

Date: [28. Jan. 2022](#)  
 Revision: 3.4  
 Product Total Mass [g]: [0,2 g](#)

Requestor: VLSI Solution Oy  
 Hermiankatu 8G, 33270 Tampere, Finland  
 Email: [quality@vlsi.fi](mailto:quality@vlsi.fi)  
[www.vlsi.fi](http://www.vlsi.fi)

Product Name: [VS1011E-L \(LQFP48 RoHS\)](#)

Content	Page
' <b>1.0 Description of different threshold levels</b>	1
' <b>2.0 Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474)</b>	2
' <b>3.0 Additional Material and Substance Declarations</b>	8
' <b>4.0 Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)</b>	9
' <b>5.0 REACH List of Substances of Very High Concern (SVHC)</b>	10
' <b>6.0 Revision history</b>	23

### ' **1.0 Description of different threshold levels**

**1)** Report the **biggest content rate** (ppm) of the substance at the **homogeneous material level**. **Optionally** also the total **weight** of the substance in the product.

Weight = total weight of the substance in the product.

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

Example: Lead (Pb) content in lead frame plating [ppm] = weight of lead (Pb) in leadframe [10<sup>-9</sup> g] / weight of the leadframe [mg]

**2)** Report the total **weight** of the substance **in the product**. **Optionally** also **content rate** (ppm) of the substance at the product.

Weight = total weight of the substance in the product.

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

Example: Bismuth weight = Sum of Bismuth weights in each homogeneous material.

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

**NA)** Not Applicable. **cust.A** = Customer from Japan **cust.B** = Customer from USA

## ' 2.0 Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 1 of 7

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).

Substance	R (Regulated) IEC 62474		Threshold Level – cust.A	Threshold Level – cust.B	Above threshold level ?			If yes (Y), detailed information of contained substances		
	Criteria 1	Threshold Level			Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Asbestos	Intentionally added (1)		Any content (1 and 3)	Any content (3)	N	N	N			See IEC 62474 for detailed CAS#. Also CAS# 132207-32-0, 132207-33-1.
Certain azocolourants and azodyes (which form certain aromatic amines)	30 ppm by weight of the finished textile/leather product		Intentionally Added or 30 ppm (1)	Not Applicable (NA)	N	N	NA			Must be reported only if it is used for leather/fabric products and those parts where they are likely to result in prolong skin contact. 30 ppm in finished textile or leather articles
Cadmium/Cadmium compounds	100 ppm (1) all, except batteries (*)		20 ppm (resin paint, ink pigment and dyeing) (1) 20 ppm lead free soldering (1) 75 ppm metals except for lead free soldering (1)	5 ppm (1)	N	N	N			*) [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
	5 ppm by weight of battery		Other materials: Any content (1 and 3)		N	N				
Cadmium/Cadmium compounds	100 ppm (1) Video display devices, with a screen size of greater than four inches		Not Applicable (NA)	Not Applicable (NA)	NA	NA	NA			Mass percent of total cadmium in homogenous material and total mass of all occurrences in product. [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Hexavalent Chromium / Hexavalent Chromium Compounds	1000 ppm (1) (*)		100 ppm Chromate plating (1)	Not Applicable (NA)	N	N	NA			Hexavalent Chromium = Chromium VI, (*) [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.
	1000 ppm (1) (**) Video display devices, with a screen size of greater than four inches		Other materials: Any content (1 and 3)	Not Applicable (NA)	NA	N	NA			(**)[USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Arsenic/Arsenic Compounds	see SVHC list		1000 ppm (1)	Any content (3)	N	N	N			IEC 62474: see Diarsenic Pentaoxide and Diarsenic Trioxide in SVHC list.
Fluorinated greenhouse gases	Intentionally added (1)		Not Applicable (NA)	Any content (3)	N	NA	N			HFC and PFC. For IEC 62474 also SF6. See IEC 62474 for detailed CAS-numbers.
Formaldehyde CAS#50-0-0 (wooden materials and furniture)	Intentionally Added (1) Composite wood products or Components		Aerial concentration: 0.1 ml/m3 (1)	Select 1 of following: concentration in the air OR perforator method OR Desiccators method.	N	N	N			<b>cust.A</b> = DE ChemVerbotsV, AT BGBl. Nr. 194/1990, SE KIFS 1998:8 (9, 20-27 §§) <b>cust.B</b> : Select 1 of following: concentration in the air: 0.1 ppm (EN 717-1:2004), or perforator method: 6.5 mg/100g particleboard, 7.0 mg/100g fiberboard (both average value during 6 months), 8.0 mg particle/fiberboard one time measurement based EN 120:1992. or Desiccators method: average content 0.5 mg/l, Maximum content 0.7 mg/l (use N = 2, JIS A 5905 (Fiberboards, JIS A 5908 Particleboards)
Formaldehyde CAS#50-0-0	75 ppm (2) Textiles		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			
HBCDD	see SVHC list		see "Brominated Flame Retardants (other than PBBs or PBDEs)"							

**Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 2 of 7**

Substance	R (Regulated) IEC 62474			Above threshold level ?			If yes (Y), detailed information of contained substances			
	Criteria 1	Threshold Level	Threshold Level – cust.A	Threshold Level – cust.B	Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Lead/Lead Compounds	90 ppm (1) paint or other coating of product for children		100 ppm (1) resin paint, ink pigment and dyeing	500 ppm solder (1)	N	N	N			
	0.01 mass% (100 ppm), products designed or intended primarily for children 12 years *)		1000 ppm for soldering parts of purchasing pwd and components (1)	100 ppm other materials (1)	N	N	N			*)Products designed or intended primarily for children 12 years of age or younger (U.S. Consumer Product Safety Improvement Act as modified by 76 FR 44463)
	40 ppm by weight of battery		500 ppm lead free soldering except for above (1)		N	N				
	0.03 mass% (300 ppm) of surface coating material		500 ppm other metal materials (1)		N	N				
	Cables/cords with thermoset or thermoplastic coatings		800 ppm electroless nickel plating (1)		N	N				
1000 ppm (1) Other (**)		Other materials: Any content (1 and 3)		N	N				(**) [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	
Lead/Lead Compounds	1000 ppm (1) (***) Video display devices, with a screen size of greater than four inches		Not Applicable (NA)	Not Applicable (NA)	NA	NA	NA			(***) [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Mercury / Mercury compounds			1000 ppm (1) or Intentionally Added, All, except batteries.	Not Applicable (NA)	N	N	NA			[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 1 ppm by weight of battery	Not Applicable (NA)	NA	NA	NA			CA) Canadian Products Containing Mercury Regulations (SOR/2014-254)
Mercury / Mercury compounds	1000 ppm (1) (***) Video display devices, with a screen size of greater than four inches		Not Applicable (NA)	Not Applicable (NA)	NA	NA	NA			[USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
Nickel / Nickel Compounds	Intentionally added (1), if prolonged skin contact is expected.		1000 ppm (1)	DIN EN1811: During the testing, flaked nickel should not exceed 0.5 ug/cm2/week	NA	NA	NA			Use of nickel or nickel in components and parts designed to be located inside the outer enclosure of a product need not be reported. Cust.B = cust.C.
Ozone Depleting Substances – Class I (CFCs, HBFCs, etc.)	Intentionally added (1)		Any content (1 and 3)	Any content (3)	N	N	N			
Ozone Depleting Substances – Class II (HCFCs)	Intentionally added (1)		1000 ppm (1)	Any content (3)	N	N	N			
Perchlorates	6 x 10 <sup>-7</sup> mass% of battery or product part		Not Applicable (NA)	Not Applicable (NA)	NA	NA	NA			California Assembly Bill No. 826 - Perchlorate Contamination Prevention Act; implemented July 1, 2006. The only known application in use today in electronic industry is coin cell batteries.

## Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 3 of 7

Substance	R (Regulated) IEC 62474		Threshold Level – cust.B	Above threshold level ?			If yes (Y), detailed information of contained substances			
	Criteria 1	Threshold Level		Threshold Level – cust.A	Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Perfluorooctanesulfonic acid (PFOS)	Intentionally added (1)		1 micrograms/m <sup>2</sup> in textiles or coated materials. 0.1 weight% (1000ppm) in semi-finished products or articles. 0.005% (50ppm) as substance or constituent of preparations (1)	0.1 wt%, textile or other coated materials 1 micrograms/m <sup>2</sup> of coated materials. (1)	N	N	N			cust. A = EU 76/769/EEC, 30. amendment, Annex I, No. 52 Exemptions of use (only for cust. A and cust. B): a) photoresists or anti reflective coatings for photolithography processes b) photographic coatings applied to films, papers, or printing plates, c) mist suppressants for non-decorative hard chromium (VI) plating and wetting agents for use in controlled electroplating systems. PFOS substances, list may not include all variations: US EPA Significant New Use Rule 1: <a href="http://www.epa.gov/EPA-TOX/2002/December/Day-09/t31011.htm">http://www.epa.gov/EPA-TOX/2002/December/Day-09/t31011.htm</a> US EPA Significant New Use Rule 2 (which also include some PFAS molecules): <a href="http://www.epa.gov/EPA-TOX/2007/October/Day-09/t19828.htm">http://www.epa.gov/EPA-TOX/2007/October/Day-09/t19828.htm</a>
Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA	Intentionally added (1) or 1 microgram/m <sup>2</sup> (as the sum of PFOA). Textiles, photographic coatings applied to films, paper or printing plates and other coated consumer products.		Intentionally added (1) or 0.1 mass% of the part (as the sum of PFOA). All except textiles, photographic coatings applied to films, paper or printing plates and other coated consumer products.	Not Applicable (NA)	N	N	NA			CAS# 335-67-1, 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 376-27-2 and 3108-24-5. IEC 62474 (Norwegian products regulation Section 2-32).
Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1, 1-dimethylethyl)	Intentionally added (1)		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			CAS# 3846-71-7, Japan (Law Concerning the Examination and Regulation of Manufacture)
Phthalates	0.1 mass% (1000 ppm) as the sum of the phthalate concentrations in plasticized material (childrens toy that can be placed in a child's mouth or child care article)		1000 ppm (1)	Any content (3)	N	N	N			Benzyl butyl phthalate (BBP) CAS No: 85-68-7, Dibutyl phthalate (DBP) CAS No: 84-74-2, Bis (2-ethylhexyl) phthalate (DEHP) CAS No: 117-81-7, Diisobutyl phthalate (DIBP) CAS No: 84-69-5.
Phthalates	0.1 mass% (1000 ppm) as the sum of the phthalate concentrations in plasticized material (childrens toy that can be placed in a child's mouth or child care article)		1000 ppm (1)	Any content (3)	N	N	N			CAS# 28553-12-0 and CAS# 68515-48-0 (Diisononyl phthalate (DINP)), CAS# 26761-40-0 and CAS# 68515-49-1 (Di-isodecyl phthalate (DIDP)), CAS# 117-84-0 Di-n-octyl phthalate (DNOP). For cust A. and cust. B also DnHP CAS# 84-75-3
Polybrominated Biphenyls (PBB)	0.1 mass% (1000 ppm) of total PBBs in homogeneous material		Any content (1 and 3)	Any content (3)	N	N	N			
Polybrominated diphenyl ethers (PBDE)	1000 ppm (1), 0.1 mass% in homogenous material		Any content (1 and 3)	Any content (3)	N	N	N			Mass percent of total PBDEs in homogeneous material
Deca-Bromodiphenylether (Deca-BDE) (PBDE)	Intentionally added (1) TV and computer housings		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			IEC 62474 TV and computer housings have lower Deca-BDE threshold level.
Polychlorinated Biphenyls (PCBs) and specific substitues	Intentionally added (1)		Any content (1 and 3)	Any content (3)	N	N	N			[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% by weight (50 ppm) in material		Not Applicable (NA)	Any content (3)	N	NA	N			

## Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 4 of 7

Substance	R (Regulated) IEC 62474		Threshold Level – cust.A	Threshold Level – cust.B	Above threshold level ?			If yes (Y), detailed information of contained substances		Additional information on material composition of products
	Criteria 1	Threshold Level			Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	
Category Name	Criteria 1	Threshold Level	Threshold Level – cust.A	Threshold Level – cust.B	Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Polychlorinated Naphthalenes	Intentionally added (1)		Any content (1 and 3)	Any content (3)	N	N	N			CAS No: 70776-03-3. [EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
Radioactive Substances	Intentionally added (1)		1000 ppm (1)	Any content (3)	N	N	N			
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	Intentionally added or 0.1 mass %		Any content (1 and 3)	Any content (3)	N	N	N			SCCP, CAS# 85535-84-8, 108171-26-2, 71011-12-6, 61788-76-9. Candidate list for European REACH Regulation No. 1907/2006/EC; (EC) 850/2004(POPs regulation); Norway Product Regulations FOR-2004-06-01-922; Swiss Ordinance on Reduction of Risk from Chemical Products.
Certain Tributyl Tin (TBT) and Triphenyl Tin (TPT) compounds	Intentionally added (1)		Any content (1 and 3)	Any content (3)	N	N	N			Also Tributyl tin bromide (CAS# 1461-23-0), Triphenyl tin (CAS# 668-34-8), Triphenyl tin bromide (C6 H5)3 Sn Br and Mixture of tributyl tin cyclopentanecarboxylate and its analogs (Tributyl tin naphthenate, CAS# 85409-17-12).
Tributyl Tin Oxide (TBTO)	1000 ppm or Intentionally Added (2)		Any content (1 and 3)	Not Applicable (NA)	N	N	NA			
Antimony/Antimony Compounds	Not Applicable (NA)		1000 ppm (1)	Not Applicable (NA)	NA	N	NA			
Beryllium/Beryllium Compounds (IEC 62474: only Beryllium Oxide)	1000 ppm (2) criteria 3 – I (for information only)		1000 ppm (1)	Any content (3)	N	N	N			For IEC 62474: reportable applications: ceramics
Bismuth/Bismuth Compounds	Not Applicable (NA)		1000 ppm (1)	Not Applicable (NA)	NA	N	NA			
Brominated Flame Retardants (other than PBBs or PBDEs)	1000 ppm (2) criteria 3 – I (for information only)		1000 ppm (1)	1000 ppm (1)	N	N	N			cust.B: TBBP-A-bis (CAS# 21850-44-2), IEC 62474: (other than PBBs or PBDEs or Hexabromocyclododecane(HBCDD)) JS709, 0.1% total bromine content by weight (1 000 ppm) in the plastic material, see Annex B of IEC 62474 for detailed Substance Lists with CAS Numbers and/or EC Numbers.
Brominated flame retardants (other than PBBs, PBDEs, or HBCDD)	Industry Standards IEC 61249-2-21 and IPC-4101		0.09 mass% total bromine content in laminate. Criteria 3 – I (for information only)	Not Applicable (NA)	N	N	NA			A printed wiring board laminate refers to the layered board materials excluding surface finishes and components whereas a printed wiring board assembly refers to an assembly that uses a printed wiring board laminate for component mounting and interconnecting purposes.
Selenium/Selenium Compounds	Not Applicable (NA)		1000 ppm (1)	Not Applicable (NA)	NA	N	NA			
Polyvinyl Chloride (PVC) and PVC Copolymers	1000 ppm (2) criteria 3 – I (for information only)		1000 ppm (1)	Any content (3)	N	N	N			JS709, 0.1% total chlorine content by weight (1 000 ppm) in the plastic material. See Annex B of IEC 62474 for detailed Substance Lists with CAS Numbers and/or EC Numbers.
Dibutyltin (DBT) compounds	0.1 % by weight (1000 ppm) of tin in a material		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			CAS No: 818-08-6 (Dibutyltin oxide), 1067-33-0 (Dibutyltin diacetate), 77-58-7 (Dibutyltin dilaurate), 78-04-6 (Dibutyltin maleate) and other dibutyltin compounds.
Diocetyl tin (DOT) compounds	0.1 % by weight (1000 ppm) of tin in a material *)		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			ANNEX XVII of REACH Regulation (EC) No 1907/2006 and Commission Regulation (EU) No 276/2010
Tri-substituted organostannic compounds	Intentionally added (1) or 0.1 % by weight (1000 ppm) of tin in a material *)		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			ANNEX XVII of REACH Regulation (EC) No 1907/2006 and Commission Regulation (EU) No 276/2010; Japan Law concerning the evaluation of chemical substances Norwegian product regulation

## Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 5 of 7

Substance	R (Regulated) IEC 62474		Threshold Level – cust.A	Threshold Level – cust.B	Above threshold level ?			If yes (Y), detailed information of contained substances		Additional information on material composition of products
	Criteria 1	Threshold Level			Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	
Chlorinated flame retardants (CFR)	IPC-4101 and IEC 61249-2-21		0.09 mass% total chlorine content in laminate (Printed Wiring Board (PWB) Laminates). Criteria 3 - I (for information only)	Not Applicable (NA)	N	N	NA			A printed wiring board laminate refers to the layered board materials excluding surface finishing and components. See IEC 62474 Reference Substance worksheet for more details (CAS Numbers and/or EC Numbers, etc.).
Chlorinated flame retardants (CFR)	0.1% total chlorine content by weight (1 000 ppm) in the plastic material – I (for information only)		Not Applicable (NA)	Not Applicable (NA)	N	NA	NA			JS709, see Annex B of IEC 62474 for detailed Substance Lists with CAS Numbers and/or EC Numbers.
Benzo[def]chrysene, (Benzo[a]pyrene), BaP	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 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). ANNEX XVII of REACH Regulation (EC) No 1907/2006 and Commission Regulation (EU) No 1272/2013
Benzo[e]pyrene (BeP)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS#192-97-2 . See description above (Rubber or ....skin or oral...)
Benzo[a]anthracene (BaA)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 56-55-3. IUPAC names: Benz(a)anthracene, benzo[a]anthracene, Benz[a]anthracene, tetraphene. Member of Polycyclic-aromatic hydrocarbons (PAH) group. See description above (Rubber or ....skin or oral...)
Chrysen, other name: Chrysene (CHR)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 218-01-9. IUPAC names: 1,2,5,6-Dibenzonaphthalen, Benzo[a]phenanthrene, Chrysene. Member of Polycyclic-aromatic hydrocarbons (PAH). See description above (Rubber or ....skin or oral...)
Benzo[b]fluoranthene (BbFA)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 205-99-2. See description above (Rubber or ....skin or oral...)
Benzo[j]fluoranthene (BjFA)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 205-82-3. See description above (Rubber or ....skin or oral...)
Benzo[k]fluoranthene (BkFA)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 207-08-9. See description above (Rubber or ....skin or oral...)
Dibenzo[a,h]anthracene (DBaHhA)	IEC 62474 date 24.9.2014		0.0001 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 53-70-3. See description above (Rubber or ....skin or oral...)
Benzo[def]chrysene, (Benzo[a]pyrene), BaP	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 50-32-8. Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact. This declarable substance is a polycyclic aromatic hydrocarbon (PAH). ANNEX XVII of REACH Regulation (EC) No 1907/2006 and Commission Regulation (EU) No 1272/2013.
Benzo[e]pyrene (BeP)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 192-97-2. See description above (Rubber or ....childcare...skin or oral...)
Benzo[a]anthracene (BaA)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 56-55-3. See descriptions above (Rubber or ....childcare...skin or oral...)
Chrysen, other name: Chrysene (CHR)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 218-01-9. See descriptions above (Rubber or ....childcare...skin or oral...)
Benzo[b]fluoranthene (BbFA)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 205-99-2. See description above (Rubber or ....childcare...skin or oral...)
Benzo[j]fluoranthene (BjFA)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA			CAS# 205-82-3. See description above (Rubber or ....childcare...skin or oral...)

## Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 6 of 7

Substance	R (Regulated) IEC 62474		Threshold Level – cust.B	Above threshold level ?			If yes (Y), detailed information of contained substances		Additional information on material composition of products
	Criteria 1	Threshold Level		Threshold Level – cust.A	Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	
Benzo[k]fluoranthene (BkFA)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA		CAS# 207-08-9. See description above (Rubber or ....childcare...skin or oral...)
Dibenzo[a,h]anthracene (DBAha)	IEC 62474 date 24.9.2014		0.00005 mass% of the plastic or rubber part	Not Applicable (NA)	N	N	NA		CAS# 53-70-3. See description above (Rubber or ....childcare...skin or oral...)
Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene	IEC 62474 date 8.4.2015		Intentionally added. Reportable applications: All	Not Applicable (NA)	N	N	NA		CAS# 68921-45-9. Typical applications: Lubricating agent in motors, storage drives; lubricant additive (antioxidant/corrosion inhibitor/tarnish inhibitor/scavenger/antiscaling agent), mould release agent; organic chemical for industrial use. Prohibition of Certain Toxic Substances Regulations, 2012, CANADA
Perfluorooctanoic acid and its salts	IEC 62474 date 21.7.2019, updated 19.1.2021, 17.1.2022		0.0000025 mass% of PFOA including its salts in article or mixture	Not Applicable (NA)	N	N	NA		Pentadecafluorooctanoic acid CAS No: 335-67-1, Ammonium pentadecafluorooctanoate CAS No: 3825-26-1, Sodium pentadecafluorooctanoate CAS No: 335-95-5, Potassium pentadecafluorooctanoate CAS No: 2395-00-8, Silver pentadecafluorooctanoate CAS No: 335-93-3. [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021 and [Korea (the Republic of)] Persistent Organic Pollutants Control Act.
PFOA-related substances	IEC 62474 date 21.7.2019, updated 19.1.2021, 17.1.2022		0.0001 mass% of one or a combination of PFOA-related substances, in article or mixture	Not Applicable (NA)	N	N	NA		Pentadecafluorooctanoic acid CAS No: 335-67-1, Ammonium pentadecafluorooctanoate CAS No: 3825-26-1, Sodium pentadecafluorooctanoate CAS No: 335-95-5, Potassium pentadecafluorooctanoate CAS No: 2395-00-8, Silver pentadecafluorooctanoate CAS No: 335-93-3, Pentadecafluorooctanoyl fluoride CAS No: 335-66-0, Methyl pentadecafluorooctanoate CAS No: 376-27-2, Ethyl pentadecafluorooctanoate CAS No: 3108-24-5, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Heptadecafluorodecan-1-ol CAS No: 678-39-7. Additional substance description: Any related substance (including its salts and polymers) has a linear or branched perfluoroheptyl group with the formula C7F15- directly attached to another carbon atom, as one of the structural elements; Any related substance (including its salts and polymers) has a linear or branched perfluorooctyl group with the formula C8F17- as one of the structural elements; The following substances are excluded from this designation: - C8F17-X, where X = F, Cl, Br. - C8F17-C(=O)OH, C8F17-C(=O)O-X' or C8F17-CF2-X' (where X' = any group, including salts). [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021 and [Korea (the Republic of)] Persistent Organic Pollutants Control Act.
Halogenated Flame Retardants	IEC 62474 date 19.1.2021		Intentionally added in ENCLOSURE or STAND of electronic displays, including televisions, monitors and digital signage displays with a screen area greater than 100 square centimetres.	Not Applicable (NA)	N	N	NA		The regulation only applies to halogenated substances if they meet the definition of flame retardant.

**Material and Substance Declaration (JIG-101 Ed 4.1 and IEC 62474) – page 7 of 7**

Substance	R (Regulated) IEC 62474		Threshold Level – cust.B	Above threshold level ?			If yes (Y), detailed information of contained substances		
	Criteria 1	Threshold Level		Level IEC 62474 (Y/N)	Level cust.A (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]	Additional information on material composition of products
Cobalt/Cobalt compounds	IEC 62474 date 16.7.2021	Intentionally added in batteries used in computer servers and online data storage products.	Not Applicable (NA)	N	NA	NA			[EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
Neodymium/Neodymium compounds	IEC 62474 date 16.7.2021	Intentionally added in HDDs used in computer servers and online data storage products	Not Applicable (NA)	N	NA	NA			HDDs = Hard Disk Drives. [EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
See also chapters 3.0, 4.0 and 5.0.									

**' 3.0 Additional Material and Substance Declarations**

Substance	Threshold Level	Threshold Level – cust.B	Above threshold level ?	If yes (Y), detailed information of contained substances			
				Level (Y/N)	Level cust.B (Y/N)	Weight [mg]	Content rate [ppm]
Cobalt Chloride	0.01 weight% (100 ppm) (1)	Not Applicable (NA)	N	NA			As for the service parts, the professional products, and the transportation parts, when the content exceeds 100ppm to less than 10000ppm display the text "Restricted to professional user" to the cobalt chloride inclusion quality wrapping. Directives of EU: 2003/34/EC, 98/98/EC and 2004/73/EC.
Phthalate esters	1000 ppm (1)	Any content (3)	N	N			See also "Phthalates" in previous table of this document.
Mirex (Perchlordecone)	Intentionally added (1)	Any content (3)	N	N			CAS# 2385-85-5. Prohibition of Certain Toxic Substances Regulations, 2005 (SOR/SOR/2005-41. Published in Canada Gazette Part II, 2006-11-29 Vol. 140, No. 24
Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)	Any content (3)	Any content (3)	N	N			
Halogen-Bromine (Br)		>900 ppm (1)	N	N			IEC 61249-2-21:2003
Halogen-Chlorine (Cl)		>900 ppm (1)	N	N			IEC 61249-2-21:2003
Total Halogen Br + Cl		>1500 ppm (1)	N	N			IEC 61249-2-21:2003
Halogenated aromatic substances		500 ppm for mono- or 50 ppm for poly-halogenated aromatic substances.	N	N			
Halogenated diphenyl methanes	Any content (3)	Any content (3)	N	N			IEC 62474 (PCB+PCT) includes CAS# 76253-60-6, CAS# 99688-47-8 and Ugilec121, Ugilec 21.
Brominated dioxins/furans and Chlorinated dioxins/furans	10 ppb (1)	Any content (3)	N	N			ChemVerbotsV, information source "2008 GADSL Version 2.0"
Specific benzotriazole	Any content (3)	Any content (3)	N	N			Japan, Law Concerning the Examination and Regulation of Manufacture of Chemical Substances, Class I.
Organic tin compounds (excluding TBT, TPT, TBTO)	1000 ppm (1) also IEC 62474 criteria 1 R.	Not Applicable (NA)	N	NA			Including Dibutyltin compounds. See also TBT, TPT and TBTO in one of the previous tables of this document.
Certain Glycol Ethers see list in the end of this doc	use in manufacture of semiconductors, 1000 ppm (1)	5 ppm (1)	N	N			EU-D 67/548/EEC, information source "2008 GADSL Version 2.0"
Dimethyl Fumarate (DMF)	(0.1 ppm) 0.00001 mass% of the part	Not Applicable (NA)	N	NA			CAS# 624-49-7. DMF; Dimethyl (E)-butenedioate; 2-Butenedioic acid (2E)-, dimethyl ester.
Red phosphorous	Intentionally added (1)	1000 ppm (1)	N	N			Red phosphorous CAS 7723-14-0 should not be used to substitute Brominated Flame Retardants due to historical industry experience with reliability concerns.

**Semiconductor industry voluntary banned the use of certain ethylene glycol ethers in manufacture of semiconductors.**

Certain Glycol Ethers	CAS Numbers
2-Ethoxyethanol (or Ethylene glycol monoethyl ether)	110-80-5
2-Ethoxyethyl acetate	111-15-9
2-Methoxyethanol (or Ethylene glycol monomethyl ether)	109-86-4
2-Methoxyethyl acetate	110-49-6
Diethylene glycol dimethyl ether	111-96-6



#### ' 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), which is also called PCTP, is used to make rubber more pliable in industrial uses.

### ' 5.0 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: 223 (last updated: 17.01. 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
Triethyl arsenate	0.1 % Weight (2)	N			EC Number: 427-700-2, CAS Number: 15606-95-8. Article 57(a) of Regulation (EC) 1907/2006 (REACH).
Anthracene	0.1 % Weight (2)	N			EC Number: 204-371-1 CAS Number: 120-12-7. PBT substance according to Article 57 (d) of Regulation (EC) No 1907/2006 (REACH).
4,4'-Diaminodiphenylmethane (MDA)	0.1 % Weight (2)	N			EC Number: 202-974-4 CAS number: 101-77-9. Article 57(a) of Regulation (EC) 1907/2006 (REACH).
Dibutyl phthalate (DBP)	0.1 % Weight (1) (IEC 62474, 2015-12-17)	N			EC Number: 201-557-4 CAS number: 84-74-2. Article 57 (c) of Regulation (EC) 1907/2006 (REACH).
Cobalt dichloride	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	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) (also IEC 62474 criteria 1 R)	N			EC Number: 215-116-9 CAS number: 1303-28-2. Article 57 (a) of Regulation (EC) No 1907/2006 (REACH).
Diarsenic Trioxide	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	N			EC Number: 215-481-4 CAS number: 1327-53-3. Article 57 (a) of Regulation (EC) No 1907/2006 (REACH).
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) of Regulation (EC) 1907/2006 (REACH).
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) of Regulation (EC) No 1907/2006 (REACH).
Bis(2-ethylhexyl)phthalate (DEHP)	0.1 % Weight (1) (IEC 62474, 2015-12-17)	N			EC Number: 204-211-0 CAS number: 117-81-7. Article 57 (c) of Regulation (EC) 1907/2006 (REACH). Equivalent level of concern having probable serious effects to the environment (Article 57 f); Toxic for reproduction (article 57c) (REACH updated 2014/12/17).
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified	0.1 % Weight (2), IEC 62474: Intentionally added or 0.01 % 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) of Regulation (EC) No 1907/2006 (REACH).
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) of Regulation (EC) No 1907/2006 (REACH).
Bis(tributyltin) oxide (TBTO)	0.1 % Weight (2)	N			EC Number: 200-268-0 CAS number: 56-35-9. Article 57 (d) of Regulation (EC) No 1907/2006 (REACH).
Lead hydrogen arsenate	0.1 % Weight (2)	N			EC Number: 232-064-2 CAS number: 7784-40-9. Article 57 (a and c) of Regulation (EC) No 1907/2006 (REACH).
Benzyl butyl phthalate (BBP)	0.1 % Weight (1) (IEC 62474, 2015-12-17)	N			EC Number: 201-622-7 CAS number: 85-68-7. Article 57 (c) of Regulation (EC) 1907/2006 (REACH).
2,4-Dinitrotoluene	0.1 % Weight (2)	N			EC number: 204-450-0 CAS# 121-14-2, Carcinogenic (article 57a)
Aluminosilicate Refractory Ceramic Fibres	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	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.

## 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
Anthracene oil	0.1 % Weight (2)	N			EC number: 292-602-7 CAS# 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# 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# 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# 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#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).					
Diisobutyl phthalate (DIBP)	0.1 % Weight (1) (IEC 62474, 2015-12-17)	N			EC number: 201-553-2 CAS# 84-69-5. Toxic for reproduction (article 57c)
Lead chromate	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	N			EC number: 231-846-0 CAS# 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) (also IEC 62474 criteria 1 R)	N			EC number: 235-759-9 CAS# 12656-85-8. Carcinogenic and toxic for reproduction (articles 57a and c)
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	N			EC number: 215-693-7 CAS# 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# 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# 115-96-8. Toxic for reproduction (article 57c)
Zirconia Aluminosilicate Refractory Ceramic Fibres	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	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 (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight . Carcinogenic (article 57 a)
Acrylamide	0.1 % Weight (2)	N			EC number: 201-173-7 CAS# 79-06-1. Carcinogenic and mutagenic (articles 57 a and 57 b)
Trichloroethylene	0.1 % Weight (2)	N			EC number: 201-167-4 CAS# 79-01-6. Carcinogenic (article 57 a)
Boric acid	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	N			EC number: 233-139-2 / 234-343-4 CAS# 10043-35-3 / 11113-50-1. Toxic for reproduction (article 57 c)
Disodium tetraborate, anhydrous	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	N			EC number: 215-540-4 CAS#1303-96-4/ 1330-43-4/ 12179-04-3. Toxic for reproduction (article 57 c)
Tetraboron disodium heptaoxide, hydrate	0.1 % Weight (2) (also IEC 62474 criteria 1 R)	N			EC number: 235-541-3 CAS# 12267-73-1. Toxic for reproduction (article 57 c)
Potassium dichromate	0.1 % Weight (2)	N			EC number: 231-906-6 CAS# 7778-50-9. Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)

## 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
Ammonium dichromate	0.1 % Weight (2)	N			EC number: 232-143-1 CAS# 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# 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# 7775-11-3. Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
Cobalt(II) sulphate	0.1 % Weight (2)	N			EC number: 233-334-2 CAS# 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# 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# 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# 71-48-7. Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
2-Methoxyethanol	0.1 % Weight (2)	N			EC number: 203-713-7 CAS# 109-86-4. Toxic for reproduction (article 57c)
2-Ethoxyethanol	0.1 % Weight (2)	N			EC number: 203-804-1 CAS# 110-80-5. Toxic for reproduction (article 57c)
Chromium trioxide	0.1 % Weight (2)	N			EC number: 215-607-8 CAS# 1333-82-0. Carcinogenic and mutagenic (articles 57 a and 57 b)
a) Chromic acid, b) Oligomers of chromic acid and dichromic acid, c) Dichromic acid	0.1 % Weight (2)	N			EC number: a) 231-801-5 b) - c) 236-881-5 CAS# a) 7738-94-5 b) – c) 13530-68-2. Carcinogenic (article 57a)
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) (also IEC 62474 criteria A)	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	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) (also IEC 62474 criteria A)	N			EC Number: 276-158-1 CAS number: 71888-89-6. Toxic for reproduction (article 57c)
4-(1,1,3,3-tetramethylbutyl)phenol	0.1 % Weight (2)	N			EC Number: 205-426-2, CAS number: 140-66-9, Equivalent level of concern having probable serious effects to the environment (article 57 f)
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)

## 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
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)
Potassium hydroxyoctaoxodizincate-dichromate	0.1 % Weight (2)	N			EC Number: 234-329-8, CAS number: 11103-86-9, Carcinogenic (article 57 a)
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)
Lead styphnate	0.1 % Weight (2)	N			EC Number: 239-290-0, CAS number: 15245-44-0, Toxic for reproduction (article 57 c)
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)
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)
$\alpha,\alpha$ -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)]	0.1 % Weight (2)	N			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 ( $\beta$ -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 [with $\geq$ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1 % Weight (2)	N			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)

## 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
[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1 % Weight (2) (also IEC 62474 criteria A)	N			EC Number: 208-953-6, CAS number: 548-62-9, Carcinogenic (Article 57a)
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)
[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1 % Weight (2)	N			EC Number: 219-943-6, CAS number: 2580-56-5, Carcinogenic (Article 57a)
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)
<a href="#">Date of inclusion to SVHC 19.12.2012</a>					
Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans-stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	0.1 % Weight (2)	N			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, Equivalent level of concern having probable serious effects 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)

## 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
Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry]	0.1 % Weight (2)	N			EC Number: 201-604-9, 236-086-3, 238-009-9, CAS number: 85-42-7, 13149-00-3, 14166-21-3, Equivalent level of concern having probable serious effects 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			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 [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]	0.1 % Weight (2)	N			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-(1,1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	0.1 % Weight (2)	N			Equivalent level of concern having probable serious effects to the environment (Article 57 f)

## 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
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			Equivalent level of concern having probable serious effects to the environment (Article 57 f)
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-isopentylphthalate	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)
Diisopentylphthalate	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, dipentylester, 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 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
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, CAS number: 101-80-4, 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, Equivalent level of concern having probable serious effects 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)
Date of inclusion to SVHC 20.6.2013					
Cadmium	0.1 % Weight (2)	N			EC Number: 231-152-8, CAS Number: 7440-43-9, Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)
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			4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof], Equivalent level of concern having probable serious effects to the environment (Article 57 f)
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); Equivalent level of concern having probable serious effects to human health (Article 57 f)
Date of inclusion to SVHC 16.12.2013					
Cadmium sulphide	0.1 % Weight (2)	N			EC Number: 215-147-8, CAS Number: 1306-23-6, Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)
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);
Lead di(acetate)	0.1 % Weight (2)	N			EC Number: 206-104-4, CAS Number: 301-04-2, Toxic for reproduction (Article 57 c).

## REACH List of Substances of Very High Concern (SVHC) – page 9 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
			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); Equivalent level of concern having probable serious effects to human health (Article 57 f)
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			EC Number: 239-172-9; 234-390-0, 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); Equivalent level of concern having probable serious effects to human health (Article 57 f).
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); Equivalent level of concern having probable serious effects to human health (Article 57 f).
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)	Intentionally added or 0.1 % Weight (2)	N			EC Number: 223-346-6, CAS number: 3846-71-7, PBT (Article 57 d); vPvB (Article 57 e), Japan (Law Concerning the Examination and Regulation of Manufacture); Candidate list for European REACH Regulation No. 1907/2006/EC.
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] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	0.1 % Weight (2)	N			vPvB (Article 57 e)

## 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
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)	0.1 % Weight (2)	N			EC Numbers: 271-094-0 / 272-013-1, CAS numbers: 68515-51-5 / 68648-93-1, Toxic for reproduction (Article 57 c)
Date of inclusion to SVHC 17.12.2015					
Perfluorononan-1-oic-acid and its sodium and ammonium salts	0.1 % Weight (2)	N			EC Number: 206-801-3, 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) or Intentionally added	N			EC Number: 201-245-8, CAS Number: 80-05-7, Common synonyms: BPA, Bisphenol A. IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ) threshold level: Intentionally added or 0.1 mass% of article. Toxic for reproduction (Article 57c).
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. Equivalent level of concern having probable serious effects to environment (Article 57 f)
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	0.1 % Weight (2)	N			Nonadecafluorodecanoic acid (EC no.: 206-400-3, CAS no.: 335-76-2), Ammonium nonadecafluorodecanoate (EC no.: 221-470-5, CAS no.: 3108-42-7), Decanoic acid, nonadecafluoro-, sodium salt (CAS no.: 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, Equivalent level of concern having probable serious effects to environment (Article 57 f).
Date of inclusion to SVHC 7.7.2017					
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	0.1 % Weight (2)	N			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) with ≥0.1% w/w 4-heptylphenol, branched and linear (4-HPbl)	0.1 % Weight (2)	N			Endocrine disrupting properties (Article 57(f) - environment)

## REACH List of Substances of Very High Concern (SVHC) – page 11 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
Chrysene, other name: Chrysen (CHR)	0.1 % Weight (2)	N			EC Number: 205-923-4, CAS no.: 218-01-9, 1719-03-5, IUPAC names: 1,2,5,6-Dibenzonaphthalen, Benzo[a]phenanthrene, Chrysene. Member of Polycyclic-aromatic hydrocarbons (PAH). Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
Cadmium nitrate	0.1 % Weight (2)	N			EC Number: 233-710-6, CAS no.: 10022-68-1, 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 no.: 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 no.: 513-78-0, Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)
Benz[a]anthracene	0.1 % Weight (2)	N			EC Number: 200-280-6, CAS no.: 56-55-3, 1718-53-2, IUPAC names: Benz(a)anthracene, benzo[a]anthracene, Benz[a]anthracene, tetraphene. 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)
<b>Date of inclusion to SVHC 27.6.2018</b>					
Terphenyl, hydrogenated	0.1 % Weight (2)	N			EC Number: 262-967-7, CAS no.: 61788-32-7, vPvB (Article 57e)
Octamethylcyclotetrasiloxane, D4	0.1 % Weight (2)	N			EC Number: 209-136-7, CAS no.: 556-67-2, PBT (Article 57d) vPvB (Article 57e)
Lead	0.1 % Weight (2)	N			EC Number: 231-100-4, CAS no.: 7439-92-1, Toxic for reproduction (Article 57c)
Ethylenediamine, EDA	0.1 % Weight (2)	N			EC Number: 203-468-6, CAS no.: 107-15-3, Respiratory sensitising properties (Article 57(f) - human health)
Dodecamethylcyclohexasiloxane, D6	0.1 % Weight (2)	N			EC Number: 208-762-8, CAS no.: 540-97-6, PBT (Article 57d) vPvB (Article 57e)
Disodium octaborate	0.1 % Weight (2)	N			EC Number: 234-541-0, CAS no.: 12008-41-2, Toxic for reproduction (Article 57c)
Dicyclohexyl phthalate, DCHP	0.1 % Weight (2)	N			EC Number: 201-545-9, CAS no.: 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 no.: 541-02-6, PBT (Article 57d) vPvB (Article 57e)
Benzo[ghi]perylene	0.1 % Weight (2)	N			EC Number: 205-883-8, CAS no.: 191-24-2, PBT (Article 57d) vPvB (Article 57e), substance is a polycyclic aromatic hydrocarbon (PAH).
Benzene-1,2,4-tricarboxylic acid 1,2 anhydride, trimellitic anhydride; TMA	0.1 % Weight (2)	N			EC Number: 209-008-0, CAS no.: 552-30-7, Respiratory sensitising properties (Article 57(f) - human health)
<b>Date of inclusion to SVHC 15.1.2019</b>					
Pyrene	0.1 % Weight (2)	N			EC Number: 204-927-3, CAS no.: 129-00-0; 1718-52-1, PBT (Article 57d) vPvB (Article 57e)
Phenanthrene	0.1 % Weight (2)	N			EC Number: 201-581-5, CAS no.: 85-01-8, vPvB (Article 57e)
Fluoranthene	0.1 % Weight (2)	N			EC Number: 205-912-4, CAS no.: 206-44-0; 93951-69-0, PBT (Article 57d) vPvB (Article 57e)
Benzo[k]fluoranthene	0.1 % Weight (2)	N			EC Number: 205-916-6, CAS no.: 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 no.: 6807-17-6, Toxic for reproduction (Article 57c)

## REACH List of Substances of Very High Concern (SVHC) – page 12 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
1,1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one, 3-benzylidene camphor; 3-BC	0.1 % Weight (2)	N			EC Number: 239-139-9, CAS no.: 15087-24-8, Endocrine disrupting properties (Article 57(f) - environment)
Date of inclusion to SVHC 16.7.2019					
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			EC Number: ---, CAS no.: ---, Endocrine disrupting properties (Article 57(f) - environment)
4-tert-butylphenol	0.1 % Weight (2)	N			EC Number: 202-679-0, CAS no.: 98-54-4, Endocrine disrupting properties (Article 57(f) - environment)
2-methoxyethyl acetate	0.1 % Weight (2)	N			EC Number: 203-772-9, CAS no.: 110-49-6, Toxic for reproduction (Article 57c)
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides covering any of their individual isomers and combinations thereof	0.1 % Weight (2)	N			EC Number: ---, CAS no.: --, Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment).
Date of inclusion to SVHC 16.1.2020					
2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	0.1 % Weight (2)	N			EC Number: 404-360-3, CAS no.: 119313-12-1, Toxic for reproduction (Article 57c)
2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	0.1 % Weight (2)	N			EC Number: 400-600-6, CAS no.: 71868-10-5, Toxic for reproduction (Article 57c)
Diisohexyl phthalate	0.1 % Weight (2)	N			EC Number: 276-090-2, CAS no.: 71850-09-4, Toxic for reproduction (Article 57c)
Perfluorobutane sulfonic acid (PFBS) and its salts	0.1 % Weight (2)	N			EC Number: ---, CAS no.: ---, Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)
Date of inclusion to SVHC 25.6.2020					
1-vinylimidazole	0.1 % Weight (2)	N			EC Number: 214-012-0, CAS no.: 1072-63-5, Toxic for reproduction (Article 57c)
2-methylimidazole	0.1 % Weight (2)	N			EC Number: 211-765-7, CAS no.: 693-98-1, Toxic for reproduction (Article 57c)
Butyl 4-hydroxybenzoate	0.1 % Weight (2)	N			EC Number: 202-318-7, CAS no.: 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 no.: 22673-19-4, Toxic for reproduction (Article 57c)
Date of inclusion to SVHC 19.1.2021					
Bis(2-(2-methoxyethoxy)ethyl)ether	0.1 % Weight (2)	N			EC Number: 205-594-7, CAS no.: 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			dioctyltin dilaurate; stannane, dioctyl-, bis(coco acyloxy) derivs. EC No.: -, CAS No.: -, Stannane, dioctyl-, bis(coco acyloxy) derivs. EC No.: 293-901-5, CAS No.: 91648-39-4, Dioctyltin dilaurate EC No.: 222-883-3, CAS No.: 3648-18-8, Toxic for reproduction (Article 57c)

## REACH List of Substances of Very High Concern (SVHC) – page 13 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
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 8.7.2021					
1,4-dioxane	0.1 % Weight (2)	N			EC Number: 204-661-8, CAS no.: 123-91-1, Carcinogenic (Article 57a), Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health), Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)
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 No.: 1522-92-5, 2,2-bis(bromomethyl)propane-1,3-diol (BMP) EC No.: 221-967-7, CAS No.: 3296-90-0, 2,3-dibromo-1-propanol (2,3-DBPA) EC No.: 202-480-9, CAS No.: 96-13-9, 2,2-dimethylpropan-1-ol, tribromo derivative (TBNPA) EC No.: 253-057-0, CAS No.: 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 No.: 75166-31-3, 2-(4-tert-butylbenzyl)propionaldehyde EC No.: 201-289-8, CAS No.: 80-54-6, (2S)-3-(4-tert-butylphenyl)-2-methylpropanal CAS No.: 75166-30-2, Toxic for reproduction (Article 57c)
4,4'-(1-methylpropylidene)bisphenol	0.1 % Weight (2)	N			EC Number: 201-025-1, CAS no.: 77-40-7, Endocrine disrupting properties (Article 57(f) - environment), Endocrine disrupting properties (Article 57(f) - human health)
glutaral	0.1 % Weight (2)	N			EC Number: 203-856-5, CAS no.: 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 No.: 287-477-0, CAS No.: 85535-85-9, Tetradecane, chloro derivs. CAS No.: 198840-65-2, Alkanes, C14-16, chloro CAS No.: 1372804-76-6, di-, tri- and tetrachlorotetradecane, PBT (Article 57d), vPvB (Article 57e)
Orthoboric acid, sodium salt (group)	0.1 % Weight (2)	N			Boric acid, sodium salt EC No.: 215-604-1, CAS No.: 1333-73-9, Orthoboric acid, sodium salt EC No.: 237-560-2, CAS No.: 13840-56-7, boric acid (H3BO3), sodium salt, hydrate CAS No.: 25747-83-5, boric acid (H3BO3), sodium salt (1:1) CAS No.: 14890-53-0, Boric acid (H3BO3), disodium salt CAS No.: 22454-04-2, Trisodium orthoborate EC No.: 238-253-6, CAS No.: 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 No.: 210555-94-5, 4-isododecylphenol CAS No.: 27459-10-5, Phenol, 4-isododecyl- CAS No.: 27147-75-7, Phenol, dodecyl-, branched EC No.: 310-154-3, CAS No.: 121158-58-5, Phenol, (tetrapropenyl) derivatives CAS No.: 74499-35-7, Phenol, tetrapropylene- CAS No.: 57427-55-1, Toxic for reproduction (Article 57c), Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - 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 No.: 1782069-81-1, (1R,3E,4S)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS No.: 95342-41-9, (1S,3Z,4R)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS No.: 852541-25-4, (±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one EC No.: 253-242-6, CAS No.: 36861-47-9, (1R,4S)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS No.: 741687-98-9, (1S,3E,4R)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS No.: 852541-30-1, (1R,3Z,4S)-1,7,7-trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one CAS No.: 852541-21-0, Endocrine disrupting properties (Article 57(f) - human health)
6,6'-di-tert-butyl-2,2'-methylene-di-p-cresol	0.1 % Weight (2)	N			EC Number: 204-327-1, CAS no.: 119-47-1, Toxic for reproduction (Article 57c)
S-(tricyclo(5.2.1.0 <sup>2,6</sup> )deca-3-en-8(or 9)-yl O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate	0.1 % Weight (2)	N			EC Number: 401-850-9, CAS no.: 255881-94-8, PBT (Article 57d)
tris(2-methoxyethoxy)vinylsilane	0.1 % Weight (2)	N			EC Number: 213-934-0, CAS no.: 1067-53-4, Toxic for reproduction (Article 57c)

**6.0 Revision history**

REV:	Date:	Description:
1.4	17.3.2010	<p>A) Changes due to JIG–101 Ed 2.0:</p> <ul style="list-style-type: none"> <li>- LEVEL A and B replaced by criteria 1 – R Regulated (R), criteria 2 – A (for assessment only) and criteria 3 – I (for information only)</li> <li>- Minor changes: JIG Asbestos, threshold level changed from "Any content (2 and 3)" to "Intentionally added". <ul style="list-style-type: none"> <li>JIG: Beryllium and Beryllium compounds, only Beryllium Oxide included. Cust.A and Cust.B requirements include all Beryllium and Beryllium compounds.</li> <li>JIG: Brominated flame retardants exclude Hexabromocyclododecane(HBCDD), because it is separated to SVHC list.</li> <li>JIG: requirement of Arsenic/Arsenic compounds covers only Diarsenic Pentaoxide and Diarsenic Trioxide</li> <li>JIG: Cadmium threshold level changed from 75ppm to 100ppm, 5ppm threshold level added for battery.</li> <li>JIG: requirements for Formaldehyde added.</li> <li>JIG: new requirements for Lead/lead compounds.</li> <li>JIG: Mercury/mercury compounds, requirement added for battery.</li> <li>JIG: Nickel, threshold level changed from "0.5 micrograms/sq cm/week" to "Intentionally added"</li> <li>JIG: Ozone Depleting Substances, threshold level changed from "Any content (2 and 3)" to " Intentionally added"</li> <li>JIG: requirements for PFOS added.</li> <li>JIG: requirements for Certain Phthalates more detailed (see Phthalates)</li> <li>JIG: extra requirement for Deca-BDE (see PBDE)</li> <li>JIG: Shortchain Chlorinated Paraffins (C10 – C13), threshold level changed from "1000 ppm or Intentionally Added (1)" to "1000 ppm (2)"</li> <li>JIG: Tributyl Tin Oxide (TBTO), threshold level changed from "Intentionally Added (2)" to "1000 ppm or Intentionally Added (2)"</li> <li>JIG: Antimony, Bismuth and Selenium requirements removed from JIG.</li> </ul> </li> <li>- Added new substances: JIG: Fluorinated greenhouse gases <ul style="list-style-type: none"> <li>JIG: Perchlorates</li> <li>JIG: Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1, 1-dimethylethyl) CAS# 3846-71-7</li> <li>JIG: Tris (2-chloroethyl) phosphate (TCEP)</li> </ul> </li> </ul> <p>B) Changes due list of SVHC 13.1.2010: 14 substances added (last 14 on the table)</p> <p>C) No changes to cust.A and cust.B requirements.</p> <p>D) Lead/lead compounds RoHS exemption items removed.</p>
1.5	22.3.2011	<p>A) Changes due to JIG–101: no changes.</p> <p>B) Changes due list of SVHC 15.12.2010: 17 substances added (last 17 on the table)</p> <p>C) No changes to cust.A and cust.B requirements.</p>
1.6	24.5.2011	<p>A) Changes to "Additional Material and Substance Declarations" table:</p> <p>Comment added for Organic tin compounds: "Including Dibutyltin compounds."</p> <p>New regulated substance added "Dimethyl fumarate (DMF)"</p>
1.7	8.8.2011	<p>A) Changes due to JIG–101: no changes.</p> <p>B) Changes due list of SVHC 20.6.2011: 7 substances added (last 7 on the table) and more details added for Cobalt Dichloride.</p> <p>C) No changes to cust.A and cust.B requirements.</p>
1.8	12.9.2012	<p>A) Changes due to JIG–101 Ed. 4.0</p> <p>B) Changes due list of SVHC 19.12.2011 and 18.6.2012: substances added (last 20+13 = 33 on the table).</p> <p>C) No changes to cust.A and cust.B requirements.</p>

1.9	28.11.2013	<p>A) Changes due to JIG–101 Ed.4.1: Addresses publication of JS709 that defines “low halogen”, see “Brominated Flame Retardants”, “Polyvinyl Chloride (PVC) and PVC Copolymers” and “Chlorinated flame retardants”.</p> <p>B) Changes due list of SVHC 19.12.2012: substances added (54 rows on the table), SVHC 20.6.2013 substances added (6 rows), Description of Aluminosilicate Refractory Ceramic Fibres and Zirconia Aluminosilicate Refractory Ceramic Fibres updated according to latest version.</p> <p>C) No changes to cust.A and cust.B requirements.</p>
2.0	15.5.2014	<p>A) Changes due to JIG–101: no changes.</p> <p>B) Changes due list of SVHC 16.12.2013: substances added (7 rows on the table)</p> <p>C) No changes to cust.A and cust.B requirements.</p>
2.1	27.11.2014	<p>A) JIG–101 Ed.4.1 is old and will be replaced by IEC 62474 (<a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a>). Updates due to IEC 62474:</p> <ul style="list-style-type: none"> <li>- Added: Brominated flame retardants (other than PBBs, PBDEs, or HBCDD) : 0.09 mass% total bromine content in laminate</li> <li>- Added: Chlorinated Flame Retardants (CFR): 0.09 mass% total chlorine content in laminate</li> <li>- Added: Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA</li> <li>- Minor change to descriptions and threshold limit of Perchlorates</li> <li>- Change the threshold of Lead/Lead Compounds (0.01 mass%, products designed or intended primarily for children 12).</li> <li>- Minor change to threshold of Mercury / Mercury compounds (Batteries): add "Intentionally added or ..."</li> <li>- Added: thresholds to rubber or plastic parts that come into direct, prolonged or repetitive skin or oral cavity contact, CAS No: 50-32-8, 192-97-2, 56-55-3, 218-01-9, 205-99-2, 205-82-3, 207-08-9 and 53-70-3.</li> </ul> <p>B) Changes due list of SVHC 16.6.2014: substances added (4 rows on the table)</p> <p>C) No changes to cust.A and cust.B requirements.</p>
2.2	23.3.2015	<p>A) IEC 62474 (<a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a>). No changes.</p> <p>B) Changes due list of SVHC 17.12.2014: substances added (6 rows on the table), 1 updated (DEHP: Reason for inclusion updated).</p> <p>C) No changes to cust.A and cust.B requirements.</p>
2.3	6.8.2015	<p>A) IEC 62474 (<a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a>), updates 8.4. and 15.7.2015: updated CAS No: 3846-71-7, Alkanes, C10-13, Hexabromocyclododecane (HBCDD), Added: CAS No: 68921-45-9 and Canadian regulation for mercury: SOR/2014-254 (0.0005 mass% of total Hg in homogenous material of battery).</p> <p>B) Changes due list of SVHC 15.6.2015: substances added (2 rows on the table). Added threshold level to HBCDD (IEC 62474: Intentionally added or 0.1 mass%).</p> <p>C) No changes to cust.A and cust.B requirements.</p>
2.4	12.1.2016	<p>A) IEC 62474 (<a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a>), updates 2015-12-17: Hexavalent Chromium / Hexavalent Chromium Compounds, “BasicDescription” added to “Additional information...”column. Threshold levels 0.1 mass% in homogenous material – added to SVHC list for: Bis(2-ethylhexyl)phthalate (DEHP), Dibutyl phthalate (DBP), Benzyl butyl phthalate (BBP). Diisobutyl phthalate (DIBP).</p> <p>B) Changes due list of SVHC 17.12.2015: substances added (5 rows on the table). Threshold levels for 4 materials listed in A).</p> <p>C) No changes to cust.A and cust.B requirements.</p>
2.5	23.8.2016	<p>A) IEC 62474 (<a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a>). Reporting level added for: Lead 0.03 mass% of surface coating material - Cables/cords with thermoset or thermoplastic coatings. 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) Intentionally added (SVHC-list page 7). Minor additions: clarifications to some substance names.</p> <p>B) Changes due list of SVHC 20.6.2016: one substance added (EC Number: 200-028-5).</p> <p>C) No changes to cust.A and cust.B requirements.</p>



2.6	16.1.2017	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ). 12.1. 2017 added: Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts (CAS No: 335-76-2, 3830-45-3 and 3108-42-7) and 4,4'-isopropylidenediphenol (CAS No: 80-05-7). All these are also added 12.1.2017 to SVHC list, so these were added only to SVHC-list. B) Changes due list of SVHC 12.1.2017: 4 substance added. C) No changes to cust.A and cust.B requirements.
2.7	27.7.2017	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ). No changes. B) Changes due list of SVHC 7.7.2017: one substance added (PFHxS). C) No changes to cust.A and cust.B requirements.
2.8	31.8.2018	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ). September 3. 2017 minor update to Nickel group (already in this document), added: Perfluorohexane-1-sulphonic acid and its salts. (see 7.7.2017 SVHC list). Jan. 15. 2018 details added to Boric Acid (already in SVHC list), threshold level of HBCDD updated (see SVHC list), details added: Zirconia Aluminosilicate Refractory Ceramic Fibres (already in SVHC list), details added: Silicic acid (H <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> ) (already in SVHC list), details added: Hexahydromethylphthalic anhydride (already in SVHC list), details added: 4-Nonylphenol, branched and linear (already in SVHC list), Benzo[a]anthracene / Benz[a]anthracene (see also 15.1.2018 SVHC list), Chrysen / Chrysene (see also 15.1.2018 SVHC list), details added: CAS No: 68515-51-5, 68648-93-1 (see 15.6.2015 SVHC list), details added: CAS No: 80-05-7 (see 12.1.2017 SVHC list), added: Cas No: 21041-95-2 and Dechlorane Plus™ (see 15.1. 2018 SVHC list), details added: PCB, July 8. 2018 added: DHCP, Lead and CAS No: 191-24-2, 556-67-2, 541-02-6, 540-97-6, 12008-41-2 and 61788-32-7 (see 27.6. 2018 SVHC list)  REACH = 191 substances B) Changes due list of SVHC 15.1.2018: 7 substances added and 27.6.2018: 10 substances added. Due to IEC 62474 threshold level of HBCDD updated (Intentionally added or 0.01 mass % of article) C) No changes to cust.A and cust.B requirements.
2.81		A) no changes B) Added: make more clear the location and naming of REACH list of SVHC. C) No changes to cust.A and cust.B requirements.
2.9	28.6.2019	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ), added 5 substances, see 15.1.2019 SVHC list (excluding CAS no.: 15087-24-8). REACH = 197 substances B) Changes due list of SVHC 15.1.2019: 6 substance added: CAS no.: 129-00-0, 85-01-8, (206-44-0; 93951-69-0), 207-08-9, 6807-17-6 and 15087-24-8. C) No changes to cust.A and cust.B requirements.
3.0	14.8.2019	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ), DMF, PBB, PBDE, Phthalates, Polychlorinated naphthalenes : Description updated, threshold limit more clear. Description on DBT simplified, CAS numbers added. Substance name updated: added short name (BaP) to CAS No: 50-32-8, (BeP) to CAS No: 192-97-2, (BaA) to CAS No: 56-55-3, (BbFA) to CAS No: 205-99-2, (BjFA) to CAS no: 205-82-3, (BkFA) to CAS No: 207-08-9, (DBaHA) to CAS No: 53-70-3. Substances removed: CAS No: 115-96-8 (see SVHC list, 2 of 12), New substance (TNPP) included, see SVHC list, 12 of 12), New substances added: "Perfluorooctanoic acid and its salts" and "PFOA-related substances", see "IEC 62474 date 21.7.2019". REACH = 201 substances B) Changes due list of SVHC 16.7.2019: 4 substance added: CAS no.: 98-54-4 and 110-49-6, and TNPP and 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid. C) No changes to cust.A and cust.B requirements.
3.1	5.2.2020	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ) updated 16.1.2020: (CAS no: 218-01-9, 56-55-3) substances aligned to REACH (were already only in SVHC table at this document.) REACH = 205 substances Names more detailed: CAS: 50-32-8, Description of PCBs updated. Substances added (see SVHC list) CAS no: 71850-09-4 and PFBS. B) Changes due list of SVHC 16.1.2020: 4 substance added. Due to IEC 62474 description "substance is a polycyclic aromatic hydrocarbon (PAH)" added to CAS no: 191-24-2 C) No changes to cust.A and cust.B requirements.
3.2	31.3.2021	A) IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ) updated: References to JIG 101 removed and replaced by IEC 62474. Updated 25.6.2020 and 19.1.2021: description updated for "PFOA-related substances" and "Perfluorooctanoic acid and its salts", added: "Halogenated Flame Retardants". Updated descriptions for: Cadmium, Hexavalent Chromium, Lead and Mercury. See SVHC-list for CAS No: 22673-19-4, 143-24-8 and "Dioctyltin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs....." REACH = 211 substances B) Changes due list of SVHC 25.6.2020 and 19.1.2021: 4+2 = 6 substances added. C) No changes to cust.A and cust.B requirements.
3.3	16.4.2021	All chapters: Content added, chapter names created. Chapter 1.0: pagination updated. Chapters 2.0, 3.0 and 5.0: no changes Chapter 4.0: New chapter added "Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)" Chapter 6.0: Revision history for 3.3 added
3.4	28.1.2022	Chapter 2.0, IEC 62474 ( <a href="http://std.iec.ch/iec62474">http://std.iec.ch/iec62474</a> ) updated: 28.4.2021, 16.7.2021 and 17.1.2022: CAS: 1163-19-5 and 68937-41-7 USA regulation TSCA (already on chapter 4.0), Cobalt/Cobalt compounds in batteries, Neodymium/Neodymium compounds in HDDs, CAS: 77-40-7 and MCCP and "orthoboric acid, sodium salt" and "4-Nonylphenol, branched and linear" and CAS: 119-47-1 (already on chapter 5.0). Perfluorooctanoic acid and its salts and PFOA: description "Korea POPs Control Act" included REACH = 223 substances Chapter 5.0, changes of SVHC 8.7.2021 and 17.1.2022: 8+4 = 12 substances added.