

Date: [16. November 2022](#) Requestor: VLSI Solution Oy  
 Revision: 3.6 Hermiankatu 8G, 33270 Tampere, Finland  
 Product Total Mass [g]: [0.06 g](#) Email: [quality@vlsi.fi](mailto:quality@vlsi.fi)  
[www.vlsi.fi](http://www.vlsi.fi)

Product Name: [VS23S040D-B \(BGA24 RoHS\)](#)

Chapter	Page
<b>1.0 Description of threshold levels and short names</b>	1
<b>2.0 RoHS</b>	2
<b>3.0 REACH List of Substances of Very High Concern (SVHC)</b>	3
<b>4.0 Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)</b>	16
<b>5.0 Material and Substance Declaration (IEC 62474)</b>	17
<b>6.0 Revision history</b>	21

## 1.0 Description of threshold levels and short names

**Product Total Mass [mg]** = for Wafer Fab: weight of the wafer, for Assembly company: weight of the Integrated Circuit

**Weight (1)** = Report the **biggest content rate** (ppm) of the substance at the **homogeneous material level**.

Weight = weight of the substance in the homogeneous material that has the biggest content rate of the substance. Inform also the name of the homogeneous material.

Content rate [ppm] = Content rate of the substance in the homogeneous material that has the biggest ppm content of the substance.

**Example (RoHS):** Lead (Pb) content in lead frame plating [ppm] =  $10^6 * (\text{weight of Pb in the leadframe plating material}) / (\text{total weight of the leadframe plating material})$

Product Total Mass = 180 mg, weight of the lead frame plating = 3.0 mg and weight of Pb in the leadframe plating = 0.03 mg

then "Weight [mg]" -field data = "0.03mg" and "Content rate [ppm]"-field data = "10 000 ppm" ( $=0.03 \text{ mg} * 10^6 / 3.0 \text{ mg} = 1.0 \%$ )

other homogeneous materials (mold compound, lead frame, epoxy, bonding wire, die) do not have lead (Pb) or the content rate is below the RoHS threshold limit.

because RoHS threshold level is 0.1 % Weight (1) for Pb, then "Additional information..." -field data = "Lead frame plating = 3.0 mg. The Pb content in the Lead frame plating is above the Threshold Level"

**Weight (2)** = Report the total **weight** of the substance **in the product**.

Weight [mg] = total weight of the substance in the product.

Content rate [ppm] = Content rate of the substance in the product.

**Example (REACH):** Lead (Pb, included 27.6.2018 to SVHC), in case of previous example,

"Weight [mg]" -field data = "0.03 mg" and "Content rate [ppm]"-field data = "166,7 ppm" ( $=0.03 \text{ mg} * 10^6 / 180 \text{ mg} = 0.1667 \%$ )

and because REACH threshold level for the Pb is 0.1 % Weight (2), then "Weight [mg]", "Content rate [ppm]" and "Additional information..." -fields can be left empty.

**0.1 mass %** = 1000 ppm, applies also to 0.1 % Weight (1) and 0.1 % Weight (2)

**Intentionally added** = the substance is deliberately added or included to the product.

**Any content** = Not contain obviously OR under quantitation limit of accurate analytical method.

**NA** = Not Applicable.

**... or ...** = if there are two Threshold Levels, for example "Intentionally added or 0.1 % Weight (2)" then the both threshold levels need to be checked. Reporting is required if one or both thresholds are exceeded.

**2.0 RoHS**

RoHS 1 directive (2002/95/EC), RoHS 2 directive (2011/65/EU) and RoHS 2 amendment (2015/863).

Substance		If yes (Y), detailed information of contained substances			
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Cadmium (Cd)	0.01 % Weight (1)	N			
Lead (Pb)	0.1 % Weight (1)	N			
Mercury (Hg)	0.1 % Weight (1)	N			
Hexavalent chromium (Cr <sup>6+</sup> )	0.1 % Weight (1)	N			
Polybrominated biphenyls (PBB)	0.1 % Weight (1)	N			
Polybrominated diphenyl ethers (PBDE)	0.1 % Weight (1)	N			
Bis(2-ethylhexyl) phthalate (DEHP)	0.1 % Weight (1)	N			
Butyl benzyl phthalate (BBP)	0.1 % Weight (1)	N			
Dibutyl phthalate (DBP)	0.1 % Weight (1)	N			
Diisobutyl phthalate (DIBP)	0.1 % Weight (1)	N			

### 3.0 REACH List of Substances of Very High Concern (SVHC) – page 1 of 13

<https://echa.europa.eu/candidate-list-table>

Number of substances on the Candidate List: 224 (last updated: 10.06. 2022)

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
<a href="#">Date of inclusion to SVHC 28.10.2008</a>					
Triethyl arsenate	0.1 % Weight (2)	N			EC Number: 427-700-2, CAS Number: 15606-95-8. Article 57(a)
Anthracene	0.1 % Weight (2)	N			EC Number: 204-371-1 CAS Number: 120-12-7. PBT substance according to Article 57 (d)
4,4'-Diaminodiphenylmethane (MDA)	0.1 % Weight (2)	N			EC Number: 202-974-4 CAS number: 101-77-9. Article 57(a)
Dibutyl phthalate (DBP)	0.1 % Weight (2)	N			EC Number: 201-557-4 CAS number: 84-74-2. Article 57 (c)
Cobalt dichloride	0.1 % Weight (2)	N			EC number: 231-589-4 CAS number: 7646-79-9. Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
Diarsenic Pentaoxide	0.1 % Weight (2)	N			EC Number: 215-116-9 CAS number: 1303-28-2. Article 57 (a)
Diarsenic Trioxide	0.1 % Weight (2)	N			EC Number: 215-481-4 CAS number: 1327-53-3. Article 57 (a)
Sodium dichromate	0.1 % Weight (2)	N			EC number: 234-190-3 CAS number: 10588-01-9 (anhydrous) 7789-12-0 (dihydrate). Article 57(a), (b) and (c)
5-tert-butyl – 2,4,6 – trinitro-m-xylene (musk xylene)	0.1 % Weight (2)	N			EC Number: 201-329-4 CAS number: 81-15-2. Article 57(e)
Bis(2-ethylhexyl)phthalate (DEHP)	0.1 % Weight (2)	N			EC Number: 204-211-0 CAS number: 117-81-7. Article 57 (c), Equivalent level of concern having probable serious effects to the environment (Article 57 f); Toxic for reproduction (article 57c)
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified	0.1 % Weight (2)	N			EC Number: 221-695-9, 247-148-4 CAS number: 3194-55-6, 25637-99-4 Names of the major diastereoisomers identified: alpha-hexabromocyclododecane CAS No 134237-50-6 beta-hexabromocyclododecane CAS No 134237-51-7 gamma-hexabromocyclododecane CAS No 134237-52-8. Article 57 (d)
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	0.1 % Weight (2)	N			EC Number: 287-476-5 CAS number: 85535-84-8. Article 57 (d and e)
Bis(tributyltin) oxide (TBTO)	0.1 % Weight (2)	N			EC Number: 200-268-0 CAS number: 56-35-9. Article 57 (d)
Lead hydrogen arsenate	0.1 % Weight (2)	N			EC Number: 232-064-2 CAS number: 7784-40-9. Article 57 (a and c)
Benzyl butyl phthalate (BBP)	0.1 % Weight (2)	N			EC Number: 201-622-7 CAS number: 85-68-7. Article 57 (c)
<a href="#">Date of inclusion to SVHC 13.1.2010</a>					
Anthracene oil	0.1 % Weight (2)	N			EC number: 292-602-7 CAS number: 90640-80-5. Carcinogenic (see Detail 1) below), PBT and vPvB (articles 57a, 57d and 57e).
Anthracene oil, anthracene-low	0.1 % Weight (2)	N			EC number:292-604-8 CAS number: 90640-82-7. Carcinogenic (see Detail 2), mutagenic (see Detail 3 below), PBT and vPvB (articles 57a, 57b, 57d and 57e)
Anthracene oil, anthracene paste	0.1 % Weight (2)	N			EC number:292-603-2 CAS number: 90640-81-6. Carcinogenic (see Detail 2), mutagenic (see Detail 3 below), PBT and vPvB (articles 57a, 57b, 57d and 57e)
Anthracene oil, anthracene paste, anthracene fraction	0.1 % Weight (2)	N			EC number: 295-275-9 CAS number: 91995-15-2. Carcinogenic (see Detail 2), mutagenic (see Detail 3 below), PBT and vPvB (articles 57a, 57b, 57d and 57e)
Anthracene oil, anthracene paste, distn. Lights	0.1 % Weight (2)	N			EC number: 295-278-5 CAS number: 91995-17-4. Carcinogenic (see Detail 2), mutagenic (see Detail 3 below), PBT and vPvB (articles 57a, 57b, 57d and 57e)

Detail 1) The substance does not meet the criteria for identification as a carcinogen in situations where it contains less than 0.005 % (w/w) benzo[a]pyrene (EINECS No 200-028-5)

Detail 2) The substance does not meet the criteria for identification as a carcinogen in situations where it contains less than 0.005 % (w/w) benzo[a]pyrene (EINECS No 200-028-5) and less than 0,1 % w/w benzene (EINECS No 200-753-7).

Detail 3) The substance does not meet the criteria for identification as a mutagen in situations where it contains less than 0,1 % w/w benzene (EINECS No 200-753-7).

## REACH List of Substances of Very High Concern (SVHC) – page 2 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Diisobutyl phthalate (DIBP)	0.1 % Weight (2)	N			EC number: 201-553-2 CAS number: 84-69-5. Toxic for reproduction (article 57c)
2,4-Dinitrotoluene	0.1 % Weight (2)	N			EC number: 204-450-0 CAS number: 121-14-2, Carcinogenic (article 57a)
Lead chromate	0.1 % Weight (2)	N			EC number: 231-846-0 CAS number: 7758-97-6. Carcinogenic and toxic for reproduction (articles 57a and c)
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	0.1 % Weight (2)	N			EC number: 235-759-9 CAS number: 12656-85-8. Carcinogenic and toxic for reproduction (articles 57a and c)
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	0.1 % Weight (2)	N			EC number: 215-693-7 CAS number: 1344-37-2. Carcinogenic and toxic for reproduction (articles 57a and c)
Pitch, coal tar, high temp.	0.1 % Weight (2)	N			EC number: 266-028-2 CAS number: 65996-93-2. Carcinogenic, PBT and vPvB (articles 57a, 57d and 57e)
Tris(2-chloroethyl)phosphate	0.1 % Weight (2)	N			EC number: 204-118-5 CAS number: 115-96-8. Toxic for reproduction (article 57c)
Date of inclusion to SVHC 30.3.2010					
Acrylamide	0.1 % Weight (2)	N			EC number: 201-173-7 CAS number: 79-06-1. Carcinogenic and mutagenic (articles 57 a and 57 b)
Date of inclusion to SVHC 18.6.2010					
Trichloroethylene	0.1 % Weight (2)	N			EC number: 201-167-4 CAS number: 79-01-6. Carcinogenic (article 57 a)
Boric acid	0.1 % Weight (2)	N			EC numbers: 233-139-2, 234-343-4 CAS numbers: 10043-35-3, 11113-50-1. Toxic for reproduction (article 57 c)
Disodium tetraborate, anhydrous	0.1 % Weight (2)	N			CAS numbers: 1303-96-4, 1330-43-4, 12179-04-3. Toxic for reproduction (article 57 c)
Tetraboron disodium heptaoxide, hydrate	0.1 % Weight (2)	N			EC number: 235-541-3 CAS number: 12267-73-1. Toxic for reproduction (article 57 c)
Potassium dichromate	0.1 % Weight (2)	N			EC number: 231-906-6 CAS number: 7778-50-9. Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
Ammonium dichromate	0.1 % Weight (2)	N			EC number: 232-143-1 CAS number: 7789-09-5. Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
Potassium chromate	0.1 % Weight (2)	N			EC number: 232-140-5 CAS number: 7789-00-6. Carcinogenic and mutagenic (articles 57 a and 57 b).
Sodium chromate	0.1 % Weight (2)	N			EC number: 231-889-5 CAS number: 7775-11-3. Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
Date of inclusion to SVHC 15.12.2010					
Cobalt(II) sulphate	0.1 % Weight (2)	N			EC number: 233-334-2 CAS number: 10124-43-3. Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
Cobalt(II) dinitrate	0.1 % Weight (2)	N			EC number: 233-402-1 CAS number: 10141-05-6 . Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
Cobalt(II) carbonate	0.1 % Weight (2)	N			EC number: 208-169-4 CAS number: 513-79-1. Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
Cobalt(II) diacetate	0.1 % Weight (2)	N			EC number: 200-755-8 CAS number: 71-48-7. Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
Chromium trioxide	0.1 % Weight (2)	N			EC number: 215-607-8 CAS number: 1333-82-0. Carcinogenic and mutagenic (articles 57 a and 57 b)
2-Methoxyethanol	0.1 % Weight (2)	N			EC number: 203-713-7 CAS number: 109-86-4. Toxic for reproduction (article 57c)
2-Ethoxyethanol	0.1 % Weight (2)	N			EC number: 203-804-1 CAS number: 110-80-5. Toxic for reproduction (article 57c)

## REACH List of Substances of Very High Concern (SVHC) – page 3 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Acids generated from chromium trioxide and their oligomers	0.1 % Weight (2)	N			a) Chromic acid, b) Oligomers of chromic acid and dichromic acid, c) Dichromic acid. EC number: 231-801-5, -, and 236-881-5, CAS numbers: 7738-94-5, -, and 13530-68-2. Carcinogenic (article 57a)
Date of inclusion to SVHC 20.6.2011					
2-Ethoxyethyl acetate	0.1 % Weight (2)	N			EC Number: 203-839-2 CAS number: 111-15-9. Toxic for reproduction (article 57c)
Strontium chromate	0.1 % Weight (2)	N			EC Number: 232-142-6 CAS number: 7789-06-2. Carcinogenic (article 57a)
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	0.1 % Weight (2)	N			EC Number: 271-084-6 CAS number: 68515-42-4. Toxic for reproduction (article 57c)
Hydrazine	0.1 % Weight (2)	N			EC Number: 206-114-9 CAS number: 302-01-2 / 7803-57-8. Carcinogenic (article 57a)
1-Methyl-2-pyrrolidone (NMP)	0.1 % Weight (2)	N			EC Number: 212-828-1 CAS number: 872-50-4. Toxic for reproduction (article 57c)
1,2,3-Trichloropropane	0.1 % Weight (2)	N			EC Number: 202-486-1 CAS number: 96-18-4. Carcinogenic and toxic for reproduction (articles 57 a and 57 c).
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	0.1 % Weight (2)	N			EC Number: 276-158-1 CAS number: 71888-89-6. Toxic for reproduction (article 57c)
Date of inclusion to SVHC 19.12.2011					
4-(1,1,3,3-tetramethylbutyl)phenol	0.1 % Weight (2)	N			EC Number: 205-426-2, CAS number: 140-66-9, Endocrine disrupting properties (Article 57(f) - environment)
N,N-dimethylacetamide	0.1 % Weight (2)	N			EC Number: 204-826-4, CAS number: 127-19-5, Toxic for reproduction (article 57 c)
Phenolphthalein	0.1 % Weight (2)	N			EC Number: 201-004-7, CAS number: 77-09-8, Carcinogenic (article 57 a)
Lead diazide, Lead azide	0.1 % Weight (2)	N			EC Number: 236-542-1, CAS number: 13424-46-9, Toxic for reproduction (article 57 c),
Lead dipicrate	0.1 % Weight (2)	N			EC Number: 229-335-2, CAS number: 6477-64-1, Toxic for reproduction (article 57 c)
1,2-dichloroethane	0.1 % Weight (2)	N			EC Number: 203-458-1, CAS number: 107-06-2, Carcinogenic (article 57 a)
Calcium arsenate	0.1 % Weight (2)	N			EC Number: 231-904-5, CAS number: 7778-44-1, Carcinogenic (article 57 a)
Dichromium tris(chromate)	0.1 % Weight (2)	N			EC Number: 246-356-2, CAS number: 24613-89-6, Carcinogenic (article 57 a)
2-Methoxyaniline; o-Anisidine	0.1 % Weight (2)	N			EC Number: 201-963-1, CAS number: 90-04-0, Carcinogenic (article 57 a)
Pentazinc chromate octahydroxide	0.1 % Weight (2)	N			EC Number: 256-418-0, CAS number: 49663-84-5, Carcinogenic (article 57 a)
Arsenic acid	0.1 % Weight (2)	N			EC Number: 231-901-9, CAS number: 7778-39-4, Carcinogenic (article 57 a)
Aluminosilicate Refractory Ceramic Fibres	0.1 % Weight (2)	N			Carcinogenic (article 57a). 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 (Na <sub>2</sub> O+K <sub>2</sub> O+CaO+MgO+BaO) content less or equal to 18% by weight.
Potassium hydroxyoctaoxodizincate-dichromate	0.1 % Weight (2)	N			EC Number: 234-329-8, CAS number: 11103-86-9, Carcinogenic (article 57 a)
Lead styphnate	0.1 % Weight (2)	N			EC Number: 239-290-0, CAS number: 15245-44-0, Toxic for reproduction (article 57 c)

## REACH List of Substances of Very High Concern (SVHC) – page 4 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Formaldehyde, oligomeric reaction products with aniline	0.1 % Weight (2)	N			EC Number: 500-036-1, CAS number: 25214-70-4, Carcinogenic (article 57 a)
Trilead diarsenate	0.1 % Weight (2)	N			EC Number: 222-979-5, CAS number: 3687-31-8, Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
Bis(2-methoxyethyl) phthalate	0.1 % Weight (2)	N			EC Number: 204-212-6, CAS number: 117-82-8, Toxic for reproduction (article 57 c)
Bis(2-methoxyethyl) ether	0.1 % Weight (2)	N			EC Number: 203-924-4, CAS number: 111-96-6, Toxic for reproduction (article 57 c)
Zirconia Aluminosilicate Refractory Ceramic Fibres	0.1 % Weight (2)	N			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 (Na <sub>2</sub> O+K <sub>2</sub> O+CaO+MgO+BaO) content less or equal to 18% by weight . Carcinogenic (article 57 a)
2,2'-dichloro-4,4'-methylenedianiline	0.1 % Weight (2)	N			EC Number: 202-918-9, CAS number: 101-14-4, Carcinogenic (article 57 a)
<a href="#">Date of inclusion to SVHC 18.6.2012</a>					
α,α-Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	0.1 % Weight (2)	N			With ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2). EC Number: 229-851-8, CAS number: 6786-83-0, Carcinogenic (Article 57a)
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	0.1 % Weight (2)	N			EC Number: 202-959-2, CAS number: 101-61-1, Carcinogenic (Article 57a)
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	0.1 % Weight (2)	N			EC Number: 423-400-0, CAS number: 59653-74-6, Mutagenic (Article 57b)
Diboron trioxide	0.1 % Weight (2)	N			EC Number: 215-125-8, CAS number: 1303-86-2, Toxic for reproduction (Article 57 c)
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	0.1 % Weight (2)	N			EC Number: 203-977-3, CAS number: 112-49-2, Toxic for reproduction (Article 57 c)
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	0.1 % Weight (2)	N			With ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2). EC Number: 209-218-2, CAS number: 561-41-1, Carcinogenic (Article 57a)
Lead(II) bis(methanesulfonate)	0.1 % Weight (2)	N			EC Number: 401-750-5, CAS number: 17570-76-2, Toxic for reproduction (Article 57 c)
Formamide	0.1 % Weight (2)	N			EC Number: 200-842-0, CAS number: 75-12-7, Toxic for reproduction (Article 57 c)
[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	0.1 % Weight (2)	N			With ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2). EC Number: 208-953-6, CAS number: 548-62-9, Carcinogenic (Article 57a)
[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26)	0.1 % Weight (2)	N			With ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2). EC Number: 219-943-6, CAS number: 2580-56-5, Carcinogenic (Article 57a)

## REACH List of Substances of Very High Concern (SVHC) – page 5 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	0.1 % Weight (2)	N			EC Number: 203-794-9, CAS number: 110-71-4, Toxic for reproduction (Article 57 c)
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	0.1 % Weight (2)	N			EC Number: 219-514-3, CAS number: 2451-62-9, Mutagenic (Article 57b)
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	0.1 % Weight (2)	N			EC Number: 202-027-5, CAS number: 90-94-8, Carcinogenic (Article 57a)
Date of inclusion to SVHC 19.12.2012					
Hexahydromethylphthalic anhydride	0.1 % Weight (2)	N			Including cis- and trans- stereo isomeric forms and all possible combinations of the isomers. EC Number: 247-094-1, 243-072-0, 256-356-4, 260-566-1, CAS number: 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9, Respiratory sensitising properties to human health (Article 57 f)
6-methoxy-m-toluidine (p-cresidine)	0.1 % Weight (2)	N			EC Number: 204-419-1, CAS number: 120-71-8, Carcinogenic (Article 57a)
Cyclohexane-1,2-dicarboxylic anhydride	0.1 % Weight (2)	N			All possible combinations of the cis- and trans-isomers. EC Number: 201-604-9, 236-086-3, 238-009-9, CAS number: 85-42-7, 13149-00-3, 14166-21-3, Respiratory sensitising properties to human health (Article 57 f)
Pyrochlore, antimony lead yellow	0.1 % Weight (2)	N			EC Number: 232-382-1, CAS number: 8012-00-8, Toxic for reproduction (Article 57 c)
Henicosafuoroundecanoic acid	0.1 % Weight (2)	N			EC Number: 218-165-4, CAS number: 2058-94-8, vPvB (Article 57 e)
4-Aminoazobenzene	0.1 % Weight (2)	N			EC Number: 200-453-6, CAS number: 60-09-3, Carcinogenic (Article 57 a)
Silicic acid, lead salt	0.1 % Weight (2)	N			EC Number: 234-363-3, CAS number: 11120-22-2, Toxic for reproduction (Article 57 c)
Lead titanium zirconium oxide	0.1 % Weight (2)	N			EC Number: 235-727-4, CAS number: 12626-81-2, Toxic for reproduction (Article 57 c)
Lead monoxide (lead oxide)	0.1 % Weight (2)	N			EC Number: 215-267-0, CAS number: 1317-36-8, Toxic for reproduction (Article 57 c)
o-Toluidine	0.1 % Weight (2)	N			EC Number: 202-429-0, CAS number: 95-53-4, Carcinogenic (Article 57a)
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	0.1 % Weight (2)	N			ZOLDINE MS-PLUS, EC Number: 421-150-7, CAS number: 143860-04-2, Toxic for reproduction (Article 57 c)
Dibutyltin dichloride (DBTC)	0.1 % Weight (2)	N			EC Number: 211-670-0, CAS number: 683-18-1, Toxic for reproduction (Article 57 c)
Lead bis(tetrafluoroborate)	0.1 % Weight (2)	N			EC Number: 237-486-0, CAS number: 13814-96-5, Toxic for reproduction (Article 57 c)
Lead dinitrate	0.1 % Weight (2)	N			EC Number: 233-245-9, CAS number: 10099-74-8, Toxic for reproduction (Article 57 c)
Silicic acid (H <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> ), barium salt (1:1), lead-doped	0.1 % Weight (2)	N			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. EC Number: 272-271-5, CAS number: 68784-75-8, Toxic for reproduction (Article 57 c)
Trilead bis(carbonate)dihydroxide	0.1 % Weight (2)	N			EC Number: 215-290-6, CAS number: 1319-46-6, Toxic for reproduction (Article 57 c)
4,4'-methylenedi-o-toluidine	0.1 % Weight (2)	N			EC Number: 212-658-8, CAS number: 838-88-0, Carcinogenic (Article 57a)
Diethyl sulphate	0.1 % Weight (2)	N			EC Number: 200-589-6, CAS number: 64-67-5, Carcinogenic (Article 57a); Mutagenic (Article 57b)
Dimethyl sulphate	0.1 % Weight (2)	N			EC Number: 201-058-1, CAS number: 77-78-1, Carcinogenic (Article 57a)
N,N-dimethylformamide	0.1 % Weight (2)	N			EC Number: 200-679-5, CAS number: 68-12-2, Toxic for reproduction (Article 57 c)
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	0.1 % Weight (2)	N			CAS number: 9002-93-1, 2315-61-9, 2497-59-8, 9036-19-5 and 2315-67-5. Endocrine disrupting properties (Article 57(f) - environment)

## REACH List of Substances of Very High Concern (SVHC) – page 6 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
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]	0.1 % Weight (2)	N			CAS numbers: 17404-66-9, 52427-13-1, 84852-15-3, 142731-63-3, 186825-36-5, 30784-30-6, 104-40-5, 26543-97-5, 186825-39-8, 521947-27-3, 25154-52-3, 90481-04-2 and 11066-49-2. Endocrine disrupting properties (Article 57(f) - environment)
Furan	0.1 % Weight (2)	N			EC Number: 203-727-3, CAS number: 110-00-9, Carcinogenic (Article 57a)
Lead oxide sulfate	0.1 % Weight (2)	N			EC Number: 234-853-7, CAS number: 12036-76-9, Toxic for reproduction (Article 57 c)
Lead titanium trioxide	0.1 % Weight (2)	N			EC Number: 235-038-9, CAS number: 12060-00-3, Toxic for reproduction (Article 57 c)
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	0.1 % Weight (2)	N			EC Number: 214-604-9, CAS number: 1163-19-5, PBT (Article 57 d); vPvB (Article 57 e)
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	0.1 % Weight (2)	N			EC Number: 201-861-7, CAS number: 88-85-7, Toxic for reproduction (Article 57 c)
1,2-Diethoxyethane	0.1 % Weight (2)	N			EC Number: 211-076-1, CAS number: 629-14-1, Toxic for reproduction (Article 57 c)
N-methylacetamide	0.1 % Weight (2)	N			EC Number: 201-182-6, CAS number: 79-16-3, Toxic for reproduction (Article 57 c)
Tetralead trioxide sulphate	0.1 % Weight (2)	N			EC Number: 235-380-9, CAS number: 12202-17-4, Toxic for reproduction (Article 57 c)
Acetic acid, lead salt, basic	0.1 % Weight (2)	N			EC Number: 257-175-3, CAS number: 51404-69-4, Toxic for reproduction (Article 57 c)
[Phthalato(2-)]dioxotrilead	0.1 % Weight (2)	N			EC Number: 273-688-5, CAS number: 69011-06-9, Toxic for reproduction (Article 57 c)
Tetraethyllead	0.1 % Weight (2)	N			EC Number: 201-075-4, CAS number: 78-00-2, Toxic for reproduction (Article 57 c)
N-pentyl-isopentyl phthalate	0.1 % Weight (2)	N			CAS number: 776297-69-9, Toxic for reproduction (Article 57 c)
Pentalead tetraoxide sulphate	0.1 % Weight (2)	N			EC Number: 235-067-7, CAS number: 12065-90-6, Toxic for reproduction (Article 57 c)
Heptacosafuorotetradecanoic acid	0.1 % Weight (2)	N			EC Number: 206-803-4, CAS number: 376-06-7 , vPvB (Article 57 e)
Tricosafuorododecanoic acid	0.1 % Weight (2)	N			EC Number: 206-203-2, CAS number: 307-55-1, vPvB (Article 57 e)
1-bromopropane (n-propyl bromide)	0.1 % Weight (2)	N			EC Number: 203-445-0, CAS number: 106-94-5, Toxic for reproduction (Article 57 c)
Dioxobis(stearato)trilead	0.1 % Weight (2)	N			EC Number: 235-702-8, CAS number: 12578-12-0, Toxic for reproduction (Article 57 c)
Pentacosafuorotridecanoic acid	0.1 % Weight (2)	N			EC Number: 276-745-2, CAS number: 72629-94-8, vPvB (Article 57 e)
Methoxyacetic acid	0.1 % Weight (2)	N			EC Number: 210-894-6, CAS number: 625-45-6, Toxic for reproduction (Article 57 c)
Methyloxirane (Propylene oxide)	0.1 % Weight (2)	N			EC Number: 200-879-2, CAS number: 75-56-9, Carcinogenic (Article 57a); Mutagenic (Article 57b)
Trilead dioxide phosphonate	0.1 % Weight (2)	N			EC Number: 235-252-2, CAS number: 12141-20-7, Toxic for reproduction (Article 57 c)
o-aminoazotoluene	0.1 % Weight (2)	N			EC Number: 202-591-2, CAS number: 97-56-3, Carcinogenic (Article 57a)
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	0.1 % Weight (2)	N			EC Number: 202-453-1, CAS number: 95-80-7, Carcinogenic (Article 57a)
Diisopentyl phthalate	0.1 % Weight (2)	N			EC Number: 210-088-4, CAS number: 605-50-5, Toxic for reproduction (Article 57 c)
1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear	0.1 % Weight (2)	N			EC Number: 284-032-2, CAS number: 84777-06-0, Toxic for reproduction (Article 57 c)



## REACH List of Substances of Very High Concern (SVHC) – page 7 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Biphenyl-4-ylamine	0.1 % Weight (2)	N			EC Number: 202-177-1, CAS number: 92-67-1, Carcinogenic (Article 57a)
Fatty acids, C16-18, lead salts	0.1 % Weight (2)	N			EC Number: 292-966-7, CAS number: 91031-62-8, Toxic for reproduction (Article 57 c)
Orange lead (lead tetroxide)	0.1 % Weight (2)	N			EC Number: 215-235-6, CAS number: 1314-41-6, Toxic for reproduction (Article 57 c)
4,4'-oxydianiline and its salts	0.1 % Weight (2)	N			EC Number: 202-977-0 and its salts, CAS number: 101-80-4 and its salts, Carcinogenic (Article 57a); Mutagenic (Article 57b)
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	0.1 % Weight (2)	N			EC Number: 204-650-8, CAS number: 123-77-3, Respiratory sensitising properties to human health (Article 57 f)
Sulfurous acid, lead salt, dibasic	0.1 % Weight (2)	N			EC Number: 263-467-1, CAS number: 62229-08-7, Toxic for reproduction (Article 57 c)
Lead cyanamidate	0.1 % Weight (2)	N			EC Number: 244-073-9, CAS number: 20837-86-9, Toxic for reproduction (Article 57 c)
<a href="#">Date of inclusion to SVHC 20.6.2013</a>					
Cadmium	0.1 % Weight (2)	N			EC Number: 231-152-8, CAS Number: 7440-43-9, Carcinogenic (Article 57a); Specific target organ toxicity after repeated exposure (Article 57 f - human health)
Ammonium pentadecafluorooctanoate (APFO)	0.1 % Weight (2)	N			EC Number: 223-320-4, CAS Number: 3825-26-1, Toxic for reproduction (Article 57 c); PBT (Article 57 d)
4-Nonylphenol, branched and linear, ethoxylated	0.1 % Weight (2)	N			Substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof, CAS Numbers: 104-35-8, 1119449-37-4, 1119449-38-5, 127087-87-0, 14409-72-4 25537-10-08, 20427-84-3, 20636-48-0, 26027-38-3 26264-02-08 26571-11-09, 27176-93-8 27177-03-03 27177-05-05 27177-08-08, 27942-27-4, 27986-36-3, 34166-38-6, 37205-87-1, 42173-90-0, 57321-10-5, 65455-69-8, 68412-54-4, 68412-54-4, 7311-27-5, 85005-55-6, 9016-45-9 and 91648-64-5. Endocrine disrupting properties (Article 57 f - environment)
Pentadecafluorooctanoic acid (PFOA)	0.1 % Weight (2)	N			EC Number: 206-397-9, CAS Number: 335-67-1, Toxic for reproduction (Article 57 c); PBT (Article 57 d)
Dipentyl phthalate (DPP)	0.1 % Weight (2)	N			EC Number: 205-017-9, CAS Number: 131-18-0, Toxic for reproduction (Article 57 c);
Cadmium oxide	0.1 % Weight (2)	N			EC Number: 215-146-2, CAS Number: 1306-19-0, Carcinogenic (Article 57a); Specific target organ toxicity after repeated exposure (Article 57 f - human health)
<a href="#">Date of inclusion to SVHC 16.12.2013</a>					
Cadmium sulphide	0.1 % Weight (2)	N			EC Number: 215-147-8, CAS Number: 1306-23-6, Carcinogenic (Article 57a); Specific target organ toxicity after repeated exposure (Article 57 f - human health)
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)	0.1 % Weight (2)	N			EC Number: 217-710-3, CAS Number: 1937-37-7, Carcinogenic (Article 57a);
Dihexyl phthalate (DnHP)	0.1 % Weight (2)	N			EC Number: 201-559-5, CAS Number: 84-75-3, Toxic for reproduction (Article 57 c).
Imidazolidine-2-thione; (2-imidazoline-2-thiol)	0.1 % Weight (2)	N			EC Number: 202-506-9, CAS Number: 96-45-7, Toxic for reproduction (Article 57 c).
Trixylyl phosphate	0.1 % Weight (2)	N			EC Number: 246-677-8, CAS Number: 25155-23-1, Toxic for reproduction (Article 57 c).
Disodium 3,3'-[[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	0.1 % Weight (2)	N			EC Number: 209-358-4, CAS Number: 573-58-0, Carcinogenic (Article 57a);

## REACH List of Substances of Very High Concern (SVHC) – page 8 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Lead di(acetate)	0.1 % Weight (2)	N			EC Number: 206-104-4, CAS Number: 301-04-2, Toxic for reproduction (Article 57 c).
Date of inclusion to SVHC 16.6.2014					
Cadmium chloride	0.1 % Weight (2)	N			EC Number: 233-296-7, CAS Number: 10108-64-2, Carcinogenic (Article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); Specific target organ toxicity after repeated exposure (Article 57 f - human health)
Sodium peroxometaborate	0.1 % Weight (2)	N			EC Number: 231-556-4, CAS Number: 7632-04-4, Toxic for reproduction (Article 57 c).
Sodium perborate; perboric acid, sodium salt	0.1 % Weight (2)	N			CAS numbers: 11138-47-9, 15120-21-5, 125022-34-6, 90568-23-3, 13517-20-9, Toxic for reproduction (Article 57 c).
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	0.1 % Weight (2)	N			EC Number: 271-093-5, CAS Number: 68515-50-4, Toxic for reproduction (Article 57 c).
Date of inclusion to SVHC 17.12.2014					
Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[[2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	0.1 % Weight (2)	N			Toxic for reproduction (Article 57 c).
Cadmium sulphate	0.1 % Weight (2)	N			EC Number: 233-331-6, CAS number: 10124-36-4 and 31119-53-6 ,Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Specific target organ toxicity after repeated exposure (Article 57 f - human health)
Cadmium fluoride	0.1 % Weight (2)	N			EC Number: 232-222-0, CAS number: 7790-79-6, Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Specific target organ toxicity after repeated exposure (Article 57 f - human health)
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	0.1 % Weight (2)	N			EC Number: 239-622-4, CAS number: 15571-58-1, Toxic for reproduction (Article 57 c).
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	0.1 % Weight (2)	N			EC Number: 223-346-6, CAS number: 3846-71-7, PBT (Article 57 d); vPvB (Article 57 e)
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	0.1 % Weight (2)	N			EC Number: 247-384-8, CAS number: 25973-55-1 ,PBT (Article 57 d); vPvB (Article 57 e)
Date of inclusion to SVHC 15.6.2015					
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]	0.1 % Weight (2)	N			Covering any of the individual stereoisomers of [1] and [2] or any combination thereof. vPvB (Article 57 e)
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters	0.1 % Weight (2)	N			With ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5). EC Numbers: 271-094-0 and 272-013-1, CAS numbers: 68515-51-5 and 68648-93-1, Toxic for reproduction (Article 57 c)

## REACH List of Substances of Very High Concern (SVHC) – page 9 of 13

Substance			If yes (Y), detailed information of contained substances		
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Date of inclusion to SVHC 17.12.2015					
Perfluorononan-1-ic-acid and its sodium and ammonium salts	0.1 % Weight (2)	N			CAS Number: 375-95-1, 21049-39-8, 4149-60-4, Toxic for reproduction (Article 57 c) PBT (Article 57 d)
Nitrobenzene	0.1 % Weight (2)	N			EC Number: 202-716-0, CAS Number: 98-95-3 , Toxic for reproduction (Article 57 c)
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	0.1 % Weight (2)	N			EC Number: 253-037-1, CAS Number: 36437-37-3, vPvB (Article 57 e)
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	0.1 % Weight (2)	N			EC Number: 223-383-8, CAS Number: 3864-99-1, vPvB (Article 57 e)
1,3-propanesultone	0.1 % Weight (2)	N			EC Number: 214-317-9, CAS Number: 1120-71-4, Carcinogenic (Article 57 a)
Date of inclusion to SVHC 20.6.2016					
Benzo[def]chrysene, (Benzo[a]pyrene), BaP	0.1 % Weight (2)	N			EC Number: 200-028-5, CAS Number: 50-32-8, Carcinogenic (Article 57a) Mutagenic (Article 57b) Toxic for reproduction (Article 57c) PBT (Article 57 d) vPvB (Article 57 e).
Date of inclusion to SVHC 12.1.2017					
4,4'-isopropylidenediphenol	0.1 % Weight (2)	N			EC Number: 201-245-8, CAS Number: 80-05-7, Common synonyms: BPA, Bisphenol A. Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57 f - environment and human health)
4-Heptylphenol, branched and linear	0.1 % Weight (2)	N			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. CAS numbers: 7088-02-03, 1987-50-4, 37872-24-5, 30784-31-7, 911371-06-7, 854904-93-1, 911371-07-8, 71945-81-8, 857629-71-1, 861010-65-3, 30784-32-8, 6465-74-3, 6863-24-7, 6465-71-0, 911370-98-4, 102570-52-5, 1139800-98-8, 100532-36-3, 1824346-00-0, 26720-02-08, 30784-27-1, 861011-60-1, 33104-11-9, 7325-06-04 and 854904-92-0. Endocrine disrupting properties (Article 57 f - environment)
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	0.1 % Weight (2)	N			CAS numbers: 335-76-2, 3108-42-7 and 3830-45-3. Toxic for reproduction (Article 57c) PBT (Article 57 d).
p-(1,1-dimethylpropyl)phenol	0.1 % Weight (2)	N			EC Number: 201-280-9, CAS Number: 80-46-6, Endocrine disrupting properties (Article 57 f - environment)
Date of inclusion to SVHC 7.7.2017					
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	0.1 % Weight (2)	N			CAS numbers: 355-46-4, 68259-08-5, 70225-16-0, 3871-99-6, 1310480-24-0, 1310480-27-3, 1310480-28-4, 1329995-45-0, 1329995-69-8, 144116-10-9, 1462414-59-0, 153443-35-7, 189274-31-5, 202189-84-2, 213740-81-9, 341548-85-4, 350836-93-0, 41184-65-0, 41242-12-0, 421555-73-9, 421555-74-0, 425670-70-8, 55120-77-9, 70136-72-0, 72033-41-1, 82382-12-5, 866621-50-3, 910606-39-2, 911027-68-4, 911027-69-5, 92011-17-1, 928049-42-7, 1187817-57-7, 108427-55-0, 108427-54-9, 1000597-52-3 and 341035-71-0. vPvB (Article 57e)
Date of inclusion to SVHC 15.1.2018					
Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP)	0.1 % Weight (2)	N			With ≥0.1% w/w 4-heptylphenol, branched and linear (4-HPbl). CAS number: 1471311-26-8, 93925-00-9. Endocrine disrupting properties (Article 57 f - environment)
Chrysene	0.1 % Weight (2)	N			EC Number: 205-923-4, CAS number: 218-01-9. Member of Polycyclic-aromatic hydrocarbons (PAH). Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)

## REACH List of Substances of Very High Concern (SVHC) – page 10 of 13

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Cadmium nitrate	0.1 % Weight (2)	N			EC Number: 233-710-6, CAS number: 10325-94-7, Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57 f - human health).
Cadmium hydroxide	0.1 % Weight (2)	N			EC number: 244-168-5, CAS number: 21041-95-2, Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57 f - human health)
Cadmium carbonate	0.1 % Weight (2)	N			EC Number: 208-168-9, CAS number: 513-78-0, Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57 f - human health)
Benz[a]anthracene (BaA)	0.1 % Weight (2)	N			EC Number: 200-280-6, CAS number: 56-55-3. Member of Polycyclic-aromatic hydrocarbons (PAH) group. Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.1.6,9.02.13.05,10]octadeca-7,15-diene ("Dechlorane Plus™") covering any of its individual anti- and syn-isomers or any combination thereof	0.1 % Weight (2)	N			vPvB (Article 57e)
Date of inclusion to SVHC 27.6.2018					
Terphenyl, hydrogenated	0.1 % Weight (2)	N			EC Number: 262-967-7, CAS number: 61788-32-7, vPvB (Article 57e)
Octamethylcyclotetrasiloxane, (D4)	0.1 % Weight (2)	N			EC Number: 209-136-7, CAS number: 556-67-2, PBT (Article 57d) vPvB (Article 57e)
Lead	0.1 % Weight (2)	N			EC Number: 231-100-4, CAS number: 7439-92-1, Toxic for reproduction (Article 57c)
Ethylenediamine, (EDA)	0.1 % Weight (2)	N			EC Number: 203-468-6, CAS number: 107-15-3, Respiratory sensitising properties (Article 57 f - human health)
Dodecamethylcyclohexasiloxane, (D6)	0.1 % Weight (2)	N			EC Number: 208-762-8, CAS number: 540-97-6, PBT (Article 57d) vPvB (Article 57e)
Disodium octaborate	0.1 % Weight (2)	N			EC Number: 234-541-0, CAS number: 12008-41-2, Toxic for reproduction (Article 57c)
Dicyclohexyl phthalate, (DCHP)	0.1 % Weight (2)	N			EC Number: 201-545-9, CAS number: 84-61-7, Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57 f - human health)
Decamethylcyclopentasiloxane, (D5)	0.1 % Weight (2)	N			EC Number: 208-764-9, CAS number: 541-02-6, PBT (Article 57d) vPvB (Article 57e)
Benzo[ghi]perylene	0.1 % Weight (2)	N			Substance is a Polycyclic Aromatic Hydrocarbon (PAH). EC Number: 205-883-8, CAS number: 191-24-2, PBT (Article 57d) vPvB (Article 57e)
Benzene-1,2,4-tricarboxylic acid 1,2 anhydride	0.1 % Weight (2)	N			Trimellitic anhydride, TMA. EC Number: 209-008-0, CAS number: 552-30-7, Respiratory sensitising properties (Article 57 f - human health)
Date of inclusion to SVHC 15.1.2019					
Pyrene	0.1 % Weight (2)	N			EC Number: 204-927-3, CAS number: 129-00-0. PBT (Article 57d) vPvB (Article 57e)
Phenanthrene	0.1 % Weight (2)	N			EC Number: 201-581-5, CAS number: 85-01-8, vPvB (Article 57e)
Fluoranthene	0.1 % Weight (2)	N			EC Number: 205-912-4, CAS number: 206-44-0. PBT (Article 57d) vPvB (Article 57e)
Benzo[k]fluoranthene	0.1 % Weight (2)	N			EC Number: 205-916-6, CAS number: 207-08-9, Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
2,2-bis(4'-hydroxyphenyl)-4-methylpentane	0.1 % Weight (2)	N			EC Number: 401-720-1, CAS number: 6807-17-6, Toxic for reproduction (Article 57c)
1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one	0.1 % Weight (2)	N			3-benzylidene camphor; 3-BC. EC Number: 239-139-9, CAS number: 15087-24-8, Endocrine disrupting properties (Article 57 f - environment)

## REACH List of Substances of Very High Concern (SVHC) – page 11 of 13

Substance		If yes (Y), detailed information of contained substances			
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
<a href="#">Date of inclusion to SVHC 16.7.2019</a>					
Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	0.1 % Weight (2)	N			CAS numbers: 26523-78-4, 3050-88-2, 106599-06-8, 31631-13-7 and tris(4-nonylphenyl, branched) phosphite. Endocrine disrupting properties (Article 57 f - environment)
4-tert-butylphenol	0.1 % Weight (2)	N			EC Number: 202-679-0, CAS number: 98-54-4, Endocrine disrupting properties (Article 57 f - environment)
2-methoxyethyl acetate	0.1 % Weight (2)	N			EC Number: 203-772-9, CAS number: 110-49-6, Toxic for reproduction (Article 57c)
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides	0.1 % Weight (2)	N			Covering any of their individual isomers and combinations thereof. CAS numbers: 2062-98-8, 13252-13-6, 67118-55-2, 62037-80-3, 75579-40-7, 75579-39-4. Equivalent level of concern having probable serious effects (Article 57 f - human health and environment).
<a href="#">Date of inclusion to SVHC 16.1.2020</a>					
2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	0.1 % Weight (2)	N			CG 25-369, IRGACURE 369, TK 11-319. EC Number: 404-360-3, CAS number: 119313-12-1, Toxic for reproduction (Article 57c)
2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	0.1 % Weight (2)	N			ACETOCURE 97, GENOCURE*PMP, IGM 4817, IRGACURE 907, SPEEDCURE 97. EC Number: 400-600-6, CAS number: 71868-10-5, Toxic for reproduction (Article 57c)
Diisohexyl phthalate	0.1 % Weight (2)	N			EC Number: 276-090-2, CAS number: 71850-09-4, Toxic for reproduction (Article 57c)
Perfluorobutane sulfonic acid (PFBS) and its salts	0.1 % Weight (2)	N			CAS numbers: 29420-49-3, 375-73-5, 194999-85-4, 220689-12-3, 220133-51-7, 68259-10-9, 144317-44-2, 25628-08-4, 507453-86-3, 131651-65-5, 503155-89-3 and EC number: 468-770-4 (CAS number: -). Equivalent level of concern having probable serious effects to human health and environment (Article 57 f)
<a href="#">Date of inclusion to SVHC 25.6.2020</a>					
1-vinylimidazole	0.1 % Weight (2)	N			EC Number: 214-012-0, CAS number: 1072-63-5, Toxic for reproduction (Article 57c)
2-methylimidazole	0.1 % Weight (2)	N			EC Number: 211-765-7, CAS number: 693-98-1, Toxic for reproduction (Article 57c)
Butyl 4-hydroxybenzoate	0.1 % Weight (2)	N			EC Number: 202-318-7, CAS number: 94-26-8, Endocrine disrupting properties (Article 57 f - human health).
Dibutylbis(pentane-2,4-dionato-O,O')tin	0.1 % Weight (2)	N			EC Number: 245-152-0, CAS number: 22673-19-4, Toxic for reproduction (Article 57c)
<a href="#">Date of inclusion to SVHC 19.1.2021</a>					
Bis(2-(2-methoxyethoxy)ethyl)ether	0.1 % Weight (2)	N			EC Number: 205-594-7, CAS number: 143-24-8, Toxic for reproduction (Article 57c)
Diocetyl tin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety	0.1 % Weight (2)	N			Diocetyl tin dilaurate; stannane, dioctyl-, bis(coco acyloxy) derivs. EC number: -, CAS number: -, Stannane, dioctyl-, bis(coco acyloxy) derivs. EC number: 293-901-5, CAS number: 91648-39-4, Diocetyl tin dilaurate EC number: 222-883-3, CAS number: 3648-18-8. Toxic for reproduction (Article 57c)
<a href="#">Date of inclusion to SVHC 8.7.2021</a>					
1,4-dioxane	0.1 % Weight (2)	N			EC Number: 204-661-8, CAS number: 123-91-1, Carcinogenic (Article 57a), Equivalent level of concern having probable serious effects to human health and environment (Article 57 f)

## REACH List of Substances of Very High Concern (SVHC) – page 12 of 13

Substance			If yes (Y), detailed information of contained substances		
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
2,2-bis(bromomethyl)propane-1,3-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)	0.1 % Weight (2)	N			3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA) CAS number: 1522-92-5, 2,2-bis(bromomethyl)propane-1,3-diol (BMP) EC number: 221-967-7, CAS number: 3296-90-0, 2,3-dibromo-1-propanol (2,3-DBPA) EC number: 202-480-9, CAS number: 96-13-9, 2,2-dimethylpropan-1-ol, tribromo derivative (TBNPA) EC number: 253-057-0, CAS number: 36483-57-5, Carcinogenic (Article 57a)
2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers	0.1 % Weight (2)	N			(2R)-3-(4-tert-butylphenyl)-2-methylpropanal CAS number: 75166-31-3, 2-(4-tert-butylbenzyl)propionaldehyde EC number: 201-289-8, CAS number: 80-54-6, (2S)-3-(4-tert-butylphenyl)-2-methylpropanal CAS number: 75166-30-2, Toxic for reproduction (Article 57c)
4,4'-(1-methylpropylidene)bisphenol	0.1 % Weight (2)	N			EC Number: 201-025-1, CAS number: 77-40-7, Endocrine disrupting properties (Article 57 f - environment and human health)
glutaral	0.1 % Weight (2)	N			EC Number: 203-856-5, CAS number: 111-30-8, Respiratory sensitising properties (Article 57 f - human health)
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	0.1 % Weight (2)	N			Alkanes, C14-17, chloro EC number: 287-477-0, CAS number: 85535-85-9, Tetradecane, chloro derivs. CAS number: 198840-65-2, Alkanes, C14-16, chloro CAS number: 1372804-76-6, di-, tri- and tetrachlorotetradecane, PBT (Article 57d), vPvB (Article 57e)
Orthoboric acid, sodium salt	0.1 % Weight (2)	N			Boric acid, sodium salt EC number: 215-604-1, CAS number: 1333-73-9, Orthoboric acid, sodium salt EC number: 237-560-2, CAS number: 13840-56-7, boric acid (H3BO3), sodium salt, hydrate CAS number: 25747-83-5, boric acid (H3BO3), sodium salt (1:1) CAS number: 14890-53-0, Boric acid (H3BO3), disodium salt CAS number: 22454-04-2, Trisodium orthoborate EC number: 238-253-6, CAS number: 14312-40-4, Toxic for reproduction (Article 57c)
Phenol, alkylation products (mainly in para position) with C12-rich branched alkyl chains from oligomerisation, covering any individual isomers and/or combinations thereof (PDDP)	0.1 % Weight (2)	N			Phenol, 4-dodecyl, branched CAS number: 210555-94-5, 4-isododecylphenol CAS number: 27459-10-5, Phenol, 4-isododecyl- CAS number: 27147-75-7, Phenol, dodecyl-, branched EC number: 310-154-3, CAS number: 121158-58-5, Phenol, (tetrapropenyl) derivatives CAS number: 74499-35-7, Phenol, tetrapropylene- CAS number: 57427-55-1. Toxic for reproduction (Article 57c), Endocrine disrupting properties (Article 57 f - environment and human health)
Date of inclusion to SVHC 17.1.2022					
(±)-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)	0.1 % Weight (2)	N			(3E)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS number: 1782069-81-1, (1R,3E,4S)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS number: 95342-41-9, (1S,3Z,4R)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS number: 852541-25-4, (±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one EC number: 253-242-6, CAS number: 36861-47-9, (1R,4S)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS number: 741687-98-9, (1S,3E,4R)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS number: 852541-30-1, (1R,3Z,4S)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS number: 852541-21-0, Endocrine disrupting properties (Article 57 f - human health)
6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	0.1 % Weight (2)	N			EC Number: 204-327-1, CAS number: 119-47-1, Toxic for reproduction (Article 57c)

## REACH List of Substances of Very High Concern (SVHC) – page 13 of 13

Substance			If yes (Y), detailed information of contained substances		
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
S-(tricyclo(5.2.1.0 <sup>2</sup> .6)deca-3-en-8(or 9)-yl O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate (X4261)	0.1 % Weight (2)	N			EC Number: 401-850-9, CAS number: 255881-94-8, PBT (Article 57d)
tris(2-methoxyethoxy)vinylsilane	0.1 % Weight (2)	N			EC Number: 213-934-0, CAS number: 1067-53-4, Toxic for reproduction (Article 57c)
<a href="#">Date of inclusion to SVHC 10.6.2022</a>					
N-(hydroxymethyl)acrylamide	0.1 % Weight (2)	N			EC number: 213-103-2, CAS number: 924-42-5, Carcinogenic (Article 57a), Mutagenic (Article 57b)

#### 4.0 Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)

TSCA 2021 chemical restrictions and PIP (3:1). EPA = the U.S. Environmental Protection Agency. TSCA = Toxic Substances Control Act.

Further information and exceptions: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals-under>

Substance		If yes (Y), detailed information of contained substances			
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Decabromodiphenyl ether (DecaBDE)	EPA is prohibiting the manufacture (including import), processing, and distribution in commerce of decaBDE, and products containing decaBDE	N			CAS number: 1163-19-5. DecaBDE is used as an flame retardant. Further information and exceptions, see the website presented above this table.
Phenol, isopropylated phosphate (3:1) (PIP (3:1))	EPA is prohibiting processing and distribution in commerce of PIP (3:1), and products containing the chemical substance, for all uses.	N			CAS number: 68937-41-7. Further information and exceptions, see the website presented above this table.
2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP)	0.3% by weight	N			2,4,6-TTBP (CAS number:732-26-3) is used as an intermediate/reactant in processing and is incorporated into formulations destined for fuel and fuel-related additives, as well as into formulations intended for the maintenance or repair of motor vehicles and machinery, including in oils and lubricants. Further information, see the website presented above this table.
Hexachlorobutadiene (HCBD)	EPA is prohibiting the manufacturing (including import), processing, and distribution in commerce of HCBD and HCBD-containing products or articles, except for the unintentional production of HCBD as a byproduct during the production of chlorinated solvents, and the processing and distribution in commerce of HCBD for burning as a waste fuel.	N			HCBD (CAS number: 87-68-3) is used as a halogenated aliphatic hydrocarbon that is produced as a byproduct during the manufacture of chlorinated hydrocarbons, particularly perchloroethylene, trichloroethylene, and carbon tetrachloride and is subsequently burned as a waste fuel.
Pentachlorothiophenol (PCTP)	EPA is prohibiting the manufacture (including import), processing, and distribution in commerce of PCTP, and products or articles containing PCTP, unless PCTP concentrations are at or below 1% by weight.	N			PCTP (CAS number: 133-49-3) is used to make rubber more pliable in industrial uses.



## 5.0 Material and Substance Declaration (IEC 62474) – page 1 of 5

21.1. 2014 the Consumer Electronics Association (CEA), DIGITALEUROPE, and the Japanese Green Procurement Survey Standardization Initiative (JGPSSI) announced that the International Electrotechnical Commission standard IEC 62474 (<http://std.iec.ch/iec62474>) is the recommended electrotechnical industry's material declaration standard and will replace the Joint Industry Guide (JIG-101 Ed 4.1).

Version: D25.00 (July 18. 2022)

\*) More details (substances and CAS numbers) see Reference Substance List (RSL) at <http://std.iec.ch/iec62474>

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Asbestos	Intentionally added	N			*) See IEC 62474 for details. [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [USA] Toxic Substances Control Act (TSCA); [Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
Certain azocolourants and azodyes (which form certain aromatic amines)	30 ppm by weight of the finished textile/leather product	NA			
Beryllium Oxide	0.1 % Weight (2), For Information Only	N			CAS number: 1304-56-9, (Guidance) EICTA, CECEC and EERA Joint Position : Guidance on implementing article 11 of Directive 2002/96(EC) concerning information for treatment facilities
Brominated flame retardants (other than PBBs, PBDEs, or HBCDD)	0.09 mass% total bromine content in laminate. For Information Only	N			*) See IEC 62474 for details. (Standard) IEC 61249-2-21; (Standard) IPC-4101
Brominated flame retardants (other than PBBs, PBDEs, or HBCDD)	0.1 mass% of bromine in plastic materials. For Information Only	N			*) See IEC 62474 for details. (Standard) JEDEC JS709
Cadmium/Cadmium compounds	0.001% by weight of battery	NA			*) See IEC 62474 for details.
Dibutyltin (DBT) compounds	0.1 mass% of tin in the part	N			*) See IEC 62474 for details. CAS numbers: 818-08-6, 1067-33-0, 77-58-7, 78-04-6 and Other dibutyltin compounds. [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Diocetyl tin (DOT) compounds	0.1 mass% of tin in the part	N			*) See IEC 62474 for details. CAS numbers: 870-08-6, 3648-18-8 and Other Diocetyl tin compounds. [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Dimethylfumarate (DMF)	0.00001 % Weight (2)	N			CAS numbers: 624-49-7. DMF; Dimethyl (E)-butenedioate; 2-Butenedioic acid (2E)-, dimethyl ester. [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Fluorinated Greenhouse Gases (PFC, SF6, HFC)	Intentionally added	N			CAS numbers: 75-73-0, 76-16-4, 76-19-7, 355-25-9, 355-25-9, 355-42-0, 115-25-3, 2551-62-4, 75-46-7, 75-10-5, 593-53-3, 138495-42-8, 354-33-6, 359-35-3, 811-97-2, 75-37-6, 430-66-0, 420-46-2, 431-89-0, 677-56-5, 431-63-0, 690-39-1, 679-86-7, 460-73-1, 406-58-6, [EU] REGULATION (EU) No 517/2014 on fluorinated greenhouse gases
Formaldehyde	0.0075 mass % of textile	NA			CAS numbers: 50-00-0, [Austria] BGB I 1990/194: Formaldehyde Restriction §2, 12/2/1990; [Lithuania] Hygiene Norm HN 96:2000 (Hygiene Norms and Regulations).
Hexabromocyclododecane (HBCDD)	Intentionally added or 0.01 % Weight (2)	N			CAS numbers: 25637-99-4, 134237-50-6, 134237-51-7, 134237-52-8, 3194-55-6, [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004
Lead/Lead Compounds *) See IEC 62474 for details.	0.01 % Weight (2)	N			Consumer products designed or intended primarily for children 12 years of age or younger. [USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314
	0.009 mass% of surface coating material	N			Paint and similar surface coatings of toys and other articles intended for use by children. [USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314
	0.03 mass% of surface coating material	N			Cables/cords with thermoset or thermoplastic coatings. [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
	0.004 mass% of battery	NA			Cables/cords with thermoset or thermoplastic coatings. [EU] Battery Directive 2006/66/EC; [China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009

**Material and Substance Declaration (IEC 62474) – page 2 of 5**

 \*) More details (substances and CAS numbers) see Reference Substance List (RSL) at <http://std.iec.ch/iec62474>

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Mercury/Mercury Compounds *) See IEC 62474 for details.	Intentionally added or 0.1 % Weight (1)	N			All, except batteries. [EU] RoHS Directive 2011/65/EU and its amendments; [China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products; [Japan] Law for the Promotion of Effective Utilization of Resources; [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [Canada] Products containing Mercury regulations SOR/2014-254
	Intentionally added or 0.0001 mass% of battery	NA			Batteries. [EU] Battery Directive 2006/66/EC; [China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009; [Taiwan (Province of China)] Restrictions on the Manufacture, Import, and Sale of Dry Cell Batteries; [Korea (the Republic of)] Quality Management and Manufactured Product Safety Management Law (Battery Regulation); [USA New York] Environmental Conservation Law, Battery management and disposal § 27-0719
Nickel/Nickel Compounds	Intentionally added	NA			All, where prolonged skin contact is expected. [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others) *) See IEC 62474 for details.	Intentionally added	N			[EU] Regulation on substances that deplete the ozone layer (EC) No. 1005/2009; [Japan] Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures; [USA] Clean Air Act; (Treaty) Montreal Protocol on Substances that Deplete the Ozone Layer
Perchlorates	6 x 10 <sup>-7</sup> mass% of battery or product part	N			CAS numbers: 7791-03-9, 7790-98-9, 13465-95-7, 13637-76-8, 10034-81-8, 13455-31-7, 7616-83-3, 13520-61-1, 13637-71-3, 7778-74-7, 7601-89-0, 15596-83-5, [USA California] Perchlorate Contamination Prevention Act of 2003 AB 826
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	Intentionally added or 0.1 % Weight (2)	N			CAS number: 3846-71-7, [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
Phthalates, Selected Group 1 (DEHP, DBP, BBP, DIBP)	0.1 mass% as the sum of the phthalate concentrations in plasticized material	N			Children's toy or child care article, CAS numbers: 117-81-7, 84-74-2, 85-68-7, 84-69-5, [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314.
Phthalates, Selected Group 2 (DIDP, DINP, DNOP)	0.1 mass% as the sum of the phthalate concentrations in plasticized material	N			Children's toy or child care article that can be placed in a child's mouth, CAS numbers: 26761-40-0, 68515-49-1, 28553-12-0, 68515-48-0, 117-84-0, [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314
Polychlorinated Biphenyls (PCBs) and specific substitutes	Intentionally added	N			CAS numbers: 1336-36-3, 76253-60-6, 81161-70-8, 99688-47-8, [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004; [USA] Toxic Substances Control Act (TSCA); [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
Polychlorinated Terphenyls (PCTs)	0.005 mass% in material	N			Polychlorinated Terphenyls (PCT) (all isomers and congeners), CAS number: 61788-33-8, [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Polychlorinated naphthalenes	Intentionally added	N			CAS numbers: 70776-03-3, 90-13-1, 91-58-7, 1825-30-5, 1825-31-6, 2050-69-3, 2050-72-8, 2050-73-9, 2050-74-0, 2050-75-1, 2065-70-5, 2198-75-6, 2198-77-8, 25586-43-0, 28699-88-9, 1321-64-8, 1321-65-9, 1335-87-1, 1335-88-2, 2234-13-1, 2437-54-9, 2437-55-0, 3432-57-3, 6529-87-9, 6733-54-6, 17062-87-2, 20020-02-4, 31604-28-1, 32241-08-0, 34588-40-4, 50402-51-2, 50402-52-3, 51570-43-5, 51570-44-6, 51570-45-7, 53555-63-8, 53555-64-9, 53555-65-0, 55720-33-7, 55720-34-8, 55720-35-9, 55720-36-0, 55720-37-1, 55720-38-2, 55720-39-3, 55720-40-6, 55720-41-7, 55720-42-8, 55720-43-9, 58863-14-2, 58863-15-3, 58877-88-6, 67922-21-8, 67922-22-9, 67922-23-0, 67922-24-1, 67922-25-2, 67922-26-3, 67922-27-4, 90948-28-0, 103426-92-2, 103426-93-3, 103426-94-4, 103426-95-5, 103426-96-6, 103426-97-7, 149864-78-8, 149864-79-9, 149864-80-2, 149864-81-3, 149864-82-4, 150205-21-3, 150224-15-0, 150224-16-1, 150224-17-2, 150224-18-3, 150224-19-4, 150224-20-7, 150224-21-8, 150224-22-9, 150224-23-0, 150224-24-1, 150224-25-2, [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

**Material and Substance Declaration (IEC 62474) – page 3 of 5**

 \*) More details (substances and CAS numbers) see Reference Substance List (RSL) at <http://std.iec.ch/iec62474>

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Radioactive substances	Intentionally added	N			CAS numbers: 7440-61-1, 10043-92-2, 14596-10-2, 7440-29-1, 10045-97-3, 10098-97-2 and other radioactive substances, [USA] Nuclear Regulatory Commission Regulations Title 10 CFR Part 20; [Japan] Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors; [Japan] Law Concerning Prevention from Radiation Hazards due to Radio-Isotopes, etc.; [EU] Directive 2013/59/Euratom
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	Intentionally added or 0.1 % Weight (2)	N			CAS numbers: 85535-84-8, 108171-26-2, 71011-12-6, 61788-76-9 and other Short Chain Chlorinated Paraffins, [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004; [Norway] Regulations relating to restrictions on the manufacture, import, export, sale and use of chemicals and other products hazardous to health and the environment (Consumer Product Regulations) FOR-2004-06-01-922; [Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
Bis(tributyltin) oxide (TBTO)	Intentionally added or 0.1 % Weight (2)	N			CAS number: 56-35-9, [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation, [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
Tri-substituted organostannic compounds	Intentionally added or 0.1 mass% of tin in the part	N			CAS numbers: 1803-12-9, 379-52-2, 900-95-8, 639-58-7, 76-87-9, 18380-71-7, 18380-72-8, 47672-31-1, 94850-90-5, 7094-94-2, 2155-70-6, 6454-35-9, 1983-10-4, 31732-71-5, 56-36-0, 3090-36-6, 4782-29-0, 67772-01-4, 6517-25-5, 14275-57-1, 1461-22-9, 7342-38-3, 85409-17-2, 26239-64-5 and other tri-substituted organostannic compounds, [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII, [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., [Norway] Regulations relating to restrictions on the manufacture, import, export, sale and use of chemicals and other products hazardous to health and the environment (Consumer Product Regulations) FOR-2004-06-01-922
Chlorinated Flame Retardants (CFR)	0.1 mass% of chlorine in plastic materials. For Information Only	N			For plastic materials only, except printed wiring board laminates. CAS numbers: 38051-10-4, 13674-84-5, 66108-37-0, 13674-87-8, 13560-89-9, 135821-74-8, 135821-03-3 and other Chlorinated Flame Retardants, (Standard) JEDEC JS709
	0.09 mass% of total chlorine content in laminate. For Information Only	N			For Printed Wiring Board (PWB) Laminates only. CAS numbers: 38051-10-4, 13674-84-5, 66108-37-0, 13674-87-8, 13560-89-9, 135821-74-8, 135821-03-3 and other Chlorinated Flame Retardants, (Standard) IEC 61249-2-21; (Standard) IPC-4101
Di-isodecyl phthalate (DIDP)	Intentionally added	N			CAS numbers: 68515-49-1, 26761-40-0, [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
Di-n-hexyl phthalate (DnHP)	Intentionally added or 0.1 % Weight (2)	N			CAS number: 84-75-3, [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation, [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
Diisononyl phthalate (DINP)	Intentionally added	N			CAS numbers: 28553-12-0, 68515-48-0, [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
Benzo[def]chrysene, (Benzo[a]pyrene), BaP	0.0001 mass% of the plastic or rubber part	N			CAS number: 50-32-8. **) Rubber or plastic parts that come into direct, prolonged or repetitive skin or oral cavity contact except those for toys or childcare articles. This declarable substance is a polycyclic aromatic hydrocarbon (PAH). [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Benzo[e]pyrene (BeP)	0.0001 mass% of the plastic or rubber part	N			CAS number: 192-97-2 See description **) above
Benzo[a]anthracene (BaA)	0.0001 mass% of the plastic or rubber part	N			CAS number: 56-55-3 See description **) above
Chrysen, other name: Chrysene (CHR)	0.0001 mass% of the plastic or rubber part	N			CAS number: 218-01-9 See description **) above

**Material and Substance Declaration (IEC 62474) – page 4 of 5**

 \*) More details (substances and CAS numbers) see Reference Substance List (RSL) at <http://std.iec.ch/iec62474>

Substance	Threshold Level	Above threshold level ? Y / N	If yes (Y), detailed information of contained substances		
			Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Benzo[b]fluoranthene (BbFA)	0.0001 mass% of the plastic or rubber part	N			CAS number: 205-99-2 See description **) above
Benzo[j]fluoranthene (BjFA)	0.0001 mass% of the plastic or rubber part	N			CAS number: 205-82-3 See description **) above
Benzo[k]fluoranthene (BkFA)	0.0001 mass% of the plastic or rubber part	N			CAS number: 207-08-9 See description **) above
Dibenzo[a,h]anthracene (DBaHA)	0.0001 mass% of the plastic or rubber part	N			CAS number: 53-70-3 See description **) above
Benzo[def]chrysene, (Benzo[a]pyrene), BaP	0.00005 mass% of the plastic or rubber part	N			CAS number: 50-32-8. ***) Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact. Notes: This declarable substance is a polycyclic aromatic hydrocarbon (PAH). [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
Benzo[e]pyrene (BeP)	0.00005 mass% of the plastic or rubber part	N			CAS number: 192-97-2 See description ***) above
Benzo[a]anthracene (BaA)	0.00005 mass% of the plastic or rubber part	N			CAS number: 56-55-3 See description ***) above
Chrysen, other name: Chrysene (CHR)	0.00005 mass% of the plastic or rubber part	N			CAS number: 218-01-9 See description ***) above
Benzo[b]fluoranthene (BbFA)	0.00005 mass% of the plastic or rubber part	N			CAS number: 205-99-2 See description ***) above
Benzo[j]fluoranthene (BjFA)	0.00005 mass% of the plastic or rubber part	N			CAS number: 205-82-3 See description ***) above
Benzo[k]fluoranthene (BkFA)	0.00005 mass% of the plastic or rubber part	N			CAS number: 207-08-9 See description ***) above
Dibenzo[a,h]anthracene (DBaHA)	0.00005 mass% of the plastic or rubber part	N			CAS number: 53-70-3 See description ***) above
Perfluorooctane sulfonates (PFOS)	Intentionally added or 1 microgram/m <sup>2</sup> of coated material	N			Textiles or other coated materials. CAS numbers: 306975-62-2, 2991-51-7, [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004; [Canada] Prohibition of Certain Toxic Substances Regulations SOR/2012-285 and its amendment; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
	Intentionally added or 0.1 mass% of the part (as the sum of PFOS)	N			All except textiles or other coated materials. CAS numbers: 306975-62-2, 2991-51-7, [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004; [Canada] Prohibition of Certain Toxic Substances Regulations SOR/2012-285 and its amendment; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
Mercury/Mercury Compounds	0.0005 Weight (1)	NA			Batteries, [Canada] Products containing Mercury Regulations SOR/2014-254
4,4'-isopropylidenediphenol	Intentionally added or 0.1 % Weight (2)	N			CAS number: 80-05-7, [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
Perfluorooctanoic acid and its salts (PFOA)	Intentionally added or 0.0000025 mass% of PFOA including its salts in article or mixture	N			CAS numbers: 335-67-1, 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; [Korea (the Republic of)] Persistent Organic Pollutants Control Act

**Material and Substance Declaration (IEC 62474) – page 5 of 5**\*) More details (substances and CAS numbers) see Reference Substance List (RSL) at <http://std.iec.ch/iec62474>

Substance			If yes (Y), detailed information of contained substances		
Category Name	Threshold Level	Above threshold level ? Y / N	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
PFOA-related compounds	Intentionally added or 0.0001 mass% of one or a combination of PFOA-related compounds, in article or mixture	N			CAS numbers: 335-67-1, 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 376-27-2, 3108-24-5, 678-39-7, 1996-88-9, [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [Korea (the Republic of)] Persistent Organic Pollutants Control Act
Cadmium/Cadmium compounds	0.01 % Weight (1)	N			Video display devices, with a screen size of greater than four inches. CAS numbers: 7440-43-9, 1306-19-0, 1306-23-6, [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Chromium (VI) Compounds	0.1 % Weight (1)	N			Video display devices, with a screen size of greater than four inches. CAS numbers: 10294-40-3, 13765-19-0, 7789-06-2, 13530-65-9, [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Lead/Lead Compounds	0.1 % Weight (1)	N			Video display devices, with a screen size of greater than four inches. CAS numbers: 7439-92-1, 7446-14-2, 598-63-0, 1319-46-6, 6080-56-4, 12069-00-0, 1309-60-0, 1314-41-6, 1314-87-0, 7446-27-7, 12060-00-3, 15739-80-7, 12202-17-4, 1072-35-1, 7758-97-6, 12656-85-8, 1344-37-2, [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Mercury/Mercury Compounds	0.1 % Weight (1)	N			Video display devices, with a screen size of greater than four inches. CAS numbers: 7439-97-6, 33631-63-9, 7487-94-7, 7783-35-9, 10045-94-0, 21908-53-2, 1344-48-5, [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Halogenated Flame Retardants *) See IEC 62474 for details.	Intentionally added	N			Enclosure and stand of electronic displays, including televisions, monitors and digital signage displays with a screen area greater than 100 square centimetres. [EU] Commission Regulation (EU) 2019/2021 laying down ecodesign requirements for electronic displays
Cobalt/Cobalt compounds	Intentionally added	N			Batteries used in computer servers and online data storage products. [EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
Neodymium/Neodymium compounds	Intentionally added	N			HDDs (Hard Disk Drives) used in computer servers and online data storage products. [EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
C9-C14 PFCAs and their salts	0.000025 mass% for the sum of C9-C14 PFCAs and their salts in Article or Mixture	N			[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII, <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1297&amp;qid=1628207104080">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1297&amp;qid=1628207104080</a>
C9-C14 PFCA-related substances	0.000026 mass% for the sum of C9-C14 PFCA-related substances in Article or Mixture	N			[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII, <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1297&amp;qid=1628207104080">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1297&amp;qid=1628207104080</a>

**6.0 Revision history**

REV:	Date:	Description:
3.6	16. Nov. 2022	Chapter 1.0 updated, other Chapters: remove old obsolete requirements and reorganize RoHS, REACH and IEC 62474 to own chapters. Chapter 5.0 IEC 62474 includes the relevant regulations that concern the electronic industry. Please note that the RoHS, REACH and TSCA requirements are not repeated in the Chapter 5.0