

THE NEFAB GROUP'S LIST OF BANNED & RESTRICTED SUBSTANCES

This document is valid as of 2020-06-15

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1. INTRODUCTION

This document specifies all substances which use is banned or restricted in products or in manufacturing processes. It also contains substances under observation (SoU).

2. OBJECTIVE

The objective of Nefab Group's list of banned & restricted substances is to achieve compliance with our environmental policy, regulations and legislations. Therefore, Nefab requires that all materials, product or packaging do not include any substances listed in the following document.

Note! Legislative changes in between two versions of this document shall always be considered.

3. DEFINITION OF NEFAB CLASSIFICATION

- **Banned Substances:** Substances that must not be used in any products put on the market by the Nefab Group.
- **Restricted substances:** Substances that must not be presented in products put on the market by the Nefab Group, but exemptions can exist.
- **Substances under Observation (SuO):** Substances under Observation shall be substituted when alternatives that are technically, economically and environmentally feasible are available.

Note! In case local or regional legislation goes beyond the requirements in this document, such legislation must be followed, in addition to the requirements in this document.

4. DEFINITION OF PROPERTIES

Abbreviation	Properties
A	Allergen
BA	Bio Accumulating
C	Carcinogenic
CS	Chemical Structure; due to known risks with similar chemicals
DE	Dangerous to the Environment
ED	Endocrine Disrupter
ET	Eco-Toxic
GW	Greenhouse Warming
HAT	High Aquatic Toxic
M	Mutagenic
NT	Neuro Toxic
OD	Ozone Depleting
POP	Persistent Organic Pollutant
R	Toxic to Reproduction
T	Toxic

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5. DEFINITION OF MAXIMUM CONCENTRATION VALUES

The concentration is to be calculated on: Purchased material or article. For assembled products, also for all subcomponents that might be sold as spare parts.

- Banned or restricted materials: 0,1 wt.%
- SOC substances that are substances of very high concern (REACH SCHCs): 0,1 wt.%
- Other SOC substances: -1%

RoHS substances on homogeneous material as defined in the RoHS regulation for all goods produced or imported into the European Community.

RoHS substances are Cadmium, Lead, Mercury, Chromium (VI), PBBs and PBDEs.

Note! For substances listed as part of group(s) individually, the more stringent limit values apply.

Note! Local legislation may call for more stringent Maximum Concentration Values.

6. SUBSTANCES OF VERY HIGH CONCERN (SVHC)

The Candidate list of chemicals that meet the criteria of SVHC (Substances of Very High Concern). The definition of these substances, that have serious and often irreversible effects on human health and the environment, can be found in the REACH legislation. The identification of a substance as a SVHC and its inclusion in the Candidate List creates certain legal obligations for the importers, producers and suppliers of a product that contain such substance. For example, the requirement for a company to provide information to customers concerning the presence of such substance.

The Candidate list is available on the European Chemicals Agency's site at <https://echa.europa.eu/candidate-list-table> and companies will have to inform the moment a substance is published on the list.

7. SUBSTANCES THAT ARE CARCINOGENIC, MUTAGENIC OR TOXIC TO REPRODUCTION (CMRS)

Substances that are carcinogenic, mutagenic or toxic to reproduction (CMRs) are of specific concern due to the long term and serious effects that they may exert on human health.

https://echa.europa.eu/documents/10162/13562/cmr_report_en.pdf

8. CONFLICT MINERALS

Conflict minerals are gold, tantalum, tin and tungsten. Suppliers are expected to, upon request, declare the use and origin of Conflict minerals and the smelters used to process these minerals. Suppliers should make it possible to reasonably verify whether Conflict minerals contained in products provided to Nefab originate from the Democratic Republic of Congo or an adjoining country.

9. NANO MATERIALS

The size range of Nano materials according to the European Commission Recommendation on the definition is between 1 nm – 100 nm. Nano materials are used in e.g. oils, powders, coatings,

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lubrications and paint. The effects of inhalation and absorption through the skin and organs of Nano Materials are similar as with asbestos. Suppliers should declare the use of Nano materials in the materials, parts or products they provide to Nefab.

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10.1. Banned Substances

Chemical compound	CAS number	Example of Applications	Exemptions	Properties
1-bromopropane (n-propyl bromide)	106-94-5	Solvent		OD,R
1,2 Dibromo -3-chloropropane	96-12-08			C,DE,M,R,T
1.1.1-trichloroethane	71-55-6	Degreasing		OD
2 - Acetylaminofluoren	53-96-3			C,T
2-benzotriazol-2-yl-4,6-ditertbutyl-phenol	3846-71-7	Paint and plastics		BA,T
20-Methylcholanthrene (3-Metylcholantrene)	56-49-5			C,DE,HAT
4-Dimethylamino azobenzene	60-11-07			C
4-Nitrodiphenyl	92-93-3			C,DE,T
Alkanes, C10-13, Short chain chlorinated paraffin	85535-84-8	All applications		POP,DE,HAT,T
Aromatic amines classified as CMR category 1 or 2	Several	Azo colorants, diarylazo pigments		C,M,R
Asbestos	Several	Friction pads, gaskets, insulations		C
Azocolourants containing CMR classified aromatic amines	Several	Dyes, paints, inks, plastics		C,M,R
Azodyes that can decompose to carcinogenic aromatic amines	Several	Coloring of plastics		
Benzene	71-43-2	Solvent		C,T
Benzidine	92-87-5			C,DE,HAT
Benzyl butyl phthalate (BBP)	85-68-7	Plasticizer, colors, materials to plastic, rubber, glue, filling medium, raw materials for paints		R
BFCs (BromoFluoroCarbons - Halons), BCFCs (BromoChloroFluoroCarbons)	Several	Fire extinguishers		DE,GW,OD

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Bis(2-ethylhexyl phthalate (DEHP)	117-81-7	Plasticizer in PVC, colors, plastic, rubber, glue, filling medium, raw materials for paints		R
Bis(chloromethyl) ether	542-88-1			C,T
CFCs (ChloroFluoroCarbons) - All	Several	Foam blowing agents, refrigerants		DE,GW,OD
Chlorinated solvents - All	Several	Solvents, spray can propellants, degreasing		C,GW,OD,T
Cobalt dichloride	7646-79-9	Surface treatment		C,R
Creosotes	Several	Wood preservation		T
Diarsenic pentaoxide	1303-28-2	Wood preservative, in the paint industry, metallurgy and in the manufacture of special glass		C
Diarsenic trioxide	1327-53-3	Dyeing of glass and enamel, in the manufacture of special glass		C
Diarylazopigments containing CMR classified aromatic amines	Several	Paints,inks,plastics		C,M,R
Dibutyl phthalate (DBP)	84-74-2	Occurs in plastics, (mainly PVC), glue, paints, rubber		R
Diisobutyl phthalate (DIBP)	84-69-5	Solvent in adhesives, inks for paper and packaging		R
Dimethyl fumarate (DMF)	624-49-7	Drying and anti-mold agents, silica gel		R
Erionit	12510-42-8			C
Flourhydrocarbons (HFC)	Several	In production		GW
Halons - All	Several	All applications		
HBFCs (HydroBromoFluoroCarbons) - All	Several	Foam blowing agents, refrigerants		DE,GW,OD
HCFCs (HydroChloroFluoroCarbons) - All	Several	Blowing agents, refrigerants		DE,GW,OD

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Hexabromocyclododecane - HBCDD and its diastereoisomers	Several	Flame retardant in the plastic industry, additive flame retardant, insulating materials in the construction industry		BA,T
Hexachlorobenzene				
Hexamethylphosphoric acid triamide	680-31-9			C,M
Lead chromate	7758-97-6	Dyes and pigments, corrosion protection, electric and electronic equipment covered by RoHS		C,R
Lead chromate molybdate sulfate red	12656-85-8	Dyes and pigments, corrosion protection		C,R
Lead sulfochromate yellow	1344-37-2	Dyes and pigments, corrosion protection		C,R
MDA (4,4'-Diaminodiphenylmethane)	101-77-9	All applications		C
Methyl bromide	74-83-9	Pesticide in wood treatment		M,OD
Methylene chloride (dichloromethane)	75-09-02	Solvent, degreasing		C
Methylnitrosourea	684-93-5			C,T
Mineral fibers of length < 5 micro meter and diameter of fiber < 3 micro meter when (length of fiber) ⁷ (diameter of fiber) > 3	Several	Thermal insulation		C
Monochlorodimethyleter	107-30-2			C
N ethylpyrrolidone (NEP)	26 8791 4	Solvents		T,R
Nonylphenol	25154-52-3	Surfactants, cleaning agent		DE, (ED), HAT
Nonylphenoethoxylates	9016-45-9	Surfactants, cleaning agent		DE, (ED), HAT
Octylphenol derivatives	Several	Surfactants		DE, (ED)
PCBs (polychlorinated biphenyls)	Several	Capacitors, transformers, hydraulic fluids, additives in polymers		BA,DE,ED,HAT,POP, R,T
PCNs (polychlorinated naphthalene)	70776-03-3	Flame retardants, Lubricants		BA, DE, ED, POP

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PFCs	Several	Foam blowing agents, refrigerants, solvents		GW
PFOS - Perfluorooctanesulfonic acid (C8F17S04) and its salts	2795-39-3	Surfactants		BA,ET,POP
Polychlorinated and polybrominated dioxins and furans				
Polyvinyl chloride (packaging)	9002-86-2			
POPs restricted in international conventions - All	Several	Pesticides		BA,C,DE,ED, HAT,POP T
Refractory ceramic fibers	Several	Thermal insulation		C
Refrigerants and blowing agents with GWP > 2000	Several			GW
Sulfur hexafluoride, SF6	2551-62-4	Insulator		GW
Tetrachloroethylene	127-18-4	Solvent, degreasing		C
Tetrachloromethane (Carbon Tetrachloride)	56-23-5	Degreasing		DE, T,OD
Tri-(2,3-dibromo-propyl) phosphate	126-72-7	Textile articles		A
Tri-substituted organostannic compounds	Several	Additives, biocides		DE, (ED)
Tributyl tin compounds	Several	In paint		T
Trichloroethylene	79-01-06	Solvent, cleaning agent		C
Triphenyl tin compounds	Several	All applications		T
Tris (2-chloroethyl) phosphate	115-96-8	Additive flame retardant for plastics, flame retardant paints lacquers and adhesives		C,R
Tris-(1-aziridinyl) phosphin oxide	545-55-1	Textile articles		A
β-Naphtylamine	91-59-8			C,DE
Fluorinated greenhouse gases (specified by 842/2006/EC)		Tyres, windows		No content permitted

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Polychlorinated naphthalenes (limited to those containing three or more chlorine atoms)		Mechanical components: components containing lubricating oils		No content permitted
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10.2. Restricted Substances

Chemical compound	CAS number	Applications	Exemptions	Properties
Alkanes, C14-17, chlorinated paraffins	85535-85-9	Cutting oil, lubricant, plasticizer		POP
Allergens / Sensitizers when exposure is likely (contact)	Several	Handles, knobs, application with significant emissions	Nickel in stainless steel, batteries or sub-layer e.g. in chrome plating	A
Arsenic and its compounds	Several	Metal finishes, stabilizer in plastics, coating, wood preservative	Ceramic cook tops, metal alloys	DE, T
Benzo(a)pyrene	50-32-8	Tires, carbon black		C, POP
Beryllium and its compounds	Several	Electrical components, alloying element for copper	Technically required, e.g. electronics or alloying elements	A, C, (DE), T
Biphenyl-4-ylamine	92-67-1	Intermediate, dyes, pigments, textiles		C
Dibutyltin compounds	Several	All applications were part can become a part of consumer product	Banned in Europe by 01.01.2012, exemptions according to law.	DE, ED, HAT, T
Diocetyl tin (DOT) compounds	Several	Additives, biocides		DE, ED, HAT, T
Formaldehyde, materials emitting Formaldehyde during use in concentrations above class E1 (DIN EN 120)	50-00-0	Chip boards	During phase out	C, T, A

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Hexavalent chromium and its compounds	18540-29- 9 (Several)	Anti - corrosion agent. Surface treatment.	RoHS restrictions	
Hydrazine	302-01-2, 7803-57-8	Corrosion inhibitor in cooling systems		C
Lead and its compounds	Several	Solders, batteries, oven glass, stabilizers, printing inks, paints	RoHS restrictions	BA,DE,HAT,R,T
Mercury and its compounds	Several	Electronic equipment, Anti-fouling, wood preservation, textiles, water treatment and in batteries and accumulators	RoHS restrictions	BA,DE,T
Methyl isocyanate (MIC), materials emitting MIC during use (heating) as for instance certain urea containing binders of heat insulation materials	624-83-9	Urea containing binders for oven insulation material	During phase out	T,A
Octylphenol-ethoxylates	Several	Surfactants	During phase out	ED
PAHs (Polycyclic Aromatic Hydrocarbons) classified as CMR 1 or 2	Several	Tires, carbon black		BA,C,DE,ED,HAT,P OP, R,T
PBBs (polybrominated biphenyls)	Several	Flame retardants	RoHS restrictions	BA, DE, ED, POP
PBDEs (polybrominated diphenylethers, including deca-BDE, and Octabromodiphenyl ether)	Several	Flame retardants	RoHS restrictions	BA, DE, ED, POP
PCDEs (polychlorinated diphenylethers)	Several	Flame retardants	During phase out in Europe. Geographical exemption for the rest of the world.	BA,DE,ED,POP
PFOA - Perfluorooctanoic acid and its salts	Several	Soil repellents, cleaning agents		BA,POP,R

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Sodium dichromate	10588-01-9, 7789-12-0	Surface treatment of metal and electroplating products		C,M,R
Substances classified CMR (Carcinogen, Mutagen, Reproduction toxic) - category 1 or 2	Several		Technically required, e.g. electronics or alloying elements	C,M,R
Triclosan	3380-34-5	Antimicrobial plastics, rubber and textile	Essential applications outside EU	HAT,DE
Zinc chromate	13530-65-9			A,C
Chromium (VI) compounds	Several	All applications.		
Perchlorates	14797-73-0	Labeling requirements		
Short Chained Chlorinated Paraffins (C10-C13)	85535-84-8	All applications.		
Chromium (VI) compounds in cement				
Acrylamide	1979-06-01	All applications		
Arsenic compounds		Glass of lamp bulbs / wood preservative		
Alkylphenol and alkylphenol ethoxylates				
1,1-dichloro-1-fluoroethane (HCFC-141b)	1717-00-6	Cooling agents, blowing agent PUR foam		
1,2,3-Trichloropropane	96-18-4	Painter mediate and varnish remover, solvent, degreasing agent		
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	Used to make polymer foils, PVC products, plastic products, and rubber products, in coatings, cable compounding, cable applications, artist supplies and adhesives		
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	In plastic articles		
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	Explosives, phlegmatizer		

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1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	Solvents and help-chemicals in the manufacture of industrial chemicals. Various petroleum products for motor vehicles		
1,2-diethoxyethane	629-14-1			
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	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	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	Metal products such as tools. Plastic goods (softener)		
1,3-propanesultone	1120-71-4	Electrolyte fluid of lithium ion 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]		Used as a non-plasticising flame retardant, used in adhesives and sealants and in binding agents.		
1-chloro-1,1-difluoroethane (HCFC-142b)	75-68-3	Cooling agents, blowing agent PUR foam		
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	UV-protection agents in coatings, plastics, rubber and cosmetics		
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	UV-absorbers, especially for transparent plastic materials. UV-		

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		protection agents in coatings especially for cars and special industrial wood coatings. UV-protection agents for plastics, rubber and polyurethanes.		
2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	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)	Processing aid in the production of fluorinated polymers			
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	UV-protection agents in coatings, plastics, rubber and cosmetics		
2-ethoxyethanol	110-80-5	Solvent in paint		
2-ethoxyethyl acetate	111-15-9	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	Might be used as heat stabilizer in plastic (mainly PVC processing)		
2-Methoxyaniline; o-Anisidine	90-04-0	Mainly used in the manufacture of dyes for tattooing and coloration of paper, polymers and aluminum foil.		
2-methoxyethanol	109-86-4	Solvent in paint		
2-methoxyethyl acetate	110-49-6	Paints, lacquers		
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2			
4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	Used in varnish and paint and for surface treatment and may occur in products of plastics and rubber		
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (covering well-defined substances and				

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UVCB substances, polymers and homologues)				
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol, with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	561-41-1	Manufacture of ink and paint. Staining of different materials.		
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	Dyeing of paper, ink in cartridges and pens, plant dyeing. Laboratory chemicals, paper goods.		
4,4'-methylenedi-o-toluidine	838-88-0	An intermediate to paint, textiles		
4,4'-oxydianiline and its salts	101-80-4	Intermediate		
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	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 $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	548-62-9	Dyeing of paper, ink used in cartridges and ballpoint pens, plant dyeing. Laboratory chemicals, paper goods.		
4-Aminoazobenzene	60-09-3	Textile		
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]		Manufacture of polymers; formulation into lubricants		
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	Textile. Intermediate for the production of toluene diisocyanate and dyes		

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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]		Cleaning agent		
4-tert-butylphenol	98-54-4	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]		Fragrance ingredient		
6-methoxy-m-toluidine (p-cresidine)	120-71-8	Used in the production of various azo dyes		
Acetic acid, lead salt, basic	51404-69-4	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	Wood preservatives. Surface treatment of metals.		
Aluminosilicate Refractory Ceramic Fibres		Insulation materials for industrial use. Fire protection in industrial equipment.		
Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	Processing aid in the production of fluoropolymers		
Anthracene	120-12-7	Available in pyrotechnics and in paints and waterproof coatings.		
Anthracene oil, anthracene paste	90640-81-6	used in manufacture of anthracene and carbon black.		

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Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	Used in manufacture of anthracene and carbon black.		
Anthracene oil, anthracene paste, distn. Lights	91995-17-4	Used in manufacture of anthracene and carbon black.		
Anthracene oil, anthracene-low	90640-82-7	Used in manufacture of anthracene and carbon black.		
Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA)	552-30-7	Used in the manufacture of esters and polymers		
Benzo[ghi]perylene	191-24-2	Not registered under REACH. Normally not produced intentionally but rather occurs as a constituent or impurity in other substances		
Bis(tributyltin)oxide (TBTO)	56-35-9	Occurs as a preservative in textiles, paper, leather, rubber and polymer materials		
Boric acid	10043-35-3, 11113-50-1	Used as wood preservative, flame retardant etc. Can be used in treated wood and flame-proof insulation.		
Chrysene	218-01-9	Normally not produced intentionally but rather occurs as a constituent or impurity in other substances		
Cobalt(II) carbonate	513-79-1	A precursor to cobalt carbonyl and various cobalt salts		
Cobalt(II) diacetate	71-48-7	Surface treatment of metals.		
Cobalt(II) dinitrate	10141-05-6	Surface treatment of metals.		
Cobalt(II) sulphate	10124-43-3	Pigment. Surface treatment.		
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	85-42-7, 13149-00-3, 14166-21-3	Plasticizers, polyester, alkydes, motor insulation, hardener for epoxy resin		

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trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry]				
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	Raw material for the manufacture of rubber and plastic, rubber and plastic products		
Diboron trioxide	1303-86-2	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		
Dichlorodifluoromethane (CFC-12)	75-71-8	Cooling agent		
Dicyclohexyl phthalate (DCHP)	84-61-7	Used in plastisol, PVC, rubber and plastic articles. A further use is also as a phlegmatizer and dispersing agent for formulations of organic peroxides		
Diethyl sulphate	64-67-5	An intermediate		
Diethyl phthalate	84-75-3	Plasticizer in PVC		
Diisohexyl phthalate	71850-09-4	Used as a plasticizer for certain plastics and rubbers		
Diisopentylphthalate	605-50-5	Explosives		
Dimethyl sulphate	77-78-1	An intermediate		
Dinoseb (6-sec-butyl-2, 4-dinitrophenol)	88-85-7	Pesticide		
Dioxobis(stearato)trilead	12578-12-0	Stabilizers for PVC, plastic goods		
Dipentyl phthalate (DPP)	131-18-0	Laboratory chemical		
Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	Azo dyes		
Disodium 4-amino-3-[[4'-[(2,4-	1937-37-7	Azo dyes		

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diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)				
Disodium octaborate	12008-41-2	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	Used as wood preservative, flame retardant etc. Can be used in treated wood and flame-proof insulation.		
Dodecamethylcyclohexasiloxane (D6)	540-97-6	Used in washing and cleaning products, polishes and waxes, cosmetics and personal care products		
Ethylenediamine (EDA)	107-15-3	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	Stabilizers for PVC, plastic goods		
Fluoranthene	206-44-0	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers		
Formamide	75-12-7	Intermediate. Laboratory chemical		
Furan	110-00-9	Solvent		Carcinogenic
Henicosafuoroundecanoic acid	2058-94-8	Used in the production of fluoropolymers		vPvB
Heptacosafuorotetradecanoic acid	376-06-7	Used in the production of fluoropolymers		vPvB
Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	Motor insulation, hardener for epoxy resin		Equivalent level of concern having probable serious effects to human health

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methyphthalic 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				
Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	Used in rubber manufacturing		Toxic for reproduction
Lead cyanamidate	20837-86-9			Toxic for reproduction
Lead di(acetate)	301-04-2	Laboratory Chemical, in color, paint strippers and thinners		Toxic for reproduction
Methoxyacetic acid	625-45-6	Lime remover		Toxic for reproduction
Methyloxirane (Propylene oxide)	75-56-9	For surfactants		Carcinogenic; Mutagenic
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	Laboratory chemicals, paper goods, ink		Carcinogenic
N,N-dimethylacetamide	127-19-5	May occur in surface treatment, sealants etc.		Toxic for reproduction
N,N-dimethylformamide	68-12-2	Solvents, laboratory chemical		Toxic for reproduction
N-methylacetamide	79-16-3	Laboratory chemical		Toxic for reproduction
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	335-76-2, 3830-45-3, 3108-42-7	Lubricant, wetting agent, plasticisers		Toxic for reproduction PBT
N-pentyl-isopentylphthalate	776297-69-9			Toxic for reproduction
o-aminoazotoluene	97-56-3	Dyes, pigments, textile, intermediate for dyes		Carcinogenic
p-(1,1-dimethylpropyl)phenol	80-46-6	Manufacture of chemicals and plastic products		Equivalent level of concern having probable serious effects to environment
Pentacosafuorotridecanoic acid	72629-94-8			vPvB
Pentalead tetraoxide sulphate	12065-90-6	Plastic products, lead acid batteries, stabilizers for PVC		Toxic for reproduction
Perfluorobutane sulfonic acid (PFBS) and its salts		Used as a catalyst/additive/reactant in polymer manufacture and in chemical synthesis. It is also used as a flame		Equivalent level of concern having probable serious effects to the environment and human health

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		retardant in polycarbonate (for electronic equipment).		
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)		May be used as a plasticiser, lubricant, surfactant, wetting agent, corrosion inhibitor and in fire-fighting foams		vPvB
Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1, 21049-39-8, 4149-60-4	Processing aid for fluoropolymer manufacture/lubricating oil additive/surfactant for fire extinguishers/cleaning agent/textile antifouling finishing agent/polishing surfactant/waterproofing agents and in liquid crystal display panels		Toxic for reproduction, PBT
Phenanthrene	85-01-8	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers		vPvB
Phenolphthalein	77-09-8	Used in labs as pH-indicator and may occur as corrosion inhibitor.		Carcinogenic
Phthalato(2-)dioxotrilead	69011-06-9	Stabilizers for PVC, rubber products, plastic products		Toxic for reproduction
Pitch, coal tar, high temp.	65996-93-2	Used in manufacture of anthracene and carbon black. Corrosion protection.		Carcinogenic; PBT; vPvB
Pyrene	129-00-0	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers		PBT vPvB
Pyrochlore, antimony lead yellow	8012-00-8	Dye, pigment, ink toner		Toxic for reproduction
Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), lead-doped	68784-75-8	Paint, coating in light-bulbs		Toxic for reproduction
Silicic acid, lead salt	11120-22-2	Glass and ceramic products		Toxic for reproduction
Sodium chromate	7775-11-03	Laboratory chemical		Carcinogenic; Mutagenic; Toxic for reproduction

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Sodium perborate; perboric acid, sodium salt	15120-21-5, 11138-47-9	Bleach in laundry and dishwasher detergents		Toxic for reproduction
Sodium peroxometaborate	7632-04-04	Bleach in laundry and dishwasher detergents		Toxic for reproduction
Strontium chromate	7789-06-02	Corrosion protection in pigment of paints and varnish.		Carcinogenic
Sulfurous acid, lead salt, dibasic	62229-08-7	Stabilizers for PVC, plastic goods		Toxic for reproduction
Terphenyl hydrogenated	61788-32-7	Used as a plastic additive, solvent, in coatings/inks, in adhesives and sealants, and heat transfer fluids		vPvB
Tetraboron disodium heptaoxide, hydrate	12267-73-1	Used as wood preservatives, flame retardants etc. Can be used in treated wood and flame-proof insulation.		Toxic for reproduction
Tetraethyllead	78-00-2	Fuel		Toxic for reproduction
Tetrafluoromethane (CF ₄)	75-73-0	Semiconductor manufacturing (additives to SF ₆ excluded)		Greenhouse gas
Tetralead trioxide sulphate	12202-17-4	Paints, varnishes, PVC stabilizers, plastic products, lead acid battery		Toxic for reproduction
Tricosafuorododecanoic acid	307-55-1			vPvB
Triethyl arsenate	15606-95-8	May occur in the electronics industry in integrated circuits.		Carcinogenic
Trilead dioxide phosphonate	12141-20-7	Stabilizers		Toxic for reproduction
Tris(2-chloroethyl)phosphate	115-96-8	Additive flame retardant for plastics. Flame-retardant paints lacquers and adhesives.		Toxic for reproduction
Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)		Primarily used as an antioxidant to stabilize polymers.		Endocrine disrupting properties
Trixylyl phosphate	25155-23-1	In lubricants		Toxic for reproduction

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Heavymetals: lead, cadmium, chromium (VI), mercury		Packaging		Total 0,01% w/w
Hexabromodiphenyl ether	36483-60-0	Electrical devices: flame-protected plastics in e.g. housings and PWBs		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
Heptabromodiphenyl ether	68928-80-3	Electrical devices: flame-protected plastics in e.g. housings and PWBs		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
Ozone depleting substances (specified by 1005/2009/EC)		All applications		No intentionally added content
Perfluorocarbons (specified by 842/2006/EC)		Fire protection systems and fire extinguishers		No content permitted
Pentabromodiphenyl ether	32534-81-9	Electrical devices: flame-protected plastics in e.g. housings and PWBs		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
Perfluorooctane sulfonate (PFOS)	1763-23-1	Electronic components: semiconductors		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
Pentabromodiphenyl ether	32534-81-9	Electrical devices: flame-protected plastics in e.g. housings and PWBs		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
Perfluorooctane sulfonate (PFOS)	1763-23-1	Electronic components: semiconductors		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
Polychlorinated naphthalenes (limited to those containing three or more chlorine atoms)		Mechanical components: components containing lubricating oils		No content permitted
Tetrabromodiphenyl ether	40088-47-9	Electrical devices: flame-protected plastics in e.g. housings and PWBs		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)
All other persistent organic pollutants (POP) regulated under Stockholm Convention		All applications		0,001% w/w (0,1% w/w when produced completely or partially from recycled materials)

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10.3. Substances under Observation (SuO)

Chemical compound	CAS number	Applications	Exemptions	Properties
Allergens / Sensitizers	Several			A
Antimony and its compounds	Several	Flame retardants, ceramic cook tops, metal alloys		DE,HAT,C
Aromatic amines - All other	Several	Plasticizers, activators		C,DE,T
Biocides - All				HAT, DE, T
Bismuth and its compounds	Several	Surface finish, additive in solders		Negative for recycling
Bisphenol A (4,4'-Isopropylidendiphenol)	80-05-07	Polymer additive and rest at production of polycarbonates		T
Bisphenol A and derivatives (monomeric)	Several	Cyano acrylic adhesives, primers		A, (DE), ED
Chlorinated paraffins C > 13 - All other	Several	Plasticizers, flame retardants, lubricants		DE,HAT
Chlorinated polymers	Several	Cables		ET
Cobalt (when exposure could occur under normal operating conditions)	Several	Metal alloys		A
e -HBCDD and its diastereoisomers	25637-99-4	Flame retardant		BA,T
ED (Endocrine disrupting) substances on the REACH candidate list - All	Several			POP,ED,BA
Fluorocarbons (FC)	Several	In production		GW
FOSA - Perfluorooctanesulfonamides	Several	Soil repellents, cleaning agents		BA,POP,R
FOSE - Perfluorooctane sulfonamidoethanols	Several	Soil repellents, cleaning agents		BA,POP,R
FPCA - Perfluorocboxylic acids and their salts	Several	Soil repellents, cleaning agents		BA,POP,R
FTCA - Fluorotelomercarboxylates	Several	Soil repellents, cleaning agents		POP
FTOH - Fluorotelomeralkoholes	Several	Soil repellents, cleaning agents		POP
FTS - Fluorotelomersulfonates	Several	Soil repellents, cleaning agents		POP

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Halogen-free phosphorus based organic flame retardants - All others	Several			CS,DE,HAT,(NT)
Halogenated organic compounds - All other	Several			
Halogenated organic flame retardants - All other	Several			BA,DE,ED,POP
Halogenated organic phosphorous flame retardants - All	Several			NT,HAT
Hexachlorobutadiene	87-68-3			POP
Isocyanates - All	Several	PUR, primers		A,C,T
MCCP (Medium chained chlorinated paraffins C14-17)	Several	Plasticizers, flame retardants		DE,HAT, ET
Medium chained chlorinated paraffins (MCCP C10 - C13)	Several			POP
Nickel and its alloys (except in steel alloys)	Several	Surface treatment, metal alloys	Stainless steel	A, (DE)
Nitrogen trifluoride	7783-54-2	Plasma etching		GW
Other Perfluorinated substances	Several		Polymers	POP
PBT (persistent, bioaccumulating and toxic) substances on the REACH candidate list - All	Several			POP,ED,BA,HAT
Perchlorate	Several	Li/MN02 Batteries		
PFS - Perfluorinated sulfonates all other	2795-39-3	Surfactants		BA,POP
Phthalates - All	Several	Plasticizers, lubricants		ED,R,POP
PVC		Cables, gaskets		
Radioactive substances - All	Several	Spark gap and over voltage protection		C,M,R,T
Refrigerants and blowing agents with GWP > 15	Several			GW
Silver and its compounds	Several	Antimicrobial plastics, coatings, rubber and textile		HAT,DE
Substances classified CMR (H350,H340,H360)	Several			C,M,R
Tetrabromobisphenol A (TBBPA)	79-94-7	Flame retardant		BA,T
Toluene	108-88-3	Solvents, adhesives		NT,R
Triphenylphosphine	603-35-0			A,DE,HAT
Triphenylphosphite	101-02-0			BA,DE,HAT

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vPvB (very persistent and very bioaccumulating) substances on the REACH candidate list - All	Several			POP,ED,BA
1,2-Benzene-dicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	Toxic for reproduction		
1,2-Benzene-dicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	Toxic for reproduction		
Bis(2-methoxyethyl) phthalate	117-82-8	REACH candidate list.		
Dibromoneopentyl-glycol	3296-90-0	Carcinogenic		
Perchlorates	Several	Labeling requirements		
Fluorocarbons – FC	Several	Global warming	Fluorocarbons – FC	Several

10.4. Substances with declaration requirements

Substances	CAS number	For more information	Comments
Gold and its compounds	Several	Section 8	
Tantalum and its compounds	Several	Section 8	
Tin and its compounds	Several	Section 8	
Tungsten and its compounds	Several	Section 8	
Nanomaterial - all	Several	Section 9	
Substances on the REACH Candidate list	Several	Section 6	
Di-isodecyl phthalate (DIDP)		All applications	No concentration threshold, exposure cannot exceed limit specified by California's Proposition 65
Toluendiisocyanate (TDI)	"91-08-7		
584-84-9			
26471-62-5"	All applications	0,1% w/w in article	

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Polybrominated flame retardants (excl. those regulated by RoHS or REACH)		All applications	0,1% w/w in application
Methyltetrahydrophthalic-(anhydrides)	26590-20-5	All applications	0,1% w/w in article
Dimethylphlatate (DMP)	131-11-3	All applications	0,1% w/w in article
Antimony trioxide	1309-64-4	Plastic parts	0,1% w/w in application