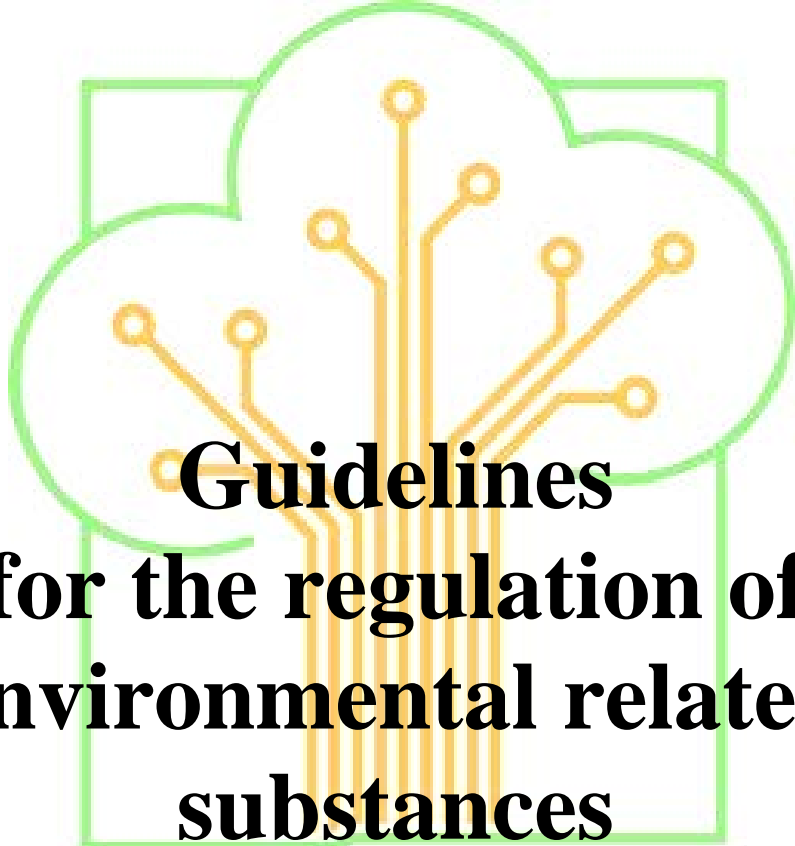
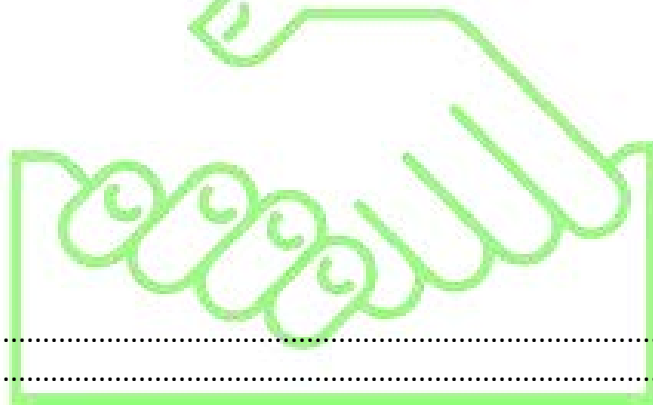


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Scope

This document is valid for products, materials and substances which are delivered to AT&S. The list of banned and restricted substances was established with regard to customer's requirements as well as legal requirements which have to be observed.

Definition

Banned and restricted substances – This means substances, mentioned in the lists below. It concerns environmental related substances which are contained in parts or materials which have significant environmental impact on humans and the global environment.

Banned substances – These substances are not allowed to be used generally or above the threshold limit. Banned substances are mentioned in the "List of banned substances". Banned substances have to be declared in the form *AT&S certification of environmental related substances*.

List of banned substances – This list contains banned substances due to regulations by law in Austria, Germany, within the European Union, Asia and further states worldwide. The prohibitions are valid for the production of products as well as for products, but also for the packaging and means of transport like palettes etc. In case of exceptional arrangements for special materials (e.g. transition periods) a written substantiation is required for the use of such materials or rather products by the supplier. Not all substances are regulated by threshold limits. If no threshold limit is given, the prohibition of use is made by governmental regulations without consideration of threshold limits. The content of banned substances has to be declared independent from the amount in the product delivered to AT&S.

Restricted substances – These substances are allowed to be used but if the content of restricted substances in the products delivered to AT&S is above 0,1% weight /weight the substance has to be declared in the form *AT&S certification of environmental related substances*. Restricted substances are mentioned in the *List of restricted substances*.

Impurity – impurity means a substance which is either contained in a natural material which cannot be completely removed by a refining process by technical means or either generated in a synthesis process which cannot be completely removed by technical means. If the "Substance of Concern" is mingled with an "Impurity", the allowable concentration, specified with this standard, must not be exceeded.

CAS – Number – This number is a numeric identifier which designates only one substance. CAS (Chemical Abstract Service) Registry Numbers are assigned by the CAS Registry which is the largest and most current database of chemical substance information in the world.

AT&S certification of environmental related substances – This certification has been created for suppliers to give information about the content of banned and restricted substances in their products and materials which are delivered to AT&S. After the check of the *guidelines for the*

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regulation of environmental related substances the certification has to be completed and returned to AT&S by the supplier.

REACH – Directive 1907/2006 EC – Suppliers have to guarantee that no substances mentioned on the candidate list (so called SVHC substances) are contained in the products supplied to AT&S. This is applicable to all AT&S locations.

In case SVHC are contained in the products above the threshold limit of 0.1% suppliers have to fill out the AT&S certification of environmental related substances according to the definition above.

The candidate list is available by using following link:

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

Demands on supplier

- Cascade down the requirements to their sub-tier supplier. Sub-tier supplier data input is a must for complete material and substance data determination.
- Report any change to the material content of an approved material, part or preparation by re-submitting an updated Certification for non-use environmental related substances.
- By completing and signing this Certification for non-use environmental related substances, the supplier guarantees that the information is true and correct to the best of the supplier's knowledge.

Packaging materials shall not exceed the maximum threshold on lead, cadmium, chromium 6+ and Mercury over 0,01% at all.

Revisions

This document will be revised if any changes of customer's requirements or legal regulations will occur. This document is managed by the environmental department of AT&S.

In case of questions, the environmental department can be contacted by using following e-mail address: environment@ats.net.

Revision 1→2: add bromine and chlorine to list of restricted substances

Revision 2→3: add threshold 1000 ppm for PBB and PBDE

Revision 3→4: add legal requirements to scope

Revision 4→5: change threshold limit PBB /PBDE and TBBPA from 1000 to 900 ppm

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List of banned substances

Banned substances	CAS No.	threshold concentration ppm [mg/kg]
Acrylonitrile (as monomer)	107-13-1	1
Aliphatic Chlorine Hydrocarbon	refer to Annex a)	100
Antimony and Antimony compounds	7440-36-0	1000
Arsenic and -compounds	7440-38-2	400
Asbestos	1332-21-4 refer to Annex b)	
Azopigments with carcinogenic amino compounds	refer to Annex e)	
Beryllium and Beryllium compounds	7440-41-7	1000
Beryllium oxide	1304-56-9	
2-Benzotriazole	3846-71-7	
Cadmium and -compounds	7440-43-9	5
Carcinogenic, mutagenic and reproduction toxic chemicals		
Chromine (VI) and -compounds		100
Dioxins and Furans (sum) TCDD (Seveso toxin)	refer to Annex d) 1746-01-06	0
Fluorochlorinated Hydrocarbons Halonic (CFC)	refer to Annex c)	0
Formaldehyde (measures as a compensation concentrate after testing method)	50-00-0	5
Halogenated biphenyls, terphenyls and naphtalines		
Lead and -compounds	7439-92-1	100
Mercury and -compounds	7439-97-6	10
Organic tin compounds (TBT, TPT, TBTO)		
Ozone depleting substances		
Phtalates		
Pentachlorophenol (PCP)	87-86-5	5
Perfluorooctane sulfonate		
Persistent organic pollutants (POP's) according to regulation (EU) No. 850/2004	refer to Annex f)	
Polybrominated Biphenyls (PBB)		900
Polybrominated Diphenylether (PBDE)		900
Polybrominated terphenyls (PBT)		
Polycyclic aromatic hydrocarbons (PAH / PAK)		
Polychlorinated naphtaline		

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Banned substances	CAS No.	threshold concentration ppm [mg/kg]
Polychlorinated terphenyls (PCT)	61788-33-8	
Polyvinylchloride	9002-86-2	
Sodium salt, other PCP-salts and -compounds	131-52-2	5
Shortchained chlorinated paraffin SCCP		100
Sulfurhexafluorid	2551-62-4	
Tar oils	8001-58-9	0
Tris-(1-aziridiny)phosphine oxide	545-55-1	
Ugilec and DBBT as sum (PCB replacements)		0
Vinyl chloride (as residual monomer)	75-01-04	1

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List of restricted substances

restricted substances	CAS No.
4-Oktylphenol	1806-26-4
Acetaldehyde	75-07-0
Acetamide	60-35-5
Acrylamide	79-06-1
Alkylphenoethoxylates	
Aluminium and Aluminium compounds	7429-90-5
Aniline and its salts	
Anthracene	120-12-7
Antimonytrioxide	1309-64-4
Aromatic amines and Aromatic Nitro compounds	
Azo and Aromatic Nitro compounds	
Barium and Barium compounds	7440-39-3
Benzene	71-43-2
Benzophenon	119-61-9
Benzotrichloride	98-07-7
Bismuth and Bismuth compounds	7440-69-9
Bisphenol A	
Boron and Boron compounds	7440-42-8
Bromine and Bromine compounds > 900 ppm Chlorine and Chlorine compounds > 900 ppm Total content of bromine and chlorine compounds >1500 ppm	
Carbondisulfide	75-15-0
Chloroaniline	106-47-8
Chromium and Chromium compounds	14639-25-9
Cobalt and Cobalt compounds	7440-48-4
Colophony (Rosin)	8052-47-9
Copper	7440-50-8
Di(2-ethylhexyl)adipate	3710-84-7
Dichlorobenzidine and -salts	91-94-1
Dichloropropanol	96-23-1
Dimethoxybenzidine and -salts	119-90-4
Dimethylamidomethoxyacetat	77402-03-0
Epichlorinehydrin > 10 ppm	106-89-8
Erionite	12510-42-8
Ethanedinitrile	460-19-5
Ethylene Glycol Monoethyl Ether and -acetate	-
Ethylene Glycol Monomethyl Ether and - acetate	-
Ethylene oxide	110-82-7
Ethylenediaminetetraacetate (EDTA)	60-00-4

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restricted substances	CAS No.
Ethylenenitrate	625-58-1
Fluorine and inorganic compounds	7782-41-4
Glyceroltrinitrate	55-63-0
Gold and Gold compounds	7440-57-5
Halogendiphenylmethane	
Halogennaphtalin	
Hexachlorobenzene	118-74-1
Hexachlorocyclodihexane	319-85-7
Iron and Iron compounds	7439-89-6
Isocyanate	75-13-8
Lithium and Lithium compounds	7439-93-2
Manganese and Manganese compounds	7439-96-5
Medium chained chlorinated paraffines	
N,N-Dimethylformamide	68-12-2
Nickel and Nickel compounds	7440-02-0
Nitrilotriacetate	80751-51-5
Nonylphenol	
Palladium and Palladium compounds	740-05-3
Pentachlorophenol	87-86-5
Phenol	108-95-2
Phenol and Azoxy compounds	108-95-2
Phenylchlorid	108-90-7
Phosphates and Esters	
Phosphor and Phosphor compounds	
Phosphoric acid	7664-38-2
Polyoxyethylenonnylphenylether	
p-Phenylenediamine	62654-17-5
Quartz	14808-60-7
Radioactive Substances	
Selenium and Selenium compounds	7782-49-2
Silicone gel	
Silver and Silver compounds	7440-22-4
Sodiumlaurylsulphates	151-21-3
Styrene	100-42-5
Styrene oxide	96-09-3
Sulfonates	
Tantalum and Tantalum compounds	7440-25-7
Tellurium and Tellurium compounds	13494-80-9
Tetrabromobisphenol A (TBBA) >900 ppm	79-94-7
Tetrachloroethene	127-18-4
Tetrachloroethylene	127-18-4
Thallium and Thallium compounds	7440-28-0

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restricted substances	CAS No.
Thorium oxide	
Tin and Tin compounds	7440-31-5
Titan and Titan compounds	7440-32-6
Toluen	108-88-3
Tresulfan	299-75-2
Trichloroethene	79-01-6
Trichloropropane	96-18-4
Trimethylphosphate	512-56-1
Triphenylphosphate	115-86-6
Tris (2-chloroethyl)phosphate	115-96-8
Tris-(1-aziridiny)phosphine oxide	545-55-1
Tris(2,3-dibromopropyl)phosphate	126-72-7
Tungsten and Tungsten compounds	7440-33-7
Vanadium and Vanadium compounds	7440-62-2
Volatile organic compounds	
Xylene	
Zinc and Zinc compounds	7440-66-6

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Annex A

Aliphatic CHCs	CAS No.
1,1,1,2-Tetrachloroethane	630-20-6
1,1,1-Trichlorethane	71-55-6
1,1,2,2-Tetrachloroethane	79-34-5
1,1,2-Trichlorethane	79-00-5
1,1-Dichlorethylen	75-35-4
Pentachloroethane	76-01-7
Tetrachloromethane	56-23-5
Trichlormethane	67-66-3

Annex B

Asbestos	CAS No.
Aktinolith	77536-66-4
Amosit	12172-73-5
Anthophyllit	77536-67-5
Chrysotil	12001-29-5
Krokydolith	12001-28-4
Raphilit	77536-66-4
Tremolit	77536-68-6

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Annex C

CFCs / Halons	CAS No.
1,1,1-tribromo-2,2,2-trifluoroethane	354-48-3
1,1,1-Trichloroethane	71-55-6
1,1,1-trifluoro-2-bromoethane	421-06-7
1,1,2-trichloro-1,2,2-trifluoroethane	76-13-1
1,1-dibromo-1,2,2,2-tetrafluoroethane	27336-23-8
1,1-dibromo-2,2-difluoroethane	359-13-3
1,1-dibromo-2,2-difluoroethylene	430-85-3
1,2,2-tribromo-3,3,3-trifluoropropane	421-90-9
1,2,2-trichloropentafluoropropane	1599-41-3
1,2,3-tribromo-3,3-difluoropropane	666-25-1
1,2-dibromo-1,1,2-trichloroethane	13749-38-7
1,2-dibromo-1,1,2-trifluoroethane	354-04-1
1,2-dibromo-1,1-difluoroethane	75-82-1
1,2-dibromo-1-chloro-1,2,2-trifluoroethane	354-51-8
1,2-dibromo-1-fluoroethane	358-97-4
1,2-dibromotetrachloroethane	76-12-0
1,2-dibromotetrachloroethane	630-25-1
1,2-dibromotetrafluoroethane	124-73-2
1,2-dichloro-1,1,2,3,3,3-hexafluoropropane	661-97-2
1,3-dibromo-1,1,3,3-tetrafluoropropane	460-86-6
1,3-dibromo-1,1-difluoropropane	460-25-3
1-bromo-1,1,2,3,3,3-hexafluoropropane	2252-78-0
1-bromo-1,1-difluoroethane	420-47-3
1-bromo-1-chloro-2,2-difluoroethylene	758-24-7
1-bromo-2-chloro-1,1,2-trifluoroethane	354-06-3
1-bromo-2-fluoroethane	762-49-2
1-bromo-2-fluoropropane	1871-72-3
1-bromo-3-fluoropropane	352-91-0
2,3-dibromo-1,1,1-trifluoropropane	431-21-0
2-bromo-1,1-dichloroethylene	5870-61-1
2-bromo-1-chloro-1,1,2-trifluoroethane	354-20-1
2-bromo-2-chloro-1,1,1-trifluoroethane	51230-17-2
2-bromo-2-chloro-1,1,1-trifluoroethane	51230-18-3
3-bromo-1,1,1-trifluoropropane	460-32-2
Bromchloridedifluoromethane (Halon1211)	353-59-3
Bromo-1,1-difluoroethane C ₂ H ₃ F ₂ Br	359-07-9
Bromochlorodifluoromethane	353-59-3
Bromodichlorofluoromethane	353-58-2
Bromofluoromethane	373-52-4
Bromopentafluoroethane	354-55-2

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CFCs / Halons	CAS No.
Bromotrichloromethane	75-62-7
Bromotrifluoroethylene	598-73-2
Bromotrifluoromethane (Halon 1301)	75-63-8
C ₂ H ₂ FBr ₃	598-67-4 420-88-2
C ₂ HF ₂ Br ₃	7304-53-2 677-34-9 353-97-9
C ₂ HFBr ₄	353-93-5 306-80-9
C ₃ H ₂ F ₂ Br ₄	148875-98-3
C ₃ H ₂ F ₅ Br	422-01-5 677-52-1 677-53-2 22692-16-6 460-88-8 679-94-7 26391-11-7 53692-43-6 53692-44-7
C ₃ H ₂ FBr ₅	-
C ₃ H ₃ F ₄ Br	19041-01-1 29151-25-5 679-84-5 70192-71-1 70192-84-6 460-67-3
C ₃ H ₃ FBr ₄	148875-95-0
C ₃ H ₄ FBr ₃	75372-14-4
C ₃ H ₅ F ₂ Br	111483-20-6 430-87-5 420-89-3 420-98-4 2195-05-3 461-49-4
C ₃ H ₅ FBr ₂	453-00-9 1786-38-5 51584-26-0 62135-10-8 62135-11-9
C ₃ HF ₂ Br ₅	-
C ₃ HF ₃ Br ₄	-
C ₃ HF ₄ Br ₃	666-48-8
C ₃ HFBr ₆	-
Carbon tetrabromide	558-13-4
Carbon tetrachloride	56-23-5
Chlorinedifluoromethane (R22)	75-45-6
Chlorinepentafluoroethane (R115)	76-12-0
Chlorinetrifluoromethane (R13)	75-72-9
Chlorobromomethane	74-97-5

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CFCs / Halons	CAS No.
Chlorobromomethane	74-97-5
Chlorobromotrifluoroethane	74925-63-6
Chlorodibromomethane	124-48-1
Chlorodifluorobromomethane	353-59-3
Dibromodichloromethane	594-18-3
Dibromofluoromethane	1868-53-7
Dibromotetrafluoroethane	25497-30-7
Dibromotetrafluoroethane (Halon 2404)	124-73-2
Dibromtetrafluoroethane (Halon 2402)	124-73-2
Dichlorinedifluoromethane (R12)	75-71-8
Dichlorinetetrafluoroethane (R114)	76-14-2
Dichlorotetrafluoroethane	1320-37-2
Difluorodibromomethane	75-61-6
Heptachlorofluoropropane	422-78-6
Heptafluoropropylchloride	422-86-6
Hexachlorodifluoropropane	134452-44-1
Methylbromide	74-83-9
Methylbromide (Bromomethane)	74-83-9
Monochloropentafluoroethane	76-15-3
Pentabromoethane	75-95-6
Pentachlorofluoroethane	354-56-3
Pentachlorotrifluoropropane	2354-06-5
Tetrabromoethene	79-28-7
Tetrachloridefluoroethane (R112)	76-11-9
Tetrachlorotetrafluoropropane	29255-31-0
Tribromochloromethane	594-15-0
Tribromoethane	598-16-3
Tribromofluoromethane	353-54-8
Trichloridefluoroethane (R113)	76-13-1
Trichlorinefluoromethane (R11)	75-69-4
Trifluorobromomethane	75-63-8

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Annex D

Dioxins and Furans	CAS No.
(2',7'-Dibromo-3',6'-dihydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-4'-yl)hydroxymercury	55728-51-3
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9
1,2,3,4,7,8,9-Hexachlorodibenzofuran	55673-89-7
1,2,3,4,7,8-Hexa BDD	110999-44-5
1,2,3,4,7,8-Hexachloro dibenzofuran	70648-26-9
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6
1,2,3,6,7,8-Hexa BDD	110999-45-6
1,2,3,6,7,8-Hexa-CDD	57653-85-7
1,2,3,6,7,8-Hexa-CDF	57117-44-9
1,2,3,6,7,8-Hexachloro dibenzofuran	57117-44-9
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7
1,2,3,7,8,9-Hexa BDD	110999-46-7
1,2,3,7,8,9-Hexa-CDD	19408-74-3
1,2,3,7,8,9-Hexachloro dibenzofuran	72918-21-9
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3
1,2,3,7,8-Penta BDD	109333-34-8
1,2,3,7,8-Penta BDF	109333-34-8
1,2,3,7,8-Penta-CDD	40321-76-4
1,2,3,7,8-Pentachloro dibenzofuran	57117-41-6
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4
1,3-Isobenzofurandione, 4,5,6,7-tetrabromo-	632-79-1
2,3,4,6,7,8-Hexachloro dibenzofurans	60851-34-5
2,3,4,7,8-Penta BDF	131166-92-2
2,3,4,7,8-Penta-CDF	57117-31-4
2,3,4,7,8-Pentachloro dibenzofurans	57117-31-4
2,3,7,8-Tetra BDD	50585-81-6
2,3,7,8-Tetra BDF	67733-57-7
2,3,7,8-Tetra-CDD	1746-01-6
2,3,7,8-Tetrachloro dibenzofurans	51207-31-9
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746-01-6
2',7'-Dibrom-4'-(hydroxymercuri)fluorescein	129-16-8
2,7-Dichlorodibenzo-p-dioxin	33857-26-0
Hexachlorodibenzodioxin	34465-46-8
Nickel,[6,8,16,18-tetrachloro-1,11-bis(2-furanylmethyl)-1,10,11, 20-tetrahydrodibenzo[c,j]dipyrazolo[3,4-f:3',4'-m][1,2,5,8,9,12] hexaazacyclotetradecinato(2-)-N5,N10,N15,N20]-	79745-01-0
Octachlorodibenzofuran	39001-02-0
Octachlorodibenzo-p-dioxin	3268-87-9
Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, lead salt	1326-05-2

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Annex E

carcinogenic amines	CAS No.
2,4,5-Trimethylaniline	137-17-7
2,4-Diaminoanisoole	615-05-4
2,4-Toluylendiamine	95-80-7
2-Amino-4-nitrotoluene	99-55-8
2-Naphthylamine	91-59-8
3,3'-Dichlorbenzidine	91-94-1
3,3'-Dimethoxybenzidine	119-90-4
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0
3,3'-Dimethylbenzidine	119-93-7
4,4'-Diaminodiphenylmethane	101-77-9
4,4'-Methylen-bis-(2-chloraniline)	101-14-4
4,4'-Thiodianiline	139-65-1
4,4'-Oxydianiline	101-80-4
4-Aminoazobenzene	60-09-3
4-Aminodiphenyl	92-67-1
4-Chlor-o-toluidine	95-69-2
Benzidine	92-87-5
o-Aminoazotoluene	97-56-3
o-Anisidine	90-04-0
o-Toluidine	95-53-4
p-Chloraniline	106-47-8
p-Cresidine	120-71-8

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Annex F

POP's	CAS No.	EC No.
Aldrin	309-00-2	206-215-8
Chlordane	57-74-9	200-349-0
Chlordecone	143-50-0	205-601-3
Dieldrin	60-57-1	200-484-5
DDT (1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane)	50-29-3	200-024-3
Endrin	72-20-8	200-775-7
HCH, including lindane	608-73-1, 58-89-9	210-168-9 200-401-2
Heptachlor	76-44-8	200-962-3
Hexabromobiphenyl	36355-01-8	252-994-2
Hexachlorobenzene	118-74-1	200-273-9
Mirex	2385-85-5	219-196-6
Polychlorinated Biphenyls (PCB)	1336-36-3 and others	215-648-1 and others
Toxaphene	8001-35-2	232-283-3