

ABB List of Prohibited and Restricted Substances

Version 1.26, this document is valid as of 19th August 2024.

The objective of ABB List of Prohibited and Restricted Substances is to aid the ABB **supply chain** in achieving compliance with legislation. The list consolidates legislation ABB has determined to be applicable to its suppliers, outlining where substances should not be used (Prohibited substances) and substances which should be limited or reported upon (Restricted substances).

This document contains an indicative and non-exhaustive list of key substances relevant to ABB. Notwithstanding the foregoing, the list of substances in this document applies without prejudice to (and it does not preclude) the supply chains' obligation to ensure compliance with the relevant and applicable chemical laws and regulations. Legislative changes in between two versions of the list shall always be considered.

The list should be used for goods supplied to ABB including its packaging, product development, production processes, service activities and construction sites. Legislation has been considered from a global perspective, with the applicable geography noted in the table. If it is known that the product will only be sold in a limited jurisdiction, then only the substances within that jurisdiction need to be considered. However, if the product could be marketed in another jurisdiction or the jurisdiction of sale is unknown, substances from all jurisdictions should be considered.

The document is reviewed and updated, as a minimum, twice per year, in January and July/ August, with change bars identifying changes since the previous issue of the document.

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.

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

Legislation: The short form of legislation triggering the impact, see the legislation overview after the table for more details on each regulation.

Example of applications: Example of applications where a specific chemical element or compound is used. The list is not intended to be exhaustive but rather to highlight common uses.

Version history

Version history is found in document 2020/SECRC/T/TN/38-8 and changes to the document in further issues shall identify new substances with change bars. The document is published in ABB Library.

Legislation Overview

REACH

[EU's Registration, Evaluation, Authorisation and Restriction of Chemicals \(REACH\) Regulation \(1907/2006\)](#) describes obligations for the production, use and import of chemical substances and their potential impact on both human health and the environment. The Regulation imposes multiple obligations, which includes the need to communicate (but not ban) the presence of Candidate List substances if it is $\geq 0.1\%$ w/w in the article, require authorisation to use certain substances in the EU and restrict the use of certain substances in specified ways.

REACH Candidate List -Restriction in the context of this Regulation means that if the substance is contained within the article above 0.1% by weight, the presence of the substance and any safe use information needs to be communicated (Article 33) to the recipient of the article. Where the restriction list is referenced the specific terms of the restriction should be consulted as the restriction can impose limitations on certain uses of the substance, labelling requirements, health and safety requirements or other obligations.

REACH Restriction- Restriction in this context of the Regulation means that certain uses of the substances are prohibited or there are specific conditions associated with the use of the substance, and the specific terms of the legislation should be consulted.

RoHS

The Restriction of Hazardous Substances (RoHS) Directive (2011/65/EC) restricts the use of certain hazardous substances in all types of electrical and electronic equipment that would affect human health or the environment. The Directive has several exclusions, which permit exclude certain products from its scope and derogations permit the time limited use of the substances in certain applications. It should be noted that many non-EU countries have their own equivalent to RoHS so it should be considered that this is also applicable in other countries.

For example, Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products, order number 32, also known as “China RoHS” regulates certain hazardous substances in electrical and electronic equipment. It should be noted that this includes all types of electrical equipment and its components, as well as batteries. The use of restricted substances is limited in certain equipment only, and specific labelling is required.

The Stockholm Convention

The Stockholm Convention is an international agreement which, bans or restricts the use of persistent organic pollutants in both chemical products and articles due to their health and environmental properties. The Convention is implemented through national legislation, which can introduce additional requirements or have a delay in implementing the requirements under the convention. Of specific note is China and the US which although implements some of the requirements, at this point not all substance requirements are implemented into national law, where there are differences this is noted in the applicable geography. In the EU the convention is implemented through the Persistence Organic Pollutant (POPs) Regulation (2019/1021/EU)

Montreal Protocol and Kigali Amendment

The Montreal Protocol and Kigali Amendment is an international agreement on substance that deplete the ozone layer and trigger their phase out as agreed by signatories to the agreement. The agreement phases out Ozone depleting substances (ODS) Hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs) used in refrigeration, air-conditioning and foam applications. Some substances are prohibited from use, whereas others have obligations such as labelling, leak prevention, record keeping, recovery and destruction of the substance and reporting among other obligations. Reference should be made to national implementing legislation for full obligations.

F-Gas Regulation

There are a number of countries which if fluorinated gases are used require certain obligations to be met, with the specific requirements outlined by legislation such as the EU's Fluorinated Greenhouse Gases Regulation (517/2014/EU), the US's Clean Air Act and Canada's Federal Halocarbon Regulations and associated Regulations. Restriction within this context means that there are certain obligations to ensure leak checks, leakage repairs and recovery of used gas among other obligations. It is also worth noting that the use of F-gases in many new types of equipment where less harmful alternatives are widely available is banned.

Batteries

The Batteries Directive (2006/66/EC) contributes to the protection of the environment by minimising the negative impact of batteries and accumulators. The Directive prohibits the marketing of some types of batteries containing certain hazardous substances among many other obligations relating to labelling and collection.

Packaging

The Packaging Directive (94/62/EC) set rules on the production, marketing, use, recycling, and refilling of containers of liquids for human consumption and on the disposal of used containers. The Directive among other aspects also places obligations on packaging materials and sets limits for specific substances.

CAN Tox. Subs

[CAN Tox. Subs. corresponds to Canadian Toxic Substances List - Schedule 1 which prohibits the use of certain substances.](#)

[Restriction in this context means that certain uses of the substances are prohibited and the specific terms of the legislation should be consulted.](#)

California Prop65

[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/](https://oehha.ca.gov/proposition-65/proposition-65-list/) The legislation requires warnings to be provided to customers if anyone who is supplied the product could be exposed to a listed substance at a significant level.

[Restriction in this context means that the use of the substance if triggered by the legislation requires labelling.](#)

US TSCA

[US TSCA corresponds to US Toxic Substance Control Act. TSCA Chemical Substance Inventory precludes the use of certain substances, including some which are imported as an article.](#)

[Restriction in this context means that certain uses of the substances are prohibited and the specific terms of the legislation should be consulted.](#)

Japan CSCL

[The Japan Chemical Substance Control Law \(CSCL\) aim is to prevent environmental pollution and control chemical risks to human health. The CSCL is primarily focused on controlling the manufacture and import of substances, with the import of Class I chemical substances in certain products restricted.](#)

[Restriction in this context means that certain uses of the substances are prohibited, and the specific terms of the legislation should be consulted.](#)

Hong Kong convention's Inventory of Hazardous Materials

[The Hong Kong convention applies only to equipment which is intended to be installed on a ship, with the convention aimed at ensuring that when ships are recycled they do not pose any unnecessary risk to human health and safety or to the environment. An appendix to the Convention provides a list of hazardous materials, the installation or use of which is prohibited or restricted.](#)

China REACH

Provisions on Environmental Administration of New Chemical Substances MEE Order No. 12 (China REACH) requires companies to submit new chemical substance notification to the Chinese Chemical Registration Centre (CRC) for any chemicals not already listed China's Inventory of Existing Chemical Substances that they wish to import into or utilize within China, regardless of annual amounts.

In addition to this, there are mandatory standards that limit the Volatile Organic Compounds (VOCs) for adhesives, industrial protective coatings, printing ink and cleaning products which substances used within China must comply to.

India REACH

Chemical (Management and Safety) Rules (CMSR or India REACH) places notification and at points registration requirements if listed substances are imported in quantities >1tonne per annum.

Substance	CAS No	ABB Classification	Legislation	Applicable Geography	Example of applications	Comments
1-Amino-2-methylantraquinone	82-28-0	R	California Prop 65	US	Red dye in thermoplastics.	
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with \geq 0.3% of dihexyl phthalate	68515-51-5, 68648-93-1	R	REACH Candidate List / Authorisation	EU	Plasticiser used in PVC, sealants, flexible adhesives, and paints.	EU: Sunset date 27/02/2023
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	P	REACH Candidate List / Authorisation	EU	Plasticiser used in PVC, sealants, flexible adhesives, and paints.	EU: Sunset date 4/7/2020
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	P	REACH Candidate List / Authorisation	EU	Plasticiser used in PVC, sealants, flexible adhesives, and paints.	EU: Sunset date 4/7/2020
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	R	REACH Candidate List / Authorisation	EU	In plastic articles.	EU: Sunset date 27/02/2023
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	P	REACH Candidate List / Authorisation	EU	Plasticiser used in cables.	EU: Sunset date 4/7/2020
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	R	REACH Candidate List	EU	Solvent previously used in lithium batteries.	
1,2-diethoxyethane	629-14-1	R	REACH Candidate	EU	Hydraulic fluids.	
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	R	REACH Candidate List	EU, Canada	As electrolyte in lithium batteries.	
1,1'-[ethane-1,2-diylbis(oxy)]bis[2,4,6-tribromobenzene] (BTBPE)	37853-59-1	R	REACH Candidate List	EU	Flame retardant in polymers, adhesives and coatings.	
1,3-propanesultone	1120-71-4	R	REACH Candidate	EU	As electrolyte in lithium batteries.	
1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02.13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	P	Stockholm Convention	Global	Used as a non-plasticizing flame retardant, used in adhesives and sealants and in binding agents.	Proposed EU POPs substance.
1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02.13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	R	REACH Candidate List	EU	Used as a non-plasticizing flame retardant, used in adhesives and sealants and in binding agents.	Proposed EU POPs substance.
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	R	REACH Candidate List / Authorisation	EU	UV-protection agents in coatings, plastics, and rubber.	EU: Sunset date 27/11/2023
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	P	Stockholm convention	Global	UV-absorbers, especially for transparent plastic materials, rubber,	EU: Sunset date 27/11/2023

2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	R	REACH Candidate List / Authorisation	EU	UV-absorbers, especially for transparent plastic materials, rubber, and polyurethanes. UV-protection	EU: Sunset date 27/11/2023
2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol; Ocotrizole (UV-329)	3147-75-9	R	REACH Candidate List	EU	UV-stabiliser in plastics	
2-(2'-hydroxy -3' -tert-butyl-5'-methylphenyl)-5-chloro benzotriazole; Bumetrizole (UV-326)	11/5/3896	R	REACH Candidate List	EU	UV-stabiliser in plastics	
2,2-Bis(bromomethyl)-1,3-propanediol	3296-90-0	R	California Prop 65	US	Flame retardant in polyester and polyurethane.	
2,4,6-tris(tert-butyl)phenol (2,4,6-TTBP), (phenol, 2,4,6-tris(1,1-dimethylethyl)	732-26-3	P	US TSCA §751.409 Japan CSCL	US, Japan	Used as an additive in fuel, oils, and lubricants. Used in some polymers	In EU: Included in the CoRAP List (not yet classified as a SVHC)
2,4,6-tris(tert-butyl)phenol (2,4,6-TTBP), (phenol, 2,4,6-tris(1,1-dimethylethyl)	732-26-3	R	REACH candidate list	EU	Used as an additive in fuel, oils, and lubricants. Used in some polymers	In EU: Included in the CoRAP List (not yet classified as a SVHC)
2,4-dinitrotoluene	121-14-2	P	REACH Candidate List / Authorisation US EPA	EU, Canada, US	Explosives.	EU: Sunset date 21/08/2015
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	R	REACH Candidate List / Authorisation	EU	UV-protection agents in coatings, plastics, and rubber.	EU: Sunset date 27/11/2023
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	R	REACH Candidate List/Authorisation Japan CSCL	EU, Japan	UV-absorbers, especially for transparent plastic materials, rubber, and polyurethanes. UV-protection	EU: Sunset date 27/11/2023
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	R	REACH Candidate List / Authorisation	EU	Heat stabilizer in plastic (mainly PVC processing).	EU: Sunset date 01/05/2025
2-methoxyethyl acetate	110-49-6	R	CAN Tox. Subs.	Canada	Paints, lacquers.	
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (covering well-defined substances and UVCB substances, polymers, and homologues)	Multiple	P	REACH Candidate List/ Authorisation	EU		EU: Sunset date 4/1/2021
4,4'-isopropylidenediphenol (bisphenol A; BPA)	80-05-7	R	REACH Candidate List	EU, US	Mostly in PVC as a stabiliser.	
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	R	REACH Candidate List / Authorisation	EU	Manufacture of ink and paint, so may be found in paper and packaging.	EU: Sunset date 01/05/2025

4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	R	REACH Candidate List	EU	Dyeing of paper, ink in cartridges and pens, plant dyeing. Therefore may be found in paper and packaging.	
4,4'-methylenebis[2-chloroaniline]	101-14-4	P	REACH Candidate List / Authorisation	EU	Hardener in resins and polymers.	EU: Sunset date 22/11/2017
4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26) with \geq 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	2580-56-5	R	REACH Candidate List	EU	Ink, paint, detergents. Dyeing of paper and packaging.	
4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) with \geq 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	548-62-9	R	REACH Candidate List	EU	Dyeing of paper, ink used in cartridges and ballpoint pens, plant dyeing.	
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]	Multiple	R	REACH Candidate List	EU	Lubricant additive.	
6,6'-di-tert-butyl-2,2'-methylene-di-p-cresol	119-47-1	R	REACH Candidate List	EU	Rubbers, lubricants, adhesives, inks, and fuels.	
Acrylamide	79-06-1	R	REACH Candidate List / Authorisation CAN Tox. Subs. US EPA	EU, Canada, US	Plastic packaging.	Conditions in Annex XVII
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	P	Stockholm convention	Global, unless otherwise	Plasticiser and flame retardant used in PVC and other flexible polymers.	Limit value: 1% w/w under POPs
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (SCCP)	85535-84-8	R	Japan CSCL California Prop 65	Japan, US	Plasticiser and flame retardant used in PVC and other flexible polymers.	

Alkanes, C14-17, chloro (Medium Chain Chlorinated Paraffins)	1372804-76-6; 85535-85-9; 198840-65-2	R	REACH Candidate List Proposed REACH Restriction	EU	Flame retardant and plasticiser. Used in flexible PVC, rubbers, sealants, paints, adhesives, and coatings.	Proposed to be restricted in the EU under REACH and POPs.
Aluminosilicate Refractory Ceramic Fibres	142844-00-6	R	REACH Candidate List	EU, Canada	Insulation materials for industrial use. Fire protection in industrial	
Antimony Oxide (Antimony trioxide)	1309-64-4	R	California Prop 65	US	Flame retardant used in plastics.	
Benzophenone	119-61-9	R	California Prop 65	US	UV absorber in plastics.	
Diazoaminobenzene	136-35-6	R	California Prop 65	US	Polymer additive.	
Arsenic compounds	n/a	P	REACH Restriction	EU,	Electronic equipment and wood treatment.	Conditions in Annex XVII
Arsenic compounds (Inorganic arsenic compounds)	n/a	R	CAN Tox. Subs. US EPA	Canada, US	Electronic equipment and wood treatment.	Some EU member states set limits in wood-based materials.
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	P	REACH Restriction, CAN Tox. Subs. US EPA California Prop 65	EU, Canada, US	Thermal insulation.	Conditions in Annex XVII
Barium diboron tetraoxide	13701-59-2	P	REACH Candidate	EU	Paints, coatings adhesives.	
Benz[a]anthracene	56-55-3	R	REACH Candidate List/ Restriction	EU	Normally not produced intentionally but rather occurs as a constituent or	Conditions in Annex XVII
Benzyl butyl phthalate (BBP)	85-68-7	P	REACH Authorisation/ Restriction RoHS (including China)	EU, China	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 EU RoHS all electrical equipment covered by RoHS. China RoHS limited to listed to listed product types
Benzyl butyl phthalate (BBP)	85-68-7	R	REACH Candidate List California Prop 65	EU, Canada, US	Used as plasticizer in polymer products, mainly in PVC. Occurs in colours, materials to plastic, rubber,	Conditions in Annex XVII
Biphenyl-4-ylamine	92-67-1	R	REACH Candidate List / Restriction US EPA	EU, Canada, US	Intermediate, dyes, pigments, textiles.	Conditions in Annex XVII

Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	P	REACH Candidate List/ Authorisation/ Restriction RoHS CAN Tox. Subs US EPA California Prop 65 China RoHS	EU, Canada, US, China	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-methoxyethyl) phthalate	117-82-8	R	REACH Candidate List	EU	Phthalate plasticiser in polymeric materials, paints, lacquers, and	
Bis(2-(2-methoxyethoxy)ethyl)ether	143-24-8	R	REACH Candidate	EU	Used in inks and paper products and	
Bis(2-methoxyethyl) ether	111-96-6	P	REACH Candidate List/ Authorisation	EU	Solvent for battery electrolytes.	EU: Sunset date 22/08/2017
Bis(4-chlorophenyl) sulphone (BCPS)	80-07-9	R	REACH Candidate	EU	Used in high temperature plastics.	
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	P	REACH Candidate List / Restriction RoHS Stockholm convention Japan CSCL	Global unless otherwise listed	Flame retardants, insulation materials, electrical equipment, and plastics.	
Bis(pentabromophenyl) ether (decabromodiphenyl ether;	1163-19-5	R	US TSCA §751.405	US	Flame retardants, insulation materials, electrical equipment, and plastics.	
Bis(tributyltin)oxide (TBTO)	56-35-9	P	Japan CSCL	Japan	Occurs as a preservative in textiles, paper, rubber, and polymer materials.	Conditions in Annex XVII
Bis(tributyltin)oxide (TBTO)	56-35-9	R	REACH Candidate List	EU, US	Occurs as a preservative in textiles, paper, rubber, and polymer materials.	Proposed to be restricted in Canada
Bisphenol S (BPS)	80-09-1	R	California Prop 65	US	Paper products, adhesives and resins	
Bis(2-ethylhexyl) tetrabromophthalate covering any of the individual isomers and/or	26040-51-7	R	REACH Candidate List	EU	Flame retardants and plasticizers in plastics.	
bis(α,α-dimethylbenzyl) peroxide	80-43-3	R	REACH Candidate	EU	Rubber, polyethylene, silicone rubber	
Boric acid	10043-35-3, 11113-50-1	R	REACH Candidate List	EU	Used as wood preservative, flame retardant among other uses.	
Bumetrizole (UV-326)	3896-11-5	R	REACH Candidate	EU	UV light stabiliser in polymers	
Cadmium and cadmium compounds (Inorganic cadmium compounds)	7440-43-9 (Cd). See note 1 in "Notes"	P	REACH Restriction RoHS (including China) Batteries Packaging CAN Tox. Subs.	EU, Canada, China	Electric and electronic equipment.	Conditions in Annex XVII EU RoHS all electrical equipment covered by RoHS. China RoHS limited to listed to listed product types

Cadmium and cadmium compounds (Inorganic cadmium compounds)	7440-43-9 (Cd). See note 1 in "Notes"	R	REACH Candidate List US EPA	EU, US	Electric and electronic equipment.	
Cadmium hydroxide (Inorganic cadmium compounds)	21041-95-2	R	REACH Candidate List/ Restriction	EU	Used for the manufacture of nickel cadmium batteries.	Conditions in Annex XVII
Cadmium oxide (Inorganic cadmium compounds)	1306-19-0	R	REACH Candidate List/ Restriction	EU	Used in electronics, in power switch contacts.	Conditions in Annex XVII
Cadmium sulphide (Inorganic cadmium compounds)	1306-23-6	R	REACH Candidate List/ Restriction	EU	Used as a pigment (bright yellow), in manufacturing of photo resistors and in thin-film form combined with	Conditions in Annex XVII
Chrome (VI+) and compounds contain Cr(VI)(hexavalent compounds)	See note 2 in "Notes"	P	RoHS (including China) Packaging	EU, China	Electric and electronic and pigment in paint.	EU: P in all applications covered by RoHS and packaging 0.1% w/w. CH: P in packaging, limit value: 0.01% w/w. China RoHS limited to listed to listed product types
Chrome (VI+) and compounds contain Cr(VI) (hexavalent	See note 2 in "Notes"	R	CAN Tox. Subs. California Prop 65	Canada, US	Electric and electronic and pigment in paint.	
Chromium trioxide (hexavalent compounds)	1333-82-0	P	REACH Candidate List / Authorisation RoHS	EU	Electric and electronic equipment covered by RoHS. Wood preservative. Surface treatment of metals.	EU: Sunset date 21/09/2017
Cobalt/Cobalt compounds		R	Eco Design	EU	In batteries used in computer servers and online data storage products.	Amount must be communicated to customer.
Cobalt dichloride	7646-79-9	R	REACH Candidate List	EU, Canada	Moisture indicating silica gel or in humidity cards.	
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	R	REACH Candidate List	EU	Raw material for the manufacture of rubber and plastic, rubber, and	
Diboron trioxide	1303-86-2	R	REACH Candidate List	EU	It is used to make borosilicate glass and glass fibre, as a flux for melting	
Dibutyl phthalate (DBP)	84-74-2, 93952-11-5	P	REACH Candidate List / Authorisation / Restriction RoHS US EPA California prop65 China RoHS	EU, US, Canada, China	Occurs in various articles of plastic, mainly PVC. Occurs in glue, paints, plastics, rubber etc.	EU REACH: Sunset date 21/02/2015 Conditions in Annex XVII EU RoHS all electrical equipment covered by RoHS. China RoHS limited to listed to listed product types

Dibutylbis(pentane-2,4-dionato-O,O')tin	22673-19-4	R	REACH Candidate List	EU	Used as biocides and as stabilisers in plastics. Used also as a catalyst and in the manufacturing of adhesives,	
Dibutyltin dichloride (DBTC)	683-18-1	R	REACH Candidate	EU	Rubber manufacturing, rubber	
Dichloromethane (methylene chloride)	75-09-2	P	REACH Restriction	EU	Paint stripping (prohibited).	Conditions in Annex XVII
Dichloromethane (methylene chloride)	75-09-2	R	CAN Tox. Subs. US TSCA California Prop 65	US, Canada	Other applications such as degreasing (restricted).	
Dicyclohexyl phthalate (DCHP)	84-61-7	R	REACH Candidate List	EU	Plasticiser and light stabiliser used in a wide range of polymers, resins,	
Dihexyl phthalate	84-75-3	R	REACH Candidate List/ Authorisation California Prop 65	EU, US	Plasticizer in PVC.	EU: Sunset date 27/02/2023
Diisobutyl phthalate (DIBP)	84-69-5	P	REACH Candidate List / Authorisation / Restriction RoHS (including China)	EU, China	Solvent in adhesives, inks for paper and packaging.	EU REACH: Sunset date 21/02/2015 Conditions in Annex XVII EU RoHS all electrical equipment covered by RoHS. China RoHS limited to listed to listed product types
Diisocyanates, O = C=N-R-N = C=O, with R an aliphatic or aromatic hydrocarbon unit of unspecified	See Note 4 in "Notes"	R	REACH Restriction	EU	See note 4 in "Notes".	Conditions in Annex XVII
Diisohexyl phthalate	71850-09-4	R	REACH Candidate	EU	Used as a plasticizer for certain	
Dimethyl hydrogen phosphite	868-85-9	R	California Prop 65	US	Flame retardant in plastics and	
Diisooctyl phthalate (DIOP)	27554-26-3	R	France endocrine disrupting substances (EDCs)	France	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	
Diisopentylphthalate	605-50-5	P	REACH Candidate List/ Authorisation	EU	Explosives.	EU: Sunset date 4/07/2020
Dimethylfumarate (DMFu)	624-49-7	P	REACH Restriction	EU	Drying and anti-mold agents and silica gel.	Conditions in Annex XVII
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	R	REACH Candidate List	EU	Pesticide.	

Diocetyl tin 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	n/a	R	REACH Candidate List	EU	Commonly used as a stabiliser and catalyst in plastics, paints, coatings, inks, sealants.	
Dioxobis(stearato)trilead	12578-12-0	R	REACH Candidate	EU	Stabilizers for PVC and plastic goods.	
Di- μ -oxo-di-n-butylstanniohydroxyborane (DBB)	75113-37-0	P	REACH Restriction	EU	Stabiliser in PVC or as a drier in paints.	Conditions in Annex XVII
3,3'-Dimethoxybenzidine-based dyes	Multiple	R	California Prop 65	US	Blue and black dyes in plastics,	
Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate)	573-58-0	R	REACH Candidate List	EU	Red dye in paper and textiles.	
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	R	REACH Candidate List	EU	Black dye in plastics and inks.	
Disodium octaborate	12008-41-2	R	REACH Candidate List	EU	Used in anti-freeze products, heat transfer fluids, lubricants, and	
Disodium tetraborate, anhydrous	1330-43-4, 1303-96-4,	R	REACH Candidate List	EU	Used as wood preservative, flame retardant etc. Can be used in treated	
Fatty acids, C16-18, lead salts	91031-62-8	R	REACH Candidate	EU	Stabilizers for PVC and plastic goods.	
F-gases including Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF6)	Note 6	P/R depending on the substance	F-gas related legislation	EU, US, Canada	Refrigerant	
Halogenated Flame Retardants	n/a	R	Eco Design	EU	Electronic displays.	Must be marked with name of flame retardant.
Hexachlorocyclohexanes, including lindane	58-89-9; 608-73-1; 319-85-7; 319-84-6	P	Stockholm convention Japan CSCL US EPA	Global	Insecticide.	Limit value: 0.001% w/w of total halogenated biphenyls in lubrication oils and greases manufactured from waste oils.

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	P	REACH Candidate List / Authorisation Stockholm convention Japan CSCL US TSCA	Global	Used as flame retardant in plastics, especially polystyrene.	EU: Sunset date 21/08/2015
Hexachlorobutadiene (HCBD)	87-68-3	P	POPs US TSCA §751.413 Japan CSCL	EU, US, Japan	As hydraulic, heat transfer or transformer fluid.	
Hydrazine	302-01-2, 7803-57-8	R	REACH Candidate List CAN NPRI US EPA	EU, US, Canada	Corrosion inhibitor in cooling systems.	
Lead and lead compounds	7439-92-1 (Pb)	P	REACH Restriction RoHS (including China) CAN Tox. Subs. Packaging	EU, Canada, China	Electric and electronic equipment, welding and soldering products, metal surface treatment paints and as a stabiliser in plastics.	Paints Conditions in Annex XVII. Limit value in packaging and all applications covered by RoHS 0.1%/w/w China RoHS limited to listed to listed product types
Lead and lead compounds	7439-92-1 (Pb)	R	REACH Candidate List Battery	EU, US	Electric and electronic equipment, welding and soldering products, metal surface treatment paints and as	
Lead chromate (hexavalent compound)	7758-97-6	P	REACH Candidate List / Authorisation California Prop 65 CAN Tox. Subs. RoHS (including	EU, Canada, China	Dyes and pigments. Corrosion protection. Electric and electronic equipment.	EU REACH: Sunset date 21/05/2015 China RoHS limited to listed to listed product types
Lead chromate molybdate sulphate red (C.I. Pigment Red 104) (hexavalent compound)	12656-85-8	P	REACH Candidate List /Authorisation CAN Tox. Subs.	EU, Canada	Dyes and pigments.	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	R	REACH Candidate	EU	PVC stabiliser.	
Lead hydrogen arsenate	7784-40-9	P	REACH Restriction	EU	Pesticide for wood.	Conditions in Annex XVII
Lead hydrogen arsenate	7784-40-9	R	REACH Candidate List	EU, Canada	Pesticide for wood.	All other applications
Lead monoxide (lead oxide)	1317-36-8	R	REACH Candidate	EU	Stabilizers and pigments.	
Lead oxide sulfate	12036-76-9	R	REACH Candidate	EU	Stabilizers for PVC, plastic goods.	

Lead sulfochromate yellow (C.I. Pigment Yellow 34) (hexavalent compound)	1344-37-2	P	REACH Candidate List /Authorisation CAN Tox. Subs	EU, Canada	Yellow dyes and pigments.	EU: Sunset date 21/05/2015, P in all applications. CH: P in packaging, limit value 0.01% w/w.
Lead titanium trioxide	12060-00-3	R	REACH Candidate	EU	Semiconductors, computers, electrical	
Lead titanium zirconium oxide	12626-81-2	R	REACH Candidate	EU	Electronic products.	
Mercury and mercury compounds	7439-97-6 (Hg)	P	REACH Restriction RoHS (including China) Batteries Packaging CAN Tox. Subs.	EU, Canada, China	Batteries, lamps, switch contacts and preservation.	Conditions in Annex XVII -a Limit value:- batteries; 0.0005% w/w. - packaging and items in scope of RoHS 0.1% w/w. China RoHS limited to listed product types
Mercury and mercury compounds	7439-97-6 (Hg)	R	US EPA California Prop 65	US	Batteries, lamps, switch contacts and preservation.	All other applications
Methanediisocyanate (MDI)	101-68-8, 2536-05-2, 5873-54-1,	R	REACH Restriction	EU	Polyurethane-foam and adhesives.	Conditions in Annex XVII
N-methyl pyrrolidon	872-50-4	R	REACH Candidate	EU	Solvent in batteries and capacitors.	
Neodymium/Neodymium compounds	n/a	R	Eco Design	EU	Used in hard drive disks in computer servers and online data storage products.	Amount must be communicated to customer.
Nonylphenol (4-Nonylphenol, branched and linear)	25154-52-3, 84852-15-3	R	REACH Restriction CAN Tox. Subs.	EU, Canada	Additive in rubbers.	Conditions in Annex XVII
N-pentyl-isopentylphthalate	776297-69-9, 27417-40-9, 28726-30-9	P	REACH Candidate List/ Authorisation	EU	Plasticiser in plastics	EU: Sunset date 4/07/2020
N,N'-Ditolyl-p-phenylenediamine	70290-05-0	P	Japan CSCL	Japan	Rubbers, lubricants, adhesives, inks,	
Nickel	7440-02-0	P	REACH Restriction	EU	Nickel metal and alloys.	Conditions in Annex XVII- Only limited in high skin contact parts
Nickel	7440-02-0	R	California Prop 65	US	Nickel metal and alloys.	
n-Nitrosodiethylamine	55-18-5	R	California Prop 65	US	Lubricant additive and plastic	
Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	-	R	REACH Candidate	EU	Synthetic rubbers and polyurethane foam	

Ozone Depleting Substances	Note 5	P/R depending on the substance	Montreal Protocol	Global	Refrigeration, air-conditioning and foams	
Pentachlorothiophenol (PCTP)	133-49-3	P	US TSCA §751.411 Germany- ChemVerbotsV	US, EU (Germany)	Rubber.	In EU: Not included in the CoRAP List (not yet classified as a SVHC).
Pentadecafluorooctanoic acid (PFOA)	335-67-1	R	REACH Candidate List/ Restriction Stockholm convention Japan CSCL	Global	Surfactant in the emulsion polymerization of fluoropolymers.	A PFAS substance Conditions in Annex XVII
Polycyclic aromatic hydrocarbon	Multiple	R	California Prop 65	US	Contaminant in plastic and rubber,	
Polychlorinated naphthalenes	Multiple	P	China REACH	China	Lubricants and insulation	
Pentalead tetraoxide sulphate	12065-90-6	R	REACH Candidate	EU	Plastic products, lead acid batteries,	
Perfluorooctyl sulphonate (PFOS)	45298-90-6	P	Stockholm convention Japan CSCL	Global	Water and stain resistance on fabrics. Impurity in fluoro-polymers.	A PFAS substance Concentration limit in articles is 50mg/kg (50 ppm).
Per- and polyfluoroalkyl substances (PFAS)	Multiple	R	REACH Restriction List US Maine PFAS reporting Canada PFAS reporting	US, EU, Canada	Very broadly used in electronics, fluoropolymers, lubricants, coatings etc.	Reporting required for 'intentionally used' PFAS in Maine from 2025. Proposed to be restricted in the EU Reporting on PFAS in Canada to start Jan 2025.
Perfluorobutane sulfonic acid (PFBS) and its salts	See Note 3 in "Notes"	R	REACH Candidate List	EU	Flame retardant in polycarbonate (for electronic equipment).	A PFAS substance
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	355-46-4	R	REACH Candidate List	EU	May be used as a plasticiser, lubricant, surfactant, wetting agent,	A PFAS substance
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	355-46-4	P	Japan CSCL	Japan	May be used as a plasticiser, lubricant, surfactant, wetting agent,	A PFAS substance
Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1, 21049-39-8,	R	REACH Candidate List	EU	Displays, lubricants in bearings and packaging.	A PFAS substance
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	P	Stockholm convention	Global unless otherwise	Hydraulic fluids and as a contaminant to fluoropolymers.	A PFAS substance
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	R	US EPA- PFAS Strategic Roadmap	US	Hydraulic fluids and as a contaminant to fluoropolymers.	A PFAS substance

Phenol, alkylation products (mainly in para position) with C12-rich branched alkyl chains from oligomerisation, covering any individual isomers and/ or combinations thereof (PDDP)	210555-94-5; 27459-10-5; 27147-75-7; 121158-58-5; 74499-35-7; 57427-55-1	R	REACH Candidate List	EU	Lubricants.	
Phenol, isopropylated phosphate (3:1) (PIP (3:1))	68937-41-7	P	US TSCA §751.407	US	Flame retardant and/or plasticizer in polymers such as flexible polyurethane foam and PVC,	In EU: Included in the CoRAP List (not yet classified as a SVHC)
Phthalato(2-)dioxotrilead	69011-06-9	R	REACH Candidate	EU	Stabilizers for PVC, rubber products,	
Pitch, coal tar, high temp.	65996-93-2	P	REACH Candidate List / Authorisation	EU	Sealants and rubbers.	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,	R	RoHS Stockholm convention Japan CSCL	Global	Electric and electronic equipment and other items as a flame retardant.	
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,	P	CAN Tox. Subs. California Prop 65	US, Canada	Electric and electronic equipment and other items as a flame retardant.	
Polychlorinated biphenyl (PCB)	1336-36-3	P	Stockholm convention CAN Tox. Subs. US EPA	Global	Transformers and capacitors.	
Polychlorinated terphenyls (PCTs)	61788-33-8	P	REACH Restriction	EU	Insulation oil, lubricant oil, electrical insulation medium, plasticisers, flame retardants, coatings for electrical wire	Conditions in Annex XVII
Pyrochlore, antimony lead yellow	8012-00-8	R	REACH Candidate	EU	Dye, pigment, and 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-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	Multiple	R	REACH Candidate List/ Authorisation	EU	Might be used as heat stabilizer in plastic (mainly PVC processing).	EU: Sunset date 01/05/2025

Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with \geq 0.1% w/w 4-heptylphenol, branched and linear]	Multiple	R	REACH Candidate List/ Authorisation	EU	Used as a lubricant additive in lubricants and greases.	EU: Sunset date 01/05/2025
S-(tricyclo(5.2.1.0 _{2,6})deca-3-en-8(or 9)-yl O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate	255881-94-8	R	REACH Candidate List	EU	Lubricants and greases.	
Strontium chromate (hexavalent compound)	7789-06-2	P	REACH Candidate List / Authorisation CAN Tox. Subs.	EU, Canada	Corrosion protection in pigment of paints and varnish.	EU: Sunset date 22/01/2019
Styrene	100-42-5	R	California Prop 65	US	Polystyrene as unreacted monomer.	
Sulfurous acid, lead salt, dibasic	62229-08-7	R	REACH Candidate	EU	Stabilizers for PVC, plastic goods.	
Tris(2,3-dibromopropyl)phosphate	126-72-7	R	California Prop 65	US	Flame retardant in plastics.	
Terphenyl hydrogenated	61788-32-7	R	REACH Candidate List	EU	Used as a plastic additive, solvent, in coatings/inks, in adhesives and	Proposed to be restricted in the EU
Tetrabromobisphenol A, (2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol) (TBBPA)	79-94-7	R	REACH Candidate List California Prop 65	US, EU	Flame retardant used in plastics and electronics.	
Tetraboron disodium heptaoxide, hydrate	12267-73-1	R	REACH Candidate List	EU	Used as wood preservatives, flame retardants. Can be used in treated	
Tetraethyllead	78-00-2	R	REACH Candidate List / Authorisation	EU	Fuel.	EU: Sunset date 01/05/2025
Tetralead trioxide sulphate	12202-17-4	R	REACH Candidate List	EU	Paints, varnishes, PVC stabilizers, plastic products, and lead acid	
Trilead bis(carbonate) dihydroxide	1319-46-6	R	REACH Candidate List / Authorisation	EU, Canada	White pigment and PVC stabiliser.	
Trilead diarsenate	3687-31-8	R	REACH Candidate List / Authorisation	EU	Pesticide on wood.	Conditions in Annex XVII
Trilead dioxide phosphonate	12141-20-7	R	REACH Candidate	EU	Stabilizers in plastics.	
Tris(2-chloroethyl)phosphate	115-96-8	P	REACH Candidate List / Authorisation Can Tox. Subs. California Prop 65	EU, Canada, US	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 \geq 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	Multiple	R	REACH Candidate List	EU	Primarily used as an antioxidant to stabilize polymers.	
Trixylyl phosphate	25155-23-1	R	REACH Candidate List / Authorisation	EU	Lubricants.	EU: Sunset date 27/05/2023

Zinc chromate (hexavalent	13530-65-9	R	CAN Tox. Subs.	Canada	Surface treatment and pigment in	
Zirconia Aluminosilicate Refractory Ceramic Fibres (Refractory ceramic fibre)	n/a	R	REACH Candidate List CAN Tox. Subs.	EU, Canada	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 \geq 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	6786-83-0	R	REACH Candidate List	EU	Dye in paper and inks and printed material.	

Note 1 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.

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

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

Packaging: limit value: 0.01% w/w;

–in wood based materials, limit value: 0.005% w/w.

Note 2. 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 3. 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 4. 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-tolyldiene 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.

Note 5.

This group of substances has the following member substances.

Chemical Name	CAS Number
CFC-11 (CCl3F) Trichlorofluoromethane	75-69-4
CFC-12 (CCl2F2) Dichlorodifluoromethane	75-71-8
CFC-113 (C2F3Cl3) 1,1,2-Trichlorotrifluoroethane	76-13-1
CFC-114 (C2F4Cl2) Dichlorotetrafluoroethane	76-14-2
CFC-115 (C2F5Cl) Monochloropentafluoroethane	76-15-3
Halon 1211 (CF2ClBr) Bromochlorodifluoromethane	353-59-3
Halon 1301 (CF3Br) Bromotrifluoromethane	75-63-8
Halon 2402 (C2F4Br2) Dibromotetrafluoroethane	124-73-2
CFC-13 (CF3Cl) Chlorotrifluoromethane	75-72-9
CFC-111 (C2FCl5) Pentachlorofluoroethane	354-56-3

CFC-112 (C2F2Cl4) Tetrachlorodifluoroethane	76-12-0
CFC-211 (C3FCI7) Heptachlorofluoropropane	422-78-6
CFC-212 (C3F2Cl6) Hexachlorodifluoropropane	3182-26-1
CFC-213 (C3F3Cl5) Pentachlorotrifluoropropane	6/5/2354
CFC-214 (C3F4Cl4) Tetrachlorotetrafluoropropane	29255-31-0
CFC-215 (C3F5Cl3) Trichloropentafluoropropane	4259-43-2
CFC-216 (C3F6Cl2) Dichlorohexafluoropropane	661-97-2
CFC-217 (C3F7Cl) Chloroheptafluoropropane	422-86-6
CCl4 Carbon tetrachloride	56-23-5
Methyl Chloroform (C2H3Cl3) 1,1,1-trichloroethane	71-55-6
Methyl Bromide (CH3Br)	74-83-9
CHBr2, CHBFC-12B1(CHF2Br), CH2FBr, C2HFBr4, C2HF2Br3, 2HF3Br2, C2HF4Br, C2H2FBr3, C2H2F2Br2, C2H2F3Br, C2H3FBr2, C2H3F2Br, C2H4FBr, C3HFBr6, C3HF2Br5, C3HF3Br4, C3HF4Br3, C3HF5Br2, C3HF6Br, C3H2FBr5, C3H2F2Br4, C3H2F3Br3, C3H2F4Br2, C3H2F5Br, C3H3FBr4, C3H3F2Br3, C3H3F3Br2, C3H3F4Br, C3H4FBr3, C3H4F2Br2, C3H4F3Br, C3H5FBr2, C3H5F2Br, C3H6FBr	
Group VIII	
CH2BrCl Chlorobromomethane	

Note 6.

This group of substances has the following member substances which need comply to all obligations under the F-gas regulation.

Industrial Designation and Chemical Name	CAS Number
HFC-23 trifluoromethane	75-46-7
HFC-32 difluoromethane	75-10-5
HFC-41 fluoromethane	593-53-3
HFC-125 pentafluoroethane	354-33-6
HFC-134 1,1,2,2-tetrafluoroethane	811-97-2
HFC-134a 1,1,1,2-tetrafluoroethane	811-97-2
HFC-143 1,1,2-trifluoroethane	430-66-0
HFC-143a 1,1,1-trifluoroethane	420-46-2
HFC-152 1,2-difluoroethane	624-72-6
HFC-152a 1,1-difluoroethane	75-37-6
HFC-161 fluoroethane	353-36-6
HFC-227ea 1,1,1,2,3,3,3-heptafluoropropane	431-89-0
HFC-236cb 1,1,1,2,2,3-hexafluoropropane	677-56-5
HFC-236ea 1,1,1,2,3,3-hexafluoropropane	431-63-0
HFC-236fa 1,1,1,3,3,3-hexafluoropropane	690-39-19
HFC-245ca 1,1,2,2,3-pentafluoropropane	679-86-7
HFC-245fa 1,1,1,3,3-pentafluoropropane	460-73-1
HFC-365 mfc 1,1,1,3,3-pentafluorobutane	406-58-6
HFC-43-10 mee 1,1,1,2,2,3,4,5,5,5-decafluoropentane	138495-42-8
PFC-14 tetrafluoromethane	75-73-0
PFC-116 hexafluoroethane	76-16-4
PFC-218 octafluoropropane	76-19-7
PFC-3-1-10 (R-31-10) decafluorobutane (perfluorobutane)	355-25-9
PFC-4-1-12 (R-41-12) dodecafluoropentane (perfluoropentane)	678-26-2

PFC-5-1-14 (R-51-14) tetradecafluorohexane (perfluorohexane)	355-42-0
PFC-c-318 octafluorocyclobutane (perfluorocyclobutane)	115-25-3
sulphur hexafluoride SF6	2551-62-4