

## [Appendix: SOSHIN ELECTRIC Group List of Substances with Environmental Controls]

### Revision History

April 1, 2016

- Main changes:
- (1) The following five substances were revised from controlled substances to banned substances  
Hexabromocyclododecane (HBCDD), bis phthalate (DEHP), dibutyl phthalate (DBP), butyl benzyl phthalate (BBP), diisobutyl phthalate (DIBP)
  - (2) Removed the exclusion for dibutyltin compounds (DBT)
  - (3) Removed prohibited substances for battery use

September 1, 2018

- Main changes:
- (1) Reviewed threshold levels to match IEC62474 and chemSHERPA
  - (2) Added phthalates (DEHP, DBP, BBP, DIBP) to prohibited substances for use as packaging materials

October 30, 2021

- Main changes:
- (1) Added substances No. 31–39 to the list of prohibited substances
  - (2) Standardized the threshold level for prohibited use as an expression in ppm
  - (3) Changed the regulatory content concerning the threshold for prohibited use from “intentionally added” to “prohibited for use”
  - (4) Corrected the link destination for No. 20 ozone-depleting substances
  - (5) Added “tin equivalent” to the threshold level for prohibited use for No. 6–8
  - (6) Added 6 (b) to the excluded items in accordance with the RoHS Directive
  - (7) Moved the Revision History to the beginning of the text
  - (8) Changed prohibited from intentionally adding for use to prohibited for use

December 17, 2021

- Main changes:
- (1) Prohibited substance No. 37 D3 was deleted from the low molecular weight cyclic siloxane and changed to D4, D5, D6.
  - (2) Deleted 107-45-0 error in prohibited substance No. 37 CAS.

April 1, 2023

Main changes: (1) Added the following four substances to the list of prohibited substances:

- 1) 1,6,7,8,9,14,15,16,17,17,18,18-dodecachloropentacyclo  
[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™)
- 2) 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)phenol  
UV-328
- 3) Perfluorohexanesulfonic acid
- 4) Perfluorocarboxylic acids (C<sub>9</sub>-C<sub>14</sub> PFCAs), and their salts and related substances
- 5) Added request for use of the chemSHERPA tool to confirm compliance with the laws and regulations in each country
- 6) Appendix (1)-1: Added a link to the revised List of RoHS Exemption Codes.

(2) Added the following six substances to the list of controlled substances:

- 1) Medium-chain chlorinated paraffins (MCCPs) with degree of chlorination > 45% by weight in the range C<sub>14</sub> to C<sub>17</sub>
- 2) 1,2,5,6-Tetrabromocyclooctane
- 3) Tetrachloroethylene

- 4) Pigment violet 29 (PV29), 3,4,9,10-perylene tetracarboxylic diimide
  - 5) Methylene chloride (dichloromethane)
  - 6) Added the REACH SVHC address
- (3) Added the following one substance to the list of prohibited substances for packaging materials
- 1) Mineral oil aromatic hydrocarbons (MOAHs) containing 1–7 aromatic rings

(1) Substances prohibited for use (chemical substances prohibited for use in parts and secondary materials)

No.	Substance	Threshold level for prohibited use (1000ppm = 0.1 weight %) (100ppm = 0.01 weight %)	Application
1	Cadmium/cadmium compound	100 ppm in homogeneous medium	Coating material, ink, conductive paste, plastic (rubber, film, cable covering, adhesive, adhesive tape, insulating tape), surface treatment (plating, coating), glass frit, glass paste, metals containing zinc (brass, hot dip galvanizing)
		20 ppm in homogeneous medium	Solder (purchased independently)
	Excluded items: Items indicated in the chemSHERPA tool as exempted from laws and regulations in each country		
2	Chromium(VI) compounds	1000 ppm in homogeneous medium	Plating film, coating material, ink, glass paste
3	Lead/lead compounds	100 ppm in homogeneous medium	Coating material, ink, plastic (including rubber, film, cable covering, adhesive, adhesive tape, insulating tape)
		500 ppm in homogeneous medium	Solder (purchased independently)
	1000 ppm in homogeneous medium	Applications other than the above (external component terminals, surface treatment materials for lead wires, etc.)	
Excluded items: Items indicated in the chemSHERPA tool as exempted from laws and regulations in each country			
4	Mercury/mercury compounds	Prohibited for use	All applications (fluorescent light, electrical contact materials, pigment, anti-corrosives, switches, efficient light emitter, antibacterial treatment)
		1000 ppm in homogeneous medium	
Excluded items: Appended table (1)-1: Materials corresponding to the excluded items prescribed in the RoHS Directive			
5	Tributyltin oxide (TBTO)	Prohibited for use	Preservatives, anti-fungal agent, coating material, pigment, stain-resistant agent, refrigerant, foaming agent, fire retardant, detergent
6	Tri-substituted organostannic compounds	Prohibited for use	Stabilizer, antioxidant, antibacterial agent, antifoulant, preservatives, anti-fungal agent, coating material, pigment, dyes, stain-resistant agent
	Tri-substituted organostannic compounds is a tin compound with three organic substitutions, and is used to refer to compounds such as tributyltin compounds (TBT) and triphenyltin compounds (TPT).		
7	Dibutyltin compounds (DBT)	1000 ppm of the mass of the component in tin	PVC stabilizer, curing catalyst for silicon resin and urethane resin
8	Diocetyl tin compounds (DOT)	1000 ppm of the mass of the component in tin	PVC stabilizer, curing catalyst for silicon resin and urethane resin
	<p>Substances prohibited for use at the above threshold levels</p> <p>(1) Textile and leather products intended to come into contact with the skin</p> <p>(2) Child care products</p> <p>(3) 2 Vulcanizing molding kit for components at room temperature (RTV-2 sealant molding kit)</p> <p>Note: Metal converted values applied for concentrations within the target range.</p> <p>Exclusions apply to applications independently defined by the Company.</p>		

No.	Substance	Threshold level for prohibited use (1000ppm = 0.1 weight %) (100ppm = 0.01 weight %)	Application
9	Polybrominated biphenyls (PBBs)	1000 ppm of homogeneous medium	Flame retardant
10	Polybrominated diphenyl ethers (PBDEs)	Prohibited for use 1000 ppm of homogeneous medium	Flame retardant
11	Polychlorinated biphenyls (PCBs) and specified substitute substances	Prohibited for use	Insulating oil, lubricant, electrical insulation material, solvent, electrolyte, fire retardant
12	Polychlorinated terphenyls (PCTs)	Prohibited for use 50 ppm of homogeneous medium	Insulating oil, lubricant, electrical insulation material, solvent, electrolyte, fire retardant
13	Polychlorinated naphthalenes (PCNs) (Three or more chlorine atoms)	Prohibited for use	Lubricant, coating material, stabilizer (electrical properties, flame resistance, water resistance), insulating material, flame retardant, etc.
14	Short chain chlorinated paraffins (SCCPs) (C10-C13)	Prohibited for use	PVC plasticizing agent, flame retardant, etc.
15	Perfluorooctane sulfonate (PFOS)	Prohibited for use	Photolithography, photographic coating material, hydraulic fluid, metal plating, detergent, fire retardant, paper coating material
	Excluded items (1) Photoresistant or anti-mirror coating for photolithographic processes. (2) Photographic coating material applied to film, documents, or printing plates.		
16	Perfluorooctanoic acid (PFOA), and its salts and esters	Prohibited for use	Photolithography, photographic coating material, hydraulic fluid, metal plating, detergent, fire retardant, paper coating material
	Applicable substances: Perfluorooctanoic acid (PFOA), and its salts and esters listed in Appended Table (1)-2		
17	Fluorinated greenhouse gasses (PFC, SF6, HFC)	Prohibited for use (Exclusions apply to applications independently defined by the Company)	Refrigerant, spraying material, fire retardant, detergent, insulation material, caustic gas, etc.
18	Asbestos	Prohibited for use	Insulating material, filling material, abrasive, dye, heat insulating material, etc.
19	Azo dye and pigment producing certain aromatic amines	30 ppm of the finished textile/leather product	Pigment, dye, colorant, etc.
	Applicable substances: Azo dye and pigment producing certain aromatic amines listed in Appended Table (1)-3		
20	Ozone-depleting substances	Prohibited for use	Refrigerant, foaming agent, fire retardant, detergent
	For more information on applicable substances, see Appendices A, B, C, and E on P17 to 22 of the Montreal Protocol on Substances that Deplete the Ozone Layer. <a href="http://www.env.go.jp/earth/ozone/montreal_protocol.html">http://www.env.go.jp/earth/ozone/montreal_protocol.html</a> (Ministry of the Environment website) <a href="http://ozone.unep.org/">http://ozone.unep.org/</a> (UNEP Ozone Secretariat website)		

No.	Substance	Threshold level for prohibited use (1000ppm = 0.1 weight %) (100ppm = 0.01 weight %)	Application
21	2-(2H-1,2,3-benzotriazol-2-yl)-4,6-di-tert-butylphenol (UV-320)	Prohibited for use	Adhesive, coating material, printing ink, plastic, ink ribbon, putty, corking, seal filler (ultraviolet absorbing agent), etc.
22	Dimethyl fumarate	0.1 ppm of the mass of the component	Desiccant, anti-fungal agent, etc.
23	Polyvinylchloride (PVC) and PVC compounds	Prohibited for use	Following applications excluding applications classified for controlled substances <ul style="list-style-type: none"> <li>• Heat-shrinkable tubing (excluding tubing for batteries)</li> <li>• Insulation plate, decorative plate and labels (excluding battery materials)</li> <li>• Bands for bundling accessories, connection cords, etc.</li> <li>• Flexible flat cables (FFC)</li> </ul>
24	Beryllium oxide	1000 ppm of the mass of the component	All applications
25	Hexabromocyclododecane	Prohibited for use 100 ppm of the mass of the component	Flame retardant, hardening accelerator, etc.
26	Bis(2-ethylhexyl) phthalate (DEHP)	1000 ppm of homogeneous medium	Plasticizer, etc.
27	Dibutyl phthalate (DBP)	1000 ppm of homogeneous medium	Plasticizer, etc.
28	Butyl benzyl phthalate (BBP)	1000 ppm of homogeneous medium	Plasticizer, etc.
29	Diisobutyl phthalate (DIBP)	1000 ppm of homogeneous medium	Plasticizer, etc.
30	Polycyclic aromatic hydrocarbon (PAH)	1 ppm in plastic or rubber components	Rubber and plastic components that come into direct contact with the skin and mouth for prolonged periods or repeatedly.
	Polycyclic aromatic hydrocarbon (PAH) listed in the appended table of applicable substances (1)-4		
31	Decabromodiphenyl ether (DecaBDE) CAS: 1163-19-5	Prohibited for use	Flame retardant, etc.
32	Phenol, isopropylated phosphate (3:1) PIP(3:1) CAS: 68937-41-7	Prohibited for use	Hydraulic fluid, lubricating oil, lubricant, grease, coating for construction works, adhesive, sealant, plasticizer for plastic products, flame retardant, anti-wear additives, or anti-compressive additives, etc.
33	2,4,6 Tris (tert-butyl) phenol 2,4,6-TTBP CAS: 732-26-3	Prohibited for use	Fuel and fuel-related additives
34	Hexachloro-1,3-butadiene (HCBD) CAS: 87-68-3	Prohibited for use	Mite repellent, etc.
35	Pentachlorothiophenol CAS: 133-49-3	Prohibited for use	Flexibility additives for rubber products
36	Red phosphorus (not treated with a moisture-proof coating) CAS:7723-14-0	Prohibited for use	Flame retardant components in resins
37	Low-molecular-weight cyclic siloxane (D4 to D6) CAS: 556-67-2, etc.	1000 ppm of homogeneous medium	Silicone resin, etc.
38	Hexachlorobenzene (HCB) CAS: 118-74-1	Prohibited for use	Pigment, dye, etc.
39	Prohibited from February 22, 2022 Perfluoro carboxylic acids (PFCAs) and related substances containing 9 to 14 carbon atoms in chain CAS:375-95-1,335-76-2,2058-94-8,307-55-1,72629-94-8, 376-06-7, etc.	<ul style="list-style-type: none"> <li>• 0.000025% by weight (25 ppb) of C9-C14 PFCAs in total in molded items and mixtures</li> <li>• 0.000026% by weight (260 ppb) of C9-C14 PFCA-related substances in molded items and mixtures</li> </ul>	Water repellent, oil repellent, fire extinguishant, photoresist, coating materials, etc.

40	1,6,7,8,9,14,15,16,17,17,18,18-dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca-7,15-diene (“Dechlorane Plus”™) *1	Prohibited for use Prohibition of delivery of parts or materials containing these substances after June 30, 2023. The date for start of delivery prohibition may change depending on the enforcement status of laws and regulations.	Flame retardants for adhesives, sealants, and binders
41	2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)phenol UV-328	Prohibited for use	Prevention of degradation of plastic and rubber products due to ultraviolet rays, etc.
42	Perfluorohexanesulfonic acid (PFHxS), its salts and PFHxS-related substances	Prohibited for use	Firefighting foams, metal plating, textiles, leather goods and interior decorations, polishing and cleansing agents, coatings, materials for impregnation and reinforcement (for protection against moisture, fungi, etc.), electronics and semiconductor manufacturing, etc.
43	Perfluorocarboxylic acids (C <sub>9</sub> -C <sub>14</sub> PFCAs) and their salts and related substances	Prohibited for use. C <sub>9-14</sub> PFCAs and their salts must be less than 0.025 ppm. C <sub>9-14</sub> PFCA-related substances must be less than 0.26 ppm in total.	Additives, paint leveling agents, aqueous film-forming foaming agents, surfactants, semiconductor photoresist films, fluoropolymers (PFA, PTFE, PVDF, etc.), perfluoroelastomers (FEPM, FFKM/FFKM, etc.)

Request for use of the chemSHERPA tool for confirmation of compliance with the laws and regulations in each country:

Please download chemSHERPA-AI for molded articles or chemSHERPA-CI for chemicals from the chemSHERPA download page at the URL below to confirm compliance with the laws and regulations of each country.

[Data preparation support \(tools, etc.\) — chemSHERPA by JAMP](#)

Appended table (1)-1: Excluded items prescribed in the RoHS Directive

Below is a list of exempted applications that are expected to be affected by the most recent review of usage applications and expiry dates. The European Commission has published its List of RoHS Exemption Codes at the following URL. Please review the latest version and take any appropriate measures.

[https://ec.europa.eu/environment/topics/waste-and-recycling/rohs-directive/implementation-rohs-directive\\_en](https://ec.europa.eu/environment/topics/waste-and-recycling/rohs-directive/implementation-rohs-directive_en)

No.	Substance	RoHS exemption code	Exempted applications and expiry dates
1	Lead	6a	Lead as an alloying element in steel for machining purposes and in galvanized copper containing up to 0.35 % lead by weight Expiry date for RoHS-exempt items: Undetermined
2	Lead	6b	Lead as an alloying element in aluminum containing up to 0.4 % lead by weight Expiry date for RoHS-exempt items: Undetermined
3	Lead	6c	Copper alloy containing up to 4% lead by weight Expiry date for RoHS-exempt items: Undetermined
4	Lead	7a	Lead in high melting temperature-type solders Expiry date for RoHS-exempt items: Undetermined
5	Lead	7c-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound Expiry date for RoHS-exempt items: Undetermined

Appended Table (1)-2: Perfluorooctanoic acid (PFOA), and its salts and esters

Applicable substances	CAS No.
Perfluorooctanoic acid (PFOA)	335-67-1
Ammonium perfluorooctanoate (PFOA)	3825-26-1
Sodium salt of perfluorooctanoic acid	335-95-5
Potassium salt of perfluorooctanoic acid	2395-00-8
Silver salt of perfluorooctanoic acid	335-93-3
Perfluorooctanoic acid fluoride	335-66-0
Perfluorooctanoic acid methyl	376-27-2
Perfluorooctanoic acid ethyl	3108-24-5

Appended table (1)-3: Some aromatic amines formed from the breakdown of one or more azo groups

Applicable substances	CAS No.
4-aminoazobenzene	60-09-3
o-anisidine	90-04-0
2-Naphthylamine	91-59-8
3, 3'-dichlorobenzidine	91-94-1
4-aminobiphenyl	92-67-1
Benzidine	92-87-5
o-toluidine	95-53-4
4-chloro-2-methylaniline	95-69-2
2,4-toluenediamine	95-80-7
o-aminoazotoluene	97-56-3
5-nitro-o-toluidine	99-55-8
3,3'-dichloro-4,4'-diaminodiphenyl methane	101-14-4
4,4'-methylenedianiline	101-77-9
4,4'-diaminodiphenyl ether c	101-80-4
p-chloroaniline	106-47-8
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7
2-methoxy-5-methylaniline	120-71-8
2,4,5-trimethylaniline	137-17-7
4,4'-diaminodiphenyl sulfide	139-65-1
2,4-diaminoanisole	615-05-4
4,4'-diamino-3,3'-dimethyldiphenylmethane	838-88-0

Note: Substances subject to controls in these guidelines are “azo dyes and pigments producing certain aromatic amines.” This refers to azo compounds which produce amines listed in Appended Table (1)-3 from the reductive decomposition of the azo group.

Further, the 30 ppm threshold specified in the scope of application does not apply to azo dyes and pigments, but to amines corresponding to the Appended Table (1)-3.

Appended Table (1)-4: Polycyclic aromatic hydrocarbon (PAH)

Applicable substances	CAS No.
Benzo[a]pyrene (BaP)	50-32-8
Benzo[e]pyrene (BeP)	192-97-2
Benzo[a]anthracene (BaA)	56-55-3
Chrysene (CHR)	218-01-9
Benzo[b]fluoranthene (BbFA)	205-99-2
Benzo[j]fluoranthene (BjFA)	205-82-3
Benzo[k]fluoranthene (BkFA)	207-08-9
Dibenzo[a,h]anthracene (DBAhA)	53-70-3

(2) Controlled substances (chemical substances whose use, and amount of use, in parts and secondary materials must be understood)

No.	Substance	Threshold level	Application
1	Nickel and its compounds	When used in products intended to be in prolonged contact with the skin	Stainless steel, plating, applications involving prolonged contact with the skin
2	Polyvinylchloride (PVC)	0.1% in weight of homogeneous medium (1000 ppm)	Following applications, excluding applications of substances prohibited for use Resin material, wire coating material, insulating material, chemical-resistant properties, transparent sheathing material, coating material, ink, coating, resin binding agents used in adhesives (for binders)
3	Brominated flame retardants (excluding PBBs, PBDEs, and HBCDDs)	See the following scope of application	Flame retardant
			Scope of application: Satisfy either of the following items (1) Contain 1,000 ppm of the total amount of bromine in the plastic material (2) Contain 900 ppm of the total amount of bromine in the laminate of the laminate printed wiring board
4	Chlorinated flame retardants (CFR)	(1) 0.1% in weight (1000 ppm) of the total amount of chlorine in the plastic material	Flame retardant
		(1) 0.09% in weight (900 ppm) of the total amount of chlorine in the laminate printed wiring board	Flame retardant
5	Diisononyl phthalate (DINP) Diisodecyl phthalate (DIDP) Di-n-octyl phthalate (DNOP) Di-n-hexyl phthalate (DnHP)	0.1% in weight of homogeneous medium (1000 ppm)	Plasticizer, dye, pigment, coating, ink, adhesive
6	Formaldehyde	See the following scope of application	Insecticide, anti-corrosive in wood, etc., adhesive
			Scope of application: Satisfy either of the following items (1) Contain over 0.0075% in weight (75 ppm) in textile fiber
7	Perchlorate	0.006 ppm of product	Coin cell battery
8	4,4'-Isopropylidenediphenol (bisphenol A)	0.1% in weight (1000 ppm) of the product in its intended use or in its molded form	Resin raw materials, plasticizer
9	Radioactive substances	Intended use	Optical characteristics (thorium), measuring equipment, gages, detection equipment, etc.
10	Applicable to the Substances of Very High Concern (SVHC) group defined in the REACH Regulations.	0.1% in weight of homogeneous medium (1000 ppm)	Latest SVHC



11	Medium-chain chlorinated paraffins (MCCPs) with degree of chlorination > 45% by weight in the range C <sub>14</sub> to C <sub>17</sub>	Intended use	Flame retardant resin raw materials, etc.
12	1,2,5,6-Tetrabromocyclooctane (TBCO)	Intended use	Textiles, additives for paints and plastics, etc.
13	Tetrachloroethylene	Intended use	Plating, rubber, paints, etc.
14	Pigment Violet 29 (PV29) 3,4,9,10-perylene tetracarboxylic diimide	Intended use	Automotive paints, coatings, industrial carpeting, inks used in plastic and rubber products, commercial printing, consumer-use watercolors and art paints
15	Methylene chloride (dichloromethane)	Intended use	Cleaners, adhesives, and solvents for metal devices
16	Most recent REACH SVHC	0.1% by weight (1000 ppm) for molded product	ECHA (europa.eu) Substances of Very High Concern candidate list

### (3) Prohibited substances for packaging use

(Applies to packaging materials used for products delivered to, and purchased by the SOSHIN ELECTRIC

Group)

No.	Substance	Threshold level	Application
1	Cadmium/cadmium compounds, Chromium(VI) compounds, Lead/lead compounds, Mercury/mercury compounds	0.01% in weight (100 ppm) in a homogeneous medium in its intended use, or as a total of the four substances listed on the left	Pigment, coating material, PVC stabilizer
2	Arsenic compound	When used as a wood preservative	Wood preservative
3	Halogen compounds and halogenated resins	Intended use	Flame retardant, adhesive
	<p>Examples of applicable chemical substances: Bromine compounds, chlorine compounds, polyvinylchloride (PVC), fluorinated resin, fluorine compounds, etc.</p> <p>Exemptions: Parts and materials used as packaging materials whose primary function is not for packaging  A primary function that is not for packaging refers to applications other than use for protecting or wrapping the product (cases, cushioning, etc.).</p> <p>Example: Halogen compounds and fluorine additives used as adhesive in hologram labels and printing ink, etc.  However, this exemption shall not apply to halogen compounds listed as prohibited substances in (1)  Substances prohibited for use.</p>		

4	Controlled phthalates Bis(2-ethylhexyl) phthalate (DEHP) Dibutyl phthalate (DBP) Butyl benzyl phthalate (BBP) Diisobutyl phthalate (DIBP)	Intended use	Plasticizer
5	Cobalt chloride	When included as an indicator in desiccants	Humidity indicator card (HIC), moisture indicator in silica gel
6	Prohibited from February 22, 2022 Perfluoro carboxylic acids (PFCAs) and related substances containing 9 to 14 carbon atoms in chain CAS:375-95-1,335-76-2,2058-94-8,307-55-1,72629-94-8, 376-06-7, etc.	<ul style="list-style-type: none"> <li>• 0.000025% by weight (25 ppb) of C9-C14 PFCAs in total in molded items and mixtures</li> <li>• 0.000026% by weight (260 ppb) of C9-C14 PFCA-related substances in molded items and mixtures</li> </ul>	Water repellent, oil repellent, fire extinguishant, photoresist, coating materials, etc.
7	Prohibited for use from Jan 1, 2023 Mineral oil aromatic hydrocarbons (MOAHs) containing 1–7 aromatic rings	Mass concentration in ink exceeding 0.1%.	Use of mineral oils in packaging materials, unsolicited advertising flyers (direct mail) and catalogs