

bluesign® Restricted Substances List

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1 Definitions

1.1 Article

An object which during production is given a special shape, surface or design, which determines its function to a greater degree than does its chemical composition (fibers, textile fabrics, buttons, zippers, etc.).

1.2 CAS

CAS registry numbers are unique numerical identifiers for chemical elements, compounds, polymers, biological sequences, mixtures and alloys. Chemical Abstracts Service (CAS), a division of the American Chemical Society, assigns these identifiers to every chemical that has been described in the literature. The intention is to make database searches more convenient, as chemicals often have many names. Almost all molecule databases today allow searching by CAS number.

1.3 Chemical substance

A chemical element and its compounds with constant composition and properties. It is defined by the CAS number.

1.4 Detection limit (DL)

The detection limit is the lowest quantity of a substance that can be distinguished from the absence of that substance following a prescribed analytical method.

1.5 Limit value

The maximum amount of chemical substances permitted in articles for the usage ranges A, B and C.

1.6 Several

Several means, that the whole substance group is restricted although not all substances that are restricted are explicitly listed. The listed examples represent only those substances, which should be considered if substance group is intended for testing.

1.7 Traces

Although there is a ban for a chemical substance, residual amounts of this substance may be contained in a product from a non-intended source. In this case, a limit is defined to minimize these currently unavoidable traces.

1.8 Usage ban

For several chemical substances or substance groups a usage ban is defined. For these substances or substance groups intentional use in manufacturing of articles is prohibited. That means that chemical products (e.g. colorants or textile auxiliaries) used for manufacturing of articles must not intentionally contain these substances or substance groups.

The aim of a usage ban is to avoid release of harmful substances to the environment and to avoid occurrence in the manufactured article by applying the precautionary principle.

1.9 Usage range

Usage ranges classify consumer goods according to their consumer safety relevance.

Three usage ranges (A, B, C) are defined with A being the most stringent category concerning limit values/bans:

- Usage Range A: Next to skin use and baby articles (0 to 3 years)
- Usage Range B: Occasional skin contact
- Usage Range C: No skin contact

2 Scope

The document specifies restrictions (limits and bans) for chemical substances in

- articles made of textile and leather
- accessories for textile and leather articles

2.1 Application

The limits and restrictions have to be applied for each individual component of an intermediate or finished article. A component is each part of an article that can be distinguished according to the material composition and/or functionality and/or color and is easily mechanically separated from other components.

3 Testing methods

The testing methods listed in the last column of the table in chapter 4 are the recommended ones. The testing methods column consists of two entries: sample preparation, e.g. extraction, digestion, derivatisation and the test method, i.e. the actual measurement.

Depending on their availability international or national standards are also given for several substances and these methods maybe applied. Other accredited methods can only be applied if it can be verified that equivalent results are obtained.

Details of the respective sample preparation methods can be found in the table below:

Sample preparation	Solvent(s)	Temperature (°C)	Time (min)	Other requirements
Extraction with KOH	Potassium hydroxide (1M)	90	Over night	Derivatisation with Acetic anhydride
Extraction with MeOH	Methanol	70	60	Ultrasonic bath
Extraction with THF	Tetrahydrofuran	40	60	
Extraction with DCM	Dichloromethane	40	60	Ultrasonic bath
Extraction with MTBE	Methyl tert-butyl ether	60	60	Ultrasonic bath
Extraction with MeOH/Acetonitrile	Methanol/Acetonitrile (1:1)	70	30	Ultrasonic bath
ASE - Accelerated Solvent Extraction	Acetone/Hexane (1:1)	100	-	
ASE - Accelerated Solvent Extraction	Ethyl acetate	40	-	
Soxhlet Extraction	Acetone/Hexane (1:1)	-	480	
Headspace	-	120	45	
DIN EN ISO 105-E04 (2013)	Acid sweat solution	37	60	Textile to liquor ratio 1:50

For headspace measurements a purge & trap gas chromatography is recommended.

4 Restricted parameters and substances

PARAMETER	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
pH	Non-leather products: ----- 4.0-7.5			ISO 3071 (2005)
	Leather products: ----- 3.5-7.5			ISO 4045 (2008)
Odor	No unpleasant odor shall be emitted from the products			SNV 195 651
Color Fastness Properties				
Color fastness to perspiration	Textiles dyed with disperse or metal complex dyes: at least 3 – 4, the goal is > 4			ISO 105-E04 (2013)
Color fastness to saliva and perspiration	Fast			§64 LFGB BVL B 82.10-1

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Aldehydes				
Formaldehyde (CAS 50-00-0)	DL (15)	75	300	Textile: ISO 14184-1 (2011) Leather: ISO 17226-1 (2008) or ISO 17226-2 (2008)
Alkylphenols (APs) and Alkylphenoethoxylates (APEOs) listed in Appendix A	Usage ban 10 for each Alkylphenol 100 for each Alkylphenoethoxylate			Textile: ISO 18254-1 (2016) Leather: ISO 18218-1 (2015)
Arylamines (as substance for example in PU, and as decomposition product of azo colorants which, by reductive cleavage of one or more azo groups, may release one or more of the aromatic amines) listed in Appendix B	Usage ban DL: 20			Textile: EN 14362-1 (2017) EN 14362-3 (2017) (for azo colorants which may release 4-Aminoazobenzene) Leather: EN ISO 17234-1 (2015) EN ISO 17234-2 (2011) (for azo colorants which may release 4-Aminoazobenzene)
Asbestos listed in Appendix C	Usage ban not detected			REM/EDX BGI 505-46 or U.S. EPA/600/R-93/116
Chlorinated Benzenes and Toluenes listed in Appendix D	Usage ban DL: 1.0 Sum of all: 5.0			DIN 54232 (2010)

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Chlorinated Phenols listed in Appendix E	Usage ban			Extraction with KOH* // GC-MS* *In case of results close to limit value (+/- 10 %) re-test with reference method: §64 LFGB BVL B 82.02-8 (2001) (for textiles) or ISO 17070 (2015) (for leather)
Monochlorophenols (MonoCP), all isomers (CAS 25167-80-0)	Sum of all Mono- and DiCPs:			
Dichlorophenols (DiCP), all isomers (CAS 25167-81-1)	1.0	1.0	1.0	
Trichlorophenols (TriCP), all isomers (CAS 25167-82-2)	Sum of each group of TriCPs, TeCPs, PCPs:			
Tetrachlorophenols (TeCP), salts and compounds (CAS 25167-83-3)	0.05	0.5	0.5	
Pentachlorophenol (PCP), salts, esters and compounds (CAS 87-86-5)				
Colorants	Usage ban			
Colorants with carcinogenic potential listed in Appendix F	DL: 20			
Colorants with allergenic potential listed in Appendix G	DL: 20			
Colorants banned for other reasons listed in Appendix H	DL: 20			

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Dioxins and Furans listed in Appendix I	Usage ban			EPA 8290A
Group 1	Sum of group 1: 1.0 [µg/kg]			
Group 2	Sum of group 1 and 2: 5.0 [µg/kg]			
Group 3	Sum of group 1, 2 and 3: 100 [µg/kg]			
Group 4	Sum of group 4: 1.0 [µg/kg]			
Group 5	Sum of group 4 and 5: 5.0 [µg/kg]			
Flame retardants listed in Appendix J	Usage ban DL: 5.0 Chlorinated paraffins in leather: Usage ban 100			Extraction following IEC 62321-6 (2015) // LC-MS, GC-MS, GC-NCI Chlorinated paraffins: ISO 18219 (2015)
Fluorinated Greenhouse Gases listed in Appendix K	Usage ban DL: 0.1			Headspace GC-MS

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Fluorinated Substances				
Perfluorooctane sulfonic acid / Perfluorooctane sulfonate (PFOS)* (CAS 1763-23-1)	Usage ban 1.0 [µg/m ²]			CEN/TS 15968 (2010)
Perfluorocarboxylic acid and salts	Usage ban			
PFHxA (CAS 307-24-4)	0.05			CEN/TS 15968 (2010)
PFOA** (CAS 335-67-1)	Usage ban Traces: 25 [µg/kg]			
PFOA-related substances				
8:2 FTOH, Perfluorooctylethanol** (CAS 678-39-7)				Extraction with MTBE // GC- MS
Perfluorooctylethene** (CAS 21652-58-4)	Usage ban Traces: 1000 [µg/kg]			ASE with Ethyl acetate // GC- MS or LC-MS
Perfluorooctylethyl acrylate or methacrylate** (Several)				Extraction with MTBE // GC- MS

*Ban on long-chain compounds in manufacturing based on long-chain electrofluorination chemistry (C6 and higher).

**Phase-out of long-chain compounds in manufacturing based on long-chain telomer chemistry (C8 and higher) until end of 2014.

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Glycols				
Bis(2-methoxyethyl)-ether (CAS 111-96-6)	Usage ban DL:5.0			Textile: Extraction with MeOH // GC-MS Plastic: 2-Step extraction with THF and MeOH // GC-MS
2-Ethoxyethanol (CAS 110-80-5)				
2-Ethoxyethyl acetate (CAS 111-15-9)				
Ethylene glycol dimethyl ether (CAS 110-71-4)				
2-Methoxyethanol (CAS 109-86-4)				
2-Methoxyethylacetate (CAS 110-49-6)				
2-Methoxy-1-propanol (CAS 1589-47-5)				
2-Methoxypropylacetate (CAS 70657-70-4)				
Triethylene glycol dimethyl ether (CAS 112-49-2)				
Halogenated Biphenyls, halogenated Terphenyls, halogenated Naphthalenes listed in Appendix L	Usage ban DL: 1.0 DL: 5.0 (PBBs)			Extraction following IEC 62321-6 (2015) // GC-MS
Halogenated Diarylalkanes listed in Appendix M	Usage ban DL: 1.0			Extraction following IEC 62321-6 (2015) // GC-MS
Isocyanates listed in Appendix N	Free content Sum of all: 1.0			EN 13130-8 (2004)
Monomers: Acrylamide (CAS 79-06-1)	1.0	1.0	1.0	Textile: Extraction with MeOH // HPLC Plastic: 2-Step extraction with THF and MeOH // HPLC

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Other Chemical Substances				
Acetophenone (CAS 98-86-2)	20	20	20	Extraction with MeOH // GC-MS
Bisphenol A (CAS 80-05-7)	Usage ban for textile finishing DL: 1.0 Accessories: 50			Extraction with MeOH // ISO 18857-2 (2009)
Cresol, all isomers (CAS 1319-77-3)	Usage ban DL:10			Extraction with KOH* // GC-MS*
m-Cresol (CAS 108-39-4)				
o-Cresol (CAS 95-48-7)				
p-Cresol (CAS 106-44-5)				
Dimethylfumarate (CAS 624-49-7)	Usage ban DL: 0.1			ISO/TS 16186 (2012) // GC-MS
Formamide (CAS 75-12-7)	50	50	100	Extraction with MeOH* // GC-MS *Cut the samples into small pieces (2x2mm)
o-Phenylphenol (CAS 90-43-7)	For textiles:			Extraction with KOH* // GC-MS*
	50	50	50	*In case of results close to limit value (+/- 10 %) re-test with reference method: §64 LFGB BVL B 82.02-8 (2001)
	For leather:			ISO 13365 (2011)
50	100	200		
2-Phenyl-2-propanol (CAS 617-94-7)	1.0	10	10	Extraction with MeOH // GC-MS

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Ozone Depleting Substances listed in Appendix O	Usage ban for direct use in manufacturing of articles DL: 0.1			Headspace GC-MS
Pesticides listed in Appendix P	Usage ban 0.5 applies to sum of pesticides			ASE or Soxhlet Extraction with Acetone/Hexane // GC-MS or LC-MC
Plasticizers listed in Appendix Q	Usage ban 50			ISO 14389 (2014)
Polyaromatic Hydrocarbons (PAHs) Listed in Appendix R	Usage ban			EPA 8310 EPA 8270D EPA 8275A AfPS GS 2014:01
	Sum of all PAHs: 10			
	----- Benzo(a)pyrene: 0.2			
	----- PAHs marked with (*):			
	0.5	1.0	1.0	
Polymers				
Polyvinyl chloride (PVC) (CAS 9002-86-2)	Usage ban for A and B Not detected			Beilstein test* // FTIR *FTIR measurement only if result of Beilstein test was positive
Solvents				
Benzene (71-43-2)	Usage ban DL: 1.0			Headspace GC-MS
1,2-Dichloroethane (CAS 107-06-2)	Usage ban DL: 1.0			Headspace GC-MS
Dichloromethane (CAS 75-09-2)	Usage ban DL: 5.0			Headspace GC-MS

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
N,N-Dimethylacetamide (DMAc) (CAS 127-19-5)	Usage ban with exception of solvent coating and fiber manufacturing DL: 5.0			Headspace GC-MS or Textile: Extraction with MeOH // GC-MS or LC-MS Plastic: 2-Step Extraction with THF and MeOH // GC-MS or LC-MS
	Limits for solvent coating and fiber manufacturing (residual fiber solvent):			
	10	50	50	
N,N-Dimethylformamide (DMF) (CAS 68-12-2)	Usage ban with exception of solvent coating and fiber manufacturing DL: 5.0			ISO/TS 16189 (2013) or EN 16778 (2016)
	Limits for solvent coating and fiber manufacturing (residual fiber solvent):			
	50	50	50	
N-Ethyl-2-pyrrolidone (NEP) (CAS 2687-91-4)	10	10	100	2-Step extraction with THF and MeOH // GC-MS or LC-MS
N-Methylpyrrolidone (NMP) (CAS 872-50-4)	10	10	100	2-Step extraction with THF and MeOH // GC-MS or LC-MS
Tetrachloroethylene (Perchloroethylene) (CAS 127-18-4)	Usage ban DL: 1.0			Headspace GC-MS
Toluene (CAS 108-88-3)	10	50	50	Headspace GC-MS
Trichloroethylene (CAS 79-01-6)	Usage ban DL: 5.0			Headspace GC-MS

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Xylene, all isomers (CAS 1330-20-7)	Usage ban in textile finishing DL:1.0			Headspace GC-MS
	Non-textile articles Traces:			
	m-Xylene (CAS 108-38-3)			
	o-Xylene (CAS 95-47-6)			
p-Xylene (CAS 106-42-3)	1.0	10	10	

SUBSTANCE	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Tin organic compounds	Usage ban			ISO/TS 16179 (2012)
Monomethyltin compounds (MMT)	2.0			
Monobutyltin compounds (MBT)	1.0			
Monophenyltin compounds (MPHT)	1.0			
Monooctyltin compounds (MOT)	2.0			
Dimethyltin compounds (DMT)	DL:0.5			
Dipropyltin compounds (DPT)	1.0			
Dibutyltin compounds (DBT)	1.0			
Diphenyltin compounds (DPHT)	2.0			
Diocyltin compounds (DOT)	1.0			
Trimethyltin compounds (TMT)	DL:0.5			
Tripropyltin compounds (TPT)	DL:0.5			
Tributyltin compounds (TBT)	DL:0.5			
Triphenyltin compounds (TPHT)	DL:0.5			
Triocyltin compounds (TOT)	DL:0.5			
Tetraethyltin compounds (TeET)	1.0			
Tetrabutyltin compounds (TTBT)	DL:0.5			
Tetraoctyltin compounds (TTOT)	DL:0.5			
Tricyclohexyltin compounds (TCyHT)	DL:0.5			

EXTRACTABLE HEAVY METALS				
METAL	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Antimony (Sb) (CAS 7440-36-0)	Usage ban as flame retardant DL : 20			Total digestion // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	In other cases:			
	Textiles and leather:			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	5.0	10	10	
	Metal parts and non-metal parts other than textiles and leather:			EN 71-3 (2013) (acid solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
60				
Arsenic (As) (CAS 7440-38-2)	Usage ban as biocide DL: 10			Total digestion // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	In other cases:			
	Non-metal parts:			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	0.2			
Cadmium (Cd) (CAS 7440-43-9)	Usage ban			
	Non-metal parts:			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	0.1			

METAL	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Chromium (Cr) (CAS 7440-47-3)	Textiles: -----			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	0.5			
	Chromium containing metal complex dyed textiles: -----			
	1.0	2.0	2.0	
	Leather: -----			-
	No regulation			
Non-metal parts other than textiles and leather: -----			EN 71-3 (2013) (acid solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)	
If products are covered with a metal layer, including a chromium layer, coating must be constantly in good condition -----				
60				
Chromium (VI) (CAS 18540-29-9)	Usage ban			
	Metal parts and non-metal parts others than leather: -----			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ICP
	DL: 0.5			
Leather: -----			17075 (2008)	
DL: 3.0				
Cobalt (Co) (CAS 7440-48-4)	Textiles and leather: -----			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	1.0			
	Cobalt containing metal complex dyed textiles: -----			
	1.0	4.0	4.0	
Metal parts and non-metal parts others than textiles and leather: -----				
1.0	4.0	4.0		

METAL	LIMIT [mg/kg]			RECOMMENDED SAMPLE PREPARATION // TEST METHOD
	A	B	C	
Copper (Cu) (CAS 7440-50-8)	Textiles and leather: -----			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	25	50	50	
	Non-metal parts others than textiles and leather: -----			-
	No regulation			
Lead (Pb) (CAS 7439-92-1)	Usage ban			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	Textiles, plastics and leather: -----			
	0.2	1.0	1.0	
Mercury (Hg) (CAS 7439-97-6)	Usage ban			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 12846 (2012)
	Non-metal parts: -----			
	0.02			
	Metal parts: -----			EN 71-3 (2013) (acid solution) // ISO 12846 (2012)
	60			
Nickel (Ni) (CAS 7440-02-0)	Textiles and leather: -----			DIN EN ISO 105-E04 (2013) (acid sweat solution) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	1.0			
	Nickel containing metal complex dyed textiles: -----			
	1.0	4.0	4.0	
	Metal parts and non metal parts others than textiles and leather: -----			Nickel release EN 12472 (2005)+A1(2009); EN 1811 (2011)+A1(2015)
	Usage ban for A and B 0.5 [µg/cm ² /week]			

HEAVY METALS (TOTAL DIGESTION)		
METAL	LIMIT [mg/kg]	RECOMMENDED SAMPLE PREPARATION // TEST METHOD
Total Cadmium (Cd)	Usage ban	
	Non-metal parts (textiles, leather and others) ----- Traces: 40	EN 1122 (2001) // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	Metal parts: ----- Traces: 40	Total digestion // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
Total Lead (Pb)	Usage ban	
	Textiles, plastics and leather ----- Traces: 40	Total digestion // ISO 17294-2 (2016) or DIN EN ISO 11885 (2009)
	Metal parts ----- Traces: 90	

Appendices

Appendix A: Alkylphenols and Alkylphenoethoxylates	CAS – No.
Nonylphenol (NP)	several
Octylphenol (OP)	several
Nonylphenoethoxylate (EO) ₃₋₂₀	several
Octylphenoethoxylate (EO) ₃₋₂₀	several

Appendix B: Arylamines	CAS – No.
p-Aminoazobenzene	60-09-3
o-Aminoazotoluene	97-56-3
4-Aminobiphenyl	92-67-1
2-Amino-4-nitrotoluene	99-55-8
2-Anisidine	90-04-0
Benzidine	92-87-5
4-Chloroaniline	106-47-8
4-Chlor-2-toluidine	95-69-2
p-Cresidine	120-71-8
2,4-Diaminoanisole	615-05-4
4,4'-Diaminodiphenylmethane	101-77-9
2,4-Diaminotoluene	95-80-7
3,3'-Dichlorobenzidine	91-94-1
3,3'-Dimethoxybenzidine	119-90-4
3,3'-Dimethylbenzidine	119-93-7
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0
4,4'-Methylenebis-(2-chloroaniline)	101-14-4
2-Naphthylamine	91-59-8
4,4'-Oxydianiline	101-80-4
4,4'-Thiodianiline	139-65-1
2-Toluidine	95-53-4
2,4,5-Trimethylaniline	137-17-7
2,4-Xylidine	95-68-1
2,6-Xylidine	87-62-7

Appendix C: Asbestos	CAS – No.
Actinolite	77536-66-4
Amosite	12172-73-5
Anthophyllite	77536-67-5
Chrysotile	12001-29-5
Crocidolite	12001-28-4
Tremolite	77536-68-6

Appendix D: Chlorinated Benzenes and Toluenes	CAS – No.
Monochlorobenzene	108-90-7
Dichlorobenzenes, all isomers	Several
1,2-Dichlorobenzene	95-50-1
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
Trichlorobenzenes, all isomers	Several
1,2,3-Trichlorobenzene	87-61-6
1,2,4-Trichlorobenzene	120-82-1
1,3,5-Trichlorobenzene	108-70-3
Tetrachlorobenzenes, all isomers	Several
1,2,3,4-Tetrachlorobenzene	634-66-2
1,2,3,5-Tetrachlorobenzene	634-90-2
1,2,4,5-Tetrachlorobenzene	95-94-3
Pentachlorobenzene	608-93-5
Hexachlorobenzene	118-74-1
Monochlorotoluenes, all isomers	Several
2-Chlorotoluene	95-49-8
3-Chlorotoluene	108-41-8
4-Chlorotoluene	106-43-4
a-Chlorotoluene	100-44-7
Dichlorotoluenes, all isomers	Several
2,3-Dichlorotoluene	32768-54-0
2,4-Dichlorotoluene	95-73-8
2,5-Dichlorotoluene	19398-61-9
2,6-Dichlorotoluene	118-69-4
3,4-Dichlorotoluene	95-75-0
3,5-Dichlorotoluene	25186-47-4
Trichlorotoluenes, all isomers	Several
2,3,4-Trichlorotoluene	7359-72-0
2,3,6-Trichlorotoluene	2077-46-5
2,4,5-Trichlorotoluene	6639-30-1
2,4,6-Trichlorotoluene	23749-65-7
3,4,5-Trichlorotoluene	21472-86-6
a,a,a-Trichlorotoluene	98-07-7
Tetrachlorotoluenes, all isomers	Several
2,3,4,5-Tetrachlorotoluene	76057-12-0
2,3,5,6-Tetrachlorotoluene	29733-70-8
2,3,4,6-Tetrachlorotoluene	875-40-1
a,a,a,4-Tetrachlorotoluene	5216-25-1
Pentachlorotoluene	877-11-2

Appendix E: Chlorinated Phenols	CAS – No.
Monochlorophenols	25167-80-0
2-Chlorophenol	95-57-8
3-Chlorophenol	108-43-0
4-Chlorophenol	106-48-9
Dichlorophenols	25167-81-1
2,3-Dichlorophenol	576-24-9
2,4-Dichlorophenol	120-83-2
2,5-Dichlorophenol	583-78-8
2,6-Dichlorophenol	87-65-0
3,4-Dichlorophenol	95-77-2
3,5-Dichlorophenol	591-35-5
Trichlorophenols	25167-82-2
2,3,4-Trichlorophenol	15950-66-0
2,3,5-Trichlorophenol	933-78-8
2,3,6-Trichlorophenol	933-75-5
2,4,5-Trichlorophenol	95-95-4
2,4,6-Trichlorophenol	88-06-2
3,4,5-Trichlorophenol	609-19-8
Tetrachlorophenols	25167-83-3
2,3,4,5-Tetrachlorophenol	4901-51-3
2,3,4,6-Tetrachlorophenol	58-90-2
2,3,5,6-Tetrachlorophenol	935-95-5
Pentachlorophenols	87-86-5

Appendix F: Colorants with carcinogenic potential	CAS – No.
Acid Red 26	3761-53-3
Basic Green 4	Several
Malachit green	10309-95-2
Malachit green chloride	569-64-2
Malachit green oxalate	2437-29-8
Basic Red 9	569-61-9
Basic Violet 14	632-99-5
Direct Black 38	1937-37-7
Direct Blue 6	2602-46-2
Direct Red 28	573-58-0
Disperse Blue 1	2475-45-8
Disperse Orange 11	82-28-0
Disperse Yellow 3	2832-40-8
Pigment Black 25	68186-89-0
Pigment Yellow 34	1344-37-2
Pigment Yellow 157	68610-24-2
Pigment Red 104	12656-85-8

Appendix G: Colorants with allergenous potential	CAS – No.
Disperse Blue 3	2475-46-9
Disperse Blue 7	3179-90-6
Disperse Blue 26	3860-63-7
Disperse Blue 35	12222-75-2 56524-77-7
Disperse Blue 102	12222-97-8
Disperse Blue 106	12223-01-7
Disperse Blue 124	61951-51-7
Disperse Brown 1	23355-64-8
Disperse Orange 1	2581-69-3
Disperse Orange 3	730-40-5
Disperse Orange 37/59/76	12223-33-5 13301-61-6 51811-42-8
Disperse Red 1	2872-52-8
Disperse Red 11	2872-48-2
Disperse Red 17	3179-89-3
Disperse Yellow 1	119-15-3
Disperse Yellow 9	6373-73-5
Disperse Yellow 39	12236-29-2
Disperse Yellow 49	54824-37-2

Appendix H: Colorants banned for other reasons	CAS – No.
Basic Blue 26	2580-56-5
Direct Yellow 1	6472-91-9
Disperse Yellow 23	6250-23-3
Disperse Orange 149	85136-74-9
Navy Blue	Component 1: 118685-33-9 Component 2: Not allocated

Appendix I: Dioxins and Furans	CAS – No.
Group 1:	Several
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4
Group 2:	Several
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9
2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5
Group 3:	Several
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0
Group 4:	Several
2,3,7,8-Tetrabromodibenzo-p-dioxin	50585-41-6
1,2,3,7,8-Pentabromodibenzo-p-dioxin	109333-34-8
2,3,7,8-Tetrabromodibenzofuran	67733-57-7
2,3,4,7,8-Pentabromodibenzofuran	131166-92-2
Group 5:	Several
1,2,3,4,7,8-Hexabromodibenzo-p-dioxin	110999-44-5
1,2,3,6,7,8-Hexabromodibenzo-p-dioxin	110999-45-6
1,2,3,7,8,9-Hexabromodibenzo-p-dioxin	110999-46-7
1,2,3,7,8-Pentabromodibenzofuran	107555-93-1

Appendix J: Flame retardants	CAS – No.
2,2-Bis(bromomethyl)-1,3-propanediol	3296-90-0
Bis(2,3-dibromopropyl)phosphate	5412-25-9
Chlorinated paraffins, all chain lengths	Several
Paraffin wax, chlorinated, C24	63449-39-8
Paraffin, C ₁₀ -C ₁₃ , chlorinated (SCCP)	85535-84-8
Paraffin, C ₁₄ -C ₁₇ , chlorinated (MCCP)	85535-85-9
Paraffin, C ₁₈ -C ₂₈ , chlorinated (LCCP)	85535-86-0
Hexabromocyclododecan	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8
Polybrominated diphenyl ethers (PBDE)	Several
Tetrabromodiphenyl ether (TetraBDE)	40088-47-9
Pentabromodiphenyl ether (PentaBDE)	32534-81-9
Hexabromodiphenyl ether (HexaBDE)	36483-60-0
Heptabromodiphenyl ether (HeptaBDE)	68928-80-3
Octabromodiphenyl ether (OctaBDE)	32536-52-0
Nonabromodiphenyl ether (NonaBDE)	63936-56-1
Decabromodiphenyl ether (DecaBDE)	1163-19-5
Tetrabromobisphenol A	79-94-7
Tetrabromobisphenol A bis(2,3-dibromopropylether)	21850-44-2
Triethylenephosphoramidate (TEPA)	545-55-1
Trimethyl phosphate	512-56-1
Tri- <i>o</i> -cresyl phosphate	78-30-8
Tris(chloroethyl)phosphate	115-96-8
Tris-(2-chloro-1-methylethyl)phosphate (TCPP)	13674-84-5
Tris-[2-chloro-1-(chloromethyl)ethyl]phosphate (TDCP)	13674-87-8
Tris(2,3-dibromopropyl)phosphate (TRIS)	126-72-7
Trixylyl phosphate	25155-23-1

Appendix K: Fluorinated Greenhouse Gases	CAS – No.
Sulphur hexafluoride – SF ₆	2551-62-4
Perfluoromethane	75-73-0
Perfluoroethane	76-16-4
Perfluoropropane	76-19-7
Perfluorobutane	355-25-9
Perfluoropentane	678-26-2
Perfluorohexane	355-42-0
Perfluorocyclobutane	115-25-3
HFC-23	75-46-7
HFC-32	75-10-5
HFC-41	593-53-3
HFC-43-10mee	138495-42-8
HFC-125	354-33-6
HFC-134	359-35-3
HFC-134a	811-97-2
HFC-152a	75-37-6
HFC-143	430-66-0
HFC-143a	420-46-2
HFC-227ea	431-89-0
HFC-236cb	677-56-5
HFC-236ea	431-63-0
HFC-236fa	690-39-1
HFC-245ca	679-86-7
HFC-245fa	460-73-1
HFC-365mfc	406-58-6

Appendix L: Halogenated Biphenyls, Terphenyls, Naphthalenes	CAS – No.
Polybrominated biphenyls (PBBs)	Several
Polychlorinated biphenyls (PCBs)	Several
Polychlorinated terphenyls (PCTs)	Several
Polybrominated terphenyls (PBTs)	Several
Polychlorinated naphthalenes (PCNs)	Several
Polybrominated naphthalenes (PBNs)	Several

Appendix M: Halogenated Diarylalkanes	CAS – No.
Monomethyl-dibromo-diphenyl methane	99688-47-8
Monomethyl-dichloro-diphenyl methane	81161-70-8
Monomethyl-tetrachloro-diphenyl methane	76253-60-6

Appendix N: Isocyanates	CAS – No.
Diphenylmethane-4,4-diisocyanate (MDI)	101-68-8
Hexamethylene diisocyanate (HMDI)	822-06-0
Isophorone diisocyanate (IPDI)	4098-71-9
Tetramethylxylene diisocyanate (TMXDI)	2778-42-9
Toluene-2,4-diisocyanate (2,4-TDI)	584-84-9
Toluene-2,6-diisocyanate (2,6-TDI)	91-08-7

Appendix O: Ozone Depleting Substances	CAS – No.
Ozone-depleting substances (CFC's) class I	Several
Trichlorofluoromethane CFC-11	75-69-4
Dichlorofluoromethane CFC-12	75-71-8
1,1,2-Trichloro-1,2,2-trifluoroethane CFC-113	76-13-1
1,1,1-Trichloro-2,2,2-trifluoroethane CFC-113a	354-58-5
1,2-Dichloro-1,1,2,2-tetrafluoroethane CFC-114	76-14-2
1,1-Dichloro-1,2,2,2-tetrafluoroethane CFC-114a	374-07-2
Monochloropentafluoroethane CFC-115	76-15-3
Bromochlorodifluoromethane Halon-1211	353-59-3
Bromotrifluoromethane Halon-1301	75-63-8
Dibromotetrafluoroethane Halon-2402	124-73-2
Chlorotrifluoromethane CFC-13	75-72-9
Pentachlorofluoroethane CFC-111	354-56-3
1,1,2,2-Tetrachloro-1,2-difluoroethane CFC-112	76-12-0
1,1,1,2-Tetrachlorodifluoroethane CFC-112a	76-11-9
Heptachlorofluoropropane CFC-211	422-78-6
Hexachlorodifluoropropane CFC-212	3182-26-1
Pentachlorotrifluoropropane CFC-213	2354-06-5
Tetrachlorotetrafluoropropane CFC-214	29255-31-0
1,1,3-Trichloropentafluoropropane CFC-215	76-17-5
1,2,3-Trichloropentafluoropropane CFC-215	1652-81-9
1,1,1-Trichloropentafluoropropane CFC-215	4259-43-2
1,2,2-Trichloropentafluoropropane CFC-215	1599-41-3
Dichlorohexafluoropropane CFC-216	661-97-2
Monochloroheptafluoropropane CFC-217	422-86-6
Carbon tetrachloride CCl4	56-23-5
1,1,1-Trichloroethane (Methylchloroform)	71-55-6
Methylbromide (CH3Br)	74-83-9
CHFBr2	1868-53-7
CHF2Br	1511-62-2
CH2FBr	373-52-4
C2HFBr4	353-93-5
C2HF2Br3	353-97-9
C2HF3Br2	354-04-1
C2HF4Br	354-07-4
C2H2FBr3	172912-75-3
C2H2F2Br2	75-82-1
C2H2F3Br	421-06-7
C2H3FBr2	358-97-4
C2H3F2Br	359-07-9
C2H4FBr	762-49-2
C3HFBr6	-
C3HF2Br5	-
C3HF3Br4	-
C3HF4Br3	666-48-8
C3HF5Br2	431-78-7
C3HF6Br	2252-79-1
C3H2FBr5	-

Ozone-depleting substances (CFC's) class I	Several
C3H2F2Br4	148875-98-3
C3H2F3Br3	431-48-1
C3H2F4Br2	460-86-6
C3H2F5Br	460-88-8
C3H3FBr4	-
C3H3F2Br3	666-25-1
C3H3F3Br2	460-60-6
C3H3F4Br	460-67-3
C3H4FBr3	75372-14-4
C3H4F2Br2	51584-25-9
C3H4F3Br	460-32-2
C3H5FBr2	453-00-9
C3H5F2Br	461-49-4
C3H6FBr	1871-72-3
Chlorobromomethane CH2BrCl	74-97-5
Ozone-depleting substances (CFC's) class II	Several
Dichlorofluoromethane HCFC-21	75-43-4
Monochlorodifluoromethane HCFC-22	75-45-6
Monochlorofluoromethane HCFC-31	593-70-4
Tetrachlorofluoroethane HCFC-121	354-14-3
Trichlorodifluoroethane HCFC-122	354-21-2
Dichlorotrifluoroethane HCFC-123	306-83-2
Monochlorotetrafluoroethane HCFC-124	2837-89-0
Trichlorofluoroethane HCFC-131	359-28-4
Dichlorodifluoroethane HCFC-132	1649-08-7
Monochlorotrifluoroethane HCFC-133a	75-88-7
HCFC-141	-
Dichlorofluoroethane HCFC-141b	1717-00-6
HCFC-142	-
Monochlorodifluoroethane HCFC-142b	75-68-3
HCFC-151	-
Hexachlorofluoropropane HCFC-221	422-26-4
Pentachlorodifluoropropane HCFC-222	422-49-1
Tetrachlorotrifluoropropane HCFC-223	422-52-6
Trichlorotetrafluoropropane HCFC-224	422-54-8
HCFC-225	-
Dichloropentafluoropropane HCFC-225ca	422-56-0
Dichloropentafluoropropane HCFC-225cb	507-55-1
Monochlorohexafluoropropane HCFC-226	431-87-8
Pentachlorofluoropropane HCFC-231	421-94-3
Tetrachlorodifluoropropane HCFC-232	460-89-9
Trichlorotrifluoropropane HCFC-233	7125-84-0
Dichlorotetrafluoropropane HCFC-234	425-94-5
Monochloropentafluoropropane HCFC-235	460-92-4
Tetrachlorofluoropropane HCFC-241	666-27-3
Trichlorodifluoropropane HCFC-242	460-63-9
Dichlorotrifluoropropane HCFC-243	460-69-5
Monochlorotetrafluoropropane HCFC-244	134190-50-4
Monochlorotetrafluoropropane HCFC-251	421-41-0

Ozone-depleting substances (CFC's) class II	Several
Dichlorodifluoropropane HCFC-252	819-00-1
Monochlorotrifluoropropane HCFC-253	460-35-5
Dichlorofluoropropane HCFC-261	420-97-3
Monochlorodifluoropropane HCFC-262	421-02-3
Monochlorofluoropropane HCFC-271	430-55-7

Appendix P: Pesticides	CAS – No.
Aldrine	309-00-2
Azinphos methyl	86-50-0
Azinphos ethyl	2642-71-9
Bromophos-ethyl	4824-78-6
Captafol	2425-06-1
Carbaryl	63-25-2
Chlordane	57-74-9
Chlordecone	143-50-0
Chlordimeform	6164-98-3
Chlorfenvinphos	470-90-6
Coumaphos	56-72-4
Cyfluthrin	68359-37-5
Cyhalothrin, λ -	91465-08-6
Cypermethrin	52315-07-8
Deltamethrin	52918-63-5
Diazinon	333-41-5
o,p'-Dichlorodiphenyldichloroethane (o,p'-DDD)	53-19-0
p,p'-Dichlorodiphenyldichloroethane (p,p'-DDD)	72-54-8
o,p'-Dichlorodiphenyldichloroethylene (o,p'-DDE)	3424-82-6
p,p'-Dichlorodiphenyldichloroethylene (p,p'-DDE)	72-55-9
o,p'-Dichlorodiphenyltrichloroethane (o,p'-DDT) and its isomers; preparations containing DDT and its isomers	789-02-6
p,p'-Dichlorodiphenyltrichloroethane (p,p'-DDT) and its isomers; preparations containing DDT and its isomers	50-29-3
2,4-Dichlorophenoxyacetic acid, its salts and compounds	94-75-7
Dichlorprop	120-36-2
Dicrotophos	141-66-2
Dieldrine	60-57-1
Dimethoate	60-51-5
Dinoseb and salts	88-85-7
Endosulfan, α -	959-98-8
Endosulfan, β -	33213-65-9
Endrine	72-20-8
Esfenvalerate	66230-04-4
Fenvalerate	51630-58-1
Heptachlor	76-44-8
Heptachlor epoxide	1024-57-3
Hexachlorocyclohexane (HCH), all isomers	608-73-1
Isodrin	465-73-6
Kelevane	4234-79-1
Lindane	58-89-9
Malathion	121-75-5

Appendix P: Pesticides	CAS – No.
MCPA	94-74-6
MCPB	94-81-5
Mecoprop	93-65-2
Methamidophos	10265-92-6
Methoxychlor	72-43-5
Methyl parathion	298-00-0
Mevinophos	7786-34-7
Mirex	2385-85-5
Monocrotophos	6923-22-4
Ethyl parathion	56-38-2
Perthane	72-56-0
Profenophos	41198-08-7
Propetamphos	31218-83-4
Quinalphos	13593-03-8
Strobane	8001-50-1
Telodrin	297-78-9
Toxaphene	8001-35-2
Tribufos (DEF)	78-48-8
2,4,5-Trichlorophenoxyacetic acid, salts and compounds	93-76-5
Trifluralin	1582-09-8

Appendix Q: Plasticizer	CAS – No.
Bis-(2-methoxyethyl) phthalate (DMEP)	117-82-8
Butylbenzyl phthalate (BBP)	85-68-7
Dibutyl phthalate (DBP)	84-74-2
Di-cyclohexyl phthalate (DCHP)	84-61-7
Diethylhexyl phthalate (DEHP)	117-81-7
Diethyl phthalate (DEP)	84-66-2
Diisobutyl phthalate (DIBP)	84-69-5
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0
Di-isooctyl phthalate (DIOP)	27554-26-3
Di-iso-pentyl phthalate (DIPP)	605-50-5
Dimethyl phthalate (DMP)	131-11-3
Di-n-hexyl phthalate (DNHP)	84-75-3
Di-n-octyl phthalate (DNOP)	117-84-0
Dinonyl phthalate (DNP)	84-76-4
Di-n-pentyl phthalate (DnPP)	131-18-0
Di-n-propyl phthalate (DPRP)	131-16-8
n-Pentyl-isopentyl phthalate	776297-69-9
1,2-Benzenedicarboxylic acid, di-C ₆₋₈ -branched alkyl esters, C ₇ -rich (DIHP)	71888-89-6
1,2-Benzenedicarboxylic acid, di-C ₇₋₁₁ -branched and linear alkyl esters (DHNUP)	68515-42-4
1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear	84777-06-0
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4

Appendix R: Polyaromatic Hydrocarbons (PAHs)	CAS – No.
Acenaphthylene	208-96-8
Acenaphthene	83-32-9
Anthracene	120-12-7
Benzo(a)anthracene*	56-55-3
Benzo(b)fluoranthene*	205-99-2
Benzo(j)fluoranthene*	205-82-3
Benzo(k)fluoranthene*	207-08-9
Benzo(ghi)perylene	191-24-2
Benzo(a)pyrene	50-32-8
Benzo(e)pyrene*	192-97-2
Chrysene*	218-01-9
Dibenzo(a,h)anthracene*	53-70-3
Fluoranthene	206-44-0
Fluorene	86-73-7
Indeno(1,2,3-cd)pyrene	193-39-5
Naphthalene	91-20-3
Phenanthrene	85-01-8
Pyrene	129-00-0