kg/d)	0.03	0.03	RIVM (2001) = 0.03
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.18	0.18	
Background			
Freshwater (µg/L)	-	0.000011	assumed same as coastal water
Coastal water (µg/L)	-	0.000011	OSPAR (2006) Max
Sediment (mg/kg)	-	0.018	OSPAR (2006)
Soil (mg/kg)	-	0.0093	Nam et al. (2008)

4.50 PAH total

Each of the PAHs has unique properties. However, they are normally present in the environment as mixtures. Studies on PAH mixture composition found that generally the concentration of 3 and 4 ring PAHs correlated the best with concentrations of all other PAHs, across diverse types of sediments (Arp et al. 2011). Pyrene was chosen as a result of its good correlation to the PAH-16 concentration. To demonstrate that this also applies to soils, a data base of PAHs in diverse contaminated soils from Europe, originating from Arp et al. (2014) was analysed and showed the following correlation:

$$C_{\text{soil,PAH-16}} = 5.71 \pm 0.23 (C_{\text{soil,pyrene}}) (r^2 = 0.95)$$

Compound specific parameters for PAH-16 are therefor set identical to pyrene (chapter 4.50). However, human health is controlled by the most critical parameter which is normally benzo(a)pyrene.

Background parameters and concentrations

Substance	PAH-16		
CAS #			
M.W. (g/mol)			
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.4	4.96	see Pyrene
Koc(l/kg TS)	66093	58884	see Pyrene
K _D (l/kg TS)	6607	589	0.01 Koc
Henry (-)	0.02	0.0000749	see Pyrene
BCF fish (l/kg w.w.)	28200	88157	see Pyrene
BCF stem	2.01	5.73	see Pyrene
BCF root	1584	200	see Pyrene
MTDI (mg/kg/d)	See BaP		BaP determines human health
MTDI cancer (mg/kg/d)	See BaP		BaP determines human health
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	See BaP		BaP determines human health
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	0,0056	assumed same as coastal water
Coastal water (µg/L)	-	0,0056	OSPAR (2006) Max North, North Sea
Sediment (mg/kg)	-	0,281	OSPAR (2006)
Soil (mg/kg)	-	0,145	PAH-14, Nam et al, (2008)

4.51 Benzene

Background parameters and concentrations

Substance	benzene		
CAS #		71-43-2	
M.W. (g/mol)		78	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.1	<i>2.13</i>	EU dossier (benzene)
K _{oc} (l/kg TS)	74	<i>134</i>	EU dossier (benzene)
K _D (l/kg TS)	0.7	<i>1.3</i>	0.01 K _{oc}
Henry (-)	0.159	0.159	
BCF fish (l/kg w.w.)	10.9	<i>13</i>	EU dossier (benzene)
BCF stem	1.32	<i>1.31</i>	
BCF root	2.15	<i>2.14</i>	
MTDI (mg/kg/d)	-	<i>0.007</i>	RIVM (2001) = 0.007
MTDI cancer (mg/kg/d)	0.00033	0.00033	
RfC (mg/m ³)	0.05	0.05	
RfC cancer (mg/m ³)	0.0012	0.0012	
Skin contact: f _{du}	0.08	<i>0.015</i>	REACH Reliability 2 (QSAR)
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	<0.1	<0.1	

4.52 Toluene

Background parameters and concentrations

Substance	toluene		
CAS #		108-88-3	
M.W. (g/mol)		92	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.8	2.73	REACH Reliability 2 (20 °C)
K _{oc} (l/kg TS)	250	63.8	REACH Reliability 4 (median 1.53-2.08)
K _D (l/kg TS)	2.5	0.64	0.01 K _{oc}
Henry (-)	0.27	0.27	
BCF fish (l/kg w.w.)	39	42	calculated EU-TGD (2011)
BCF stem	2.2	2.34	
BCF root	4.24	4.64	
MTDI (mg/kg/d)	0.22	0.223	RIVM (2001) = 0.223; REACH chronic = 8.13
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.26	56.5	REACH chronic = 56.5 (acute = 226)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.12	0.036	REACH Reliability 2 (Q)Sar
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	0.32	0.32	

4.53 Ethylbenzene

Background parameters and concentrations

Substance	ethylbenzene		
CAS #		100-41-4	
M.W. (g/mol)		106	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.8	3.6	REACH Reliability 1 (20 °C)
K _{oc} (l/kg TS)	250	250	
K _D (l/kg TS)	2.5	2.5	0.01 K _{oc}
Henry (-)	0.27	0.33	REACH Reliability 2
BCF fish (l/kg w.w.)	86	229	calculated EU-TGD (2011)
BCF stem	3.4	4.90	
BCF root	8.48	18.7	
MTDI (mg/kg/d)	0.1	0.1	RIVM (2001) = 0.1; REACH chronic = 1.6
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	1	15	REACH chronic = 15 (worker = 77)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	<0.1	<0.1	

4.54 Xylene

Background parameters and concentrations

Substance	xylene		
CAS #		1330-20-7	
M.W. (g/mol)		106	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	2.8	3.2	REACH Reliability 2 (20 °C)
K _{oc} (l/kg TS)	250	250	
K _d (l/kg TS)	2.5	2.5	0.01 K _{oc}
Henry (-)	0.27	0.26	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	105	105	calculated EU-TGD (2011)
BCF stem	3.37	3.64	
BCF root	8.34	9.61	
MTDI (mg/kg/d)	0.2	0.15	RIVM (2001) = 0.15; REACH chronic = 1.6
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	0.87	14.8	REACH chronic = 14.8 (acute = 174)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.12	0.118	REACH Reliability 2 (Q)Sar, median used (0,139; 0,118; 0,109)
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	<0.1	<0.1	

4.55 Aliphatics C5-C6

Background parameters and concentrations

Substance	aliphatics C5-C6		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.278754	3.3	0.01 Koc
Koc(l/kg TS)	800	800	
Kd(l/kg TS)	8	8	
Henry (-)	47	47	
BCF fish (l/kg w.w.)	190	122	calculated EU-TGD (2011)
BCF stem	3.88	3.88	
BCF root	10.93	10.9	
MTDI (mg/kg/d)	5	2	RIVM (2001): C5-C8 = 2
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	18.4	18.4	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	1	1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.56 Aliphatics > C6-C8

Background parameters and concentrations

Substance	aliphatics > C6-C8		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.0	4.0	0.01 Koc
Koc(l/kg TS)	4000	4000	
Kd(l/kg TS)	40	40	
Henry (-)	50	50	
BCF fish (l/kg w.w.)	970	488	calculated EU-TGD (2011)
BCF stem	5.92	5.92	
BCF root	36.28	36.3	
MTDI (mg/kg/d)	5	2	RIVM (2001) - C5-C8 = 2
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	18.4	18.4	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	1	1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.57 Aliphatics > C8-C10

Background parameters and concentrations

Substance	aliphatics > C8-C10		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.886490725	4.9	0.01 Koc calculated EU-TGD (2011) RIVM (2001): C18-C16 = 0.1
Koc(l/kg TS)	32000	32000	
K _D (l/kg TS)	320	320	
Henry (-)	55	55	
BCF fish (l/kg w.w.)	7700	2841	
BCF stem	5.9	5.90	
BCF root	175.64	176	
MTDI (mg/kg/d)	0.1	0.1	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	1	1	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.5	0.5	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.58 Sum aliphatics > C5-C10

Background parameters and concentrations

Substance	sum aliphatics > C5-C10		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.9	3.9	calculated EU-TGD (2011)
K _{oc} (l/kg TS)	-	-	
K _D (l/kg TS)	-	-	
Henry (-)	34	34	
BCF fish (l/kg w.w.)	-	412	
BCF stem	-	5.72	
BCF root	-	31.2	
MTDI (mg/kg/d)	0.1	0.1	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	1	1	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.59 Aliphatics > C10-C12

Background parameters and concentrations

Substance	aliphatics > C10-C12		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.77815125	5.8	0.01 Koc
Koc(l/kg TS)	250000	250000	
K _D (l/kg TS)	2500	2500	
Henry (-)	60	60	
BCF fish (l/kg w.w.)	60000	<i>16272</i>	calculated EU-TGD (2011)
BCF stem	3.09	<i>3.09</i>	RIVM (2001): C18-C16 = 0.1
BCF root	850.35	<i>850</i>	
MTDI (mg/kg/d)	0.1	0.1	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	1	1	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	0.5	0.5	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.60 Aliphatics > C12-C35

Background parameters and concentrations

Substance	aliphatics > C12-C35		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.3	6.3	0.01 Koc calculated EU-TGD (2011)
Koc(l/kg TS)	1.0E+09	1.0E+09	
K _D (l/kg TS)	1.0E+07	1.0E+07	
Henry (-)	87	87	
BCF fish (l/kg w.w.)	200000000	40179	
BCF stem	0.0004	1.57	
BCF root	438322	2144	
MTDI (mg/kg/d)	2	2	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	1	1	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	0.1	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.61 MTBE

Background parameters and concentrations

Substance	MTBE		
CAS #		1634-04-4	
M.W. (g/mol)		88	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	0.9	<i>1.23</i>	REACH Reliability 1
K _{oc} (l/kg TS)	6	6	
K _D (l/kg TS)	0.06	0.06	0.01 K _{oc}
Henry (-)	0.024	<i>0.022</i>	REACH Reliability 2
BCF fish (l/kg w.w.)	2	<i>2</i>	calculated EU-TGD (2011)
BCF stem	0.69	<i>0.66</i>	
BCF root	1.12	<i>1.09</i>	
MTDI (mg/kg/d)	0.1	<i>7.1</i>	REACH chronic = 7.1
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	3	<i>53.6</i>	REACH chronic = 53.6 (acute = 214)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.1	<i>0.002</i>	REACH Reliability 2 (Q)Sar
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.62 Tetraethyl-lead

Background parameters and concentrations

Substance	tetraethyl-lead		
CAS #		78-00-2	
M.W. (g/mol)		323	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.1	4.385	REACH Reliability 2 (20 °C, median used 4.15;4.62)
K _{oc} (l/kg TS)	758	1300	REACH Reliability 2
K _D (l/kg TS)	7.6	13	0.01 K _{oc}
Henry (-)	28	0.19	REACH Reliability 2 minimum value!
BCF fish (l/kg w.w.)	100	1065	calculated EU-TGD (2011)
BCF stem	3.04	6.39	
BCF root	6.99	72.7	
MTDI (mg/kg/d)	1.0E-07	1.0E-07	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	0.08	REACH chronic = 0.08 (acute = 0.34)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	1	0.065	REACH Reliability 2 exp
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.63 Brominated diphenylethers

Background parameters and concentrations

Substance	brominated diphenylethers		
CAS #	Only Tetra, Penta, Hexa and Heptabromodiphenylether (CAS -numbers 40088-47-9, 32534-81-9, 36483-60-0, 68928-80-3, respectively)		
M.W. (g/mol)		564.7 (pentaBDE); 801.38 (octaBDE)	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	6.285	6.5	EU dossier (BDE): assumes tetra; 5.87 (tetra, lowest measured); 6.57 (penta); 8.35 (lowest measured)
Koc(l/kg TS)	21080	565860	EU dossier (BDE): assumes tetra; 565860 (tetra); 983340 (penta); 1363040 (and larger for octa)
K _D (l/kg TS)	13921	5659	0.01 Koc
Henry (-)	1.2E-06	1.2E-06	
BCF fish (l/kg w.w.)	3245	35000	EU dossier (BDE) highest measured (tetra BDE)
BCF stem	-	1.14	
BCF root	-	3056	
MTDI (mg/kg/d)	0.002	1.4E-07	EU dossier (BDE) = 0.00000014
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.067	0.067	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	0.00004 (BDE-99)	-	BDEs do not occur naturally

4.64 PBDE-209

Background parameters and concentrations

Substance	PBDE-209		
CAS #		1163-19-5	
M.W. (g/mol)		959	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	9.9	9.9	REACH = 6.625, which is inconsistent with other BDE; a value between 9.5 - 11 is more consistent (Palm et al. (2002))
K _{oc} (l/kg TS)	33000	<i>5.2E+11</i>	REACH Reliability 2 (estimated)
K _d (l/kg TS)	330	<i>5.2E+09</i>	0.01 K _{oc}
Henry (-)	0.000000045	<i>4.9E-07</i>	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	-	<i>637</i>	calculated EU-TGD (2011)
BCF stem	-	<i>3.3E-05</i>	
BCF root	-	<i>1.27E+06</i>	
MTDI (mg/kg/d)	0.01	<i>20</i>	REACH chronic =20, (acute also = 20)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>70</i>	REACH = 70 (worker = 6)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.067	0.067	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	0.00051	0.00051	

4.65 HBCDD

Background parameters and concentrations

Substance	HBCDD		
CAS #	This refers to 1,3,5,7,9,11-Hexabromocyclododecane (CAS 25637-99-4), 1,2,5,6,9,10-Hexabromocyclododecane (CAS 3194-55-6), α -Hexabromocyclododecane (CAS 134237-50-6), β -Hexabromocyclododecane (CAS 134237-51-7) and γ -Hexabromocyclododecane (CAS 134237-52-8)		
M.W. (g/mol)		642	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.8	<i>5.62</i>	technical product (EU dossier (HBCDD))
K _{oc} (l/kg TS)	330	<i>45709</i>	technical product (EU dossier (HBCDD))
K _D (l/kg TS)	33	<i>457</i>	0.01 K _{oc}
Henry (-)	0.000117	0.000117	
BCF fish (l/kg w.w.)	-	<i>18100</i>	technical product (EU dossier (HBCDD))
BCF stem	-	<i>3.64</i>	
BCF root	-	<i>643</i>	
MTDI (mg/kg/d)	-	<i>0.1</i>	EU dossier (HBCDD)TL value = 0.1; REACH chronic = 0.102
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>0.719</i>	REACH = 0.719
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.067	<i>0.0001</i>	REACH Reliability 1 exp
Background			
Freshwater (µg/L)	-	<i>0 (LOD 0.001)</i>	lowest measured above LOD in TA-2982
Coastal water (µg/L)	-	<i>0 (LOD 0.001)</i>	lowest measured above LOD in TA-2982
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	-	-	

4.66 Tetrabromobisphenol A

Background parameters and concentrations

Substance	tetrabromo-bisphenol A		
CAS #		79-94-7	
M.W. (g/mol)		544	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.9	5.9	EU RAR (TBBPA)
K _{oc} (l/kg TS)	49726	49726	EU RAR (TBBPA)
K _d (l/kg TS)	497	497	0.01 K _{oc}
Henry (-)	-	9.4E-12	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	1200	1234	EU RAR (TBBPA); 1,200 in Fathead minnows (Pimephalus promelas) from EFSA (2011)
BCF stem	-	2.69	
BCF root	-	1055	
MTDI (mg/kg/d)	-	1	EFSA (2011) = 1; REACH chronic = 2.5
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	4.3	REACH = 4.3
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.067	0.0073	REACH Reliability 1 exp
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.67 Bisphenol A

Background parameters and concentrations

Substance	bisphenol A		
CAS #		80-05-7	
M.W. (g/mol)		228	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	3.4	3.4	EU RAR (BPA)
K _{oc} (l/kg TS)	1349	<i>715</i>	EU RAR (BPA)
K _d (l/kg TS)	13	<i>7.15</i>	0.01 K _{oc}
Henry (-)	1.1E-11	<i>1.3E-10</i>	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	5.1	<i>67</i>	EU RAR (BPA) 155 estimated from Pow
BCF stem	-	<i>4.27</i>	
BCF root	-	<i>13.4</i>	
MTDI (mg/kg/d)	0.05	<i>1</i>	M-241 = 1; REACH chronic (acute = 0.004) = 0.004
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>1</i>	REACH = 1
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	<i>0.093</i>	REACH Reliability 1 exp
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.68 PFOS

Background parameters and concentrations

Substance	PFOS		
CAS #		1763-23-1	
M.W. (g/mol)		500.13 (som syre)	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	<i>6.4 in Neutral form. -5.0 at pH 8</i> (Wang et al. 2011)
K _{oc} (l/kg TS)	2690	<i>1000</i>	Zareitalabad et al. (2013)
K _d (l/kg TS)	26.9	<i>10</i>	0.01×K _{oc} , assuming 1% TOC in soil
Henry (-)	0.000000032	8.7x10 ⁻¹⁰ (pH =4)	log K _{aw} = -1.7 (neutral form). -13.1 at pH 8 (Wang et al., 2011)
BCF fish (l/kg w.w.)	2796	2796	EU dossier PFOS (2011)
BCF stem (l/kg w.w.)	-	<i>0.17</i>	K _D × empirical conc. leaf/conc. soil (Wintersen et al., 2019)
BCF root (l/kg w.w.)	-	<i>0.01</i>	K _D × empirical conc. root/conc. soil (Wintersen et al., 2019)
MTDI (mg/kg/d)	0.0001	<i>1.86 x 10⁻⁶</i>	EFSA (2018)
Proposed MTDI		<i>1.14 x 10⁻⁶</i>	sum PFOS, PFHxS, PFOA, PFNA EFSA (2020)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{au}	-	-	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.69 Nonylphenols and their ethoxylates

Background parameters and concentrations

Substance	nonylphenols (including ethoxylates)		
CAS #		84852-15-3	
M.W. (g/mol)		220	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.48	4.48	EU dossier (NP)
K _{oc} (l/kg TS)	6596	<i>5360</i>	EU dossier (NP)
K _d (l/kg TS)	66	<i>53.6</i>	0.01 K _{oc}
Henry (-)	0.00011	<i>0.004</i>	REACH Reliability 2
BCF fish (l/kg w.w.)	-	<i>1280</i>	EU dossier (NP)
BCF stem	-	<i>6.40</i>	
BCF root	-	<i>85.9</i>	
MTDI (mg/kg/d)	-	<i>0.05</i>	Johnsson (2008) = 0.05
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>0.4</i>	REACH chronic = 0.4 (acute = 0.8) - (Phenol, 4-nonyl-, branched)
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	<i>0.001</i>	REACH Reliability 2 exp, median used (0,1;0,1;0,12)
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.70 Octylphenols and their ethoxylates

Background parameters and concentrations

Substance	octylphenols (including ethoxylates)		
CAS #		140-66-9 (1806-26-4)	
M.W. (g/mol)		206	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.12	4.12	variable (3 - 5.7), EU dossier (OP)
Koc(l/kg TS)	2740	2740	variable (2740 - 18400 in dossier)
K _D (l/kg TS)	25	27.4	0.01 Koc
Henry (-)	0.0000085	0.079	REACH Reliability 2 4-(1,1,3,3-tetramethylbutyl)phenol
BCF fish (l/kg w.w.)	6.34	634	variable (471 - 6000), worst case used
BCF stem	-	6.15	
BCF root	-	45.7	
MTDI (mg/kg/d)	-	0.000000067	Jonsson (2008); Eu dossier (OP) verdi er 150. = 0.000000067
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	0.6	REACH chronic AF 50 = 0.6, (acute = 1.8) - 4-(1,1,3,3-tetramethylbutyl)phenol6
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	0.0008	REACH Reliability 2 read across, median used (0,07;0,08;0,14)
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.71 Tributyltin compounds

Background parameters and concentrations

Substance	tributyltin compounds		
CAS #		688-73-3; 366643-28-4	
M.W. (g/mol)		290	
Property	2011 Values	New Review	References for new values and notes
log Pow (l/l)	3.2	<i>4.4</i>	3.1 - 4.4 from EU dossier and Arnold et al. (1997)
Koc(l/kg TS)	2000	<i>1084</i>	conservative log Koc 2.5 - 6.1 dossier, field 5.1 to 5.7 (Berg et al. (2001))
K _D (l/kg TS)	20	<i>10.8</i>	0.01 Koc
Henry (-)	0.0000017	0.0000017	
BCF fish (l/kg w.w.)	2600	<i>6000</i>	EU dossier (TBT)
BCF stem	1.1	<i>6.40</i>	
BCF root	1.1	<i>74.6</i>	
MTDI (mg/kg/d)	0.0003	<i>0.00025</i>	EU dossier (TBT) = 0.00025
MTDI cancer (mg/kg/d)	0.00025	0.00025	
RfC (mg/m ³)		-	
RfC cancer (mg/m ³)		-	
Skin contact: f _{du}	0	<i>0.151</i>	REACH Reliability 2 exp, median used
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.72 Triphenyltin compounds

Background parameters and concentrations

Substance	Triphenyltin compounds		
CAS #		892-20-6, 900-95-8, 76-87-9, 639-58-7	
M.W. (g/mol)		350	
Property	2011 Values	New Review	References for new values and notes
log Pow (l/l)	-	<i>3.43</i>	3.43 WHO (1999), 3.1 USEPA (1999)
Koc(l/kg TS)	2000	<i>1900</i>	1900 – 54000 (USEPA, 1999)
K _D (l/kg TS)	20	<i>19</i>	0.01 Koc
Henry (-)	0.0000006 3	0.00000063	
BCF fish (l/kg w.w.)	1100	1100	257 – 4100 (WHO, 1999), 530 – 7500 with 1100 suggested (Aquateam, 2011)
BCF stem	0	<i>4.37</i>	
BCF root	0	<i>14.0</i>	
MTDI (mg/kg/d)	0	<i>0.00025</i>	EFSA (2004), (VKM, 2007) = 0.00025
MTDI cancer (mg/kg/d)	0.00025	0.00025	
RfC (mg/m ³)		-	
RfC cancer (mg/m ³)		-	
Skin contact: f _{du}	0	0	
Background			
Freshwater (µg/L)	-	<i>0</i>	0
Coastal water (µg/L)	-	<i>0</i>	
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	m.d	m.d	

4.73 DEHP

Background parameters and concentrations

Substance	DEHP		
CAS #		117-81-7	
M.W. (g/mol)		391	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.1	<i>7.5</i>	EU dossier (DEHP)
K _{oc} (l/kg TS)	-	<i>165000</i>	variable 63100 - 88800 (depends on cation)
K _d (l/kg TS)	5860	<i>1650</i>	0.01 K _{oc}
Henry (-)	0.000044	0.000044	
BCF fish (l/kg w.w.)	840	840	worst case BCF EU RAR (DEHP): 840 (fish), 2500 (mussels), 2700 crustaceans
BCF stem	-	<i>0.14</i>	
BCF root	-	<i>17990</i>	
MTDI (mg/kg/d)	0.02	<i>0.048</i>	RIVM (2001) = 0.048
MTDI cancer (mg/kg/d)	0.004	0.004	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	<i>0,00064</i>	REACH Reliability 2 exp, NB! total amount migrated from film to skin and bandaging was 0,064%
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.74 MCCP

Background parameters and concentrations

Substance	MCCP		
CAS #		85535-85-9	
M.W. (g/mol)		232.5-826.5	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.58	7	UK Environment Agency (MCCP)
K _{oc} (l/kg TS)	91201	7616755	Log K _{oc} = 0,00028 + 0,9831logPow
K _d (l/kg TS)	912	76168	0.01 K _{oc}
Henry (-)	-	-	
BCF fish (l/kg w.w.)	1087	1087	variable EU RAR (MCCP)
BCF stem	-	0.44	
BCF root	-	7414	
MTDI (mg/kg/d)	-	0.004	Lowest NOAEL 0.4 mg/kg bw/day EU RAR (MCCP), AF = 100 = 0.004; REACH chronic = 0.58
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	2	REACH = 2
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	0.007	REACH Reliability 1 exp
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.75 SCCP

Background parameters and concentrations

Substance	SCCP		
CAS #		85535-84-8	
M.W. (g/mol)		337	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	4.39	6	funciton of Chlorine content (6 used by the EU dossier (SCCP))
Koc(l/kg TS)	199500	199526	EU dossier (SCCP)
Kd(l/kg TS)	1995	1995	0.01 Koc
Henry (-)	-	-	
BCF fish (l/kg w.w.)	-	1600	1173 - 7816 (whole fish), 24000 - 40900 (mussels)
BCF stem	-	2.38	
BCF root	-	1260	
MTDI (mg/kg/d)	-	0.1	UNEP Stockholm Convention (2012) SCCP = 0.1; REACH chronic = 2.5
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	8.7	REACH = 8.7
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	0.0001	REACH Reliability 2 exp, less than 0,01%
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.76 Polychlorinated naphthalenes

Background parameters and concentrations

Substance	polychlorinated naphthalenes		
CAS #		n.a.	
M.W. (g/mol)		n.a.	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	RIVM (2001) = 0.08
K _{OC} (l/kg TS)	-	-	
K _D (l/kg TS)	-	-	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	-	-	
BCF stem	-	-	
BCF root	-	-	
MTDI (mg/kg/d)	-	0.08	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m³)	-	-	
RfC cancer (mg/m³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	0.000317 (U.K.)	0.000317 (U.K.)	

4.77 Tricresyl phosphate

Background parameters and concentrations

Substance	tricresyl phosphate		
CAS #		1330-78-5	
M.W. (g/mol)		368.37	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	5.11	5.93	REACH Reliability 2
K _{oc} (l/kg TS)	29512	20417	REACH Reliability 1
K _d (l/kg TS)	295	204	0.01 K _{oc}
Henry (-)	0.0000011	0.0000011	
BCF fish (l/kg w.w.)	2768	21903	calculated EU-TGD (2011)
BCF stem	-	2.60	
BCF root	-	1113	
MTDI (mg/kg/d)	-	0.05	REACH chronic = 0.05
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	0.08	REACH = 0.08
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.78 Dioxins

Background parameters and concentrations

Substance	dioxins		
CAS #		1746-01-6	
M.W. (g/mol)		321.97	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	6.8	2,3,7,8-TCDD (EPISuite)
K _{oc} (l/kg TS)	1400000	4500000	eq
K _d (l/kg TS)	14000	45000	0.01 K _{oc}
Henry (-)	0.0003	0.0003	
BCF fish (l/kg w.w.)	-	41540	EU dossier (dioxin)
BCF stem	-	0.66	
BCF root	-	5201	
MTDI (mg/kg/d)	1.4E-09	2E-09	1 to 4 pg TEQ/kg/dag = 0.000000002
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	0.2	0.2	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.79 D5

Background parameters and concentrations

Substance	D5		
CAS #		541-02-6	
M.W. (g/mol)		371	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	8.03	UK Environment Agency (D5)
K _{oc} (l/kg TS)	-	150000	UK Environment Agency (D5)
K _D (l/kg TS)	-	1500	0.01 K _{oc}
Henry (-)	-	1349	REACH Reliability 2
BCF fish (l/kg w.w.)	-	7060	Variabel. UK Environment Agency (D5)
BCF stem	-	0.033	
BCF root	-	46037	
MTDI (mg/kg/d)	-	0.25	UK Environment Agency RAR D5. Oral LOAEL 25 mg/kg kroppsvekt/day og AF 100. = 0.25; REACH chronic =5 (acute = 5)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	17.3	REACH (local 4.3 mg/m ³) = 17.3
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.80 PFOA

Background parameters and concentrations

Substance	PFOA		
CAS #		3825-26-1. flere	
M.W. (g/mol)		414.07 (as acid)	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	2.2	5.3 in Neutral form, -1.8 at pH 8, 2.2 at pH 4 (Wang et al. 2011)
Koc(l/kg TS)	-	125	Zareitalabad et al. (2013)
Kd(l/kg TS)	-	1.25	0.01×Koc, assuming 1% TOC in soil
Henry (-)	-	1.0x10 ⁻³	log Kaw = -3.0 (Li et al. 2007), calculated -1.9 neutral form, -9.0 at pH 8
BCF fish (l/kg w.w.)	-	4.0	1.8 – 8.0 for different fish species (ECHA, 2013)
BCF stem (l/kg w.w.)	-	0.044	K _D × empirical conc. leaf/conc. soil (Wintersen et al., 2019)
BCF root (l/kg w.w.)	-	0.015	K _D × empirical conc. root/conc. soil (Wintersen et al., 2019)
MTDI (mg/kg/d)	-	0.86 x 10 ⁻⁶	EFSA (2018)
Proposed MTDI		1.14 x 10 ⁻⁶	sum PFOS, PFHxS, PFOA, PFNA EFSA (2020)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-		
Coastal water (µg/L)	-		
Sediment (mg/kg)	-		
Soil (mg/kg)	-	-	

4.81 Triclosane

Background parameters and concentrations

Substance	triclosane		
CAS #		3380-34-5	
M.W. (g/mol)		290	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	4.76	WFD-UKTAG (2009), Environment Canada (2012), ECHA data base = 4.9
K _{oc} (l/kg TS)	-	900	
K _D (l/kg TS)	-	9	0.01 K _{oc}
Henry (-)	-	4.0E-07	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	-	8700	
BCF stem	-	6.14	
BCF root	-	141	
MTDI (mg/kg/d)	-	0.25	= 0.25
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	0.072	REACH Reliability 1 exp
Background			
Freshwater (µg/L)	-	0	0
Coastal water (µg/L)	-	0	
Sediment (mg/kg)	-	0	
Soil (mg/kg)	-	-	

4.82 TCEP

Background parameters and concentrations

Substance	TCEP		
CAS #		115-96-8 (CAS TA-3001 brukes til tris(2-carboxyethyl)phosphine)	
M.W. (g/mol)		285	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	<i>1.78</i>	EU RAR (TCEP)
Koc(l/kg TS)	-	<i>110</i>	EU RAR (TCEP)
K _D (l/kg TS)	-	<i>1.1</i>	0.01 Koc
Henry (-)	-	-	
BCF fish (l/kg w.w.)	-	<i>5.1</i>	Largest value EU RAR (TCEP)
BCF stem	-	<i>1.0</i>	
BCF root	-	<i>1.53</i>	
MTDI (mg/kg/d)	-	<i>0.12</i>	LOAEL (12000) AF (100) – EU RAR (TCEP)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	<i>0</i>	0
Coastal water (µg/L)	-	<i>0</i>	
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	-	-	

4.83 Dodecylphenols

Background parameters and concentrations

Substance	dodecylphenols		
CAS #		121158-58-5, 27193-86-8	
M.W. (g/mol)		262	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	<i>7.14</i>	UK Environment Agency (dodecylphenol)
K _{oc} (l/kg TS)	-	<i>110000</i>	UK Environment Agency (dodecylphenol)
K _D (l/kg TS)	-	<i>1100</i>	0.01 K _{oc}
Henry (-)	-	-	
BCF fish (l/kg w.w.)	-	<i>823</i>	UK Environment Agency (dodecylphenol)
BCF stem	-	<i>0.33</i>	
BCF root	-	<i>9502</i>	
MTDI (mg/kg/d)	-	<i>0.05</i>	UK Environment Agency (dodecylphenol)NOAEL = 5000, AF = 100 = 0.05; REACH chronic = 0.075 (acute = 1.26)
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	<i>0.79</i>	REACH (acute = 13.26 mg/m ³) = 0.79
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	<i>0</i>	0
Coastal water (µg/L)	-	<i>0</i>	
Sediment (mg/kg)	-	<i>0</i>	
Soil (mg/kg)	-	-	

4.84 Diuron

Background parameters and concentrations

Substance	diuron		
CAS #		330-54-1	
M.W. (g/mol)		233	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	2.8	EU dossier (diuron)
K _{oc} (l/kg TS)	-	355	EU dossier (diuron)
K _d (l/kg TS)	-	3.55	0.01 K _{oc}
Henry (-)	-	8.2E-10	REACH Reliability 2 (estimated)
BCF fish (l/kg w.w.)	-	2	EU dossier (diuron)
BCF stem	-	2.51	
BCF root	-	5.15	
MTDI (mg/kg/d)	-	0.007	EU dossier (diuron) = 0.007
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.85 Irgarol

Background parameters and concentrations

Substance	irgarol		
CAS #		28159-98-0	
M.W. (g/mol)		253	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	<i>4</i>	EU dossier (irgarol)
K _{oc} (l/kg TS)	-	<i>1400</i>	EU dossier (irgarol)
K _D (l/kg TS)	-	<i>14</i>	0.01 K _{oc}
Henry (-)	-	-	
BCF fish (l/kg w.w.)	-	<i>250</i>	EU dossier (irgarol)
BCF stem	-	<i>5.94</i>	
BCF root	-	<i>37.1</i>	
MTDI (mg/kg/d)	-	<i>0.023</i>	EU dossier (irgarol) = 0.023
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	-	
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.86 Antimony

Background parameters and concentrations

Substance	antimony		
CAS #		7440-36-0	
M.W. (g/mol)		121.760	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	-	EU RAR (antimony)
K _{oc} (l/kg TS)	-	-	
K _D (l/kg TS)	-	38	
Henry (-)	-	-	
BCF fish (l/kg w.w.)	-	-	-
BCF stem	-	-	REACH chronic = 140.8
BCF root	-	-	
MTDI (mg/kg/d)	-	140.8	
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	0.1	REACH = 0.1
RfC cancer (mg/m ³)	-	-	REACH Reliability 1 read across
Skin contact: f _{du}	-	0.0026	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.87 Galaxolide

Background parameters and concentrations

Substance	galaxolide		
CAS #		1222-05-5	
M.W. (g/mol)		258.40	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	5.4	REACH Reliability 2
Koc(l/kg TS)	-	8710	REACH Reliability 2 (estimated)
Kd(l/kg TS)	-	87	0.01 Koc
Henry (-)	-	0.015	REACH Reliability 2
BCF fish (l/kg w.w.)	-	7762	calculated EU-TGD (2011)
BCF stem	-	4.40	
BCF root	-	435	
MTDI (mg/kg/d)	-	3.8	REACH chronic = 3.8
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	0.043	REACH (acute = 0.131) = 0.043
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	0.052	REACH Reliability 2 exp
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

4.88 Tonalide

Background parameters and concentrations

Substance	tonalide		
CAS #		21145-77-7	
M.W. (g/mol)		258.405	
Property	2007 Values	New Review	References for new values and notes
log Pow (l/l)	-	5.3	REACH Reliability 2
K _{oc} (l/kg TS)	-	24547	REACH Reliability 2 (estimated)
K _d (l/kg TS)	-	245	0.01 K _{oc}
Henry (-)	-	0.015	REACH Reliability 2
BCF fish (l/kg w.w.)	-	6383	calculated EU-TGD (2011)
BCF stem	-	4.74	
BCF root	-	365	
MTDI (mg/kg/d)	-	3.8	REACH chronic = 3.8
MTDI cancer (mg/kg/d)	-	-	
RfC (mg/m ³)	-	6.5	REACH = 6.5
RfC cancer (mg/m ³)	-	-	
Skin contact: f _{du}	-	-	
Background			
Freshwater (µg/L)	-	-	
Coastal water (µg/L)	-	-	
Sediment (mg/kg)	-	-	
Soil (mg/kg)	-	-	

5 Summary table of compound specific parameters

Summary of the reviewed background parameters relevant for the estimation of health effects according to the Norwegian guidelines for risk assessment and the worksheet tool, that is using these compound specific parameters, available at <http://www.miljodirektoratet.no/>.

Table 2 Summary of key parameters needed to assess the risk for human health from the review of the literature conducted in this report.

Substance	Henry	Kd (l/kg)	Koc (l/kg)	log Pow	BCF fish	BCF stem	BCF root	MTDI (mg/kg/d)	MTDI cancer risk (mg/kg/d)	RfC (mg/m ³)	RfC cancer risk (mg/m ³)	Skin contact f _{du}
Arsenic	-	6607	-	-	4	0.03	0.015	0.0003	-	0.0025	0.0000067	0.03
Lead	-	154882	-	-	424	0.03	0.001	0.00108	-	0.00015	-	0.0009
Cadmium	-	130000	-	-	623	0.7	0.15	0.00015	-	0.000005	0.0000056	0.14
Mercury	0.3	100000	-	-	200	0.03	0.015	0.00222	-	0.004	-	0.05
Copper	-	24409	-	-	200	0.1	0.1	0.163	-	-	-	0.112
Zink	-	110000	-	-	1000	0.4	0.1	0.5	-	2.5	-	0.02
Chromium (III)	-	11000	-	-	200	0.02	0.002	0.0015	-	0.5	-	0.04
Chromium (VI)	-	30	-	-	200	0.02	0.002	0.0015	-	0.000008	0.00000025	0.09
Chromium total (III + VI)	-	11000	-	-	50	0.002	0.02	0.0015	-	0.027	0.0000003	0.09
Nickel	-	7079	-	-	270	0.1	0.07	0.015	-	0.000025	0.000012	0.35
Cyanide	0.005	0.028	2.8	-0.25	0.12	0.12	0.84	0.012	-	0.025	-	0.3
PCB 7	0.00034	3211	321119	5.72	24950	200	200	0.00001	0.0000013	-	-	0.067
lindane	0.00000292	37	3715	3.5	1300	0.15	0.86	0.001	0.0000075	-	0.000026	-
DDT	0.0023	62159	6215857	6.91	30000	0.05	0.002	0.01	0.000029	-	0.007	-
monochlorobenzene	0.15	4	398	2.89	57	2.74	5.89	0.2	-	1	0.071	0.1
1,2-dichlorobenzene	0.079	4	398	3.43	164	4.37	14.0	0.43	-	1	-	0.1
1,4-dichlorobenzene	0.10	3.7	372	3.37	146	4.17	12.7	0.1	0.0004	8.2	-	0.1

Substance	Henry	Kd (l/kg)	Koc (l/kg)	log Pow	BCF fish	BCF stem	BCF root	MTDI (mg/kg/d)	MTDI cancer risk (mg/kg/d)	RfC (mg/m ³)	RfC cancer risk (mg/m ³)	Skin contact f _{du}
trichlorobenzenes	0.0039	14	1400	4.05	1140	6.04	40.5	0.008	-	0.008	-	0.08
1,2,4,5-tetrachlorobenzene	0.54	59	5888	4.6	4830	6.22	126.4	0.0003	-	-	-	0.1
pentachlorobenzene	0.15	400	40000	5.2	5300	5.06	306	0.0005	-	-	-	0.1
hexachlorobenzene	0.0064	1300	130000	5.7	42000	3.36	740	0.00016	0.000033	0.003	0.00075	0.13
dichloromethane	0.11	0.088	8.8	1.3	2.54	0.69	1.12	0.06	0.0013	88.3	0.05	0.1
trichloromethane	0.11	1.9	185	1.97	13	1.15	1.81	0.03	0.000164	0.18	0.024	0.1
trichloroethene	0.42	1.4	141	2.5	28	1.92	3.50	0.05	-	0.023	-	0.1
tetrachloromethane	1.21	0.8	84.1	2.83	51	2.58	5.38	0.004	-	0.107	-	0.00046
tetrachloroethene	0.87	1.4	141	2.53	28	1.92	3.50	0.016	0.0002	34.5	0.0055	0.1
1,2-dichloroethane	0.045	1.2	116	1.45	2	0.77	1.21	0.014	0.00012	0.0029	0.0036	1
1,2-dibromoethane	0.03	0.41	40.7	1.96	9.2	1.14	1.80	-	0.000035	1.15	0.00005	0.1
1,1,1-trichloroethane	0.0007	1.1	110	2.5	27	1.86	3.36	0.58	-	0.8	-	0.1
1,1,2-trichloroethane	0.04	0.8	80	2.27	17	1.49	2.51	0.004	-	-	-	-
phenol	0.000013	0.3	30	1.47	3.5	0.79	1.23	0.04	-	1.32	-	0.8
sum mon-tetrachlorophenols	0.00004	0.3	30	3.7	279	5.20	22.2	0.003	-	-	-	0.26
pentachlorophenol	0.000226	34	3400	3	770	3.04	247	0.003	0.000083	-	0.0000075	0.11
naphthalene	0.0117	13	1349	3.3	515	3.95	11.3	0.04	-	0.003	-	0.83
acenaphthylene	0.029	26	2570	3.55	509	4.74	17.2	0.05	-	-	-	0.18
acenaphthene	0.011	51	5129	3.92	1000	5.77	32.3	0.5	-	-	-	0.2
phenanthrene	0.00135	372	37154	4.502	4751	6.39	89.2	0.04	-	-	-	0.18
anthracene	0.0021	295	29512	4.68	3042	6.25	122	0.04	-	-	-	0.2
fluorene	0.00619	102	10233	4.18	1658	6.24	50.8	0.04	-	-	-	0.2
fluoranthene	0.00163	977	97724	5.2	4800	5.06	306	0.05	-	-	0.000012	0.2
pyrene	0.0000749	589	58884	4.96	88157	5.73	200	0.5	-	-	-	0.2

Substance	Henry	Kd (l/kg)	Koc (l/kg)	log Pow	BCF fish	BCF stem	BCF root	MTDI (mg/kg/d)	MTDI cancer risk (mg/kg/d)	RfC (mg/m ³)	RfC cancer risk (mg/m ³)	Skin contact f _{du}
benzo(a)anthracene	0.0000017	5012	501187	5.91	33457	2.66	1074	0.005	0.00023	-	0.0000077	0.2
chrysene	0.0000047	3981	398107	5.81	6088	2.99	900	0.05	0.0023	-	0.0000012	0.2
benzo(b)fluoranthene	0.0000028	8319	831864	5.78	11138	3.09	853	0.005	0.00023	-	0.00000083	0.2
benzo(k)fluoranthene	0.0000028	7943	794328	6.11	11138	2.06	1531	0.005	0.00023	-	0.0000012	0.2
benzo(a)pyrene	0.000034	8318	831764	6.11	11138	2.06	1531	0.0005	0.00001	-	0.00000011	0.2
indeno(1,2,3-cd)pyrene	0.00000117	23442	2344229	6.7	11138	0.80	4356	0.005	0.00023	-	0.0000005	0.18
dibenzo(a,h)anthracene	0.000038	19498	1949845	6.55	50119	1.05	3339	0.0005	0.000023	-	0.000000023	0.09
benzo(g,h,i)perylene	0.000004	10233	1023293	6.63	11138	0.91	3848	0.03	-	-	-	0.18
PAH totalt	0.0000749	589	58884	4.96	88157	5.73	200	see BaP	see BaP	-	see BaP	0.2
benzene	0.159	1.3	134	2.13	13	1.31	2.14	0.007	0.00033	0.05	0.0012	0.015
toluene	0.27	0.64	63.8	2.73	42	2.34	4.64	0.223	-	56.5	-	0.036
ethylbenzene	0.33	2.5	250	3.6	229	4.90	18.7	0.1	-	15	-	0.2
xylene	0.26	2.5	250	3.2	105	3.64	9.61	0.15	-	14.8	-	0.118
aliphatics C5-C6	47	8	800	3.3	122	3.88	10.9	2	-	18.4	-	1
aliphatics > C6-C8	50	40	4000	4.0	488	5.92	36.3	2	-	18.4	-	1
aliphatics > C8-C10	55	320	32000	4.9	2841	5.90	176	0.1	-	1	-	0.5
sum aliphatics > C5-C10	34	-	-	3.9	412	5.72	31.2	0.1	-	1	-	0.2
aliphatics > C10-C12	60	2500	250000	5.8	16272	3.09	850	0.1	-	1	-	0.5
aliphatics > C12-C35	87	1.0E+07	1.0E+09	6.3	40179	1.57	2144	2	-	1	-	0.1
MTBE	0.022	0.06	6	1.23	2	0.66	1.09	7.1	-	53.6	-	0.002
tetraethyl-lead	0.19	13	1300	4.385	1065	6.39	72.7	1E-07	-	0.08	-	0.065
brominated diphenylethers	1.2E-06	5659	565860	6.5	35000	1.14	3056	1.4E-07	-	-	-	0.067
PBDE-209	4.9E-07	5.25E+09	5.25E+11	9.9	637	3.3E-05	1.27E+06	20	-	70	-	0.067
HBCDD	0.000117	457	45709	5.62	18100	3.64	643	0.1	-	0.719	-	0.0001

Substance	Henry	Kd (l/kg)	Koc (l/kg)	log Pow	BCF fish	BCF stem	BCF root	MTDI (mg/kg/d)	MTDI cancer risk (mg/kg/d)	RfC (mg/m ³)	RfC cancer risk (mg/m ³)	Skin contact f _{du}
tetrabromobisphenol A	9.4E-12	497	49726	5.9	1234	2.69	1055	1	-	4.3	-	0.0073
bisphenol A	1.3E-10	7.15	715	3.4	67	4.27	13.4	1	-	1	-	0.093
PFOS	8.7E-10	10	1000	-	2796	0.17	0.01	1.86E-06	-	-	-	-
nonylphenols	0.004	53.6	5360	4.48	1280	6.40	85.9	0.05	-	0.4	-	0.001
octylphenols	0.079	27.4	2740	4.12	634	6.15	45.7	6.7E-08	-	0.6	-	0.0008
tributyltin compounds	1.7E-06	10.8	1084	4.4	6000	6.40	74.6	0.00025	0.00025	-	-	0.151
triphenyltin compounds	6.3E-07	19	1900	3.43	1100	4.37	14	0.00025	0.00025	-	-	-
DEHP	4.4E-05	1650	165000	7.5	840	0.14	17990	0.048	0.004	-	-	0.00064
MCCP	-	76168	7616755	7	1087	0.44	7414	0.004	-	2	-	0.007
SCCP	-	1995	199526	6	1600	2.38	1260	0.1	-	8.7	-	0.0001
polychlorinated naphthalenes	-	-	-	-	-	-	-	0.08	-	-	-	-
tricresyl phosphate	1.1E-06	204	20417	5.93	21903	2.60	1113	0.05	-	0.08	-	-
dioxins	0.0003	45000	4500000	6.8	41540	0.66	5201	2E-09	-	-	-	0.2
D5	1349	1500	150000	8.03	7060	0.033	46037	0.25	-	17.3	-	-
PFOA	0.001	1.25	125	2.2	4.0	0.044	0.015	0.86E-06	-	-	-	-
triclosane	4.0E-07	9	900	4.76	8700	6.14	141	0.25	-	-	-	0.072
TCEP	-	1.1	110	1.78	5.1	1.0	1.53	0.12	-	-	-	-
dodecylphenols	-	1100	110000	7.14	823	0.33	9502	0.05	-	0.79	-	-
diuron	8.2E-10	3.55	355	2.8	2	2.51	5.15	0.007	-	-	-	-
irgarol	-	14	1400	4	250	5.94	37.1	0.023	-	-	-	-
antimony	-	38	-	-	-	-	-	140.8	-	0.1	-	0.0026
galaxolide	0.015	87	8710	5.4	7762	4.40	435	3.8	-	0.043	-	0.052
tonalide	0.015	245	24547	5.3	6383	4.74	365	3.8	-	6.5	-	-

6 References

Arnold et al. (1997)

Arnold, C. G., Weidenhaupt, A., David, M. M., Müller, S. R., Haderlein, S. B., & Schwarzenbach, R. P. (1997). Aqueous speciation and 1-octanol-water partitioning of tributyl- and triphenyltin: effect of pH and ion composition. *Environmental science & technology*, 31(9), 2596-2602.

Arp et al. (2011)

Arp, H. P. H., Azzolina, N. A., Cornelissen, G., & Hawthorne, S. B. (2011). Predicting pore water EPA-34 PAH concentrations and toxicity in pyrogenic-impacted sediments using pyrene content. *Environmental science & technology*, 45(12), 5139-5146.

Arp et al. (2014)

Arp, H. P. H., Lundstedt, S., Josefsson, S., Cornelissen, G., Enell, A., Allard, A. S., & Kleja, D. B. (2014). Native oxy-PAHs, N-PACs, and PAHs in historically contaminated soils from Sweden, Belgium, and France: Their soil-porewater partitioning behavior, bioaccumulation in *Enchytraeus crypticus*, and bioavailability. *Environmental science & technology*, 48(19), 11187-11195.

ISO 690

Aquateam (2007)

Oppdatering av bakgrunnsdata og forslag til nye normverdier for forurenset grunn. Rapport nr: 06-039.

Aquateam (2011)

Forslag til normverdier og helsebaserte tilstandsklasser for organiske tinnforbindelser i forurenset grunn. Rapport nr: 10-032.

ATSDR (1997)

Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological Profile for Polychlorinated Biphenyls. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 1997

Berg et al. (2001)

Berg, M., Arnold, C. G., Müller, S. R., Mühlemann, J., & Schwarzenbach, R. P. (2001). Sorption and desorption behavior of organotin compounds in sediment-pore water systems. *Environmental science & technology*, 35(15), 3151-3157.

ECHA (2011)

Guidance on information requirements and chemical safety assessment Part B: Hazard assessment. Version 2.1 (December 2011)

ECHA (2016)

Guidance on information requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment. Version 3.0

EFSA (2004)

Opinion of the Scientific Panel on Contaminants in the Food Chain on a request from the Commission to assess the health risks to consumers associated with exposure to organotins in foodstuffs. The EFSA Journal (2004) 102, 1-119

EFSA (2011)

Scientific Opinion on Tetrabromobisphenol A (TBBPA) and its derivatives in food EFSA Journal 2011;9 (12):2477

EFSA (2018)

Scientific opinion on risk to human health related to the presence of perfluorooctane sulfonic acid and perfluorooctanoic acid in food. EFSA Journal 2018;16 (12):5194.

EFSA (2020)

Public hearing on draft scientific opinion on risk to human health related to the presence of perfluoroalkyl substances in food. Published on-line 24.02.2020.

Environment Canada (2012)

Preliminary Assessment: Triclosan. Chemical Abstracts Service Registry Number 3380-34-5. March 2012. (http://www.ec.gc.ca/ese-ees/6EF68BEC-5620-4435-8729-9B91C57A9FD2/Triclosan_EN.pdf)

EPISuite

Chemical Property Estimation Software freely available from the US EPA. Downloadable at <https://www.epa.gov/tsca-screening-tools/epi-suite-tm-estimation-program-interface>

EU dossier (1,2-DCE)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no.10, 1,2-Dichloroethane, 2005.

EU dossier (5,6-ring PAHs)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 28, 5-6 ring polycyclic aromatic hydrocarbons, 2011.

EU dossier (anthracene)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 2, Anthracene, 2011.

EU dossier (benzene)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 4, Benzene, 2005.

EU dossier (BDE)

EU (2011): POLYBROMINATED DIPHENYL ETHERS (BDES) 2011.

EU dossier (Cd)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 6, Cadmium and its Compounds, 2005.

EU dossier (DEHP)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no.12, Diethylhexylphthalate (DEHP), 2005.

EU dossier (dichloromethane)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no.11, Dichloromethane, 2005.

EU dossier (dioxin)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 37, polychlorinated dibenzo-p-dioxins (PCDDS), polychlorinated dibenzofurans (PCDFS), and dioxin-like polychlorinated biphenyls (DL-PCBS), 2011.

EU dossier (diuron)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 13, Diuron, 2005.

EU dossier (fluoranthene)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 15, Fluoranthene, 2011.

EU dossier (HBCDD)

EU (2011): Hexabromocyclododecane. HBCDD EQS Dossier 2011.

EU dossier (HCB)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 16, Hexachlorobenzene, 2005.

EU dossier (Hg)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 21, Mercury and its Compounds, 2005.

EU dossier (irgarol)

EU (2011): Cybutryne (Irgarol) EQS Dossier 2011.

EU dossier (naphthalene)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 22, Naphthalene, 2011.

EU dossier (Ni)

EU (2011): Nickel EQS Dossier 2011.

EU dossier (NP)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 24, 4-Nonylphenol (branched) and Nonylphenol, 2005.

EU dossier (OP)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 25, Octylphenols (para-tert-octylphenol), 2005.

EU dossier (Pb)

EU (2011): Lead EQS Dossier 2011.

EU dossier (pentachlorobenzene)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 26, Pentachlorobenzene, 2005.

EU dossier (pentachlorophenol)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 27, Pentachlorophenol, 2005.

EU dossier (SCCP)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 7, C10-13-Chloralkanes, 2005.

EU dossier (TBT)

EU (2005): Environmental quality standards (EQS) substance data sheet. Priority substance NO. 30. Tributyl compounds (TBT-ion) CAS no 688-73-3, 36643-28-4. EU dossier

EU dossier (TCB)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no. 31, Trichlorobenzenes, 2005.

EU dossier (trichloromethane)

Common Implementation Strategy for the Water Framework Directive, Environmental Quality Standard (EQS) Substance Data Sheet, Priority Substance no.32, Trichloromethane, 2005.

EU RAR (BDE)

European Union Risk Assessment Report. Diphenyl Ether, Pentabromo Derivative (Pentabromodiphenyl Ether). EUR 19730 EN. United Kingdom.

EU RAR (BPA)

European Risk Assessment Report (2008) : 4,4'-Isopropylidenediphenol (Bisphenol-A) CAS Number: 80-05-7 EINECS Number: 201-245-8 Final approved version a waiting publication (Updated).

EU RAR (chloroform)

European Union Risk Assessment Report. Chloroform. Final Report (2007) France.

EU RAR (Cr)

European Union Risk Assessment Report. Chromium trioxide, sodium chromate, sodium dichromate, ammonium dichromate, potassium dichromate. Volume 53. EUR 21508 EN, JRC, 2005.

EU RAR (Cu a)

Voluntary risk assesement of copper, copper II sulphate pentahydrate, copper(I)oxide, copper(II)oxide, dicopper chloride trihydroxide. – Chapter 3.2.4. 3.2.4. Effects to freshwater sediment organisms.

EU RAR (Cu b)

Voluntary risk assesement of copper, copper II sulphate pentahydrate, copper(I)oxide, copper(II)oxide, dicopper chloride trihydroxide.- Voluntary risk assessment.

EU RAR (Cu c)

Voluntary risk assesement of copper, copper II sulphate pentahydrate, copper(I)oxide, copper(II)oxide, dicopper chloride trihydroxide.- PNEC derivation for copper in freshwaters.

EU RAR (Cu d)

Voluntary risk assesement of copper, copper II sulphate pentahydrate, copper(I)oxide, copper(II)oxide, dicopper chloride trihydroxide. - PNEC derivation for copper in marine waters.

EU RAR (Cu e)

Voluntary risk assesement of copper, copper II sulphate pentahydrate, copper(I)oxide, copper(II)oxide, dicopper chloride trihydroxide. -PNEC derivation for copper in freshwater sediments.

EU RAR (coal tar pitch)

European Union Risk Assessment Report for Coal-Tar Pitch, High Temperature (CAS-No.: 65996-93-2, EINECS-No.: 266-028-2)(Final report, Environment). Institute for Health and Consumer Protection - European Chemicals Bureau. May, 2008.

EU RAR (DEHP)

European Union Risk Assessment Report. Bis(2-ethylhexyl)phthalate (DEHP). 2'nd priority list. Volume 80. EUR 23384 EN, JRC, 2005.

EU RAR (ethyl benzene)

European Union Risk Assessment Report (DRAFT). Ethyl Benzene. Germany. 2007

EU RAR (MCCP)

European Commission Summary Risk Assessment report, ALKANES, C14-17, CHLORO (MCCP) Part I – Environment. Special Publication I.05.70. 2005.

EU RAR (Ni)

European Union Risk Assessment Report. Nickel and nickel compounds, CAS No: 7440-02-0. 2008

EU-RAR (Pb)

EU Voluntary Risk Assessment Report - Lead and Lead Compounds – Annex 5 Effects and Risks Characterization (<https://echa.europa.eu/voluntary-risk-assessment-reports-lead-and-lead-compounds>)

EU RAR (PBE-209)

European Union Risk Assessment Report. bis(pentabromophenyl) ether. EUR 20402 EN. France and United Kingdom. 2002

EU RAR (Sb)

European Union Risk Assessment Report. DIANTIMONY TRIOXIDE. Draft. Sweden. 2008.

EU RAR (TBBPA)

ECB (2008). Risk Assessment of 2,2',6,6'-tetrabromo-4,4'-isopropylidene diphenol (tetrabromobisphenol-A). Final Environmental Draft for Publication, February 2008. European Chemicals Bureau.

EU RAR (TCEP)

EU Summary Risk assessment Report. TRIS (2-CHLOROETHYL) PHOSPHATE, TCEP, Final report 26.05 2008. Germany.

EU RAR (trichloroethylene)

European Union Risk Assessment Report. Trichloroethylene. EUR 21057 EN. United Kingdom. 2004

EU RAR (toluene)

European Union Risk Assessment Report. Toluene. EUR 20539 EN. Denmark. 2004

EU RAR (Zn)

European Union Risk Assessment Report. Zinc metal. EUR 24587 EN 2010.

EU (2013)

DIRECTIVE 2013/39/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy

Jonsson (2008)

Beatrice Jonsson. Risk assessment on butylphenol, octylphenol and nonylphenol, and estimated human exposure of alkylphenols from Swedish fish. Uppsala Universitet. Projektrapport från utbildningen I EKOTOXIKOLOGI Ekotoxikologiska avdelningen Nr 109. (1998 http://uadm.uu.se/digitalAssets/105/105884_jonsson-beatrice-report.pdf)

Karickhoff et al. (1979)

Karickhoff, S. W., Brown, D. S., & Scott, T. A. (1979).

Sorption of hydrophobic pollutants on natural sediments. *Water research*, 13(3), 241-248.

Li et al. (2007)

Li H, Ellis D, Mackay D (2007) Measurement of low air– water partition coefficients of organic acids by evaporation from a water surface. *Journal of Chemical & Engineering Data*, 52:1580-4.

M-241/2014

Kvalitetssikring av miljøkvalitetsstandarder. Miljødirektoratet, Oslo.

M-608/2016

Grenseverdier for klassifisering av vann, sediment og biota. Miljødirektoratet, Oslo.

Nam et al. (2008)

Nam, J. J., Thomas, G. O., Jaward, F. M., Steinnes, E., Gustafsson, O., & Jones, K. C. (2008). PAHs in background soils from Western Europe: influence of atmospheric deposition and soil organic matter. *Chemosphere*, 70(9), 1596-1602.

Naturvårdsverket (2005): Elert, M., Jones, C., Wik, O. og Kockum, K.: Vägledning för riskbedömning av förorenade områden. Rapport Naturvårdsverket. Remissversjon 2005-07-04.

OSPAR (2006)

Agreement on Background Concentrations for Contaminants in Seawater, Biota and Sediment. OSPAR Agreement 2005-6 Revised by ASMO 2006 (ASMO 2006 Summary Record ASMO 06/12/01).

Palm et al. (2002)

Palm, A; Cousins, IT; Mackay, D; et al. (2002) Assessing the environmental fate of chemicals of emerging concern: a case study of the polybrominated diphenyl ethers. *Environ Pollut* 117:195–213

REACH

Registered substance data base (<http://echa.europa.eu/information-on-chemicals/registered-substances>). Accessed October-November 2016.

RIVM (2001)

Baars A.J., Theelen R.M.C., Janssen P.J.C.M., Hesse J.M., van Apeldoorn M.E., Meijerink M.C.M., Verdam L. and Zeilmaker M.J. (2001). Re-evaluation of human-toxicological maximum permissible risk levels. RIVM report 711701 025. RIVM, Bilthoven. March 2001. <http://www.rivm.nl/bibliotheek/rapporten/711701025.pdf>.

RIVM (2009)

Bleeker EAJ, Verbruggen EMJ (2009). Bioaccumulation of polycyclic aromatic hydrocarbons in aquatic organisms. Bilthoven, The Netherlands: National Institute of Public Health and the Environment. RIVM report 601779002/2009.

RIVM (2012)

Verbruggen EMJ (2012). Environmental risk limits for polycyclic aromatic hydrocarbons (PAHs) For direct aquatic, benthic, and terrestrial toxicity. Bilthoven, The Netherlands: National Institute of Public Health and the Environment. RIVM report 607711007/2012.

TA-1629/1999

Veiledning om risikovurdering av forurenset grunn (Veiledning 99:01a).

TA-2361/2008

Skjelkvåle, B.L., Rognerud, S., Fjeld, E., Christensen, G og Røyseth, O. (2008): Nasjonal innsjøundersøkelse 2004-2006. Del I: Vannkjemi. Status for forsurening, næringssalter og metaller. Klif TA 2361/2008.

TA-2802/2011

Risikovurdering av forurenset sediment.

TA-2803/2011

Bakke, T., Breedveld, G., Källqvist, T., Oen, A., Eek, E., Kibsgaard, A., Ruus, A. og Hylland, K. (2011). Bakgrunnsdokument til veiledere TA-2229 og TA-2230. Risikovurdering av forurenset sediment (del A), Klassifisering av miljøkvalitet i fjorder og kystfarvann (del B). Klif rapport TA 2803/2011.

UK Environment Agency (As)

Preconsultation report: Proposed EQS for Water Framework Directive Annex VIII substances: arsenic (total dissolved). Science Report: SC040038/SR3. SNIFFER Report: WFD52(iii) SCHO0407BLVU. UK Environment Agency, 2007.

UK Environment Agency (D5)

Brooke D N, Crookes M J , Gray D og Robertson S (2009): Environmental Risk Assessment Report: Decamethylcyclopentasiloxane, Environment Agency (UK).

UK Environment Agency (dodecylphenol)

UK Environment Agency (2007): Environmental risk evaluation report: para C12-alkylphenols (dodecylphenol and tetrapropenylphenol). SCHO0607BMVN-E-P.

UK Environment Agency (MCCP)

UPDATED RISK ASSESSMENT OF ALKANES, C14-17, CHLORO (MEDIUM-CHAIN CHLORINATED PARAFFINS), draft report 2007.

UNEP Stockholm Convention (2012)

SHORT-CHAINED CHLORINATED PARAFFINS: REVISED DRAFT RISK PROFILE. UNEP/POPS/POPRC.8/6. Document K1281866 100912. Geneva.

<http://chm.pops.int/TheConvention/POPsReviewCommittee/Meetings/POPRC8/MeetingDocuments/tabid/2801/ctl/Download/mid/9062/Default.aspx?id=197&ObjID=14530>.

USDHHS (2002)

US Department of Human and Health Services (2002), TOXICOLOGICAL PROFILE FOR DDT, DDE, and DDD, Atlanta.

USEPA (1999)

Reregistration Eligibility Decision (RED). Triphenyltin Hydroxide (TPTH). Prevention, Pesticides And Toxic Substances (7508C). EPA 738-R-99-010. September 1999.

VKM (2007)

Risikovurdering av organiske tinnforbindelser I sjømat. 29. mars 2007.

Wang et al. (2011)

Wang Z, MacLeod M, Cousins IT, Scheringer M, Hungerbühler K (2011) Using COSMOtherm to predict physicochemical properties of poly-and perfluorinated alkyl substances (PFASs). Environ. Chem. 8 (4):389-98.

WFD-UKTAG (2009)

Proposed EQS for Water Framework Directive Annex VIII substances: triclosan (For consultation). <http://www.wfduk.org/sites/default/files/Media/Triclosan%20-%20UKTAG.pdf>.

WHO (1999)

World Health Organisation. Concise International Chemical Assessment Document 13. Triphenyltin Compounds. First drage prepared by Dr. J. Sekizawa, National Institute of Health Sciences, Tokyo, Japan.

Wintersen et al. (2019)

Wintersen AM, Römken PFAM, Rietra RPJJ, Zeilmaker MJ, Bokkers BGH, Swartjes FA (2019) Risicogrenzen voor het toepassen van PFAS-houdende grond en bagger voor akkerbouw en veeteelt. RIVM Briefrapport 2019-0068

Zareitalabad et al. (2013)

Zareitalabad P, Siemens J, Hamer M, Amelung W (2013). Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) in surface waters, sediments, soils and wastewater—A review on concentrations and distribution coefficients. Chemosphere, 91(6), 725-732.

Dokumentinformasjon/Document information		
Dokumenttittel/Document title Updating of background data for compounds in contaminated soil		Dokumentnr./Document no. 20160648-04-R
Dokumenttype/Type of document Rapport / Report	Oppdragsgiver/Client Miljødirektoratet	Dato/Date 2017-01-02
Rettigheter til dokumentet iht kontrakt/ Proprietary rights to the document according to contract Oppdragsgiver / Client		Rev.nr.&dato/Rev.no.&date 1 / 2020-03-31
Distribusjon/Distribution BEGRENSET: Distribueres til oppdragsgiver og er tilgjengelig for NGIs ansatte / LIMITED: Distributed to client and available for NGI employees		
Emneord/Keywords Compound properties, soil, contaminants		

Stedfesting/Geographical information	
Land, fylke/Country	Havområde/Offshore area
Kommune/Municipality	Felt navn/Field name
Sted/Location	Sted/Location
Kartblad/Map	Felt, blokknr./Field, Block No.
UTM-koordinater/UTM-coordinates Zone: East: North:	Koordinater/Coordinates Projection, datum: East: North:

Dokumentkontroll/Document control					
Kvalitetssikring i henhold til/Quality assurance according to NS-EN ISO9001					
Rev/Rev.	Revisjonsgrunnlag/Reason for revision	Egenkontroll av/ Self review by:	Sidemanns-kontroll av/ Colleague review by:	Uavhengig kontroll av/ Independent review by:	Tverrfaglig kontroll av/ Interdisciplinary review by:
0	Original document	2017-01-02 HPA	2017-01-02 AO		
1	PFOS and PFOA data revised	2020-03-20 HPA	2020-03-31 GBr		

Dokument godkjent for utsendelse/ Document approved for release	Dato/Date 31 March 2020	Prosjektleder/Project Manager Hans Peter Arp
--	-----------------------------------	--

NGI (Norwegian Geotechnical Institute) is a leading international centre for research and consulting within the geosciences. NGI develops optimum solutions for society and offers expertise on the behaviour of soil, rock and snow and their interaction with the natural and built environment.

NGI works within the following sectors: Offshore energy – Building, Construction and Transportation – Natural Hazards – Environmental Engineering.

NGI is a private foundation with office and laboratories in Oslo, a branch office in Trondheim and daughter companies in Houston, Texas, USA and in Perth, Western Australia

www.ngi.no

NGI (Norges Geotekniske Institutt) er et internasjonalt ledende senter for forskning og rådgivning innen ingeniørrelaterte geofag. Vi tilbyr ekspertise om jord, berg og snø og deres påvirkning på miljøet, konstruksjoner og anlegg, og hvordan jord og berg kan benyttes som byggegrunn og byggemateriale.

Vi arbeider i følgende markeder: Offshore energi – Bygg, anlegg og samferdsel – Naturfare – Miljøteknologi.

NGI er en privat næringsdrivende stiftelse med kontor og laboratorier i Oslo, avdelingskontor i Trondheim og datterselskaper i Houston, Texas, USA og i Perth, Western Australia.

www.ngi.no

