

Chapter 3: 'New' substances – Substances to watch

3.1 Proposed EU-WFD list of priority substances (Commission of the EC, 2000)

CAS number	Name	Indicator substance
15972-60-8	Alachlor	
120-12-7	Anthracene	
1912-24-9	Atrazine	
71-43-2	Benzene	
n.a.	Brominated diphenylether	
7440-43-9	Cadmium and its compounds	
85535-84-8	C ₁₀₋₁₃ -chloroalkanes	
470-90-6	Chlorfenvinphos	
2921-88-2	Chlorpyrifos	
75-09-2	Dichloromethane	
107-06-2	1,2-Dichloroethane	
117-81-7	Di(2-ethylhexyl)phtalate (DEHP)	
330-54-1	Diuron	
115-29-7	Endosulfan	
959-98-8		alpha-endosulfan
118-74-1	Hexachlorobenzene	
87-68-3	Hexachlorobutadiene	
608-73-1	Hexachlorocyclohexane	
58-89-9		gamma-isomer, Lindane
34123-59-6	Isoproturon	
7439-92-1	Lead and its compounds	
7439-97-6	Mercury and its compounds	
91-20-3	Naphtalene	
7440-02-0	Nickel and its compounds	
25154-52-3	Nonylphenols	
104-40-5		4-(para)-nonylphenol
1806-26-4	Octylphenols	
140-66-9		para-tert-octylphenol
n.a.	Polyaromatic hydrocarbons	
50-32-8		Benzo(a)pyrene
205-99-2		Benzo(b)fluoranthene
191-24-2		Benzo(g,h,i)perylene
207-08-9		Benzo(k)fluoranthene
206-44-0		Fluoranthene
193-39-5		Indeno(1,2,3-cd)pyrene
608-93-5	Pentachlorobenzene	
122-34-9	Simazine	
87-86-5	Pentachlorophenol	
688-73-3	Tributyltin compounds	
36643-28-4		Tributyltin cation
12002-48-1	Trichlorobenzenes	
120-82-1		1,2,4-Trichlorobenzene
67-66-3	Trichloromethane (Chloroform)	
1582-09-8	Trifluralin	

3.2 OSPAR List of 'Chemicals for Priority Action'

CAS number	Name
	Polychlorinated dibenzodioxins (PCDDs)
	Polychlorinated dibenzofurans (PCDFs)
	Polychlorinated biphenyls (PCBs)
	Polyaromatic hydrocarbons (PAHs)
	Pentachlorophenol (PCP)
	Short chained chlorinated paraffins (SCCP)
	Hexachlorocyclohexane isomers (HCH)
	Mercury and organic mercury compounds
	Cadmium
	Lead and organic lead compounds
	Organic tin compounds
	Nonylphenol/ethoxylates (NP/NPEs) and related substances
	Musk xylene
	Brominated flame retardants
	Certain Phthalates - Dibutylphthalate and Diethylhexylphthalates
732-26-3	Dodecylphenol
115-32-2	Dicofol
115-29-7	Endosulphan
72-43-5	Methoxychlor
140-66-9	Octylphenol
107-46-0	Hexamethyldisiloxane
77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro
79-94-7	Phenol, 4,4'-(1-methylethylidene)bis[2,6-dibromo-] (Tetrabromobisphenol A)
120-82-1	1,2,4-Trichlorobenzene
87-61-6	1,2,3-Trichlorobenzene
108-70-3	1,3,5-Trichlorobenzene
98-51-1	Benzene, 1-(1,1-dimethylethyl)-4-methyl- (tert Butyl Toluene)

original list (OSPAR, 1998)

amendment (OSPAR, 2000)

3.3 Combined substance lists (OSPAR, EU-WFD, ICPR) - references, remarks

①	②	③	④	⑤ ⑥ ⑦			⑧	⑨	⑩	⑪	⑫
CAS-RN	compound	class	IUPAC Name	OSPAR			EU-WFD		ICPR		
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant

- ① CAS registry number
- ② Chemical name
- ③ Chemical class of substances or use
- ④ IUPAC name
- ⑤ Ranking list for sediments based on calculated exposure (OSPAR DYNAMEC, 2000)
- ⑥ Ranking list for sediments based on monitored concentrations (OSPAR DYNAMEC, 2000)
- ⑦ Selection box (OSPAR PRAM, 2000)
 Group I: High concern, indication of production, use or occurrence in environment
 Group I*: as Group I, but reliance on QSAR or experimental data which might be doubtful
 Group II: as Group I but less severe PTB profile
 Group II*: as Group II but reliance on QSAR or experimental data which might be doubtful
 Group III: as Group I, but no indication of use or exposure
 Group IV: other initially selected substances with no indication of use or exposure
 Group V: Substances with PTB properties, but which are heavily regulated or withdrawn from the market
 Group VI: Endocrine disruptors (which do meet P or B criteria) or natural hormones
 del: should be deleted (do not meet the initial selection criteria or are already on Annex 2 of strategy)
 n. cl.: not classified (not ranked due to time constraints)
- ⑧ List of chemicals for priority action (OSPAR, 1998, 2000)
- ⑨ Ranking list for sediments based on monitored concentrations (IUCT, 1999)
- ⑩ Proposed priority substances (Council of the EC, 2000), substances with log Pow < 5 which are not included in lists (5) - (9) were omitted. Indicator substances are given as '(X)'.
- ⑪ International monitoring programme of the ICPR (ICPR, 2000), substances with log Pow < 5 which are not included in lists (5) - (10) were omitted.
- ⑫ Rhine relevant substances (ICPR, 2000), substances with log Pow < 5 which are not included in lists (5) - (10) were omitted.

Part E: Substances and new criteria to watch

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
7439-92-1	Lead and its compounds (OSPAR: incl. organic compounds)	metal	Pb inorganic compounds				X		X	X	X
7439-97-6	Mercury and its compounds (OSPAR: incl. organic compounds)	metal	Hg inorganic compounds				X		X	X	X
7440-02-0	Nickel and its compounds	metal	Ni inorganic compounds					X	X	X	X
7440-38-2	Arsenic	metal	As inorganic compounds						X	X	X
7440-43-9	Cadmium and its compounds	metal	Cd inorganic compounds				X	X	X	X	X
7440-47-3	Chromium	metal	Cr inorganic compounds						X	X	X
7440-50-8	Copper	metal	Cu inorganic compounds						X	X	X
7440-66-6	Zinc	metal	Zn inorganic compounds						X	X	X
10108-64-2	Cadmium chloride	metal	Cadmium chloride	144							
	PAHs	PAH	Polyaromatic hydrocarbons				X	X			
120-12-7		PAH	Anthracene	58	27			26	X		
129-00-0		PAH	Pyrene	93	17			11			
189-55-9	Dibenzo(a,i)pyrene	PAH	Benzo[<i>rst</i>]pentaphene	15							
189-64-0		PAH	Dibenzo[<i>b,def</i>]chrysene	14							
191-24-2		PAH	Benzo[<i>ghi</i>]perylene		1			2	(X)	X	X
191-30-0		PAH	Dibenzo[<i>def,p</i>]chrysene	40							
192-65-4	Dibenzo(a,e)pyrene	PAH	Naphtho[1,2,3,4- <i>def</i>]chrysene	38							
192-97-2		PAH	Benzo[<i>e</i>]pyrene	51							
193-39-5		PAH	Indeno(1,2,3- <i>cd</i>)pyrene					7	(X)	X	X
198-55-0		PAH	Perylene	76	24						
205-99-2		PAH	Benzo[<i>b</i>]fluoroanthene					4	(X)	X	X
206-44-0		PAH	Fluoranthene	18	9			22	(X)	X	X
207-08-9		PAH	Benzo[<i>k</i>]fluoranthene	6	4			5	(X)	X	X
208-96-8		PAH	Acenaphthylene					8			
218-01-9		PAH	Chrysene	11	5			9			
50-32-8		PAH	Benzo[<i>a</i>]pyrene	4	3			6	(X)	X	X
53-70-3		PAH	Dibenzo[<i>a,h</i>]anthracene	8	7						
56-55-3		PAH	Benz[<i>a</i>]anthracene	3	2			3			
83-32-9	Acenaphtene	PAH	Acenaphthylene, 1,2-dihydro-	148	41			44			
85-01-8		PAH	Phenanthrene					19			
86-73-7		PAH	Fluorene					16			
91-20-3		PAH	Naphthalene					34	X		
127-36-6		PAH	1-Phenanthrenemethanol, 1,2,3,4,4a,4b,5,6,7,9,10,10a dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-	102							
128-69-8	3,4,9,10-Perylenetetra-carboxylic dianhydride	PAH	Perylo[3,4- <i>cd</i> :9,10- <i>c'd'</i>]dipyran-1,3,8,10-tetrone	42							
4378-61-4		PAH	Dibenzo[<i>def,mno</i>]chrysene-6,12-dione, 4,10-dibromo-	185							
82-05-3		PAH	7H-Benz[<i>de</i>]anthracen-7-one	9							
91-57-6		PAH	Naphthalene, 2-methyl-	89	26						
01316-50-1		PAH	Distillates (petroleum), alkene-alkyne manuf, pyrolysis oil, condensed arom, ring-contg	151							
90640-80-5		PAH	Anthracene oil	7							
90640-81-6		PAH	Anthracene oil, anthracene paste	17							
90640-82-7		PAH	Anthracene oil, anthracene-free	12							
90640-86-1		PAH	Distillates, coal tar, heavy oils	5							
91995-15-2		PAH	Anthracene oil, anthracene paste, anthracene fraction	28							

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
91995-17-4		PAH	Anthracene oil, anthracene paste, distn, lights	92							
91995-42-5		PAH	Distillates (coal tar), heavy oils, pyrene fraction	32							
91995-52-7		PAH	Distillates (coal tar), pitch, pyrene fraction	33							
92061-94-4		PAH	Residues (coal tar), pitch distn	25							
1336-36-3	PCBs	PCB/PCT	1,1'-Biphenyl, chloro				X			X	X
35065-27-1	PCB 153	PCB/PCT	1,1'-Biphenyl, 2,2',4,4',5,5'-hexachloro-					33		X	?
35065-28-2	PCB 138	PCB/PCT	1,1'-Biphenyl, 2,2',3,4,4',5'-hexachloro-					31		X	?
35065-29-3	PCB 180	PCB/PCT	1,1'-Biphenyl, 2,2',3,4,4',5,5'-heptachloro-					36		X	?
35693-99-3	PCB 52	PCB/PCT	1,1'-Biphenyl, 2,2',5,5'-tetrachloro-					25		X	?
37680-73-2	PCB 101	PCB/PCT	1,1'-Biphenyl, 2,2',4,5,5'-pentachloro-					38		X	?
7012-37-5	PCB 28	PCB/PCT	1,1'-Biphenyl, 2,4,4'-trichloro-		21			30		X	?
61788-33-8	Chlorinated Terphenyls	PCB/PCT	Terphenyls, chlorinated			V					
	PCDDs	PCDD / PCDF	Polychlorinated dibenzodioxins				X			X	
1746-01-6		PCDD / PCDF	Dibenzo(b,e)(1,4)dioxin, 2,3,7,8 tetrachloro-	29	43					X	
36677-10-6	PCDFs	PCDD / PCDF	Polychlorinated dibenzofurans				X			X	
1321-65-9	Trichloronaphtalene	PCN	Naphtalene, trichloro-			III					
1335-87-1	Halowax 1014	PCN	Naphtalene, hexachloro-			III					
1335-88-2	Halowax	PCN	Naphtalene, tetrachloro-			III					
2234-13-1	Halowax 1051	PCN	Naphtalene, octachloro-			III					
32241-08-0		PCN	Naphtalene, heptachloro-			III					
335-57-9	Perfluoro-n-heptane	hal aliph	Heptane, hexadecafluoro-	172		I*					
355-42-0	Perfluorohexane	hal aliph	Hexane, tetradecafluoro-	171							
355-43-1	Perfluoro-1-iodohexane	hal aliph	Hexane, 1,1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-6-iodo-	174		I*					
36065-30-2		hal arom	Benzene, 1,3,5-tribromo-2-(2,3-dibromo-2-methylpropoxy)-			III					
38521-51-6		hal arom	Benzene, pentabromo(bromomethyl)-	117							
41999-84-2		hal arom	Benzene, 1,4-dichloro-2,5-bis(dichloromethyl)-	139							
42074-68-0		hal arom	Benzene, 1-chloro-2-(chlorodiphenylmethyl)-	162							
129-73-7		arom amin	Benzenamine, 4,4'-(phenylmethylene)bis[N,N-dimethyl-]	177							
135-91-1		arom amin	Benzenamine, 4,4'-methylenebis[N,N-diethyl-]	100							
13680-35-8		arom amin	Benzenamine, 4,4'-methylenebis[2,6-diethyl-]	195							
139-60-6		arom amin	1,4-Benzenediamine, N,N'-bis(1-ethyl-3-methylpentyl)-	91							
29312-59-2		arom amin	Benzenamine, 4-(2,6-diphenyl-4-pyridinyl)-N,N-dimethyl-	163							
4051-63-2		arom amin	[1,1'-Bianthracene]-9,9',10,10'-tetrone, 4,4'-diamino-	110							

Part E: Substances and new criteria to watch

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
5285-60-9		arom amin	Benzenamine, 4,4'-methylene-bis[N-(1-methylpropyl)-	189							
101-20-2	3,4,4-Trichloro-carbanilide	pest	Urea, N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)-			n.cl.					
106-46-7	1,4-Dichlorobenzene	pest	Benzene, 1,4-dichloro-					46			
11479-05-1	Propaquizafop	pest	2-Isopropylidenamino-oxyethyl(R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy]propionate	147							
115-29-7	Endosulfan	pest	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	108		I	X		X		X
115-32-2	Dicofol	pest	Benzenemethanol, 4-chloro-,alpha,(4-chlorophenyl)-,alpha,(trichloromethyl)-	27		I	X				
116-29-0	Tetradifon	pest	Benzene, 1,2,4-trichloro-5-[(4-chlorophenyl)sulfonyl]-	131							
18712-89-3	Transfluthrin	pest	Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, (2,3,5,6-tetrafluorophenyl) methyl ester, (1R-trans)-			del					
122-14-5	Fenitrothion	pest	Phosphorothioic acid, O,O-dimethyl O-(3-methyl-4-nitrophenyl) ester	112		IV				X	X
14816-18-3	Phoxim	pest	3,5-Dioxa-6-aza-4-phosphaoct-6-ene-8-nitrile, 4-ethoxy-7-phenyl-, 4-sulfide	53							
1582-09-8	Trifluralin	pest	Benzenamine, 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)-	36	30	I*			X	X	X
1825-21-4	Pentachloroanisole	pest	Pentachloroanisole			IV					
1836-75-5	Nitrofen	pest	Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-	37		V					
2104-64-5	EPN	pest	Phosphonothioic acid, phenyl-, O-ethyl O-(4-nitrophenyl) ester			I*					
2227-13-6	Tetrasul	pest	Benzene, 1,2,4-trichloro-5-[(4-chlorophenyl)thio]-			I*					
2303-17-5	Triallate	pest	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester	166							
25428-43-7		pest	3-Cyclohexene-1-methanol, ,alpha,4-dimethyl-,alpha,(4-methyl-3-pentenyl)-, (R*,R*)-(,+,-)-	155							
28772-56-7	Bromadiolone	pest	2H-1-Benzopyran-2-one, 3-[3-(4'-bromo[1,1'-biphenyl]-4-yl)-3-hydroxy-1-phenylpropyl]-4-hydroxy-	90							
2921-88-2	Clorpyrifos	pest	Phosphorothioic acid, O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) ester	23		II*			X		
298-00-0	Parathion-methyl	pest	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester							X	X
309-00-2	Aldrin	pest	1,4:5,8-Dimethano-naphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1,alpha.,4,alpha.,4a,beta.,5,alpha.,8,alpha.,8a,beta.)-	22	29	V		23			
333-41-5	Diazinon	pest	Phosphorothioic acid, O,O-diethyl O-[6-methyl-2-(1-methylethyl)-4-pyrimidinyl] ester	70		IV					
3861-47-0	loxynil octanoate	pest	Octanoic acid, 4-cyano-2,6-diiodophenyl ester	34		II*					

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc-sediment	rank monit-sediment	Selection Box	priority substances	rank monit-sediment	priority substances	monitoring programme	Rhine relevant
40487-42-1	Pendimethalin	pest	Benzenamine, N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitro-	133							
42576-02-3	Bifenox	pest	Benzoic acid, 5-(2,4-dichlorophenoxy)-2-nitro-, methyl ester	59							
465-73-6	Isodrin	pest	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-dimethanonaphthalene (1alpha, 4alpha, 4abeta,5beta, 8beta,8abeta-)			IV		40			
51630-58-1	Fenvalerate	pest	Benzeneacetic acid, 4-chloro-,alpha, -(1-methylethyl)-, cyano (3-phenoxyphenyl)methyl ester	67		V					
52315-07-8	Cypermethrin	pest	Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, cyano(3-phenoxyphenyl)methyl ester	85							
52645-53-1	Permethrin	pest	Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, (3-phenoxyphenyl)methyl ester	81							
52888-80-9	Prosulfocarb	pest	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	161							
52918-63-5	Deltamethrin	pest	Cyclopropanecarboxylic acid, 3-(2,2-dibromoethenyl)-2,2-dimethyl-, cyano(3-phenoxyphenyl)methyl ester, [1R-[1.alpha,(S*),3.alpha,]]-	78							
541-73-1	1,3-Dichlorobenzene	pest	Benzene, 1,3-dichloro-	173	42			49			
563-12-2	Ethion	pest	Phosphorodithioic acid, S,S'-methylene O,O,O',O'-tetraethyl ester	99							
57018-04-9	Tolclofos-methyl	pest	Phosphorothioic acid, O-(2,6-dichloro-4-methylphenyl) O,O-dimethyl ester	164							
57-74-9	Chlordane	pest	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-			V					
57966-95-7	Cymoxanil	pest	Acetamide, 2-cyano-N-[(ethylamino)carbonyl]-2-(methoxyimino)-			n.cl.					
60-57-1	Dieldrin	pest	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1a.alpha.,2.beta.,2a.alpha.,3.beta.,6.beta.,6a.alpha.,7.beta.,7a.alpha.)-		16			18			
66230-04-4	Esfenvalerate	pest	Benzeneacetic acid, 4-chloro-,alpha, -(1-methylethyl)-, cyano(3-phenoxyphenyl)methyl ester, [S-(R*,R*)]-	130							
67306-03-0	Fenpropimorph	pest	Morpholine, 4-[3-[4-(1,1-dimethylethyl)phenyl]-2-methylpropyl]-2,6-dimethyl-	41		IV					
67564-91-4	Fenpropimorph	pest	Morpholine, 4-[3-[4-(1,1-dimethylethyl)phenyl]-2-methylpropyl]-2,6-dimethyl-, cis-	72		IV					
68085-85-8	Cyhalothrin	pest	Cyclopropanecarboxylic acid, 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethyl-, cyano(3-phenoxyphenyl)methyl ester	199							

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc-sediment	rank monit-sediment	Selection Box	priority substances	rank monit-sediment	priority substances	monitoring programme	Rhine relevant
68359-37-5	Cyfluthrin	pest	Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, cyano(4-fluoro-3-phenoxyphenyl)methyl ester	188							
70124-77-5	Flucythrinate	pest	Benzeneacetic acid, 4-(difluoromethoxy)-.alpha.-(1-methylethyl)-, cyano(3-phenoxyphenyl)methyl ester			III					
70-30-4	Hexachlorophene	pest	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	84							
7212-44-4	Nerolidol	pest	1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-	105							
72-20-8	Endrin	pest	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1a.alpha.,2.beta.,,2a.beta.,3.alpha.,6.alpha.,6a.beta.,7.beta.,7a.alpha.,)-		18			20			
72-43-5	Methoxychlor	pest	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis(4-methoxy-			I	X				
74070-46-5	Aclonifen	pest	Benzenamine, 2-chloro-6-nitro-3-phenoxy-	77							
76-44-8	Heptachlor	pest	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-		32	V					
8001-35-2	Toxaphene	pest	3-Methylenbornanachloride, 2,2-dimethyl-			V					
85509-19-9	Flusilazole	pest	Silane, bis (4-fluorophenyl)methyl1H-1,2,4-triazol-1-ylmethyl)			n.cl.					
87-86-5		pest	Phenol, pentachloro-		37		X	14	X	X	
91465-08-6	lambda-Cyhalothrin	pest	Cyclopropanecarboxylic acid, 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethyl, cyano(3-phenoxyphenyl)methyl ester, [1.alpha.(S*,3.alpha.(Z))-(+)-]-			del					
959-98-8		pest	Endosulfan, alpha- isomer					28	(X)		
50-29-3	p,p'-DDT	pest	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	168	12	V		10		X	
789-02-6	o,p'-DDT	pest	Benzene, 1-chloro-2-[2,2,2-trichloro-1-(4-chlorophenyl)ethyl]-		19	V		15			
3424-82-6	o,p'-DDE	pest	Benzene, 1-chloro-2-[2,2-dichloro-1-(4-chlorophenyl)ethenyl]-		6	V		1			
53-19-0	o,p'-DDD	pest	Benzene, 1-chloro-2-[2,2-dichloro-1-(4-chlorophenyl)ethyl]-		14	V		21			
72-54-8	p,p'-DDD	pest	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-		8	V		17		X	
72-55-9	p,p'-DDE	pest	Benzene, 1,1'-(dichloroethylidene)bis[4-chloro-		13	V		12		X	
608-73-1	HCH isomers (techn. mixture)	pest	Hexachlorocyclohexane isomers				X		X		
319-84-6	alpha-HCH	pest	Cyclohexane, 1,2,3,4,5,6-hexachloro-, alpha- isomer					27		X	
319-85-7	beta-HCH	pest	Cyclohexane, 1,2,3,4,5,6-hexachloro-, beta- isomer			del		35		X	
58-89-9	gamma-HCH (Lindane)	pest	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,,3.beta.,4.alpha.,5.alpha.,6.beta.,)-	54	38			42	(X)	X	
13121-70-5	Tricyclohexyltin hydroxide	pest	Stannane, tricyclohexylhydroxy-	75							

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
36643-28-4	Tributyltin cation	pest	Tributyltin cation						(X)	X	
56-35-9	Tributyltin oxide (TBTO)	pest	Distannoxane, hexabutyl-	24							
668-34-8	Triphenyltin	pest	Stannylium, triphenyl-		22					X	X
688-73-3	Tributyltin (TBT)	pest	Tri-n-butyltin compounds					X		X	
76-87-9	Triphenyltin hydroxide	pest	Stannane, hydroxytriphenyl-	48							
85409-17-2	Tributyltin naphthenate	pest	Stannane, tributyl-, mono(naphthenoxyloxy) deriv	73							
		pest / additive	Organic tin compounds				X				
19774-82-4	Amiodarone hydrochloride	pharma	Methanone, (2-butyl-3-benzofuranyl)[4-[2-(diethylamino)ethoxy]-3,5-diiodophenyl]-, hydrochloride	153							
22832-87-7	Miconazole nitrate	pharma	1-H-Imidazole, 1-[2-(2,4-dichlorophenyl)-2-[(2,4-dichlorophenyl)methoxy]ethyl]-, mononitrate			I*					
22916-47-8	Miconazole	pharma	1H-Imidazole, 1-[2-(2,4-dichlorophenyl)-2-[(2,4-dichlorophenyl)methoxy]ethyl]-	63							
23593-75-1	Clotrimazole	pharma	1H-Imidazole, 1-[(2-chlorophenyl)diphenylmethyl]-	13		I*					
50-63-5	Chloroquine diphosphate	pharma	1,4-Pentanediamine, N(4)-(7-chloro-4-quinoliny)-N(1),N(1)-diethyl-, phosphate (1:2)			n.cl.					
50-28-2	Estradiol	hormone	Estradiol, 17beta			VI					
53-16-7	Estrone	hormone	Estrone			VI					
56-53-1	Diethylstilbestrol (DES)	hormone	Bisphenol, 4,4'-(1,2-Diethyl-1,2-ethendiyl) (E)-			VI					
57-63-6	Ethinylestradiol	hormone	17-Ethynylestradiol			VI					
315-37-7	Testosterone heptanoate	hormone	Androst-4-en-3-one, 17-[(1-oxoheptyloxy)-, (17,beta,-)	107							
117-81-7	Bis(2-ethylhexyl)phthalate	plasticizer	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester		15		X		X		
84-74-2	Dibutylphthalate	plasticizer	1,2-Benzenedicarboxylic acid, dibutyl ester				X				
85-68-7	Butyl benzyl phthalate	plasticizer	Phthalic acid benzylbutyl-ester (BBP)					43			
63449-39-8	Chlorinated paraffin waxes	flame retard / plasticizer	Paraffin waxes and Hydrocarbon waxes, chlorinated	202							
85535-84-8	Short-chained chlorinated paraffines	flame retard	Alkanes, C10-13, chloro	20		del	X		X		
85535-85-9	Long-chained chlorinated paraffines	flame retard	Alkanes, C14-17, chloro			n.cl.					
1163-19-5	Decabromo-diphenyl ether	flame retard	Bis(pentabromophenyl)-ether					50			
13654-09-6		flame retard	Decabromobiphenyl					47			
32534-81-9	Pentabromo-diphenylether	flame retard	Benzene, 1,1'-oxybis-, pentabromo deriv,	50	33			37			
36355-01-8		flame retard	Hexabromobiphenyl					52			
40088-47-9	Tetrabromo-diphenyl ether	flame retard	2,2',4,4'-Tetrabromodiphenyl ether					41			
632-79-1	Tetrabromophthalic anhydride	flame retard	1,3-Isobenzofurandione, 4,5,6,7-tetrabromo-	79							

Part E: Substances and new criteria to watch

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc-sediment	rank monit-sediment	Selection Box	priority substances	rank monit-sediment	priority substances	monitoring programme	Rhine relevant
79-94-7	Tetrabromo-bisphenol A	flame retard	Phenol, 4,4'-(1-methylethylidene)bis[2,6-dibromo-	64		II	X				
		flame retard	Brominated diphenylethers						X		
		flame retard	Brominated flame retardants				X				
75-52-5	Nitromethane	solvent	Methane, nitro-	87							
87-68-3	Hexachloro-butadiene	solvent	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	1	25	V		24	X	X	
95-50-1	1,2-Dichloro-benzene	solvent	Benzene, 1,2-dichloro					48			
1241-94-7	2-Ethylhexyl diphenyl phosphate	additive	Phosphoric acid, 2-ethylhexyl diphenyl ester	169							
128-37-0	2,6-Di-tert-butyl-p-cresol , Butylhydroxy-toluene (BHT)	additive	Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	35		del					
1330-78-5	Tricresyl phosphate	additive	Phosphoric acid, tris(methylphenyl) ester	68							
1461-25-2	Tetrabutyltin	additive	Tetra-n-butyltin							X	
15233-47-3		additive	1,4-Benzenediamine, N-(1-methylheptyl)-N'-phenyl-	176							
17354-14-2		additive	9,10-Anthracenedione, 1,4-bis(butylamino)-	186							
25973-55-1		additive	Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)-	121							
3147-75-9	Octrizole	additive	Phenol, 2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)-	134							
32388-55-9	Acetyl cedrene	additive	Ethanone, 1-(2,3,4,7,8,8a-hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-5-yl)-, [3R-(3alpha,3beta,7beta,8aalpha)]	95							
3846-71-7		additive	Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-	184							
40716-66-3	(E)-nerolidol	additive	1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, (E)-	136							
732-26-3	2,4,6-Tri-t-butylphenol (Dodecylphenol)	additive	Phenol, 2,4,6-tris(1,1-dimethylethyl)-	56		I	X				
75-74-1	Tetramethyl lead	additive	Plumbane, tetramethyl-	21							
78-00-2	Tetraethyl lead	additive	Plumbane, tetraethyl-	10							
793-24-8	N-(1,3-dimethyl)-N'-phenyl-p-phenylenediamine	additive	1,4-Benzenediamine, N-(1,3-dimethylbutyl)-N'-phenyl-	47		II*					
79-74-3	2,5-Di(tert-amyl) hydroquinone	additive	1,4-Benzenediol, 2,5-bis(1,1-dimethylpropyl)-	178							
81-15-2	musk xylene	additive	Benzene, 1-(1,1-dimethylethyl)-3,5-dimethyl-2,4,6-trinitro-	97			X				
85-22-3	Pentabromo-ethylbenzene	additive	Benzene, pentabromoethyl-	118		I*					
87-83-2	Pentabromo-toluene	additive	Benzene, pentabromomethyl-	193							
93-46-9		additive	1,4-Benzenediamine, N,N'-di-2-naphthalenyl-	49							
	Dibutyltin	additive	Dibutyltin compounds							X	
67-72-1		additive / raw mat	Ethane, hexachloro-	109		V					
98-54-4	4-tert-Butylphenol	additive / raw mat	Phenol, 4-(1,1-dimethylethyl)-			VI					

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
101-81-5	Diphenylmethane	raw mat	Benzene, 1,1'-methylenebis-	182							
107-46-0	Hexamethyl- disiloxane	raw mat	Disiloxane, hexamethyl-	94		II	X				
115-27-5	Chlorendic anhydride	raw mat	4,7-Methanoisobenzofuran-1,3-dione, 4,5,6,7,8,8-hexachloro-3a,4,7,7a- tetrahydro-	128							
118-74-1	Hexachloro- benzene	raw mat	Benzene, hexachloro-	19	10	V		13	X	X	X
120-95-6	2,4-Di-tert- pentylphenol	raw mat	Phenol, 2,4-bis(1,1-dimethylpropyl)-	167							
121-14-2	2,4-Dinitrotoluene	raw mat	Benzene, 1-methyl-2,4-dinitro-	180							
128-83-6		raw mat	9,10-Anthracenedione, 1-amino-2- bromo-4-[(4-methylphenyl)amino]-	165							
132-65-0	Diphenylene sulfide	raw mat	Dibenzothiophene		35						
133-49-3	Pentachloro- thiophenol	raw mat	Benzenethiol, pentachloro-	52		V					
134-83-8	4-Chlorobenz- hydriyl-chloride	raw mat	Benzene, 1-chloro-4- (chlorophenylmethyl)-	175							
25155-25-3	bis(tert-butyl-dioxy- isopropyl) benzene	raw mat	Peroxide, [phenylenebis(1- methylethylidene)]bis[(1,1- dimethylethyl)	43							
26140-60-3		raw mat	Terphenyl	106							
294-62-2		raw mat	Cyclododecane	55		II*					
29761-21-5	Isodecyldiphenyl phosphate	raw mat	Phosphoric acid, isodecyl diphenyl ester	140							
3081-14-9		raw mat	1,4-Benzenediamine, N,N'-bis(1,4- dimethylpentyl)-	103							
3278-89-5	2-Allyloxy-1,3,5- tribromobenzene	raw mat	Benzene, 1,3,5-tribromo-2-(2- propenyloxy)-	191							
38640-62-9		raw mat	Naphthalene, bis(1-methylethyl)-	135							
4098-71-9	Isophorone diisocyanate	raw mat	Cyclohexane, 5-isocyanato-1- (isocyanatomethyl)-1,3,3-trimethyl-	65							
423-50-7	Perfluorohexane- sulfonyl fluoride	raw mat	1-Hexanesulfonyl fluoride, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-	194							
4904-61-4	1,5,9-Cyclodo- decatriene	raw mat	Cyclododeca-1,5,9-triene	62		I*					
497-39-2		raw mat	Phenol, 2,4-bis(1,1-dimethylethyl)-5- methyl-	119							
51000-52-3	Vinyl neodecanoate	raw mat	Neodecanoic acid, ethenyl ester	26		I*					
5208-93-5		raw mat	1,4-Pentadien-3-ol, 3-methyl-1-(2,6,6- trimethyl-1-cyclohexen-1-yl)-	152							
5216-25-1		raw mat	Benzene, 1-chloro-4-(trichloromethyl)-	200							
54914-37-3		raw mat	Cyclohexanemethanamine, 1,3,3- trimethyl-N-(2-methylpropylidene)-5- [(2-methylpropylidene)amino]-	143							
59447-55-1		raw mat	2-Propenoic acid, (pentabromophenyl)methyl ester	123		I*					
603-35-0	Triphenyl- phosphorus	raw mat	Phosphine, triphenyl-	2		II*					
608-93-5		raw mat	Benzene, pentachloro-		23	V		32	X		
612-83-9	3,3'-Dichloro- benzidine dihydrochloride	raw mat	[1,1'-Biphenyl]-4,4'-diamine, 3,3'- dichloro-, dihydrochloride	80							
61789-53-5	Coconitriles	raw mat	Nitriles, coco-	86		del					

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
634-66-2	1,2,3,4-Tetra- chlorobenzene	raw mat	Benzene, 1,2,3,4-tetrachloro-	187	34	V					
67124-09-8		raw mat	2-Propanol, 1-(tert-dodecylthio)-	57							
6842-15-5		raw mat	1-Propene, tetramer	98							
77-47-4	Hexachlorocyclo- pentadiene	raw mat	1,3-Cyclopentadiene, 1,2,3,4,5,5- hexachloro-	101		II	X				
79-92-5	Camphene	raw mat	Bicyclo[2,2,1]heptane, 2,2-dimethyl-3- methylene-	125							
90481-05-3		raw mat	Phenol, nonyl-, manuf. of, by- products from, high-boiling	83							
90604-37-8		raw mat	Alcohols, C11-15-branched	46		II*					
91081-53-7		raw mat	Rosin, reaction products with formaldehyde	30		IV					
91-94-1	3,3'-Dichloro- benzidine	raw mat	[1,1'-Biphenyl]-4,4'-diamine, 3,3'- dichloro-	113							
95-76-1	3,4 Dichloro- aniline	raw mat	Benzenamine, 3,4-dichloro-			VI			X	X	
95-94-3	1,2,4,5-Tetrachloro- benzene	raw mat	Benzene, 1,2,4,5-tetrachloro-		36	V					
98-51-1	p-tert-Butyl-toluene	raw mat	Benzene, 1-(1,1-dimethylethyl)-4- methyl-	44		II	X				
108-70-3	1,3,5-Trichloro- benzene	raw mat / solvent	Benzene, 1,3,5-trichloro-		40	II	X	45		X	
12002-48-1	Trichloro- benzenes	raw mat / solvent	Trichlorobenzenes (all isomers)						X		
120-82-1	1,2,4-Trichloro- benzene	raw mat / solvent	Benzene, 1,2,4-trichloro-	39	31	II	X	29	(X)	X	
87-61-6	1,2,3-Trichloro- benzene	raw mat / solvent	Benzene, 1,2,3-trichloro-	149	39	II	X	51		X	
104-40-5	4-Nonylphenol	raw mat / surfact degra	Phenol, 4-nonyl-	71	28				(X)		
140-66-9	4-tert-Octylphenol	raw mat / surfact degra	Phenol, 4-(1,1,3,3-tetramethylbutyl)-	31		I	X	39	(X)		
1806-26-4	Octylphenols	raw mat / surfact degra	4-(n-octyl)phenol (EU-WFD, priority substances: group of octylphenol isomers)					39	X		
25154-52-3	Nonylphenol isomers	raw mat / surfact degra	Phenol, nonyl-, isomers (OSPAR: incl. ethoxylates incl. related substances)	60	20		X		X		
84852-15-3	4-Nonylphenol (branched)	raw mat / surfact degra	Phenol, 4-nonyl-, branched	66	11						
11028-42-5	Cedrene	nature prod	Cedrene	159							
116-66-5	Pentamethyl-4,6- dinitroindane	nature prod	1H-Indene, 2,3-dihydro-1,1,3,3,5- pentamethyl-4,6-dinitro-	158							
13393-93-6	Hydrabietyl alcohol	nature prod	1-Phenanthrenemethanol, tetradecahydro-1,4a-dimethyl-7-(1- methylethyl)-	61							
23089-26-1	alpha-Bisabolol, S- enantiomer	nature prod	3-Cyclohexene-1-methanol, alpha,4- dimethyl-alpha-(4-methyl-3-pentenyl)- ,[S-(R1,R1)]-	156							
469-61-4	alpha-Cedrene	nature prod	1H-3a,7-Methanoazulene, 2,3,4,7,8,8a-hexahydro-3,6,8,8- tetramethyl-, [3R- (3alpha,3abeta,7beta,8aalpha)]-	96							
512-04-9	Diosgenin	nature prod	Spirost-5-en-3-ol, (3beta,25R)-	74		I*					

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc- sediment	rank monit- sediment	Selection Box	priority substances	rank monit- sediment	priority substances	monitoring programme	Rhine relevant
515-69-5	alpha-Bisabolol, R-enantiomer	nature prod	3-Cyclohexene-1-methanol, ,alpha.,4-dimethyl-,alpha, -(4-methyl-3-pentenyl)-, (R*,R*)-	157							
5989-27-5	D-Limonene, (+)-Limonene	nature prod	Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (R)-	179							
80-56-8	alpha-Pinene	nature prod	Bicyclo[3,1,1]hept-2-ene, 2,6,6-trimethyl-	145							
123-48-8			3-Heptene, 2,2,4,6,6-pentamethyl-	170							
13475-82-6	2,2,4,6,6-Pentamethylheptane		Heptane, 2,2,4,6,6-pentamethyl-	122							
15114-15-5			9,10-Anthracenedione, 4,8-diamino-2-(4-ethoxyphenyl)-1,5-dihydroxy-	192							
1691-99-2			1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-N-(2-hydroxyethyl)-	127							
16938-22-0	2,2,4-Trimethylhexamethylene diisocyanate		Hexane, 1,6-diisocyanato-2,2,4-trimethyl-	181							
17540-75-9	2,6-Di-tert-butyl-4-sec-butylphenol		Phenol, 2,6-bis(1,1-dimethylethyl)-4-(1-methylpropyl)-	146							
18379-25-4	Isooctyltrichlorosilane		Silane, trichloro(2,4,4-trimethylpentyl)-	142							
19941-28-7			1-Phenanthrenecarboxylic acid, tetradecahydro-1,4a-dimethyl-7-(1-methylethyl)-, methyl ester, [1R-(1alpha,4abeta,4balpha)]	120							
21150-89-0			Phenol, 4-(1,1-dimethylethyl)-, hydrogen phosphate	150							
25321-09-9	Diisopropylbenzene		Benzene, bis(1-methylethyl)-, all isomers	88							
26603-40-7			1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(3-isocyanatomethylphenyl)-	104							
28680-45-7	Heptachloronorborene		Bicyclo[2.2.1]hept-2-ene, heptachloro-			III					
29398-96-7			[1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(2,4-dinitrophenyl)-3,3'-dimethoxy-	111							
36861-47-9	3-(4-Methylbenzyliden)camphor		Bicyclo(2,2,1)heptan-2-one, 1,7,7-trimethyl-3-[(4-methylphenyl)methylene]-	138							
375-72-4	Nonafluoroburane sulfonyl fluoride		1-Butanesulfonyl fluoride, 1,1,2,2,3,3,4,4,4-nonafluoro-	203							
39083-38-0			2-Hexene, 3,4,5,5-tetramethyl-	198							
39489-75-3			Phenol, 2,4-dichloro-5-nitro-, carbonate (2:1) (ester)	69							
40567-16-6			Butanoyl chloride, 2-[2,4-bis(1,1-dimethylpropyl)phenoxy]-	201							
41604-19-7	4-Bromo-2-fluorobiphenyl		1,1'-Biphenyl, 4-bromo-2-fluoro-	160							
50772-29-7			Butanoyl chloride, 4-[2,4-bis(1,1-dimethylpropyl)phenoxy]-	196							
50849-47-3	2-Hydroxy-5-nonyl aldoxime		Benzaldehyde, 2-hydroxy-5-nonyl-, oxime	129							
52179-28-9			Propanoic acid, 2-[4-(2,2-dichlorocyclopropyl)phenoxy]-2-methyl-, ethyl ester	190							
52434-90-9			1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(2,3-dibromopropyl)-	82							

3.3 continued Combined substance lists (OSPAR, EU-WFD, ICPR)

CAS-RN	compound	class	IUPAC Name	OSPAR				EU-WFD		ICPR	
				rank calc-sediment	rank monit-sediment	Selection Box	priority substances	rank monit-sediment	priority substances	monitoring programme	Rhine relevant
52740-90-6			2-Anthracenecarboxamide, 1-amino-N-(3-bromo-9,10-dihydro-9,10-dioxo-2-anthracenyl)-9,10-dihydro-9,10-dioxo-	154							
55525-54-7			Urea, N,N'-bis[(5-isocyanato-1,3,3-trimethylcyclohexyl)methyl]-	115		I*					
57499-57-7			Ethanone, 1-[1,6-dimethyl-4-(4-methyl-3-pentenyl)-3-cyclohexen-1-yl]-	114							
63059-55-2			Hexanoyl chloride, 2-[2,4-bis(1,1-dimethylpropyl)phenoxy]-	197							
64131-85-7			Phosphorothioic acid, O,O,O-tris(4-nitrophenyl) ester	126							
65294-17-9			Methylium, tris[4-(dimethylamino)phenyl]-, salt with 3-[[4-(phenylamino)phenyl]azo]benzenesulfonic acid (1:1)	141							
67700-98-5			Amines, C10-16-alkyldimethyl	45		del					
67969-69-1			1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-N-[2-(phosphonoxy)ethyl]-, diammonium salt	124							
68015-60-1			Benzenesulfonic acid, 2-amino-, (1-methylethylidene)di-4,1-phenylene ester	183							
68517-09-9			Ethanone, 1-(2-hydroxy-5-tert-nonylphenyl)-, oxime	132							
68877-29-2			Cyclohexanol, (1,7,7-trimethylbicyclo[2,2,1]hept-2-yl)-	137							
7139-02-8			Pyrimido[5,4-d]pyrimidine, 2,6-dichloro-4,8-di-1-piperidinyl-	116							
97280-83-6	Isododecene		Dodecene, branched	16		II*					