



## Candidate List of Substances of Very High Concern

### Article 33: Information on substances in articles

Any supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1 % weight by weight shall provide the recipient of the article with sufficient information, available to the supplier, to the **allow safe use** of the article including, as a minimum, the name of that substance.

Every product is made from substances, and substances in articles need to be “registered” if they are intended to be released.

**Glenair does not produce any articles designed to release any substances.**

For further information on “**Requirements for Substances in Articles**” Go to the folder in the REACH Documents – 4.1.2 states that no notifications is required if the articles are not designed to release any SVHC’s.

Surface treatment processes use a wide variety of substances, some of which have already been classified as SVHCs (Substances of Very High Concern) and many more that meet the criteria set out in Article 57 and will probably, at some point in the future, be classified as SVHCs. However, it is extremely unlikely that any of these will be present on the finished component in a concentration above 0.1% on a weight for weight basis. The reason for this statement is explained below:

**SVHC - Boric Acid:** Boric acid is used in a number of surface treatment processes essentially as a pH control agent but will not be present in the finished article.

**SVHC – Sodium & Potassium Dichromate:** These are used to produce a number of passivation type coatings and although chromates will still be present on the finished article, they will not be in the form of sodium or potassium dichromate in a concentration above 0.1% on a weight for weight basis.

**SVHC – Cadmium:** This substance is used where cadmium plating is a requirement on the surface finish of some of our connectors/ back shell products. We do offer alternatives but as the content of Cadmium on products is ABOVE the threshold BUT they do not that require safety data sheets. We do however offer some guidance on the handling of Cadmium plated parts in particular those that exhibit surface imperfections. (Please refer to the last page)

Glenair **does not** handle or directly use Cadmium and as such is not governed by the 1 Tonne Limit.

The above are only examples and similar logic may be applicable to other substances but this will be considered on a case by case basis as and when further substances are listed as SVHCs under the REACH regulation.

We are aware of our duties under REACH and we will continue to monitor the SVHC situation via the [European Chemicals Agency \(ECHA\) website](#) and will proactively notify you should the situation arise where any articles processed by us contain SVHCs above the stated threshold.

**Substances of very high concern include substances that are:**

Carcinogenic, Mutagenic or toxic to Reproduction (CMR) classified in category 1 or 2, Persistent, Bio accumulative and Toxic (PBT) or very Persistent and very Bio accumulative (vPvB) according to the criteria in Annex XIII of the REACH Regulation, and/or identified, on a case-by-case basis, from scientific evidence as causing probable serious effects to humans or the environment of an equivalent level of concern as those above e.g. endocrine disrupters

The following table lists all the current SVHCs and whether any are in use at Glenair.

	Substance name	In Glenair Articles Yes/No	EC (CAS No.)	Date of inclusion	Reason for inclusion	Decision number	Possible Applications
1.	4,4'- Diaminodiphenylmethane (MDA)	NO	202-974-4	28.10.2008	Carcinogenic (article 57a)	ED/67/2008	Curing agent for epoxy resin in PCB, preparation of PU, azo dyes in garments
2.	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	NO	201-329-4	28.10.2008	vPvB (article 57e)	ED/67/2008	Cosmetics and soap perfumes
3.	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	NO	287-476-5	28.10.2008	PBT and vPvB (article 57d - e)	ED/67/2008	Leather coating, plasticizer in PVC and chlorinated rubber, flame retardant in plastic & textiles
4.	Anthracene	NO	204-371-1	28.10.2008	PBT (article 57d)	ED/67/2008	Source of dyestuff
5.	Benzyl butyl phthalate (BBP)	NO	201-622-7	28.10.2008	Toxic for reproduction (article 57c)	ED/67/2008	Plasticizer for resin, PVC, acrylics
6.	Bis (2-ethylhexyl)phthalate (DEHP)	NO	204-211-0	28.10.2008	Toxic for reproduction (article 57c)	ED/67/2008	Plasticizer for resin, PVC, blister
7.	Bis(tributyltin)oxide (TBTO)	NO	200-268-0	28.10.2008	PBT (article 57d)	ED/67/2008	Pesticide, fungicide in paint
8.	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane	NO	247-148-4, 221-695-9, 25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8)	28.10.2008	PBT (article 57d)	ED/67/2008	
9.	Diarsenic pentaoxide	NO	215-116-9	28.10.2008	Carcinogenic (article 57a)	ED/67/2008	Insecticides, weed killer, wood preservatives, coloured glass, dyeing and printing
10.	Diarsenic trioxide	NO	215-481-4	28.10.2008	Carcinogenic (article 57a)	ED/67/2008	Weed killers, timber preservatives, manufacture of special glass
11.	Dibutyl phthalate (DBP)	NO	201-557-4	28.10.2008	Toxic for reproduction (article 57c)	ED/67/2008	Plasticizer, in adhesives and paper coatings; insect repellent for textiles
12.	Lead hydrogen arsenate	NO	232-064-2	28.10.2008	Carcinogenic and toxic for reproduction (articles 57a and c)	ED/67/2008	Insecticides
13.	Sodium dichromate	YES <0.1% per articles	234-190-3 (7789-12-0 and 10588-01-9)	28.10.2008	Carcinogenic, mutagenic and toxic for reproduction (articles 57a, 57b and 57c)	ED/67/2008	Chrome-tanning of leather, corrosion inhibitor in paints, mordant in textile dyeing process
14.	Triethyl arsenate	NO	427-700-2	28.10.2008	Carcinogenic (article 57a)	ED/67/2008	Intermediates for semi- conductor
15.	2,4-Dinitrotoluene	NO	204-450-0	13.01.2010	Carcinogenic (article 57a)	ED/68/2009	2,4-dinitrotoluene is used in the production of toluene diisocyanate, which is used for the manufacture of flexible polyurethane foams. The substance is also used as gelatinizing-plasticizing agent for the manufacture of explosives.
16.	Anthracene oil	NO	292-602-7	13.01.2010	Carcinogenic <sup>1)</sup> , PBT and vPvB (articles 57a, 57d and 57e)	ED/68/2009	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
17.	Anthracene oil, anthracene-low	NO	292-604-8	13.01.2010	Carcinogenic <sup>2)</sup> , mutagenic <sup>3)</sup> , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009	

18.	Anthracene oil, anthracene paste	NO	292-603-2	13.01.2010	Carcinogenic <sup>2)</sup> , mutagenic <sup>3)</sup> , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009	
19.	Anthracene oil, anthracene paste, anthracene fraction	NO	295-275-9	13.01.2010	Carcinogenic <sup>2)</sup> , mutagenic <sup>3)</sup> , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009	
20.	Anthracene oil, anthracene paste, distn. lights	NO	295-278-5	13.01.2010	Carcinogenic <sup>2)</sup> , mutagenic <sup>3)</sup> , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009	
21.	Diisobutyl phthalate	NO	201-553-2	13.01.2010	Toxic for reproduction (article 57c)	ED/68/2009	Diisobutyl phthalate is used as plasticiser for nitrocellulose, cellulose ether, polyacrylate and polyacetate dispersions, and as a gelling aid in combination with other plasticisers, which are widely used for plastics, lacquers, adhesives, explosive material and nail polish.
22.	Lead chromate	NO	231-846-0	13.01.2010	Carcinogenic and toxic for reproduction (articles 57a and c)	ED/68/2009	Lead chromate is used for manufacturing pigments and dyes, and as a pigment or coating agent in industrial and maritime paint products or varnishes. Further potential uses may be associated with the formulation of detergents and bleaches, photosensitive materials, the manufacture of pyrotechnic powder or the embalming / restoring of art products.
23.	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	YES <0.1% per articles	235-759-9	13.01.2010	Carcinogenic and toxic for reproduction (articles 57a and c)	ED/68/2009	Lead chromate molybdate sulphate red (C.I. Pigment Red 104) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment, vehicles and aircraft as well as road and airstrip painting.
24.	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	YES <0.1% per articles	215-693-7	13.01.2010	Carcinogenic and toxic for reproduction (articles 57a and c)	ED/68/2009	Lead sulfochromate yellow (C.I. Pigment Yellow 34) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment, vehicles and aircraft as well as road and airstrip painting. The substance is further used for camouflage or ammunition marking in the defence area.
25.	Pitch, coal tar, high temp.	NO	266-028-2	13.01.2010	Carcinogenic, PBT and vPvB (articles 57a, 57d and 57e)	ED/68/2009	Pitch, coal tar, high temp. is mainly used in the production of electrodes for industrial applications. Smaller volumes are dedicated to specific uses such as heavy duty corrosion protection, special purpose paving, manufacture of other substances and the production of clay targets.
26.	Tris(2-chloroethyl)phosphate	NO	204-118-5	13.01.2010	Toxic for reproduction (article 57c)	ED/68/2009	Tris(2-chloroethyl)phosphate is mainly used as an additive plasticiser and viscosity regulator with flame-retarding properties for acrylic resins, polyurethane, polyvinyl chloride and other polymers. Other fields of application are adhesives, coatings, flame resistant paints and varnishes. The main industrial branches to use TCEP are the furniture, the textile and the building industry.
27.	Acrylamide	NO	201-173-7	30.03.2010	Carcinogenic and mutagenic (articles 57a and b)	ED/68/2009	
28.	Trichloroethylene	YES <0.1% per articles	201-167-4 79-01-6	18-6-2012	Carcinogen, category 2	ED/30/10	Trichloroethylene is mainly used as intermediate in the manufacture of chlorinated and fluorinated organic

							compounds. Other uses are for cleaning and degreasing of metal parts or as solvent in adhesives
29.	Boric acid	YES <0.1% per articles	233-139-2 234-343-4 10043-35-3 11113-50-1	18-6-2010	Toxic for reproduction, category 2	ED/30/2010	Boric acid is widely used on account of its consistency-influencing, flame-retarding, antiseptic and preservative properties. It is a component of detergents and cleaners, adhesives, toys, industrial fluids, brake fluids, glass, ceramics, flame retardants, paints, disinfectants, cosmetics, food additives, fertilisers, insecticides and other products.
30.	Disodium tetraborate, anhydrous	YES <0.1% per articles	215-540-4 1303-96-4 1330-43-4 12179-04-3	18-6-2010	toxic for reproduction, category 2	ED/30/2010	Disodium tetraborate and tetraboron disodium heptaoxide form the same compounds in aqueous solutions. Uses include a multitude of applications, e.g. in detergents and cleaners, in glass and glass fibres, ceramics, industrial fluids, metallurgy, adhesives, flame retardants, personal care products, biocides, fertilisers.
31.	Tetraboron disodium heptaoxide, hydrate	NO	235-541-3 12267-73-1	18-6-2010	toxic for reproduction, category 2	ED/30/2010	
32.	Sodium chromate	NO	231-889-5 7775-11-3	18-6-2010	carcinogen, category 2; mutagen, category 2; toxic for reproduction, category 2	ED/30/2010	Sodium chromate is mainly used as an intermediate in the manufacture of other chromium compounds as well as a laboratory analytical agent, but this use is limited. Other potential uses are mentioned in the literature but whether they occur in the EU is not clear.
33.	Potassium chromate	YES Plating <0.1% per articles	232-140-5 7789-00-6	18-6-2010	carcinogen, category 2; mutagen, category 2	ED/30/2010	Potassium chromate is used as a corrosion inhibitor for treatment and coating of metals, for manufacture of reagents, chemicals and textiles, as a colouring agent in ceramics, in the manufacture of pigments/inks and in the laboratory as analytical agent.
34.	Ammonium dichromate	NO	232-143-1 7789-09-5	18-6-2010	carcinogen, category 2; mutagen, category 2; toxic for reproduction, category 2	ED/30/2010	Ammonium dichromate is mainly used as an oxidising agent. Other known uses are in the manufacture of photosensitive screens and as mordant in the manufacture of textiles. Minor uses seem to comprise metal treatment and laboratory analytical agent.
35.	Potassium dichromate	YES <0.1% per articles	231-906-6 7778-50-9	18-6-2010	carcinogen, category 2; mutagen, category 2; toxic for reproduction, category 2	ED/30/2010	Potassium dichromate is used for chrome metal manufacturing and as corrosion inhibitor for treatment and coating of metals. It is further used as textile mordant, as laboratory analytical agent, for cleaning of laboratory glassware, in the manufacture of other reagents and as oxidising agent in photolithography.
36.	2 Ethoxyethanol	NO	203-804-1 110-80-5	15-12-2010	Toxic to reproduction in accordance with REACH Art. 57(c)	ED/95/2010	2-ethoxyethanol is mainly used as a chemical intermediate. Further minor uses are as a solvent or a laboratory chemical.
37.	Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid	NO	231-801-5 7738-94-5	15-12-2010	Carcinogenic in accordance with REACH Art. 57(a)	ED/95/2010	Acids generated from chromium trioxide and their oligomers are mainly used in metal finishing, such as electroplating (e.g. hard chrome and decorative plating), conversion coatings and brightening. It is also used as a fixing agent in waterborne wood preservatives. Minor uses are e.g. in the manufacture of pigments and paints, in catalyst and detergent manufacture, and as an oxidising agent.
38.	Chromium trioxide	YES Plating <0.1% per articles	215-607-8 1333-82-0	15-12-2010	Carcinogenic and mutagenic in accordance with REACH Art. 57(a) and 57(b)	ED/95/2010	Chromium trioxide is mainly used in metal finishing, such as electroplating (e.g. hard chrome and decorative plating), conversion coatings and brightening. It is also used as a fixing agent in waterborne wood preservatives. Minor uses are e.g. in the manufacture of pigments and paints, in catalyst and detergent manufacture, and as an oxidising agent.

39.	Cobalt(II) carbonate	NO	208-169-4 513-79-1	15-12-2010	Carcinogenic and toxic to reproduction in accordance with REACH Art. 57(a) and 57(c)	Ed/95/2010	Cobalt(II) carbonate is mainly used in the manufacture of catalysts. Minor uses may include as a feed additive, in the manufacture of other chemicals including pigments, and as an adhesive in ground coat frit.
40.	Cobalt(II) diacetate	NO	200-755-8 71-48-7	15-12-2010	Carcinogenic and toxic to reproduction in accordance with REACH Art. 57(a) and 57 (c).	ED/95/2010	Cobalt(II) diacetate is mainly used in the manufacture of catalysts or as a catalyst. Minor uses may include the manufacture of other chemicals including pigments, surface treatments, in alloys, dyes, rubber adhesion, and as a feed additive.
41.	Cobalt(II) dinitrate	NO	233-402-1 10141-05-6	15-12-2010	Carcinogenic and toxic to reproduction in accordance with REACH Art. 57(a) and 57 (c)	ED/95/2010	Cobalt(II) dinitrate is mainly used in the manufacture of other chemicals including catalysts. Further applications may include surface treatment and in batteries.
42.	Cobalt(II) sulphate	YES Plating <0.1% per articles	233-334-2 10124-43-3	15-12-2010	Carcinogenic and toxic to reproduction in accordance with REACH Art. 57(a) and 57(c)	ED/95/2010	Cobalt(II) sulphate is mainly used in the manufacture of other chemicals including pigments and possibly catalysts, driers. Further applications comprise surface treatments (such as electroplating), corrosion prevention, decolourisation (in glass, pottery), in batteries, animal food supplements and soil fertilisers
43.	2-Methoxyethanol	YES <0.1% per articles	203-713-7 109-86-4	15-12-2010	Toxic to reproduction in accordance with REACH Art. 57(c)	ED/95/2010	2-methoxyethanol is mainly used as a chemical intermediate. Further minor uses are as a solvent or a laboratory chemical.
44.	2-ethoxyethyl acetate	NO	203-839-2 111-15-9	20-06-2011	Art. 57 (c), toxic for reproduction	ED/31/2011	No registration for 2-ethoxyethylacetate has been submitted to ECHA. Hence the substance seems not to be manufactured in or imported to the EU in quantities above 1 t/y. Main uses in the past were as solvent in coatings and in the chemical industry, but also as intermediate in the manufacture of cyanoacrylate adhesives.
45.	Strontium chromate	NO	7789-06-2 232-142-6	20-06-2011	Art. 57 (a), carcinogenic	ED/31/2011	Strontium chromate is mainly used as corrosion inhibitor in coating mixtures used in the aeronautic/aerospace sector, in the coil coating sector of steel and aluminium and in the vehicle coating sector.
46.	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	NO	271-084-6 68515-42-4	20-06-2011	Art. 57 (c), toxic for reproduction	ED/31/2011 ED/67/2008	No registration for DHNUP has been submitted to ECHA. Hence the substance seems not to be manufactured in or imported to the EU in quantities above 1 t/y. Main uses in the past were as plasticiser in PVC, foam, adhesives and coatings.
47.	Hydrazine	NO	302-01-2 7803-57-8 206-114-9	20-06-2011	Art. 57 (a), carcinogenic	ED/31/2011	Hydrazine is mainly used as intermediate in the manufacture of hydrazine derivatives, as a monomer in polymerisations, as a corrosion inhibitor in water treatment and for metal reduction and refining of chemicals. It is also used as a propellant for aerospace vehicles and as fuel in military (emergency) power units.
48.	1-methyl-2-pyrrolidone	YES <0.1% per articles	872-50-4 212-828-1	20-06-2011	Art. 57 (c), toxic for reproduction	ED/31/2011	1-methyl-2-pyrrolidone is mainly used as solvent in coatings, cleaning products, for electronic equipment manufacture, as well as in semiconductor industry, petrochemical processing, pharmaceuticals and agrochemicals.
49.	1,2,3-trichloropropane	NO	96-18-4 202-486-1	20-06-2011	Art. 57 (a) & (c), carcinogenic & toxic for reproduction	ED/31/2011	1,2,3-trichloropropane is mainly used as intermediate in the manufacture of chlorinated solvents and agricultural products. It is also used as monomer. In the past 1,2,3-trichloropropane was used as solvent, paint and varnish remover and as degreasing agent.

50.	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	NO	71888-89-6 276-158-1	20-06-2011	Art. 57 (c), toxic for reproduction	ED/31/2011	No registration for DIHP has been submitted to ECHA. Hence the substance seems not to be manufactured in or imported to the EU in quantities above 1 t/y. Main uses in the past were as plasticiser in PVC and in sealants, coatings and potentially printing inks.
51.	Cobalt dichloride	NO	231-589-4 7646-79-9	20-06-2011	Art. 57 (c), toxic for reproduction	ED/31/2011	Cobalt dichloride is mainly used as intermediate in the manufacture of other cobalt compounds, in tyre adhesion additives, organic textile dyes, and drying agents for paints. Furthermore it is used in surface treatment processes, as water treatment / corrosion inhibition chemical, as colourant or for discolouring in the production of inorganic pigments & frits, glass, and ceramic ware, in varistors and magnets, as well as in humidity indicators.
52.	Zirconia Aluminosilicate Refractory Ceramic Fibres are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm). c) alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight	NO		19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Industrial insulation materials
53.	Calcium arsenate	NO	7778-44-1 231-904-5	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Present in complex raw materials imported for manufacture of copper, lead and other precious metals. Main use as precipitating agent in copper smelting and to manufacture diarsenic trioxide.
54.	Bis(2-methoxyethyl) ether	YES >0.1% per articles	111-96-6 203-924-4	19/12/2011	Toxic for reproduction (article 57 c)	ED/77/2011	Used as solvent or process chemical in various applicants. Used also as solvent for battery electrolytes and in other products ( sealants, adhesives, fuels and automotive care products).
55.	Aluminosilicate Refractory Ceramic Fibres are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm) c) alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight	NO		19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Industrial insulation materials.
56.	Potassium hydroxyoctaoxodizincatedichromate	NO	11103-86-9 234-329-8	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Main use in coatings in aeronautic/ aerospace, steal and aluminum coil coating and vehicle coating sectors.
57.	Lead dipicrate	NO	6477-64-1 229-335-2	19/12/2011	Toxic for reproduction (article 57 c)	ED/77/2011	Explosive compound like lead diazide and lead styphnate and may be used in detonator mixtures together with the

							two other mentioned lead compounds.
58.	N,N-dimethylacetamide	NO	127-19-5 204-826-4	19/12/2011	Toxic for reproduction (article 57 c)	ED/77/2011	Used as solvent in production of other substances and fibres for clothing and other applications. Also used as reagent, and in products ( industrial coastings, polyimide films, paint strippers and ink removers).
59.	Arsenic acid	NO	7778-39-4 231-901-9	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Used to remove gas bubbles from ceramic glass melt and in the production of laminated printed circuit boards.
60.	2-Methoxyaniline; o-Anisidine	NO	90-04-0 201-963-1	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Main use in production of dyes for tattooing and coloration of paper, polymers and aluminum foil.
61.	Trilead diarsenate	NO	3687-31-8 222-979-5	19/12/2011	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/77/2011	Used in complex raw materials imported for production of copper, lead and other precious metals. During metallurgical refinement process, it is transformed to calcium arsenate and diarsenic trioxide.
62.	1,2-dichloroethane	NO	107-06-2 203-458-1	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Main use in production of other substances. Minor use as solvent in the chemical and pharmaceutical industry.
63.	Pentazinc chromate octahydroxide	NO	49663-84-5 256-418-0	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Main use in coatings in vehicle coating and aeronautic/ aerospace sectors.
64.	Formaldehyde, oligomeric reaction products with aniline	NO	25214-70-4 500-036-1	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Raw materials for production of other substances. Minor use as hardener for epoxy resins, e.g in rolls, pipes and moulds and adhesives.
65.	Bis(2-methoxyethyl) phthalate	NO	117-82-8 204-212-6	19/12/2011	Toxic for reproduction (article 57 c)	ED/77/2011	Main uses in the past were as plasticiser in polymeric materials and paints, laquers and varnishes, including printing inks.
66.	4-(1,1,3,3-tetramethylbutyl)phenol	NO	140-66-9 205-426-2	19/12/2011	Equivalent level of concern having probable serious effects to the environment (article 57 f)	ED/77/2011	Main use in production of polymer preparations and ethoxylates. Further use as a component in adhesives, coatings, inks and rubber articles.
67.	Lead diazide, Lead azide	NO	13424-46-9 236-542-1	19/12/2011	Toxic for reproduction (article 57 c),	ED/77/2011	Use as initiator or booster in detonators ( civilian and military) and as initiator in pyrotechnics.
68.	Phenolphthalein	NO	77-09-8 201-004-7	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Main use as PH indicator (laboratory), for the production of PH indicator paper and in medicinal products.
69.	Dichromium tris(chromate)	NO	24613-89-6 246-356-2	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Main use in mixtures for metal surface treatment in aeronautic/ aerospace, steel and aluminum coating sectors.
70.	Lead styphnate	NO	15245-44-0 239-290-0	19/12/2011	Toxic for reproduction (article 57 c)	ED/77/2011	Use as a primer for small caliber and rifle ammunition. Other common uses are in munition pyrotechnics, powder actuated devise and detonators for civilian use.
71.	2,2'-dichloro-4,4'-methylenedianiline	YES <0.1% per articles	101-14-4 202-918-9	19/12/2011	Carcinogenic (article 57 a)	ED/77/2011	Used as curing agent in resins and in the production of polymer articles and production of other substances. Further use in construction and arts.



72.	$\alpha,\alpha$ -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)]	NO	229-851-8 6786-83-0	18/06/2012	Carcinogenic (article 57 a)	ED/87/2012	Mainly used in the formulation of printing and writing inks, for dyeing paper and in mixtures such as windscreen washing agents.
73.	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	NO	202-959-2 101-61-1	18/06/2012	Carcinogenic (article 57 a)	ED/87/2012	Used as an intermediate in the manufacture of dyes and other substances
74.	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione ( $\beta$ -TGIC)	NO	423-400-0 59653-74-6	18/06/2012	Mutagenic (Article 57b)	ED/87/2012	Mainly used as a solder mask ink in the EU. Also used in electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing, coatings, tools, adhesives, lining materials and stabilisers for plastics.
75.	Diboron trioxide	NO	215-125-8 1303-86-2	18/06/2012	Toxic for reproduction (Article 57 c)	ED/87/2012	Used in a multitude of applications, e.g. in glass and glass fibres, frits, ceramics, flame retardants, catalysts, industrial fluids, metallurgy, nuclear, electrical equipment, adhesives, inks/paints, film developing solutions, detergents and cleaners, reagent chemicals, biocides and insecticides.
76.	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	NO	203-977-3 112-49-2	18/06/2012	Toxic for reproduction (Article 57 c)	ED/87/2012	Mainly used as a solvent or as a processing aid in the manufacture and formulation of industrial chemicals. Minor uses in brake fluids and repair of motor vehicles.
77.	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)]	NO	209-218-2 561-41-1	18/06/2012	Carcinogenic (article 57 a)	ED/87/2012	Used in the formulation of writing inks and potentially other inks, as well as for dyeing a variety of materials.
78.	Lead(II) bis(methanesulfonate)	NO	401-750-5 17570-76-2	18/06/2012	Toxic for reproduction (Article 57 c)	ED/87/2012	Mainly used in plating processes (both electrolytic and electroless) for electronic components (such as printed circuit boards). The substance seems to also be used for batteries in special applications.
79.	Formamide	NO	200-842-0 75-12-7	18/06/2012	Toxic for reproduction (Article 57 c)	ED/87/2012	Mainly used as an intermediate in the manufacture of agrochemicals, pharmaceuticals and industrial chemicals. Minor uses as a solvent, as a laboratory reagent for quality control purposes in forensic laboratories, hospitals, pharmaceutical companies, food and drinks manufacturers and research laboratories. The substance seems to also be used as a plasticiser.
80.	[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)]	NO	208-953-6 548-62-9	18/06/2012	Carcinogenic (article 57 a)	ED/87/2012	Used mainly for paper colouring and inks supplied in printer cartridges and ball pens. Further uses include staining of dried plants, use as a marker for increasing the visibility of liquids, staining in microbial and clinical laboratories.
81.	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	NO	203-794-9 110-71-4	18/06/2012	Toxic for reproduction (Article 57 c)	ED/87/2012	Mainly used as a solvent or as a processing aid in the manufacture and formulation of industrial chemicals, including use as an electrolyte solvent in lithium batteries.
82.	[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)]	NO	219-943-6 2580-56-5	18/06/2012	Carcinogenic (article 57 a)	ED/87/2012	Used in the formulation of inks, cleaners, and coatings, as well as for dyeing paper, packaging, textiles, plastic products, and other types of articles. It is also used in diagnostic and analytical applications.



83.	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	YES <0.1% per articles	219-514-3 2451-62-9	18/06/2012	Mutagenic (Article 57b)	ED/87/2012	Mainly used as a hardener in resins and coatings. Also used in inks for the printed circuit board industry, electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilisers for plastics.
84.	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	NO	202-027-5 90-94-8	18/06/2012	Carcinogenic (article 57 a)	ED/87/2012	Used as an intermediate in the manufacture of triphenylmethane dyes and other substances. Further potential uses include use as an additive (photosensitiser) in dyes and pigments, in dry film products and as a process chemical in the production of electronic circuit boards.
85.	Pyrochlore, antimony lead yellow	NO	232-382-1 8012-00-8	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
86.	6-methoxy-m-toluidine (p-cresidine)	NO	204-419- 1120-71-8	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
87.	Henicosafuoroundecanoic acid	NO	218-165-4 2058-94-8	19/12/2012	vPvB (Article 57 e)	ED/169/2012	Technical Information not Available.
88.	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] <i>[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]</i>	NO	247-094-1, 243-072-0, 256-356-4, 260-566-1 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	19/12/2012	Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/169/2012	Technical Information not Available.
89.	Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] <i>[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]</i>	YES <0.1% per articles	201-604-9, 236-086-3, 238-009-9 85- 42-7, 13149- 00-3, 14166- 21-3	19/12/2012	Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/169/2012	Technical Information not Available.
90.	Dibutyltin dichloride (DBTC)	NO	211-670-0 683-18-1	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
91.	Lead bis(tetrafluoroborate)	NO	237-486-0 13814-96-5	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
92.	Lead dinitrate	NO	233-245-9 10099-74-8	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
93.	Silicic acid, lead salt	NO	234-363-2 11120-22-2	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
94.	4-Aminoazobenzene	NO	200-453-6 60- 09-3	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
95.	Lead titanium zirconium oxide	NO	235-727-4 12626-81-2	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
96.	Lead monoxide (lead oxide)	NO	215-267-0 1317-36-8	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
97.	o-Toluidine	NO	202-429-0 95- 53-4	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
98.	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	NO	421-150-7 143860-04-2	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
99.	Silicic acid (H <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> ), barium salt (1:1), lead-doped <i>[with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]</i>	NO	272-271-5 68784-75-8	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.

100.	Trilead bis(carbonate)dihydroxide	NO	215-290-6 1319-46-6	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
101.	Furan	NO	203-727-3 110-00-9	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
102.	N,N-dimethylformamide	NO	200-679-5 68-12-2	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
103.	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	NO	-	19/12/2012	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	ED/169/2012	Technical Information not Available.
104.	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]	NO	-	19/12/2012	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	ED/169/2012	Technical Information not Available.
105.	4,4'-methylenedi-o-toluidine	NO	212-658-8 838-88-0	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
106.	Diethyl sulphate	NO	200-589-6 64-67-5	19/12/2012	Carcinogenic (Article 57a); Mutagenic (Article 57b)	ED/169/2012	Technical Information not Available.
107.	Dimethyl sulphate	NO	201-058-1 77-78-1	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
108.	Lead oxide sulfate	NO	234-853-7 12036-76-9	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
109.	Lead titanium trioxide	NO	235-038-9 12060-00-3	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
110.	Acetic acid, lead salt, basic	NO	257-175-3 51404-69-4	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
111.	[Phthalato(2-)]dioxotrilead	NO	273-688-5 69011-06-9	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
112.	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	NO	214-604-9 1163-19-5	19/12/2012	PBT (Article 57 d); vPvB (Article 57 e)	ED/169/2012	Technical Information not Available.
113.	N-methylacetamide	NO	201-182-6 79-16-3	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
114.	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	NO	201-861-7 88-85-7	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
115.	1,2-Diethoxyethane	NO	211-076-1 629-14-1	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
116.	Tetralead trioxide sulphate	NO	235-380-9 12202-17-4	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
117.	N-pentyl-isopentylphthalate	NO	776297-69-9	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
118.	Dioxobis(stearato)trilead	NO	235-702-8 12578-12-0	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
119.	Tetraethyllead	NO	201-075-4 78-00-2	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
120.	Pentalead tetraoxide sulphate	NO	235-067-7 12065-90-6	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
121.	Pentacosfluorotridecanoic acid	NO	276-745-2 72629-94-8	19/12/2012	vPvB (Article 57 e)	ED/169/2012	Technical Information not Available.
122.	Tricosfluorododecanoic acid	NO	206-203-2 307-55-1	19/12/2012	vPvB (Article 57 e)	ED/169/2012	Technical Information not Available.
123.	Heptacosfluorotetradecanoic acid	NO	206-803-4 376-06-7	19/12/2012	vPvB (Article 57 e)	ED/169/2012	Technical Information not Available.

124.	1-bromopropane (n-propyl bromide)	NO	203-445-0 106-94-5	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
125.	Methoxyacetic acid	NO	210-894-6 625-45-6	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
126.	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	NO	202-453-1 95- 80-7	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
127.	Methyloxirane (Propylene oxide)	NO	200-879-2 75- 56-9	19/12/2012	Carcinogenic (Article 57a); Mutagenic (Article 57b)	ED/169/2012	Technical Information not Available.
128.	Trilead dioxide phosphonate	NO	235-252-2 12141-20-7	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
129.	o-aminoazotoluene	NO	202-591-2 97- 56-3	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
130.	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	NO	284-032-2 84777-06-0	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
131.	4,4'-oxydianiline and its salts	NO	202-977-0 101-80-4	19/12/2012	Carcinogenic (Article 57a); Mutagenic (Article 57b)	ED/169/2012	Technical Information not Available.
132.	Orange lead (lead tetroxide)	NO	215-235-6 1314-41-6	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
133.	Biphenyl-4-ylamine	NO	202-177-1 92- 67-1	19/12/2012	Carcinogenic (Article 57a)	ED/169/2012	Technical Information not Available.
134.	Diisopentylphthalate	NO	210-088-4 605-50-5	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
135.	Fatty acids, C16-18, lead salts	NO	292-966-7 91031-62-8	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
136.	Diazeno-1,2-dicarboxamide (C,C'-azodi(formamide))	NO	204-650-8 123-77-3	19/12/2012	Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/169/2012	Technical Information not Available.
137.	Sulfurous acid, lead salt, dibasic	NO	263-467-1 62229-08-7	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
138.	Lead cyanamidate	NO	244-073-9 20837-86-9	19/12/2012	Toxic for reproduction (Article 57 c)	ED/169/2012	Technical Information not Available.
139.	Cadmium	YES >0.1% per articles	231-152-8 7440-43-9	16/12/2013	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/69/2013	Technical information not Available.
140.	Ammonium pentadecafluorooctanoate (APFO)	NO	223-320-4 3825-26-1	16/12/2013	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	ED/69/2013	Technical information not Available.
141.	Pentadecafluorooctanoic acid (PFOA)	NO	206-397-9 335-67-1	16/12/2013	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	ED/69/2013	Technical information not Available.
142.	Dipentyl phthalate (DPP)	NO	205-017-9 131-18-0	16/12/2013	Toxic for reproduction (Article 57 c)	ED/69/2013	Technical information not Available.
143.	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	NO		16/12/2013	Equivalent level of concern having probable serious effects to the	ED/69/2013	Technical information not Available.

	<i>substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof</i>				environment (Article 57 f)		
144.	Cadmium oxide	NO	215-146-2 1306-19-0	16/12/2013	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/69/2013	Technical information not Available.
145.	Cadmium sulphide	YES <0.1% per articles	215-147-8, 1306-23-6	16/12/2013	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/121/2013	Technical information not available
146.	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)	NO	217-710-3, 1937-37-7	16/12/2013	Carcinogenic (Article 57a);	ED/121/2013	Technical information not available
147.	Dihexyl phthalate	NO	201-559-5, 84-75-3	16/12/2013	Toxic for reproduction (Article 57 c);	ED/121/2013	Technical information not available
148.	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	NO	202-506-9, 96-45-7	16/12/2013	Toxic for reproduction (Article 57 c);	ED/121/2013	Technical information not available
149.	Trixylyl phosphate	NO	246-677-8, 25155-23-1	16/12/2013	Toxic for reproduction (Article 57 c);	ED/121/2013	Technical information not available
150.	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	NO	209-358-4, 573-58-0	16/12/2013	Carcinogenic (Article 57a);	ED/121/2013	Technical information not available
151.	Lead di(acetate)	NO	206-104-4, 301-04-2	16/12/2013	Toxic for reproduction (Article 57 c);	ED/121/2013	Technical information not available
152.	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	NO	271-093-5, 68515-50-4	16/06/2014	Toxic for reproduction (Article 57 c)	ED/49/2014	Technical information not available
153.	Sodium perborate; perboric acid, sodium salt	NO	239-172-9; 234-390-0	16/06/2014	Toxic for reproduction (Article 57 c)	ED/49/2014	Technical information not available
154.	Sodium peroxometaborate	NO	7632-04-4, 231-556-4	16/06/2014	Toxic for reproduction (Article 57 c)	ED/49/2014	Technical information not available
155.	Cadmium chloride	NO	10108-64-2, 233-296-7	16/06/2014	Carcinogenic (Article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/49/2014	Technical information not available
156.	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	NO	223-346-6, 3846-71-7	17/12/2015	PBT (Article 57 d); vPvB (Article 57 e)	ED/108/2014	Technical information not available
157.	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	NO	239-622-4, 15571-58-1	17/12/2015	Toxic for reproduction (Article 57 c)	ED/108/2014	Technical information not available
158.	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-	NO		17/12/2015	Toxic for reproduction (Article 57 c)	ED/108/2014	Technical information not available

	[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)						
159.	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	NO	247-384-8, 25973-55-1	17/12/2015	PBT (Article 57 d); vPvB (Article 57 e)	ED/108/2014	Technical information not available
160.	Cadmium fluoride	NO	232-222-0, 7790-79-6	17/12/2015	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/108/2014	Technical information not available
161.	Cadmium sulphate	NO	233-331-6, 10124-36-4, 31119-53-6	17/12/2015	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/108/2014	Technical information not available
162.	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 (EC No. 201-559-5)	No	271-094-0, 272-013-1, 68515-51-5, 68648-93-1,	15/06/2015	Toxic for reproduction (Article 57 c)	ED/39/2015	Technical information not available
163.	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]	No	-	15/06/2015	vPvB (Article 57e)	ED/39/2015	Technical information not available
164.	1,3-propanesultone	NO	214-317-9, 1120-71-4,	17/12/2015	Carcinogenic (Article 57 a)	ED/79/2015	Technical information not available
165.	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	NO	223-383-8, 3864-99-1,	17/12/2015	vPvB (Article 57 e)	ED/79/2015	Technical information not available
166.	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	NO	253-037-1, 36437-37-3,	17/12/2015	vPvB (Article 57 e)	ED/79/2015	Technical information not available
167.	Nitrobenzene	NO	202-716-0, 98-95-3,	17/12/2015	Toxic for reproduction (Article 57 c)	ED/79/2015	Technical information not available
168.	Perfluorononan-1-oic-acid and its sodium and ammonium salts	NO	206-801-3, 375-95-1, 21049-39-8, 4149-60-4,	17/12/2015	Toxic for reproduction (Article 57 c) PBT (Article 57 d)	ED/79/2015	Technical information not available

169.	Benzo[def]chrysene (Benzo[a]pyrene)	NO	200-028-5, 50-32-8	20/06/16	Carcinogenic (Article 57a) Mutagenic (Article 57b) Toxic for reproduction (Article 57c) PBT (Article 57 d) vPvB (Article 57 e)	ED/21/2016	Normally not manufactured intentionally but may occur as a constituent or impurity in other substances.
170.	4,4'-isopropylidenediphenol Bisphenol A; BPA	NO	201-245-8, 80-05-7	12/01/2017	Toxic for reproduction (Article 57c)	ED/01/2017	Technical information not available
171.	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	NO	-	12/01/2017	Equivalent level of concern having probable serious effects to environment (Article 57 f)	ED/01/2017	Technical information not available
172.	<b>Non-adecafluorodecanoic acid (PFDA) and its sodium and ammonium salts</b> <ul style="list-style-type: none"> <li>Decanoic acid, nonadecafluoro-, sodium salt</li> <li>Ammonium nonadecafluorodecanoate</li> <li>Non-adecafluorodecanoic acid</li> </ul>	NO	3830-45-3, 221-470-5, 3108-42-7, 206-400-3, 335-76-2,	12/01/2017	Toxic for reproduction (Article 57c) PBT (Article 57 d)	ED/01/2017	Technical information not available
173.	p-(1,1-dimethylpropyl)phenol	NO	201-280-9, 80-46-6,	12/01/2017	Equivalent level of concern having probable serious effects to environment (Article 57 f)	ED/01/2017	Technical information not available
174.	Perfluorohexane-1-sulfonic acid and its salts (PFHxS)	NO	-	10/07/2017	vPvB (Article 57e)	ED/01/2017	Technical information not available
175.	Benz[a]anthracene	NO	200-280-6, 56-55-3, 1718-53-2,	15/01/2018	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	ED/01/2018	Technical information not available
176.	Cadmium Carbonate	NO	208-168-9, 513-78-0,	15/01/2018	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated after repeated exposure (Article 57(f) – human health)	ED/01/2018	Technical information not available
177.	Cadmium Hydroxide	NO	244-168-5, 21041-95-2,	15/01/2018	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated after repeated exposure (Article 57(f) – human health)	ED/01/2018	Technical information not available
178.	Cadmium Nitrate	NO	233-710-6, 10022-68-1,	15/01/2018	Carcinogenic (Article 57a) Mutagenic (Article	ED/01/2018	Technical information not available

			10325-94-7,		57b) Specific target organ toxicity after repeated exposure (Article 57(f) – human health)		
179.	Chrysence	NO	205-923-4, 218-01-9, 1719-03-5,	15/01/2018	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	ED/01/2018	Technical information not available
180.	Dodecachloropentacyclo[12.2.1.16.9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus" <sup>TM</sup> ) covering any of its individual anti- and syn-isomers or any combination thereof	NO	-	15/01/2018	vPvB (Article 57e)	ED/01/2018	Technical information not available
181.	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 (4-HPbl)	NO	-	15/01/2018	Endocrine disrupting properties (Article 57 (f) – environment)	ED/01/2018	Technical information not available
182.	Octamethylcyclotetrasiloxane (D4)	YES >0.1% per articles	209-136-7,556-67-2,	27/06/2018	vPvB (Article 57d) vPvB (Article 57e)	ED 61/2018 EU/2018/594	Used in washing and cleaning products, polishes and waxes and cosmetics and personal care products.
183.	Decamethylcyclopentasiloxane (D5)	YES <0.1% per articles	208-764-9,541-02-6,	27/06/2018	vPvB (Article 57d) vPvB (Article 57e)	ED 61/2018	Used in washing and cleaning products, polishes and waxes, cosmetics and personal care products, textile treatment products and dyes.
184.	Dodecamethylcyclohexasiloxane (D6)	YES <0.1% per articles	208-762-8,540-97-6,	27/06/2018	vPvB (Article 57d) vPvB (Article 57e)	ED 61/2018	Used in washing and cleaning products, polishes and waxes, cosmetics and personal care products.
185.	Lead	YES >0.1% per articles	231-100-4,7439-92-1,	27/06/2018	Toxic for reproduction (Article 57c)	ED 61/2018	Used in metals, welding and soldering products, metal surface treatment products, and polymers.
186.	Disodium octaborate	NO	234-541-0,12008-41-2,	27/06/2018	Toxic for reproduction (Article 57c)	ED 61/2018	Used in anti-freeze products, heat transfer fluids, lubricants and greases, and washing and cleaning products.
187.	Benzo[ghi]perylene	NO	205-883-8,191-24-2,	27/06/2018	vPvB (Article 57d) vPvB (Article 57e)	ED 61/2018	Not registered under REACH. Normally not produced intentionally but rather occurs as a constituent or impurity in other substances.
188.	Terphenyl hydrogenated	YES >0.1% per articles	262-967-7,61788-32-7,	27/06/2018	vPvB (Article 57e)	ED 61/2018	Used as a plastic additive, solvent, in coatings/inks, in adhesives and sealants, and heat transfer fluids.
189.	Ethylenediamine (EDA)	NO	203-468-6,107-15-3,	27/06/2018	Respiratory sensitising properties (Article 57f) – Human Health	ED 61/2018	Used in adhesives and sealants, coating products, fillers, putties, plasters, modelling clay, pH regulators and water treatment products.
190.	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA)	NO	209-008-0,552-30-7,	27/06/2018	Respiratory sensitising properties	ED 61/2018	Used in the manufacture of esters and polymers.



191.	Dicyclohexyl phthalate (DCHP)	NO	201-545-9,84-61-7,	27/06/2018	(Article 57f) – Human Health	ED 61/2018 EU/2018/636	Used in plastisol, PVC, rubber and plastic articles. A further use is also as a phlegmatizer and dispersing agent for formulations of organic peroxides.
192.	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one 3-benzylidene camphor; 3-BC	NO	239-139-9,15087-24-8	15/01/2019	Endocrine disrupting properties (Article 57(f) - environment)	ED/88/2018 EU/2018/2013	Technical information not available
193.	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	NO	401-720-1,6807-17-6	15/01/2019	Toxic for reproduction (Article 57c)	ED/88/2018	Technical information not available
194.	Benzo[k]fluoranthene	NO	205-916-6,207-08-9	15/01/2019	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	ED/88/2018	Technical information not available
195.	Fluoranthene	NO	205-912-4,206-44-0,93951-69-0	15/01/2019	PBT (Article 57d) vPvB (Article 57e)	ED/88/2018	Technical information not available
196.	Phenanthrene	NO	201-581-5,85-01-8	15/01/2019	vPvB (Article 57e)	ED/88/2018	Technical information not available
197.	Pyrene	NO	204-927-3,129-00-0,1718-52-1	15/01/2019	PBT (Article 57d) vPvB (Article 57e)	ED/88/2018	Technical information not available
198.	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides	NO	-	16/07/2019	(Article 57(f) - human health) (Article 57(f) - environment)	ED/71/2019	Equivalent level of concern having probable serious effects to human health Equivalent level of concern having probable serious effects to the environment
199.	2-methoxyethyl acetate	NO	203-772-9,110-49-6	16/07/2019	(Article 57c)	ED/71/2019	Toxic for reproduction
200.	4-tert-butylphenol	NO	202-679-0,98-54-4	16/07/2019	(Article 57(f) - environment)	ED/71/2019 EU/2019/1194	Endocrine disrupting properties
201.	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	NO	-	16/07/2019	(Article 57(f) - environment)	ED/71/2019	Endocrine disrupting properties
202.	Perfluorobutane sulfonic acid (PFBS) and its salts	NO	-	16/01/2020	(Article 57(f) - human health) (Article 57(f) - environment)	ECHA_01_2020	Equivalent level of concern having probable serious effects to human health. Equivalent level of concern having probable serious effects to the environment.
203.	Diisohexyl phthalate	NO	276-090-2,71850-09-4,	16/01/2020	(Article 57c)	ECHA_01_2020	Toxic for reproduction
204.	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	NO	400-600-6,71868-10-5,	16/01/2020	(Article 57c)	ECHA_01_2020	Toxic for reproduction
205.	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	NO	404-360-3,119313-12-1,	16/01/2020	(Article 57c)	ECHA_01_2020	Toxic for reproduction
206.	Dibutylbis(pentane-2,4-dionato-O,O')tin	NO	245-152-0,22673-19-4	25/06/2020	(Article 57c)	D(2020)4578-DC	Toxic for reproduction
207.	Butyl 4-hydroxybenzoate	NO	202-318-7,94-26-8	25/06/2020	(Article 57 (f))	D(2020)4578-DC	Endocrine disrupting properties - human health)
208.	2-methylimidazole	NO	211-765-7,693-98-1	25/06/2020	(Article 57c)	D(2020)4578-DC	Toxic for reproduction
209.	1-vinylimidazole	NO	214-012-0,	25/06/2020	(Article 57c)	D(2020)4578-	Toxic for reproduction

			1072-63-5			DC	
210.	Bis(2-(2-methoxyethoxy)ethyl) ether	NO	205-594-7, 143-24-8	19/01/2021	Toxic for reproduction (Article 57C)	D(2020)9139- DC	Toxic for reproduction
211.	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	NO	293-901-5, 91648-39-4, 222-883-3, 3648-18-8	19/01/2021	Toxic for reproduction (Article 57C)	D(2020)9139- DC	Toxic for reproduction
212.	2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers	NO	799-970-2, 75166-31-3, 75166-30-2,	08/07/2021	Toxic for reproduction (Article 57C)	D(2021)4569- DC	Cleaning agents, cosmetics, in scented articles, polishes and wax blends.
213.	Orthoboric acid, sodium salt	NO	14890-53-0, 22454-04-2, 215-604-1, 1333-73-9, 237-560-2, 13840-56-7, 23-253-6, 14312-40-4, 25747-83-5, 799-969-7,	08/07/2021	Toxic for reproduction (Article 57C)	D(2021)4569- DC	Not registered under REACH. May be used as solvent and corrosion inhibitor.
214.	2,2-bis(bromomethyl)propane1,3-diol (BMP);  2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA);  2,3-dibromo-1-propanol (2,3-DBPA)	NO	221-967-7, 253-057-0, 202-480-9, 3296-90-0, 36483-57-5, 1522-92-5, 96-13-9, 799-968-1,	08/07/2021	Toxic for reproduction (Article 57a)	D(2021)4569- DC	BMP: manufacture of polymer resins and in one component foam (OCPP) application. TBNPA: polymer production manufacture of plastics products, including compounding and conversion and as an intermediate. DBPA: registered as an intermediate
215.	Glutaral	NO	203-856-5, 111-30-8,	08/07/2021	(Article 57(f) - human health) (Article 57(f) - environment)	D(2021)4569- DC	Biocides, leather tanning, x-ray film processing, cosmetics.
216.	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)	YES <0.1% per articles	799-971- 8,287-477-0, 85535-85-9, 198840-65-2, 1372804-76- 6, 950-299-5,	08/07/2021	PBT (Article 57 d) vPvB (Article 57 e)	D(2021)4569- DC	Flame retardants, plasticising additives in plastics, sealants, rubber and textiles.
217.	Phenol, alkylation products (mainly in para position) with C12-rich branched alkyl chains from oligomerisation, covering any individual isomers and/ or combinations thereof (PDDP)	NO	799-972-3, 27459-10-5, 57427-55-1, 210555-94-5, 74499-35-7, 27147-75-7, 310-154-3, 121158-58-5,	08/07/2021	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57f - human health and environment)	D(2021)4569- DC	Preparation of lubricant additive materials and of fuel system cleaners.
218.	1,4-dioxane	NO	204-661-8, 123-91-1,	08/07/2021	Carcinogenic (Article 57a) Equivalent level of concern having probable serious effects to the	D(2021)4569- DC	Solvent

					environment (Article 57f -environment) Equivalent level of concern having probable serious effects to human health (Article 57f – human health)		
219.	4,4'-(1-methylpropylidene)bisphenol	No	201-025-1, 77-40-7,	08/07/2021	Endocrine disrupting properties (Article 57f - human health and environment)	D(2021)4569-DC	Not registered under REACH. May be used in manufacture of phenolic and polycarbonate resin.
220.	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	YES >0.1% per articles	204-327-1, 119-47-1,	17/01/22	Toxic for reproduction (Article 57 c)	D(2021)10043-DC	Rubbers, lubricants, adhesives, inks, fuels
221.	tris(2-methoxyethoxy)vinylsilane	No	213-934-0, 1067-53-4,	17/01/22	Toxic for reproduction (Article 57 c)	D(2021)10043-DC	Rubbers, plastics, sealants
222.	(±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one covering any of the individual isomers and/or combinations thereof (4-MBC)	No	1782069-81-1,95342-41-9,852541-25-4,36861-47-9,253-242-6,741687-98-9,852541-30-1,852541-21-0,	17/01/22	Endocrine disrupting properties (Article 57 f - human health)	D(2021)10043-DC	Cosmetics
223.	S-(tricyclo(5.2.1.02,6)deca-3-en-8(or 9)-yl O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate	No	401-850-9, 255881-94-8,	17/01/22	PBT (Article 57 d)	D(2021)10043-DC	Lubricants, greases
224.	N-(hydroxymethyl)acrylamide	No	213-103-2, 924-42-5,	10/06/22	Carcinogenic (Article 57a) Mutagenic (Article 57b)	D(2022)4187-DC	Technical information not available.

### Key:

In Product more 0.1%	In Product less 0.1%	Plating - No Residuals	Cleaning – No Residuals	Testing Purposes only - No Residuals
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Health & Safety Department

## REACH, SVHC's & Articles Cadmium Plating Evaluation

Sample	Part No.	Bin ref	Trace No.	Weight before plating	Weight after Electroless nickel	Weight of Electroless nickel %	Weight after Cadmium plating	Weight of Cadmium %
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1	G79502-08	BH492	1416269	4.0133 g	4.0791g	1.6	4.2039g	3.0
2	G79502-14	BH399	1890378	8.1389 g	8.2783g	1.7	8.5201g	2.8
3	G79502-18	BH406	1389232	10.9914 g	11.1806g	1.7	11.4342g	2.2
4	G79502-22	BH428	1107117	14.6128 g	14.8356g	1.5	15.2035g	2.4
5	G79502-61	BH402	646287	15.6952 g	15.9557g	1.6	16.3067g	2.2

The samples taken will have an element of electroless nickel applied.

### Summary

Under REACH and in particular SVHC's the maximum permissible amount of Cadmium (by weight) is 0.1% is acceptable

The samples used are a reasonable assumption of the weight effects of cadmium on Glenair componentry.

We do not need to stop using Cadmium, but we do need to make customers who wish to have Cadmium plated parts aware of the fact that the use of this substance is beyond the permissible level of 0.1%.

The risk assessment and advice on the next page provides safe user information.

## Health and Safety Guidance for Components with Suspected Cadmium Corrosion

Cadmium has long been used for its unmatched ability to help reduce corrosion on both metal and plastic components whilst improving electrical continuity.

However, the use of cadmium is gradually reducing driven by various streams of regulation and restriction, RoHS & REACH is typical today. The cadmium-plated surface on components does not represent a risk to health. Cadmium works by corroding preferentially to the component it is protecting. When it corrodes it forms a white cadmium salt, which can represent a risk to health if not handled correctly. It is essential that these corrosion products are not inhaled or ingested and that good hygiene measures are used.

### Identification of Cadmium corrosion

Cadmium plated components that have been passivated are a golden colour. When they begin to corrode a white bloom spreads on the surface, a white crystalline solid then becomes evident (as if salt water has dried on the surface), followed by pitting of the surface, which may be darker in colour.

### Routes of entry into the body

Generally the white crystalline deposits are unlikely to become airborne and so cannot be inhaled. However, occasionally there are cases of gross corrosion where the corrosion flakes off the component. In these cases small quantities of dust may become airborne, e.g. when being removed from any packaging.

In all circumstances, dry mechanical abrasion must be avoided, as this will generate respirable dust. The most likely route of entry is therefore ingestion from touching the corrosion on the component or corrosion that has dropped off the component which could then be ingested through eating, drinking or smoking. Again, good hygiene practice should follow.

If you see these signs then you should take precautionary personal protection measures by using:

- Disposable gloves.
- Wear a disposable dust mask, Filtering Face mask
- Open any packaging carefully and identify the levels of corrosion.

If corrosion is evident, seek advice from Occupational Health.

- Remove the disposable gloves by grasping at the wrist, turning inside out and dispose of in the hazardous waste stream with the mask.
- Wash hands well with soap and warm water.
- If the component needs to be removed from its packaging, place in a clear plastic bag and seal it to prevent debris loss.
- Dispose of contaminated products as if it is hazardous waste.

### **Cadmium Health effects**

The most serious acute effect of cadmium is confined to the lungs and is typically associated with metal fume from welding plated metals.

Chronic effects target lungs, respiratory system, kidneys, prostate and blood (from inhalation and ingestion).

The most serious consequence of chronic cadmium poisoning is cancer (lung and prostate). Chronic effects generally result in kidney damage. Cadmium also is believed to cause pulmonary emphysema and bone disease (osteomalacia and osteoporosis).

The effects of cadmium are serious and long lasting as it is difficult for the body to excrete once inside (it has a very long biological half-life of 25 years).