ABB List of Prohibited and Restricted Substances, ver. 1.19.

This document is valid as of 2021-08-26

The objective with ABB List of Prohibited and Restricted Substances is to achieve compliance with legislation. Legislative changes in between two versions of the list shall always be considered.

This document provides information about "Prohibited substances", substances that must not be used, and "Restricted substances", substances whose use should be limited within ABB.

The scope for this list is goods supplied to ABB, product development, production processes, products, packaging materials, service activities and construction sites.

Principles

The purpose of this list is to comply with legislation to avoid chemical elements and compounds that may represent hazards to the environment or the health of workers, customers, consumers and other stakeholders, or could negatively influence end-of-life properties or might cause other concerns.

This document contains substances relevant to ABB. The document is reviewed and updated twice per year, in January and July/ August mainly based on the update of REACH Candidate list in January and in the middle of the year.

Prohibited substances must not be used in concentrations that exceed the thresholds under the law. For restricted substances above 0.1% w/w* or other limits according to legislation (see column "Comments"), active work shall be performed to eliminate the substances or to find less hazardous alternatives which, could be introduced as soon as it is technically and economically possible.

*The concentration of chemical elements and compounds shall be calculated for constituent articles in a product. See Updated ECHA Guidance

How to read this list

Substance name

Name of chemical element or compound.

CAS No.

CAS Registry Numbers are unique numerical identifiers assigned by the Chemical Abstracts Service to every chemical described in the open scientific literature.

Reason for inclusion

The reason for a chemical element or compound to be on this list is its inherent properties that make it hazardous for humans or for the environment.

- PBT - Persistent, Bioaccumulating and Toxic
- vPvB - very Persistent and very Bioaccumulating
- STOT - Specific target organ toxicity

ABB classification

Classification in Prohibited (P) and Restricted (R). Note that a chemical may be Restricted in certain applications and Prohibited in others.

Legislation

A reference list to relevant legislation.

Example of applications

Example of applications where a specific chemical element or compound is used.

Comments

Information about EU REACH Sunset dates, non-EU legislation thresholds and limits and Annex XVII restrictions.

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
1 -methyl-2-pyrrolidone	872-50-4	Toxic for reproduction	R	EC 1907/2006/C EC 1907/2006/XVII CAN NPRI 2010 US TSCA California Prop 65	Solvent in paint, varnish, cleaning agents, pesticides etc.	Conditions in Annex XVII
1,1,1-trichloroethane	71-55-6	Substance that deplete the ozone layer	P	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN Tox. Subs US EPA	Degreasing	
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	76-13-1	Substance that deplete the ozone layer	P	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN Tox. Subs. US EPA	Cooling agent	
1,1,2-trichloroethene (Trichloroethylene)	79-01-6	Carcinogenic	P	EC 1907/2006/C EC 1907/2006/XIV CH SR 814.81 A1 CAN NPRI 2010 CAN Tox. Subs. US TSCA California Prop 65	Solvent, cleaning agent	EU: sunset date 21/04/2016
1,1-dichloro-1-fluoroethane (HCFC-141b)	1717-00-6	Substance that deplete the ozone layer	R	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN Tox. Subs. US EPA	Cooling agents, blowing agent PUR foam	
1,2,3,4,5,6-hexachlorocyclohexane (lindane)	58-89-9	Acute toxicity; Hazardous to the environment; Serious health hazard	P	CH SR 814.81 A1 FR ECA R521-4 to 42 EC 850/2004 US EPA 2001/852/EC	Insecticide	P in all applications. Switzerland: P in all applications. Limit value: 0.001% w/w of total halogenated biphenyls in lubrication oils and greases manufactured from waste oils.
1,2,3-Trichloropropane	96-18-4	Carcinogenic and toxic for reproduction	R	EC 1907/2006/C US EPA	Painter mediate and varnish remover, solvent, degreasing agent	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
				(7-1-10 Edition) #372,65(a) California Prop 65		
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate	68515-51-5, 68648-93-1	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XIV	Used to make polymer foils, PVC products, plastic products, and rubber products, in coatings, cable compounding, cable applications, artist supplies and adhesives	EU: Sunset date 27/02/2023
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV	Used in PVC products	EU: sunset date 4/7/2020
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV	Used in PVC products	EU: sunset date 4/7/2020
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XIV	In plastic articles	EU: Sunset date 27/02/2023
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV	Explosives, phlegmatizer	EU: sunset date 4/7/2020
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	Toxic for reproduction	**R**	EC 1907/2006/C	Solvents and help-chemicals in the manufacture of industrial chemicals. Various petroleum products for motor vehicles	
1,2-dibromo-1,1,2,2-tetrafluoroethane (Halon-2402)	124-73-2	Substance that deplete the ozone layer	**P**	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN Tox. Subs. US EPA	Fire extinguisher	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC-114)	76-14-2	Substance that deplete the ozone layer	**P**	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN NPRI 2010 CAN Tox. Subs. US EPA	Cooling agent	
1,2-dichloroethane	107-06-2	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs. US EPA California prop 65	Solvent	EU: sunset date 22/11/2017
1,2-diethoxyethane	629-14-1	Toxic for reproduction	**R**	EC 1907/2006/C		
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Toxic for reproduction	**R**	EC 1907/2006/C	Solvents and help-chemicals in the manufacture of industrial chemicals. As electrolyte in lithium batteries.	
1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (TGIC) Triglycidylisocyanurate (TGIC)	2451-62-9	Mutagenic	**R**	EC 1907/2006/C	Curing-agent. Coating and laminating, printing ink, screen printing. Powder paints	
1,3,5-tris-[(2S and 2R)-2,3-epoxypropyl]- 1,3,5-triazine-2,4,6-(1H, 3H, 5H)-trione) (β-TGIC)	59653-74-6	Mutagenic	**R**	EC 1907/2006/C	Metal products such as tools. Plastic goods (softener)	
1,3-propanesultone	1120-71-4	Carcinogenic	**R**	EC 1907/2006/C	Electrolyte fluid of lithium ion batteries	
1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.$1^{6,9}$.$0^{2,13}$.$0^{5,10}$]octadeca-7,15-diene (“Dechlorane Plus”™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	vPvB	**R**	EC 1907/2006/C	Used as a non-plasticizing flame retardant, used in adhesives and sealants and in binding agents.	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
1-bromopropane (n-propyl bromide)	106-94-5	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV California Prop 65 US TSCA	Solvent	EU: sunset date 4/7/2020
1-Chloro-1,1,2,2,2-pentafluoroethane (CFC-115)	76-15-3	Substance that deplete the ozone layer	**P**	EC 2037/2000 CAN NPRI 2010 CAN Tox. Subs. US EPA	Cooling agent	
1-chloro-1,1-difluoroethane (HCFC-142b)	75-68-3	Substance that deplete the ozone layer	**R**	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN NPRI 2010 US EPA	Cooling agents, blowing agent PUR foam	
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	vPvB	**R**	EC 1907/2006/C EC 1907/2006/XIV	UV-protection agents in coatings, plastics, rubber and cosmetics	EU: Sunset date 27/11/2023
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	PBT; vPvB	**R**	EC 1907/2006/C EC 1907/2006/XIV	UV-absorbers, especially for transparent plastic materials. UV-protection agents in coatings especially for cars and special industrial wood coatings. UV-protection agents for plastics, rubber and polyurethanes.	EU: Sunset date 27/11/2023
2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	Toxic for reproduction	**R**	EC 1907/2006/C	Raw material for epoxy resins, polycarbonate resin, Thermal paper, Chemicals, Surface coatings, Inks, Adhesives, Synthetic resin	
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof		Probable serious effects to the environment and probable serious effects to human health	**R**	EC 1907/2006/C	Processing aid in the production of fluorinated polymers	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
2,4,6-tris(tert-butyl)phenol (2,4,6-TTBP)	732-26-3	PBT	**P***	**R***	US TSCA	Used as an additive in fuel, oils and lubricants	In EU: Included in the CoRAP List (not yet classified as a SVHC) *Regulation in process by US EPA under TSCA §751.409
2,4-dinitrotoluene	121-14-2	Carcinogenic	**P**		EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 US EPA California Prop 65	Explosives	EU: sunset date 21/08/2015
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	vPvB		**R**	EC 1907/2006/C EC 1907/2006/XIV	UV-protection agents in coatings, plastics, rubber and cosmetics	EU: Sunset date 27/11/2023
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	PBT; vPvB		**R**	EC 1907/2006/C; Japan (Law Concerning the Examination and Regulation of Manufacture) EC 1907/2006/XIV	UV-absorbers, especially for transparent plastic materials. UV-protection agents in coatings especially for cars and special industrial wood coatings. UV-protection agents for plastics, rubber and polyurethanes.	EU: Sunset date 27/11/2023
2-ethoxyethanol	110-80-5	Toxic for reproduction		**R**	EC 1907/2006/C CAN NPRI 2010 US EPA California Prop 65	Solvent in paint	
2-ethoxyethyl acetate	111-15-9	Toxic for reproduction		**R**	EC 1907/2006/C CAN NPRI 2010 California Prop 65	Solvent in paint and varnish	
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	Toxic for reproduction		**R**	EC 1907/2006/C	Might be used as heat stabilizer in plastic (mainly PVC processing)	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
2-Methoxyaniline; o-Anisidine	90-04-0	Carcinogenic	**R**	EC 1907/2006/C California Prop 65	Mainly used in the manufacture of dyes for tattooing and coloration of paper, polymers and aluminum foil.	
2-methoxyethanol	109-86-4	Toxic for reproduction	**R**	EC 1907/2006/C CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	Solvent in paint	
2-methoxyethyl acetate	110-49-6	Toxic for reproduction	**R**	EC 1907/2006/C		
2-metoxyethyl acetate	110-49-6	Toxic for reproduction	**R**	CAN NPRI 2010 CAN Tox. Subs. California Prop 65	Paints, lacquers	
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	Toxic for reproduction	**R**	EC 1907/2006/C		
4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	Equivalent level of concern having probable serious effects to the environment	**R**	EC 1907/2006/C CH SR 814.81 A1 CAN NPRI 2010	Used in varnish and paint and for surface treatment and may occur in products of plastics and rubber	In Switzerland P in certain applications.
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (covering well-defined substances and UVCB substances, polymers and homologues)	No data	Endocrine disrupting properties	**P**	EC 1907/2006/C EC 1907/2006/XIV		EU: Sunset date 4/1/2021
4,4'-(1-methylpropylidene)bisphenol	77-40-7	Endocrine disrupting properties	**R**	EC 1907/2006/C	May be used in manufacture of phenolic and polycarbonate resin	
4,4'-isopropylidenediphenol (bisphenol A; BPA)	80-05-7	Toxic for reproduction; Endocrine disrupting properties to human health and environment	**R**	EC 1907/2006/C	Manufacture of polycarbonate, as a hardener for epoxy resins, as an anti-oxidant for processing PVC and in thermal paper production.	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
4,4'-bis(dimethylamino)-4"-(methylamino)trityl alcohol, with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	561-41-1	Carcinogenic	R	EC 1907/2006/C	Manufacture of ink and paint. Staining of different materials.	
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	Carcinogenic	R	EC 1907/2006/C	Dyeing of paper, ink in cartridges and pens, plant dyeing. Laboratory chemicals, paper goods.	
4,4'-diaminodiphenylmethane (MDA)	101-77-9	Carcinogenic	P	EC 1907/2006/C EC 1907/2006/XIV California Prop 65	Hardener for plastics and adhesives	EU: sunset date 21/08/2014
4,4'-methylenebis[2-chloroaniline]	101-14-4	Carcinogenic	P	EC 1907/2006/C EC 1907/2006/XIV	Hardener in resins and polymers	EU: sunset date 22/11/2017
4,4'-methylenedi-o-toluidine	838-88-0	Carcinogenic	R	EC 1907/2006/C California Prop 65	An intermediate to paint, textiles	
4,4'-oxydianiline and its salts	101-80-4	Carcinogenic; Mutagenic	R	EC 1907/2006/C California Prop 65	Intermediate	
4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	2580-56-5	Carcinogenic	R	EC 1907/2006/C	Ink, paint, detergents. Dyeing of paper, packaging textiles and plastic products. Paper products, packaging materials, textiles and plastics.	
4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	548-62-9	Carcinogenic	R	EC 1907/2006/C	Dyeing of paper, ink used in cartridges and ballpoint pens, plant dyeing. Laboratory chemicals, paper goods.	
4-Aminoazobenzene	60-09-3	Carcinogenic	R	EC 1907/2006/C California Prop 65	Textile	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
4-heptylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	-	Equivalent level of concern having probable serious effects to environment	**R**	EC 1907/2006/C	Manufacture of polymers; formulation into lubricants	
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	Carcinogenic	**R**	EC 1907/2006/C	Textile. Intermediate for the production of toluene diisocyanate and dyes	
4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	See note 1 in "Notes"	Equivalent level of concern having probable serious effects to the environment	**R**	EC 1907/2006/C	Cleaning agent	
4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	See note 2 in "Notes"	Endocrine disrupting properties	**P**	EC 1907/2006/C EC 1907/2006/XIV	Cleaning agent	EU: Sunset date 4/1/2021

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
4-tert-butylphenol	98-54-4		R	EC 1907/2006/C	Used in coating products, polymers, adhesives, sealants and for the synthesis of other substances.	
5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	See note 3 in "Notes"	vPvB	R	EC 1907/2006/C EC 1907/2006/XIV	Fragrance ingredient	EU: Sunset date 27/08/2023
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	vPvB	P	EC 1907/2006/C EC 1907/2006/XIV	Used in rinsing agents, detergents and metal polish	EU: sunset date 21/08/2014
6-methoxy-m-toluidine (p-cresidine)	120-71-8	Carcinogenic	R	EC 1907/2006/C	Used in the production of various azo dyes	
Acetic acid, lead salt, basic	51404-69-4	Toxic for reproduction	R	EC 1907/2006/C	Coatings, paints, laboratory chemicals	
Acids generated from chromium trioxide and their oligomers. Group containing: Chromic acid, Dichromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid	7738-94-5, 13530-68-2	Carcinogenic; Mutagenic; Toxic for reproduction	P	EC 1907/2006/C EC 1907/2006/XIV	Wood preservatives. Surface treatment of metals.	EU: sunset date 21/09/2017
Acrylamide	79-06-1	Carcinogenic; Mutagenic	R	EC 1907/2006/C EC 1907/2006/XVII CAN NPRI 2010 CAN Tux. Subs. US EPA	Plastic packaging.	Conditions in Annex XVII

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	PBT; vPvB	R	EC 1907/2006/C CH SR 814.81 A1 CAN NPRI 2010	Used as flame retardants. Occurs in paints and sealants, coolant and lubricants, in articles of plastics and rubber, cutting oils and cutting fluids.	In Switzerland P in paints and varnishes, sealants, plastics and rubbers, and textiles. Limit value: 1% w/w.
Alkanes, C14-17, chloro (Chlorinated Paraffins)	85535-85-9	PBT	R	1999/721/EC EC 1907/2006	Cutting oil, lubricant. Plasticizer	
Aluminosilicate Refractory Ceramic Fibres		Carcinogenic	R	EC 1907/2006/C CAN Tox. Subs.	Insulation materials for industrial use. Fire protection in industrial equipment.	
Ammonium dichromate	7789-09-5	Carcinogenic; Mutagenic; Toxic for reproduction	P	EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs.	Used for surface coating	EU: sunset date 21/09/2017
Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	Toxic for reproduction	R	EC 1907/2006/C	Processing aid in the production of fluoropolymers	
Anthracene	120-12-7	PBT	R	EC 1907/2006/C CAN NPRI 2010 US EPA	Available in pyrotechnics and in paints and waterproof coatings.	
Anthracene oil	90640-80-5	Carcinogenic; PBT; vPvB	P	EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII CH SR 814.81 A2	Used in manufacture of anthracene and carbon black.	EU: sunset date 4/10/2020 Conditions in Annex XVII
Anthracene oil, anthracene paste	90640-81-6	Carcinogenic; PBT; vPvB	R	EC 1907/2006/C	Used in manufacture of anthracene and carbon black.	
Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	Carcinogenic; PBT; vPvB	R	EC 1907/2006/C	Used in manufacture of anthracene and carbon black.	
Anthracene oil, anthracene paste,distn. Lights	91995-17-4	Carcinogenic; PBT; vPvB	R	EC 1907/2006/C	Used in manufacture of anthracene and carbon black.	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Anthracene oil, anthracene-low	90640-82-7	Carcinogenic; PBT; vPvB	**R**	EC 1907/2006/C	Used in manufacture of anthracene and carbon black.	
Arsenic acid	7778-39-4	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII	Mainly used to remove gas bubbles from ceramic glass melt and in the production of laminated printed circuit boards	EU: sunset date 22/08/2017 Conditions in Annex XVII
Arsenic compounds		Toxic to aquatic organisms; May cause long-term adverse effects in the aquatic environment	**R**	EC 1907/2006/XVII CH SR 814.81 A2 CAN NPRI 2010 CAN Tox. Subs. US EPA	Electronic equipment	Germany: P in treatment of water and in wood-based materials. CH: P in wood-based materials. Limit value: 0,0025 % w/w. Conditions in Annex XVII
Asbestos (incl. Brown, blue and white asbestos, Tremolite)	1332-21-4, 77536-66-4, 77536-68-6, 12172-73-5, 77536-67-5, 12001-29-5, 132207-32-0, 12001-28-4	Carcinogenic	**P**	EC 1907/2006/XVII (N/A for 1332-21-4) CH SR 814.81 A1 CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	Thermal insulation	Conditions in Annex XVII
Benz[a]anthracene	56-55-3	Carcinogenic; PBT; vPvB	**R**	EC 1907/2006/C EC 1907/2006/XVII	Normally not produced intentionally but rather occurs as a constituent or impurity in other substances.	Conditions in Annex XVII
Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA)	552-30-7	Respiratory sensitising properties - human health	**R**	EC 1907/2006/C	Used in the manufacture of esters and polymers	
Benzo[ghi]perylene	191-24-2	PBT; vPvB	**R**	EC 1907/2006/C	Not registered under REACH. Normally not produced intentionally but rather occurs as a constituent or impurity in other substances	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Benzo[k]fluoranthene	207-08-9	Carcinogenic PBT vPvB		R	EC 1907/2006/C	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	
Benzyl butyl phthalate (BBP)	85-68-7	Toxic for reproduction; Endocrine disrupting properties	P	R	EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII California Prop 65	Used as plasticizer in polymer products, mainly in PVC. Occurs in colours, materials to plastic, rubber, glue, filling medium and raw materials for paints.	EU: sunset date 21/05/2015 Conditions in Annex XVII
Biphenyl-4-ylamine	92-67-1	Carcinogenic		R	EC 1907/2006/C EC 1907/2006/XVII CH SR 814.81 A1 US EPA California Prop 65	Intermediate, dyes, pigments, textiles	Conditions in Annex XVII
Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	Equivalent level of concern having probable serious effects to the environment; Toxic for reproduction; Endocrine disrupting properties	P		EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII 2011/65/EC CAN NPRI 2010 CAN Tox. Subs US EPA California Prop 65	Used as plasticizer in PVC. Occurs also in colours, plastic, rubber, glue, filling medium and raw materials for paints.	EU: sunset date 21/02/2015 Conditions in Annex XVII
Bis(2-(2-methoxyethoxy)ethyl)ether	143-24-8	Toxic for reproduction		R	EC 1907/2006/C	EC 1907/2006/C	
Bis(2-methoxyethyl) ether	111-96-6	Toxic for reproduction	P		EC 1907/2006/C EC 1907/2006/XIV	Used primarily as a reaction solvent or process chemical. Solvent for battery electrolytes.	EU: sunset date 22/08/2017
Bis(2-methoxyethyl) phthalate	117-82-8	Toxic for reproduction	P		EC 1907/2006/C EC 1907/2006/XIV	Used as plasticizer in paint and varnish.	EU: sunset date 4/7/2020

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	PBT; vPvB	**P***	**R***	EC 1907/2006/C EC 1907/2006/XVII CH SR 814.81 A1 2011/65/EU CAN NPRI 2010 CAN Tox. Subs US TSCA	Flame retardants, insulation materials, electrical equipment, textiles, plastics in automotive industry	EU: R in all applications except: EU: P in all applications covered by RoHS. CH: P as flame retardant in EEE covered by RoHS Directive. Conditions in Annex XVII *Regulation in process by US EPA under TSCA §751.405
Bis(tributyltin)oxide (TBTO)	56-35-9	PBT		**R**	EC 1907/2006/C US EPA	Occurs as a preservative in textiles, paper, leather, rubber and polymer materials	
Boric acid	10043-35-3, 11113-50-1	Toxic for reproduction		**R**	EC 1907/2006/C	Used as wood preservative, flame retardant etc. Can be used in treated wood and flame-proof insulation.	
Bromochlorodifluoromethane (Halon-1211)	353-59-3	Substance that deplete the ozone layer	**P**		CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN NPRI 2010 CAN Tox. Subs. US EPA	Fire extinguisher	
Cadmium and cadmium compounds	7440-43-9 (Cd) See note 5 in "Notes"	Flammable; Acute toxicity; Hazardous to the environment; Serious health hazard	**P**	**R**	EC 1907/2006/C EC 1907/2006/XVII CH SR 814.81 A2 2011/65/EU 2006/66/EC CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	Cadmium and cadmium compounds. Electric and electronic equipment covered by RoHS	Conditions in Annex XVII

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Cadmium carbonate	513-78-0	Carcinogenic; Mutagenic; STOT RE	R	EC 1907/2006/C EC 1907/2006/XVII	Used as a pH regulator and in water treatment products, laboratory chemicals, cosmetics and personal care products.	Conditions in Annex XVII
Cadmium chloride	10108-64-2	Carcinogenic; Mutagenic; Toxic for reproduction; Equivalent level of concern having probable serious effects to human health	R	EC 1907/2006/C EC 1907/2006/XVII	Industrial and laboratory chemicals, which are used in surface treatment and the manufacture of other cadmium compounds	Conditions in Annex XVII
Cadmium fluoride	7790-79-6	Carcinogenic; Mutagenic; Toxic for reproduction; Equivalent level of concern having probable serious effects to human health	R	EC 1907/2006/C EC 1907/2006/XVII	Used in oxygen-sensitive applications, such as metal production.	Conditions in Annex XVII
Cadmium hydroxide	21041-95-2	Carcinogenic; Mutagenic; STOT RE	R	EC 1907/2006/C EC 1907/2006/XVII	Used for the manufacture of electrical, electronic and optical equipment and in laboratory chemicals.	Conditions in Annex XVII
Cadmium nitrate	10325-94-7	Carcinogenic; Mutagenic; STOT RE	R	EC 1907/2006/C EC 1907/2006/XVII	Used for the manufacture of glass, porcelain and ceramic products and in laboratory chemicals.	Conditions in Annex XVII

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Cadmium oxide	1306-19-0	Carcinogenic; Equivalent level of concern having probable serious effects to human health	R	EC 1907/2006/C EC 1907/2006/XVII	Used in electronics, for pigments, batteries, and electroplating.	Conditions in Annex XVII
Cadmium sulphate	10124-36-4, 31119-53-6	Carcinogenic; Mutagenic; Toxic for reproduction; Equivalent level of concern having probable serious effects to human health	R	EC 1907/2006/C EC 1907/2006/XVII	Used for the electroplating of cadmium in electronic circuits. It is also a precursor to cadmium-based pigment such as cadmium sulfide. It is also used for electrolyte in a Weston standard cell as well as a pigment in fluorescent screens.	Conditions in Annex XVII
Cadmium sulphide	1306-23-6	Carcinogenic; Equivalent level of concern having probable serious effects to human health	R	EC 1907/2006/C EC 1907/2006/XVII	Used as a pigment, in manufacturing of photo resistors and in thin-film form combined with other layers for use in certain types of solar cells.	Conditions in Annex XVII
Calcium arsenate	7778-44-1	Carcinogenic	R	EC 1907/2006/C EC 1907/2006/XVII	Present in complex raw materials imported for manufacture of copper, lead and a range of precious metals. It appears mainly to be used as precipitating agent in copper smelting and to manufacture diarsenic trioxide.	Conditions in Annex XVII
Chlorodifluoromethane (HCFC-22)	75-45-6	Substance that deplete the ozone layer	R	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN NPRI 2010 US EPA	Cooling agents, blowing agent PUR foam.	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Chrome (VI+) and compounds contain Cr(VI)	See note 6 in "Notes"	Carcinogenic	**P**	**R**	CH SR 814.81 A2 2011/65/EU CAN NPRI 2010 CAN Tox. Subs. California Prop 65	Electric and electronic equipment covered by RoHS. Surface treatment. Pigment in paint.	EU: P in all applications covered by RoHS. CH: P in packaging, limit value: 0.01% w/w.
Chromium trioxide	1333-82-0	Carcinogenic; Mutagenic	**P**		EC 1907/2006/C EC 1907/2006/XIV 2011/65/EU	Electric and electronic equipment covered by RoHS. Wood preservative. Surface treatment of metals.	EU: sunset date 21/09/2017
Chrysene	218-01-9	Carcinogenic; PBT; vPvB		**R**	EC 1907/2006/C EC 1907/2006/XVII	Normally not produced intentionally but rather occurs as a constituent or impurity in other substances	Conditions in Annex XVII
Cobalt(II) carbonate	513-79-1	Carcinogenic and toxic for reproduction		**R**	EC 1907/2006/C ListCAN NPRI for 2010 - Schedule 1 Part 1 Group 1 Substances	A precursor to cobalt carbonyl and various cobalt salts	
Cobalt(ll) diacetate	71-48-7	Carcinogenic; Toxic for reproduction		**R**	EC 1907/2006/C CAN NPRI 2010	Surface treatment of metals.	
Cobalt(ll) dinitrate	10141-05-6	Carcinogenic; Toxic for reproduction		**R**	EC 1907/2006/C CAN NPRI 2010	Surface treatment of metals.	
Cobalt(ll) sulphate	10124-43-3	Carcinogenic; Toxic for reproduction		**R**	EC 1907/2006/C CAN NPRI 2010 California Prop 65	Pigment. Surface treatment.	
Cobalt/Cobalt compounds				**R**	EU 2009/125/EC Ecodesign	In batteries used in computer servers and online data storage products	
Cobolt dichloride	7646-79-9	Carcinogenic and toxic for reproduction		**R**	EC 1907/2006/C CAN NPRI for 2010 - Schedule 1 Part 1 Group 1 Substances	Surface treatment	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry]	85-42-7, 13149-00-3, 14166-21-3	Equivalent level of concern having probable serious effects to human health	**R**	EC 1907/2006/C	Plasticizers, polyester, alkydes, motor insulation, hardener for epoxy resin	
Decamethylcyclopentasiloxane (D5)	541-02-6	PBT; vPvB	**R**	EC 1907/2006/C	Used in washing and cleaning products, polishes and waxes, cosmetics and personal care products, textile treatment products and dyes	
Diarsenic pentaoxide	1303-28-2	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII CH SR 814.81 A2 CAN NPRI 2010	Used in wood preservatives, in the paint industry, metallurgy and in the manufacture of special glass.	EU: sunset date 21/05/2015 Conditions in Annex XVII
Diarsenic trioxide	1327-53-3	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII CH SR 814.81 A2 CAN NPRI 2010	Used in dyeing of glass and enamel. Used in the manufacture of special glass. Has previously been used as wood preservative.	EU: sunset date 21/05/2015 Conditions in Annex XVII
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	Equivalent level of concern having probable serious effects to human health	**R**	EC 1907/2006/C	Raw material for the manufacture of rubber and plastic, rubber and plastic products	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Diboron trioxide	1303-86-2	Toxic for reproduction	**R**	EC 1907/2006/C	Raw material for the manufacture of glass, glassware, ceramics and metals. Paints, varnishes, inks, flame retardants, catalysts, detergent. The glassware and enameled glass products. Imported roared protected wood products	
Dibutyl phthalate (DBP)	84-74-2 93952-11-5	Toxic for reproduction; Endocrine disrupting properties	**P**	EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII 2011/65/EC CAN NPRI 2010 US EPA California prop 65	Occurs in various articles of plastic, mainly PVC. Occurs in glue, paints, plastics, rubber etc.	EU: sunset date 21/02/2015 Conditions in Annex XVII
Dibutylbis(pentane-2,4-dionato-O,O')tin	22673-19-4	Toxic for reproduction	**R**	EC 1907/2006/C	Used as biocides and as stabilisers in plastics. Used also as a catalyst and in the manufacturing of adhesives, sealants, coatings, dyes, polymer preparations, resins and rubber.	
Dibutyltin dichloride (DBTC)	683-18-1	Toxic for reproduction	**R**	EC 1907/2006/C	Rubber manufacturing, rubber products	
Dichlorodifluoromethane (CFC-12)	75-71-8	Substance that deplete the ozone layer	**P**	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN Tox. Subs. US EPA	Cooling agent	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Dichloromethane (methylene chloride)	75-09-2	Health hazard	**P**	**R**	EC 1907/2006/XVII CH SR 814.81 A1 CAN NPRI 2010 CAN Tox. Subs. US TSCA 90/415/EC 96/55/EC EC 2037/2000 California Prop 65	Paint stripping (prohibited) Other applications such as degreasing (restricted)	Conditions in Annex XVII
Dichromium tris(chromate)	24613-89-6	Carcinogenic	**P**		EC 1907/2006/C EC 1907/2006/XIV	Used for surface treatment.	EU: sunset date 22/01/2019
Dicyclohexyl phthalate (DCHP)	84-61-7	Toxic for reproduction; Endocrine disrupting properties - human health		**R**	EC 1907/2006/C	Used in plastisol, PVC, rubber and plastic articles. A further use is also as a phlegmatiser and dispersing agent for formulations of organic peroxides	
Diethyl sulphate	64-67-5	Carcinogenic; Mutagenic		**R**	EC 1907/2006/C CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	An intermediate	
Dihexyl phthalate	84-75-3	Toxic for reproduction		**R**	EC 1907/2006/C EC 1907/2006/XIV California Prop 65	Plasticizer in PVC	EU: Sunset date 27/02/2023
Diisobutyl phthalate (DIBP)	84-69-5	Toxic for reproduction; Endocrine disrupting properties	**P**		EC 1907/2006/C EC 1907/2006/XIV EC 1907/2006/XVII 2011/65/EC California Prop 65	Solvent in adhesives, inks for paper and packaging.	EU: sunset date 21/02/2015 Conditions in Annex XVII
Diisocyanates, O = C=N-R-N = C=O, with R an aliphatic or aromatic hydrocarbon unit of unspecified length	See note 8 in "Notes"			**R**	EC 1907/2006/XVII	See note 8 in "Notes"	Conditions in Annex XVII
Diisohexyl phthalate	71850-09-4	Toxic for reproduction		**R**	EC 1907/2006/C	Used as a plasticizer for certain plastics and rubbers	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Diisopentylphthalate	605-50-5	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV	Explosives	EU: sunset date 4/07/2020
Dimethyl sulphate	77-78-1	Carcinogenic	**R**	EC 1907/2006/C CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	An intermediate	
Dimethylfumarate (DMFu)	624-49-7	Health hazard	**P**	EC 1907/2006/XVII 2009/251/EC	Drying and anti-mold agents, silica gel	Conditions in Annex XVII
Dinoseb (6-sec-butyl-2, 4-dinitrophenol)	88-85-7	Toxic for reproduction	**R**	EC 1907/2006/C	Pesticide	
Dioctyltin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety		Toxic for reproduction	**R**	EC 1907/2006/C	Not registered under REACH as a group of substances. However, one of the three group members (Dioctyltin dilaurate) is registered. The mono-constituent form of the substance (dioctyltin dilaurate) is used as an additive in the production of plastics and rubber	
Dioxobis(stearato)trilead	12578-12-0	Toxic for reproduction	**R**	EC 1907/2006/C	Stabilizers for PVC, plastic goods	
Dipentyl phthalate (DPP)	131-18-0	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV	Laboratory chemical	EU: sunset date 4/07/2020
Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	Carcinogenic	**R**	EC 1907/2006/C	Azo dyes	
Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	Carcinogenic	**R**	EC 1907/2006/C	Azo dyes	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Disodium octaborate	12008-41-2	Toxic for reproduction	**R**	EC 1907/2006/C	Used in anti-freeze products, heat transfer fluids, lubricants and greases, and washing and cleaning products	
Disodium tetraborate, anhydrous	1330-43-4, 1303-96-4, 12179-04-3	Toxic for reproduction	**R**	EC 1907/2006/C	Used as wood preservative, flame retardant etc. Can be used in treated wood and flame-proof insulation.	
Dodecamethylcyclohexa-siloxane (D6)	540-97-6	PBT; vPvB	**R**	EC 1907/2006/C	Used in washing and cleaning products, polishes and waxes, cosmetics and personal care products	
Ethylenediamine (EDA)	107-15-3	Respiratory sensitising properties - human health	**R**	EC 1907/2006/C	Used in adhesives and sealants, coating products, fillers, putties, plasters, modelling clay, pH regulators and water treatment products	
Fatty acids, C16-18, lead salts	91031-62-8	Toxic for reproduction	**R**	EC 1907/2006/C	Stabilizers for PVC, plastic goods	
Fluoranthene	206-44-0	PBT vPvB	**R**	EC 1907/2006/C	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	
Formaldehyde, oligomeric reaction products with aniline	25214-70-4	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV Can Tox. Subs.	Hardener for epoxy resins, for glue, paint and varnish.	EU: sunset date 22/08/2017
Formamide	75-12-7	Toxic for reproduction	**R**	EC 1907/2006/C	Intermediate. Laboratory chemical	
Furan	110-00-9	Carcinogenic	**R**	EC 1907/2006/C California Prop 65	Solvent	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Halogenated Flame Retardants			**R**	[EU] Commission Regulation (EU) 2019/2021	Regarding Ecodesign requirements for electronic displays. Flame retardant in electronic displays must be marked with name of FR.	
Henicosafluoroundecanoic acid	2058-94-8	vPvB	**R**	EC 1907/2006/C	Used in the production of fluoropolymers	
Heptacosafluorotetradecanoic acid	376-06-7	vPvB	**R**	EC 1907/2006/C	Used in the production of fluoropolymers	
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (a - HBCDD, B-HBCDD, v-HBCDD)	3194-55-6, 134237-52-8, 134237-50-6, 134237-51-7, 25637-99-4	PBT	**P**	EC 1907/2006/C EC 1907/2006/XIV US TSCA	Used as flame retardant in the plastics industry, mainly in polystyrene. Used as an additive flame retardant primarily in expanded polystyrene (EPS) and extruded polystyrene (XPS), used as insulating materials in the construction industry.	EU: sunset date 21/08/2015
Hexachlorobutadiene (HCBD)	87-68-3	PBT	**P***	**R***	EU 2019/1021/POPs US TSCA	Mainly used to make rubber compounds. It is also used as a solvent, and to make lubricants, in gyroscopes, as a heat transfer liquid, and as a hydraulic fluid	In EU: Included in the POPs regulation as P. *Regulation in process by US EPA under TSCA §751.413

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4]. The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	Equivalent level of concern having probable serious effects to human health	**R**	EC 1907/2006/C	Motor insulation, hardener for epoxy resin	
Hydrazine	302-01-2, 7803-57-8	Carcinogenic	**R**	EC 1907/2006/C CAN NPRI 2010 US EPA California Prop 65	Corrosion inhibitor in cooling systems.	
Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	Toxic for reproduction	**R**	EC 1907/2006/C CAN NPRI 2010 US EPA California Prop 65	Used in rubber manufacturing	
Lead	7439-92-1	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XVII	Used in metals, welding and soldering products, metal surface treatment products, and polymers.	Conditions in Annex XVII

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Lead and lead compounds	7439-92-1 (Pb)	Acute toxicity; Serious health hazard; Hazardous to the environment	**P**	**R**	EC 1907/2006/XVII CH SR 814.81 A2 2011/65/EU CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	Electric and electronic equipment covered by RoHS	P in packaging; completely banned in paints (lead carbonate and sulphates). R in all other applications. EU: P in all applications covered by RoHS. FR: P in in non-removable batteries and accumulators. Limit value, 0.4% w/w. CH: P - in non-removable batteries, limit value: 0.1% w/W; - in wood-based materials, limit value: 0.009% w/w; - in packaging, limit value: 0.01% w/w. Conditions in Annex XVII
Lead bis(tetrafluoroborate)	13814-96-5	Toxic for reproduction		**R**	EC 1907/2006/C	Surface treatment, electroplating, laboratory chemical	
Lead chromate	7758-97-6	Carcinogenic; Toxic for reproduction	**P**		EC 1907/2006/C EC 1907/2006/XIV CH SR 814.81 A2 2011/65/EU CAN NPRI 2010 CAN Tox. Subs.	Dyes and pigments. Corrosion protection. Electric and electronic equipment covered by RoHS	EU: sunset date 21/05/2015
Lead chromate molybdate sulphate red (C.l. Pigment Red 104)	12656-85-8	Carcinogenic; Toxic for reproduction	**P**		EC 1907/2006/C EC 1907/2006/XIV CH SR 814.81 A2 CAN NPRI 2010 CAN Tox. Subs.	Dyes and pigments, Corrosion protection	EU: sunset date 21/05/2015, P in all applications. CH: P in packaging, limit value 0.01% w/w.
Lead cyanamidate	20837-86-9	Toxic for reproduction		**R**	EC 1907/2006/C		
Lead di(acetate)	301-04-2	Toxic for reproduction		**R**	EC 1907/2006/C California Prop 65	Laboratory Chemical, in color, paint strippers and thinners	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Lead diazide, Lead azide	13424-46-9	Toxic for reproduction		R	EC 1907/2006/C	Mainly used as initiator or booster in detonators for both civilian and military uses and as initiator in pyrotechnic devices.	
Lead dinitrate	10099-74-8	Toxic for reproduction		R	EC 1907/2006/C	Stabilizers for PVC, plastic goods	
Lead dipicrate	6477-64-1	Toxic for reproduction		R	EC 1907/2006/C	Lead dipicrate is an explosive like lead diazide and lead styphnate.	
Lead hydrogen arsenate	7784-40-9	Carcinogenic; Toxic for reproduction	P	R	EC 1907/2006/C EC 1907/2006/XVII CH SR 814.81 A2 CAN NPRI 2010	Has previously been used as pesticide.	R in all applications. CH: P - in non-removable batteries, Limit value: 0.1% w/w; - in packaging, limit value: 0.01% w/w. Conditions in Annex XVII
Lead monoxide (lead oxide)	1317-36-8	Toxic for reproduction		R	EC 1907/2006/C	Stabilizers, pigments, raw material for glass and ceramics manufacturing	
Lead oxide sulfate	12036-76-9	Toxic for reproduction		R	EC 1907/2006/C	Stabilizers for PVC, plastic goods	
Lead styphnate	15245-44-0	Toxic for reproduction		R	EC 1907/2006/C	Mainly used as a primer for small caliber and rifle ammunition. Other common uses are in munition pyrotechnics, powder actuated devices and detonators for civilian use.	
Lead sulfochromate yellow (C.l. Pigment Yellow 34)	1344-37-2	Carcinogenic; Toxic for reproduction	P		EC 1907/2006/C EC 1907/2006/XIV CH SR 814.81 A2 CAN NPRI 2010 CAN Tox. Subs	Dyes and pigments. Corrosion protection.	EU: sunset date 21/05/2015, P in all applications. CH: P in packaging, limit value 0.01% w/w.

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Lead titanium trioxide	12060-00-3	Toxic for reproduction		R	EC 1907/2006/C	Semiconductors, computers, electrical and optical products	
Lead titanium zirconium oxide	12626-81-2	Toxic for reproduction		R	EC 1907/2006/C	Electronic products	
Lead(II) bis(methanesulfonate)	17570-76-2	Toxic for reproduction		R	EC 1907/2006/C	Surface coating in the manufacture of electronic components such as circuit boards	
Medium-chain chlorinated paraffins (MCCP). (UVCB substances consisting of more than or equal to 80% linear chloroalkanes with carbon chain lengths within the range from C14 to C17)		PBT vPvB		R	EC 1907/2006/C	Flame retardants, plasticising additives in plastics, sealants, rubber and textiles.	
Mercury and mercury compounds	7439-97-6 (Hg)	Acute toxicity; Hazardous to the environment; Serious health hazard	P	R	EC 1907/2006/XVII CH SR 814.81 A1 CH SR 814.81 A2 2011/65/EU CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	Mercury and mercury compounds Electric and electronic equipment covered by RoHS	P in anti-fouling, wood preservation, textiles, water treatment and in batteries and accumulators; 2% w/w in button cells. R in all other applications. EU: P in all applications covered by RoHS. CH: P in all applications except certain types of EEE. Limit value: 0.0005% w/w. -in portable batteries; 2% w/w, - in button cells; 0.01% w/w - in packaging; 0.0025% w/w - in wood-based materials; - in EEE 0.1% w/w. Conditions in Annex XVII
Methanediisocyanate (MDI)	101-68-8, 2536-05-2, 5873-54-1, 26447-40-5	Serious health hazard		R	EC 1907/2006/XVII	PUR-foam, adhesives	Conditions in Annex XVII

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Methoxyacetic acid	625-45-6	Toxic for reproduction	R	EC 1907/2006/C	Lime remover	
Methyloxirane (Propylene oxide)	75-56-9	Carcinogenic; Mutagenic	R	EC 1907/2006/C CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	For surfactants	
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	Carcinogenic	R	EC 1907/2006/C California Prop 65	Laboratory chemicals, paper goods, ink	
N,N-dimethylacetamide	127-19-5	Toxic for reproduction	R	EC 1907/2006/C California Prop 65	May occur in surface treatment, sealants etc.	
N,N-dimethylformamide	68-12-2	Toxic for reproduction	R	EC 1907/2006/C	Solvents, laboratory chemical	
Neodymium/Neodymium compounds			R	EU 2009/125/EC Ecodesign	Used in HDDs in computer servers and online data storage products	
N-methylacetamide	79-16-3	Toxic for reproduction	R	EC 1907/2006/C	Laboratory chemical	
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	335-76-2, 3830-45-3, 3108-42-7	Toxic for reproduction PBT	R	EC 1907/2006/C	Lubricant, wetting agent, plasticisers	
Nonylphenol (4-Nonylphenol, branched and linear)	25154-52-3, 84852-15-3	Toxic for reproduction; Hazardous for the environment	R	EC 1907/2006/XVII CH SR 814.81 A1 CAN NPRI 2010 CAN Tox. Subs. 2001/838/EC	Corrosion inhibitor	Conditions in Annex XVII
Nonylphenolethoxylate	9016-45-9	Health hazard; Hazardous to aquatic organisms	R	EC 1907/2006/XVII CH SR 814.81 A1 CAN NPRI 2010 CAN Tox. Subs. 2001/838/EC	Cleaning agent	Conditions in Annex XVII
N-pentyl-isopentylphthalate	776297-69-9	Toxic for reproduction	P	EC 1907/2006/C EC 1907/2006/XIV		EU: sunset date 4/07/2020
o-aminoazotoluene	97-56-3	Carcinogenic	R	EC 1907/2206/C California Prop 65	Dyes, pigments, textile, intermediate for dyes	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Octamethylcyclotetrasiloxane (D4)	556-67-2	PBT; vPvB		R	EC 1907/2006/C	Used in washing and cleaning products, polishes and waxes and cosmetics and personal care products	
Orange lead (lead tetroxide)	1314-41-6	Toxic for reproduction		R	EC 1907/2006/C	Pigments, stabilizers, lead acid batteries, glass and ceramics, rubber and plastic products	
Orthoboric acid, sodium salt	13840-56-7	Toxic for reproduction		R	EC 1907/2006/C	May be used as solvent and corrosion inhibitor	
p-(1,1-dimethylpropyl)phenol	80-46-6	Equivalent level of concern having probable serious effects to environment		R	EC 1907/2006/C	Manufacture of chemicals and plastic products	
Pentachlorothiophenol (PCTP)	133-49-3	PBT	P*	R*	US TSCA	Used to reduce viscosity during the production of rubber materials	In EU: Not included in the CoRAP List (not yet classified as a SVHC) *Regulation in process by US EPA under TSCA §751.411
Pentacosafluorotridecanoic acid	72629-94-8	vPvB		R	EC 1907/2006/C		
Pentadecafluorooctanoic acid (PFOA)	335-67-1	Toxic for reproduction		R	EC 1907/2006/C EC 1907/2006/XVII	Surfactant in the emulsion polymerization of fluoropolymers.	Conditions in Annex XVII
Pentalead tetraoxide sulphate	12065-90-6	Toxic for reproduction		R	EC 1907/2006/C	Plastic products, lead acid batteries, stabilizers for PVC	
Pentazinc chromate octahydroxide	49663-84-5	Carcinogenic	P		EC 1907/2006/C EC 1907/2006/XIV	Used for surface treatment and as pigment in paint.	EU: sunset date 22/01/2019

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Perfluorobutane sulfonic acid (PFBS) and its salts	See note 7 in "Notes"	Equivalent level of concern having probable serious effects to the environment and human health	**R**	EC 1907/2006/C	Used as a catalyst/ additive/reactant in polymer manufacture and in chemical synthesis. It is also used as a flame retardant in polycarbonate (for electronic equipment).	
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	-	vPvB	**R**	EC 1907/2006/C	May be used as a plasticiser, lubricant, surfactant, wetting agent, corrosion inhibitor and in fire-fighting foams	
Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1, 21049-39-8, 4149-60-4	Toxic for reproduction, PBT	**R**	EC 1907/2006/C	Processing aid for fluoropolymer manufacture/lubricating oil additive/surfactant for fire extinguishers/cleaning agent/textile antifouling finishing agent/polishing surfactant/waterproofin g agents and in liquid crystal display panels	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	Suspected to be Carcinogenic and Toxic to Reproduction	**P***	**R***	EU 2019/1021/POPs US EPA	Used in several industrial applications, including carpeting, upholstery, apparel, floor wax, textiles, fire fighting foam and sealants	In EU: Included in the POPs regulation as P *Regulated in the US by US EPA:s PFAS Action Plan
Phenanthrene	85-01-8	vPvB	**R**	EC 1907/2006/C	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	

Substance	CAS No.	Reason for inclusion	ABB classification		Legislation	Example of applications	Comments
Phenol, isopropylated phosphate (3:1) (PIP (3:1))	68937-41-7	PBT	**P***	**R***	US TSCA	Flame retardant and/or plasticizer in polymers such as flexible polyurethane foam and PVC, lubricant, hydraulic fluid, adhesives and sealants.	In EU: Included in the CoRAP List (not yet classified as a SVHC) *Regulation in process by US EPA under TSCA §751.407
Phenolphthalein	77-09-8	Carcinogenic		**R**	EC 1907/2006/C California Prop 65	Used in labs as pH-indicator and may occur as corrosion inhibitor.	
Phthalato(2-)dioxotrilead	69011-06-9	Toxic for reproduction		**R**	EC 1907/2006/C	Stabilizers for PVC, rubber products, plastic products	
Pitch, coal tar, high temp.	65996-93-2	Carcinogenic; PBT; vPvB	**P**		EC 1907/2006/C EC 1907/2006/XIV	Used in manufacture of anthracene and carbon black. Corrosion protection.	EU: sunset date 4/10/2020
Polybrominated diphenyl-ethers (PBDE) Polybrominated biphenyls (PBB) (di- , tetra-, hexa- , octa- , decabromobiphenyl)	92-86-4, 60044-25-9, 36355-01-8, 59536-65-1, 27858-07-7, 13654-09-6	PBT; vPvB	**P**	**R**	EC 1907/2006/XVII 2011/65/EU CH SR 814.81 A1 EC 850/2004 CAN Tox. Subs. California Prop 65	Electric and electronic equipment	EU: P in all applications covered by RoHS. CH: P in packaging, limit value: 0.01% w/w. Conditions in Annex XVII
Polychlorinated biphenyl (PCB)	1336-36-3	Health hazard; Acute toxicity to aquatic organisms	**P**		CH SR 814.81 A2 EC 850/2004 CAN Tox. Subs. US EPA 91/339/EEC 96/59/EC	Transformers & capacitors	
Potassium chromate	7789-00-6	Carcinogenic; Mutagenic	**P**		EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs.	Surface coating of metals.	EU: sunset date 21/09/2017
Potassium dichromate	7778-50-9	Carcinogenic; Mutagenic; Toxic for reproduction	**P**		EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs.	Surface coating of metals.	EU: sunset date 21/09/2017

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Potassium hydroxyoctaoxodizincatedi-chromate	11103-86-9	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV	Surface coating of metals	EU: sunset date 22/01/2019
Pyrene	129-00-0	PBT vPvB	**R**	EC 1907/2006/C	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	
Pyrochlore, antimony lead yellow	8012-00-8	Toxic for reproduction	**R**	EC 1907/2006/C	Dye, pigment, ink toner	
Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	See note 4 in "Notes"	Toxic for reproduction	**R**	EC 1907/2006/C	Might be used as heat stabilizer in plastic (mainly PVC processing)	
Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	-	Endocrine disrupting properties environment	**R**	EC 1907/2006/C	Used as a lubricant additive in lubricants and greases.	
Silicic acid ($H_2Si_2O_5$), barium salt (1:1), lead-doped	68784-75-8	Toxic for reproduction	**R**	EC 1907/2006/C	Paint, coating in light-bulbs	
Silicic acid, lead salt	11120-22-2	Toxic for reproduction	**R**	EC 1907/2006/C	Glass and ceramic products	
Sodium chromate	7775-11-3	Carcinogenic; Mutagenic; Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs.	Laboratory chemical	EU: sunset date 21/09/2017

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Sodium dichromate (anhydrous and dihydrate)	7789-12-0, 10588-01-9	Carcinogenic; Mutagenic; Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs.	Surface treatment of metal and electroplating products.	EU: sunset date 21/09/2017
Sodium perborate; perboric acid, sodium salt	15120-21-5, 11138-47-9	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XIV	Bleach in laundry and dishwasher detergents	EU: Sunset date 27/05/2023
Sodium peroxometaborate	7632-04-4	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XIV	Bleach in laundry and dishwasher detergents	EU: Sunset date 27/05/2023
Strontium chromate	7789-06-2	Carcinogenic	**P**	EC 1907/2006/C EC 1907/2006/XIV CAN NPRI 2010 CAN Tox. Subs.	Corrosion protection in pigment of paints and varnish.	EU: sunset date 22/01/2019
Sulfurous acid, lead salt, dibasic	62229-08-7	Toxic for reproduction	**R**	EC 1907/2006/C	Stabilizers for PVC, plastic goods	
Terphenyl hydrogenated	61788-32-7	vPvB	**R**	EC 1907/2006/C	Used as a plastic additive, solvent, in coatings/inks, in adhesives and sealants, and heat transfer fluids	
Tetraboron disodium heptaoxide, hydrate	12267-73-1	Toxic for reproduction	**R**	EC 1907/2006/C	Used as wood preservatives, flame retardants etc. Can be used in treated wood and flame-proof insulation.	
Tetrachloroethene (perchloroethylene)	127-18-4	Carcinogenic; Hazardous to aquatic organisms	**P**	CH SR 814.81 A1 CAN NPRI 2010 CAN Tox. Subs. US TSCA 90/415/EEC EC 2037/2000 96/55/EC California Prop 65	Degreasing	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Tetrachloromethane (carbon tetrachloride)	56-23-5	Acute toxicity; Hazardous to the environment; Substance that deplete the ozone layer	**P**	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN NPRI 2010 CAN Tox. Subs. US EPA California Prop 65	Degreasing	
Tetraethyllead	78-00-2	Toxic for reproduction	**R**	EC 1907/2006/C	Fuel	
Tetrafluoromethane (CF4)	75-73-0	Greenhouse gas	**R**	1999/296/EC EU 517/2004	Semiconductor manufacturing (additives to SF6 excluded)	
Tetralead trioxide sulphate	12202-17-4	Toxic for reproduction	**R**	EC 1907/2006/C	Paints, varnishes, PVC stabilizers, plastic products, lead acid battery	
Trichlorofluoromethane (CFC-11)	75-69-4	Substance that deplete the ozone layer	**P**	CH SR 814.81 A1 CH SR 814.81 A2, EC 2037/2000 CAN Tox. Subs. US EPA	Cooling agent	
Tricosafluorododecanoic acid	307-55-1	vPvB	**R**	EC 1907/2006/C		
Triethyl arsenate	15606-95-8	Carcinogenic	**R**	EC 1907/2006/C	May occur in the electronics industry in integrated circuits.	
Trifluorobromomethane (Halon-1301)	75-63-8	Substance that deplete the ozone layer	**P**	CH SR 814.81 A1 CH SR 814.81 A2 EC 2037/2000 CAN NPRI 2010 CAN Tox. Subs. US EPA	Fire extinguisher	
Trilead bis(carbonate) dihydroxide	1319-46-6	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XVII CH SR 814.81 A2 CAN NPRI 2010	Pigment in colour, Ceramic materials, oil paintings	

Substance	CAS No.	Reason for inclusion	ABB classification	Legislation	Example of applications	Comments
Trilead diarsenate	3687-31-8	Carcinogenic and toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XVII	Present in complex raw materials imported for manufacture of copper, lead and a range of precious metals.	Conditions in Annex XVII
Trilead dioxide phosphonate	12141-20-7	Toxic for reproduction	**R**	EC 1907/2006/C	Stabilizers	
Tris(2-chloroethyl)phosphate	115-96-8	Toxic for reproduction	**P**	EC 1907/2006/C EC 1907/2006/XIV Can Tox. Subs. California Prop 65	Additive flame retardant for plastics. Flame-retardant paints lacquers and adhesives.	EU: sunset date 21/08/2015
Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)		Endocrine disrupting properties	**R**	EC 1907/2006/C	Primarily used as an antioxidant to stabilize polymers.	
Trixylyl phosphate	25155-23-1	Toxic for reproduction	**R**	EC 1907/2006/C EC 1907/2006/XIV	In lubricants	EU: Sunset date 27/05/2023
Zinc chromate	13530-65-9	Carcinogenic; Hazardous to the environment; Allergenic	**R**	CAN NPRI 2010 CAN Tox. Subs.	Surface treatment. Pigment in e.g. paint.	
Zirconia Aluminosilicate Refractory Ceramic Fibres		Carcinogenic	**R**	EC 1907/2006/C CAN Tox. Subs.	Insulation materials for industrial use. Fire protection in industrial equipment.	
α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	6786-83-0	Carcinogenic	**R**	EC 1907/2006/C	Ink. Dyeing of paper, packaging materials textiles and plastic products. Washer fluid. Paper products, packaging materials, textiles and plastics.	

Notes

Note 1.

4-Nonylphenol, branched and linear - Non-exhaustive list of substances covered by the group entry

Substance name: 4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]

http://echa.europa.eu/documents/10162/3024c102-20c9-4973-8f4e-7fc1dd361e7d

Substance	CAS No
Phenol, 4- nonyl-, branched	84852-15-3
Phenol, 4-isononyl-	26543-97-5
Phenol, 4-nonyl-	104-40-5
Phenol, 4-(1-methyloctyl)-	17404-66-9
Phenol, 4-(1,1-dimethylheptyl)-	30784-30-6
Phenol, 4-(1-ethyl-1-methylhexyl)-	52427-13-1
Phenol, 4-(1-ethyl-1,3-dimethylpentyl)-	186825-36-5
Phenol, 4-(1-ethyl-1,4-dimethylpentyl)-	142731-63-3

Note 2.

4-Nonylphenol, branched and linear, ethoxylated - Non-exhaustive list of substances covered by the group entry

Substance name: 4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]

https://echa.europa.eu/documents/10162/38d2e3f0-2449-4767-97a4-6b5f5db56aef

Substance	CAS No
4-Nonyl Phenol Monoethoxylate	104-35-8
Poly(oxy-1,2-ethanediyl), α-(4-nonylphenyl)-ω-hydroxy-	26027-38-3
Ethanol, 2-[2-[2-[2-(4-nonylphenoxy)ethoxy]ethoxy]ethoxy]-	7311-27-5
Ethanol, 2-[2-(4-nonylphenoxy)ethoxy]-	20427-84-3
3,6,9,12,15-Pentaoxaheptadecan-1-ol,17-(4-nonylphenoxy)-	34166-38-6
3,6,9,12,15,18-Hexaoxaeicosan-1-ol, 20-(4-nonylphenoxy)-	27942-27-4
3,6,9,12,15,18,21,24-Octaoxahexacosan-1-ol, 26-(4-nonylphenoxy)-	14409-72-4
Isononylphenol, ethoxylated	37205-87-1
4-Nonylphenol, branched, ethoxylated	127087-87-0
Ethanol,2-[2-(4-tert-nonylphenoxy)ethoxy]- (9CI)	156609-10-8

Note 3.

5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]

http://echa.europa.eu/documents/10162/a4fac134-09e6-43c1-a65f-dfaee5f85731

Note 4.

Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)

http://echa.europa.eu/documents/10162/a410b50c-11f9-49ca-9e8f-54f2a674b032

Note 5.

Threshold values for cadmium and cadmium compounds

R in all applications

EU: P - as pigment in polymer materials and paints, except for safety reasons;

- as stabilizer in mixtures or articles manufactured from polymers or copolymers of vinyl chloride, except for safety reasons. Limit value: 0.01 % w/w.
- in EEE, limit value: 0.01% w/w.

France: P - in portable batteries, limit value: 0.002 % w/w;

- in zinc-carbon batteries, limit value: 0.015% w/w.

Germany: P as coating of metal surfaces, except to ensure functional reliability.

CH: P - in portable batteries, including those contained in appliances, limit value: 0.2% w/w;

- in plastics, limit value 0.01% w/w;
- in paints, limit value: 0.01% w/w,
- in paint with high zinc content 0.1% w/w;
- as coating of metal surfaces, except to ensure functional reliability;
- in zinc-plated articles, limit value: 0.025% w/w; in packaging, limit value: 0.01% w/w;
- in wood based materials, limit value: 0.005% w/w;
- in EEE, limit value: 0.01% w/w.

Note 6.

Chrome (VI) and compounds containing Cr(VI)

IEC62474 considers the following Cr(VI) compounds:
Barium chromate CAS number 10294-40-3, Calcium chromate CAS number 13765-19-0, Chromium trioxide CAS number 1333-82-0, Sodium chromate CAS number 7775-11-3, Sodium dichromate CAS number 10588-01-9, Strontium chromate CAS number 7789-06-2, Potassium dichromate CAS number 7778-50-9, Potassium chromate CAS number 7789-00-6 and Zinc chromate CAS number 13530-65-9.

Note 7.

Perfluorobutane sulfonic acid (PFBS) and its salts

Substance names: 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonyl fluoride CAS number 375-72-4, N,N,N,-triethylethanaminium 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulfonate CAS number 25628-08-4, 1,1,2,2,3,3,4,4,4-nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide CAS number 34454-97-2, 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid CAS number 375-73-5.

Note 8.

Diisocyanates, O = C=N-R-N = C=O, with R an aliphatic or aromatic hydrocarbon unit of unspecified length

This group of substance has the following member substances:

4-methyl-m-phenylene diisocyanate CAS number 584-84-9, Hexamethylene diisocyanate CAS number 822-06-0, 2-methyl-m-phenylene diisocyanate CAS number 91-08-7, 3,3'-dimethylbiphenyl-4,4'-diyl diisocyanate CAS number 91-97-4, 4,4’-Methylenediphenyl diisocyanate CAS number 101-68-8, 2,4,6-triisopropyl-m-phenylene diisocyanate CAS number 2162-73-4, m-tolylidene diisocyanate CAS number 26471-62-5, 1,3-bis(1-isocyanato-1-methylethyl)benzene CAS number 2778-42-9, 4,4'-methylenedicyclohexyl diisocyanate CAS number 5124-30-1, 2,4’-Methylenediphenyl diisocyanate CAS number 5873-54-1, 1,5-naphthylene diisocyanate CAS number 3173-72-6, 1,3-bis(isocyanatomethyl)benzene CAS number 3634-83-1, 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate CAS number 4098-71-9, 2,2’-Methylenediphenyl diisocyanate CAS number 2536-05-2

Conditions of restriction 1. Shall not be used as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 August 2023, unless: (a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the employer or self-employed ensures that industrial or professional user(s) have successfully completed training on the safe use of diisocyanates prior to the use of the substance(s) or mixture(s). 2. Shall not be placed on the market as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 February 2022, unless: (a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the supplier ensures that the recipient of the substance(s) or mixture(s) is provided with information on the requirements referred to in point (b) of paragraph 1 and the following statement is placed on the packaging, in a manner that is visibly distinct from the rest of the label information: “As from 24 August 2023 adequate training is required before industrial or professional use”.

Reference list

2011/65/EC corresponds to Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

2009/251/EC corresponds to Commission decision of 17 March 2009 requiring Member States to ensure their products containing the biocide dimethylfurmate are not placed or made available on the market.

EC 1907/2006/C corresponds to Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Candidate list

EC 1907/2006/XIV corresponds to Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Annex XIV

EC 1907/2006/XVII corresponds to Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Annex XVII

EU 517/2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006

2005/84/EC corresponds to Directive 2005/84/EC of the European Parliament and of the Council of 14 December 2005 amending for the 22nd time Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (phthalates in toys and childcare articles).

EC 850/2004 corresponds to Regulation No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants amending Directive 79/117/EC.

2001/838/EC corresponds to: Commission Recommendation of 7 November 2001 on the results of the risk evaluation and the risk reduction strategies for the substances: acrylaldehyde; dimethyl sulphate; nonylphenol phenol, 4-nonyl-, branched; tert-butyl methyl ether; 2001/838/EC

2001/852/EC corresponds to Commission Decision of 19 November 2001 on adopting Community import decisions pursuant to Council Regulation (EEC) no 2455/92 concerning the export and import of certain dangerous chemicals and amending Decision 2000/657/EC.

EC 2037/2000 corresponds to Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer

1999/721/EC corresponds to Commission recommendation of 12 October 1999 on the results of the risk evaluation and on the risk reduction strategies for the substances: 2-(2-butoxyethoxy)ethanol; 2-(2-methoxyethoxy)ethanol; Alkanes, C10-13, chloro; Benzene, C10-13-alkyl derivs.

1999/296/EC corresponds to Council Decision of 26 April 1999 amending Decision 93/389/EEC for a monitoring mechanism of Community CO2 and other greenhouse gas emissions

96/59/EC corresponds to Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT)

96/55/EC corresponds to Commission Directive 96/55/EC of 4 September 1996 adapting to technical progress for the 2nd time Annex I to Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (chlorinated solvents)

91/339/EC corresponds to Council Directive 91/339/EEC of 18 June 1991 amending for the 11th time Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations

90/415/EC corresponds to Council Directive 90/415/EEC of 27 July 1990 amending Annex II to Directive 86/280/EEC on limit values and quality objectives for discharges of certain dangerous substances included in list I of the Annex to Directive 76/464/EEC

CH SR 814.81 A1 corresponds to SR 814.81 Ordinance on the Reduction of Risks relating to the Use of Certain Particularly Dangerous Substances, Preparations and Articles (Chemical Risk Reduction Ordinance, ORRChem) of 18 May 2005 – Annex 1 Provisions relating to specific substances. (Switzerland)

CH SR 814.81 A2 corresponds to 814.81 Ordinance on the Reduction of Risks relating to the Use of Certain Particularly Dangerous Substances, Preparations and Articles (Chemical Risk Reduction Ordinance, ORRChem) of 18 May 2005 – Annex 2 Provisions relating to groups of preparations and articles. (Switzerland)

CAN NPRI 2010 corresponds to Canadian National Pollutant Release Inventory changes in reporting requirements for 2010 (Canada)

CAN Tox. Subs. corresponds to Canadian Toxic Substances List - Schedule 1. (Canada)

FR ECA R521-4 to 42 corresponds to France Environment Code Article R521-4 to 42.

California Prop 65 corresponds to Proposition 65, formally titled "The Safe Drinking Water and Toxic Enforcement Act". https://oehha.ca.gov/proposition-65/proposition-65-list/

US TSCA corresponds to US Toxic Substance Control Act. TSCA Chemical Substance Inventory | US EPA

US EPA corresponds to United States Environmental Protection Agency. United States Environmental Protection Agency | US EPA

EU 2019/1021/POPs corresponds to The consolidated version of the Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants (POPs Regulation)

European Court of Justice ruling for REACH article 33

Version history

Version history is found in document 2020/SECRC/T/TN/38-5. The document is published in ABB Library.