

Excerpt of restrictions on substances from legal provisions for special applications in electric and electronic products

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Aim

This information document of regulated hazardous substances is the result of a joint effort of EECA and EICTA including the participation of the European Chemical industry embodied by CEFIC. It aims at informing in a practical way companies about the legislation applicable to these substances. It is a tool for the electrical and electronics industry to aid in complying with legal regulations. This document can be used to ensure that informed decisions on these substances are taken in relation to product planning, development and design. It can help therefore in the customer - supplier relationship and dialogue.

Principle

The document reflects the relevant legal requirements especially of bringing into the market of the countries of the European Union. The first part deals with prohibitions and restrictions for the most relevant hazardous substances that may be part of products from the electrical and electronics industry. Additionally the document of prohibited and restricted substances also applies to preparations packed with the products, e.g. cleaning agent for personal computers, see item 1. It represents a selection of regulated substances and does not claim to be exhaustive. For information to the suppliers a second part within this document deals with authorised substances in articles in contact with foodstuffs. The statutes and regulations specify concentrations that may not be exceeded for the substances or substance groups in the application (product) in question.

The column "Legal Regulations in European Community / Comments" refers to the applicable substance related legal provisions.

Readers should be aware that chemical substances are regulated under European Community Directives and Regulations and are subject to "full harmonisation". The legality and practicality of stricter or different national rules should be systematically checked. Community requirements have legal precedence over national rules.

Background information

In view of the harmful effects, which some substances may have for human health and the environment, a lot of regulations apply to limit or to prohibit the content of these substances in products. The complex nature and varied composition of today's electrical and electronic products makes this an important task that requires the participation of suppliers.

Suppliers should be informed to be able to verify if their products comply with legal requirements. In practice, the entire supply chain must consider this approach.

Every effort has been made to provide accurate information at the date of publication of the document. It is provided for information only and does not replace applicable legal provisions. The application is the responsibility and decision of each industrial operator.

The document must therefore be read with consideration of relevant specific features of given operations and should not be understood as a limitation to the autonomy of decision of operators.

Appropriate information should be provided in order to best manage potential risks to human health and the environment, which might appear during the lifecycle of the product. These issues will be reflected partially in the Guidance Document to be found on EICTA's webpage:

<http://www.eicta.org/Content/Default.asp?PageID=211>

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Excerpt of restrictions on substances from legal provisions for special applications in electric and electronic products

No	Chemical compound	CAS-no.	Special application(s)	Limit in wt % ¹⁾	Exceptions	Legislation in European Community	Comments ²⁾
1	Aliphatic CHCs	Annex ³⁾	e.g. bypack cleaning agent	>0.1 (each subst.)	Yes	94/60/EEC	
2	Arsenic compounds		In antifouling paints for the protection of wood	# #	Yes Yes	89/677/EEC	
3	Asbestos	Annex ⁴⁾	general ban	>0.1 (total)	Yes	76/769/EEC, 83/478/EEC, 85/610/EEC, 91/659/EEC	
4	Certain azo colorants with carcinogenic amino compounds	Annex ⁵⁾	In requisites with occasional or permanent bodily contact	>0.003 (30mg/kg)	Yes	76/769/EEC 19 th amendment, 2002/61/EC	Germany: BedarfsgegV
5	Lead carbonate Lead hydrocarbonate Lead sulfate 7446-14-2, Lead	598-63-0 1319-46-6 15739-80-7 7439-92-1	In paints In paints In paints fixed batteries in appliances	# # # >0.4	No No No Yes	89/677/EEC 91/157/EEC, 93/86/EEC	
6	Cadmium and cadmium compounds Cadmium	7440-43-9	In pigments for plastics In paints and enamels as stabilizer for plastics as protective surface coating fixed batteries in appliances	>0.01 >0.01 >0.01 # >0.025	Yes Yes Yes Yes Yes	91/338/EEC, 99/51/EEC 91/157/EEC, 93/86/EEC	Austria: BGBl. I 1993/855, 1997/53 Sweden: KIFS 1998:944 Switzerland SR814.013;
7	Chlorinated dioxins and furans Brominated dioxins & furans (total)	Annex ⁶⁾ Annex ⁶⁾	general ban general ban	Annex ⁶⁾ >0.000,000,5=5 ppb	Yes Yes		Germany: ChemVerbotsV
8	Chlorofluorocarbons (CFCs) and halons (Att.: R22 is HCFC ---> Germany)	Annex ⁷⁾	In pressurized gas containers In cryogenic fluids In foamed plastics In cleaning agents and solvents	>1.0 >1.0 # >1.0	Yes Yes Yes Yes	Regulation (EC) No 2037/2000	Germany: FCKW-Halon- VerbotsV USA: Clean Air Act
9	Formaldehyde	50-00-0	wooden materials and furniture; detergents, cleaning agents and polishes	>0.1 ml/m ³ (special testing procedure); >0.2	Yes Yes		Germany: ChemVerbotsV
10	Pentachlorophenol (PCP) Pentachlorophenol, sodium salt other PCP salts and compounds	87-86-5 131-52-2	general ban general ban	>0.000,5 (total) >0.01 (total) in preparations	Yes Yes Yes	91/173/EEC, 99/51/EEC 94/783/EEC (Germany) 96/211/EEC (Denmark)	Germany: ChemVerbotsV
11	Organostannic compounds		antifouling paints	#	Yes	89/677/EEC, 99/51/EEC	
12	Polychlorinated biphenyls (PCB), Polychlorinated terphenyls (PCT)	1336-36-3 61788-33-8	general ban	>0.005 (total) = 50mg/kg	Yes	76/769/EEC, 82/828/EEC, 85/467/EEC, 89/677/EEC	
13	Mercury compounds		In antifouling paints, for the protection of wood, for impregnating textiles & yarns	# # #	No No No	89/677/EEC	Sweden: KIFS 1998:944
14	Mercury	7439-97-6	In alkaline manganese battery level indicators /guards, relays, electrical switches, switches & con- tacts for cont. current transmission	>0.000,5 = 5 ppm general ban	Yes Yes	91/157/EEC, 93/86/EEC, 98/101/EEC	Sweden: KIFS 1998:944
15	Tar oils	Annex ⁸⁾	In wood preservatives In wood and wooden materials	# #	Yes Yes	94/60/EEC	Germany: ChemVerbotsV
16	Lead, cadmium, mercury and hexavalent chromium		contained in packaging and/or packaging components	>0.01 (in total)	No	94/62/EEC, 99/177/EC	USA: CONEG = Coalition of North-England Governors

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1) # indicates that no limit is stated in the legislation.		5) Carcinogenic amines	CAS-no.	6) Halogenated dioxins and furans	CAS-no.
2) BedarfsgeggV = Commodity goods ordinance; ChemVerbotsV = Chemicals prohibition ordinance FCKW-Halon-VerbotsV = CFC & halons prohibition Ordinance		4-Aminodiphenyl Benzidine 4-Chloro-o-toluidine 2-Naphthylamine o-Aminoazotoluene 2-Amino-4-nitrotoluene p-Chloroaniline 2,4-Diaminoanisole 4,4'-Diaminodiphenylmethane 3,3'-Dichlorobenzidine 3,3'-Dimethoxybenzidine (o-dianisidine) 3,3'-Dimethylbenzidine 3,3'-Dimethyl-4,4'-diaminodiphenylmethane p-Cresidine 4,4'-Methylene-bis-(2-chloro-aniline) 4,4'-Oxydianiline 4,4'-Thiodianiline o-Toluidine 2,4-Toluylenediamine 2,4,5-Trimethylaniline o-Anisidine 2-methoxyaniline 4-amino azobenzene highlighted substances have more names	92-67-1 92-87-5 95-69-2 91-59-8 97-56-3 99-55-8 106-47-8 615-05-4 101-77-9 91-94-1 119-90-4 119-93-7 838-88-0 120-71-8 101-14-4 101-80-4 139-65-1 95-53-4 95-80-7 137-17-7 90-04-0 60-09-03	[01] 2,3,7,8-Tetra-CDD [02] 1,2,3,7,8-Penta-CDD [03] 2,3,7,8-Tetra-CDF [04] 2,3,4,7,8-Penta-CDF [05] 1,2,3,4,7,8-Hexa-CDD [06] 1,2,3,7,8,9-Hexa-CDD [07] 1,2,3,6,7,8-Hexa-CDD [08] 1,2,3,7,8-Penta-CDF [09] 1,2,3,4,7,8-Hexa-CDF [10] 1,2,3,7,8,9-Hexa-CDF [11] 1,2,3,6,7,8-Hexa-CDF [12] 2,3,4,6,7,8-Hexa-CDF [13] 1,2,3,4,6,7,8-Hepta-CDD [14] 1,2,3,4,6,7,8,9-Octa-CDD [15] 1,2,3,4,6,7,8-Hepta-CDF [16] 1,2,3,4,7,8,9-Hepta-CDF [17] 1,2,3,4,6,7,8,9-Octa-CDF [18] 2,3,7,8-Tetra-BDD [19] 1,2,3,7,8-Penta-BDD [20] 2,3,7,8-Tetra-BDF [21] 2,3,4,7,8-Penta-BDF [22] 1,2,3,4,7,8-Hexa-BDD [23] 1,2,3,7,8,9-Hexa-BDD [24] 1,2,3,6,7,8-Hexa-BDD [25] 1,2,3,7,8-Penta-BDF	1746-01-6 40321-76-4 51207-31-9 57117-31-4 39227-28-6 19408-74-3 57653-85-7 57117-41-6 70648-26-9 72918-21-9 57117-44-9 60851-34-5 35822-46-9 3268-87-9 67562-39-4 55673-89-7 39001-02-0 50585-81-6 109333-34-8 67733-57-7 131166-92-2 110999-44-5 110999-46-7 110999-45-6 109333-34-8
3) Aliphatic CHCs	CAS-no.				
Tetrachloromethane	56-23-5				
1,1,2,2-Tetrachloroethane	79-34-5				
1,1,1,2-Tetrachloroethane	630-20-6				
Pentachloroethane	76-01-7				
Trichlormethane (Chloroform)	67-66-3				
1,1,2-Trichlorethane	79-00-5				
1,1-Dichlorethylene	75-35-4				
1,1,1-Trichlorethane	71-55-6				
4) 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				
7) CFCs/Halons	CAS-no.	8) Tar oils	CAS-no.		
Trichlorofluoromethane (R11)	75-69-4	creosote	8001-58-9		
Dichlorodifluoromethane (R12)	75-71-8	creosote oil	61789-28-4		
Chlorotrifluoromethane (R13)	75-72-9	distillates, naphthalene oil	84650-04-4		
Tetrachlorodifluoroethane (R112)	76-11-9	creosote oil, acenaphtene fraction	90640-84-9		
Trichlorotrifluoroethane (R113)	76-13-1	high-boiling distillates (coal tar)	65996-91-0		
Dichlorotetrafluoroethane (R114)	76-14-2	anthracene oil	90640-80-5		
Chloropentafluoroethane (R115)	76-12-0	tar acid, raw coal	65996-85-2		
Bromochlorodifluoromethane (Halon 1211)	353-59-3	creosote, wood	8021-39-4		
Bromotrifluoromethane (Halon 1301)	75-63-8	coal tar alkine, extract residues	122384-78-5		
Dibromotetrafluoroethane (Halon 2402)	124-73-2				
Tetrachloromethane	56-23-5				
1,1,1-Trichloroethane	71-55-6				
Chlorodifluoromethane (R22) (HCFC)	75-45-6				

Concentration limits for certain substances listed above:

[01]:	1 µg/kg
∑ [01] – [12]:	5 µg/kg
∑ [01] – [17]:	100 µg/kg
∑ [18] – [21]:	1 µg/kg
∑ [18] – [25]:	5 µg/kg

Note: Related to electric and electronic products the **aromatic amines** and **benzol** are not relevant and have therefore been omitted!

Note to Exceptions: Yes means, please check the appropriate regulation(s) on details

See also the **Guidance Document on EICTA's website** at: <http://www.eicta.org/Content/Default.asp?PageID=211>

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Excerpt of authorized substances with restrictions for plastic materials and articles intended to come into contact with food stuffs/skin								
No	Substance	CAS-no.	Application	SML	QM	Exceptions	European Community	Comments
A	Acrylonitrile	107-13-1	ABS, SAN and other copolymers	ND (0.02 mg/kg DL)		No	90/128/EEC	
B	Butadiene	106-99-0	ABS and other copolymers	ND (0.02 mg/kg DL) or 1 mg/kg		No	90/128/EEC	
C	Vinylchloride	75-01-4	PVC	0.01 mg/kg (DL) and 1 mg/kg		No	90/128/EEC	
D	Nickel		surface coating or alloy element	0.5 µg/cm ² /week		Yes	94/27/EC	intended to come into direct and prolonged contact with the skin

SML = Specific Migration Limit in food or in food simulant

ND = non detectable

DL = Detection Limit

QM = maximum permitted amount of the residual substance in the material or article

(100 ppm = 0.01 wt% = 100 mg/kg = 100 ml/m³)

The following table lists upcoming restrictions, which are mostly based on released EU Commission directives and/or regulations:

... on substances for special applications in electric and electronic products								
No	Chemical	CAS-no.	Special application(s)	Limit in wt %	Excep-tions	Legislation in the European Community	Comments	Enforcement date
1	Pentabromodiphenylether	32534-81-9	Flame-retardant in polymers and other goods (textiles...)	0.1	No	76/769/EEC (24 th amendment); 2003/11/EC		2004-AUG-15
2	Octabromodiphenylether	32536-52-0	Flame-retardant in polymers and other goods (textiles...)	0.1	No	76/769/EEC (24 th amendment); 2003/11/EC		2004-AUG-15
3	Alkanes, C10-C13, Short Chain Chlorinated Paraffins (SCCP)	63448-39-8	Prohibited as softeners in paints, coatings, sealings and as flame retardants in rubber, plastics and textiles	0.1	No	76/769/EEC (20 th amendment); 2002/45/EC	Netherlands: Dutch decree 478 Norway: MVD 1544	2004-JAN-06 2000-JAN-01 2000-JAN-01
4	Hexavalent Chromium Lead Cadmium Mercury PBB, PBDE	In E&E products	0.1 0.1 0.01 0.1 0.1	Yes	2002/95/EC	limit-details are not confirmed yet but proposed	2006-JUL-01