

Amano Corporation
List of Regulated Chemicals
- Raw Materials and Parts -

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 **AMANO Corporation**

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1. Introduction

In this Regulated Chemicals List, the SVHC of IEC 62474 and the EU ' REACH regulations are used among the regulations and industrial standards referred in chemSHERPA as the information transfer scheme designed to the international standards of IEC 62474 for the electrical and electronics industry to facilitate smooth information transfer throughout the supply chain. We would request that our suppliers ' cooperate in understanding the purpose of the Regulated Chemicals List.

2. Definition and Description of Terms

Chemicals

Chemicals are chemical elements or their compounds (e.g., lead [element], lead oxide [compound], polyvinyl chloride [PVC] [compound]). The CAS Registration Number (CAS RN or CAS No.) of the American Chemical Society or European Chemical No. (EC No.) are assigned to all chemical elements and almost all compounds.

CAS No. (CASRN)

CASRN is a registration number registered in the chemicals registration system of CAS (the Chemical Abstract Service) to identify the specific chemical. Because the CAS number is uniquely assigned to a single chemical, it allows precise identification of the specific chemical.

IEC 62474

IEC 62474 is the international standard (substance list of the electrical and electronics industry) published by the International Electrotechnical Commission (IEC) in March 2012 to promote the creation and spread of the effective information transfer system by standardizing the chemicals to be surveyed and the survey form

chemSHERPA

The chemSHERPA information transfer scheme is for the chemicals contained in products and was formulated by the Ministry of Economy, Trade and Industry of Japan following publication of the international standard IEC 62474.

Control Rank

Chemicals on the controlled chemicals list are divided into two categories: prohibited substances and controlled substances, and they are collectively called the control rank.

Prohibited Substances

The substances and their use are prohibited immediately or after a specified date.

Controlled Substances

The substances and avoidance or reduction of use are considered necessary following the regulations and environmental trends after examining the status of use. When a substance falls within an applicable prohibited substance category, its use is to be prohibited.

Materials

The materials consist of one or more chemicals. For example, an alloy is a material, but the alloy may consist of many different chemicals.

Contained

Contained is the state where chemicals are the constituent components of materials, parts, and/or products. When the materials, parts, and/or products contain chemicals (impurities) that are naturally contained or residual substances that remain after common industrial refining processes (impurities, residual solvents, unreacted monomers, etc.), such substances are also considered contained.

Reportable Application

This is the specific purpose of the application and should be reported.

Note: This application is defined in the scope of the regulations or the industrial standards. Examples are batteries, fabrics, and lumber.

Threshold

This is the maximum allowable content or concentration of the chemical contained in the raw materials and parts. In the case of a composite material part that contains multiple numbers of materials, the concentration is not a percentage of the entire part as a denominator but a percentage in the homogeneous material that contains the subject substance. The threshold is expressed by the weight ratio (parts per million: PPM), for example, 1,000 ppm is 0.1% as a percentage.

Homogeneous Material

Homogeneous material cannot be mechanically decomposed into different materials.

Note 1. The word "homogeneous" means the state of composition that is entirely homogeneous.

Examples of homogeneous material are respective types of plastics, ceramics, glass, metals, plating, paper, unpackaged substrate, resins, and coating materials.

Note 2. Mechanical decomposition means the separation of substances from the material by mechanical means, such as the removal of bolt/screws, cutting, destruction, crushing, grinding, or polishing processes.

Intentional Addition

This means the intentional use of substances in the building or forming of the product or part when continuous inclusion of such substances in the final product or part is desirable to provide a specific characteristic, appearance, or quality. Metal plating is an example of intentional addition. Other examples of addition that are not intentional are the impurities contained in natural resources, reaction residue of the process, contamination, or the use of recycled materials.

3. Principal Environmental Regulations Used as Criteria in Selection of Control Rank

Table 1. Principal Environmental Regulations

Control Rank	Applied Regulations	Summary
Prohibited Substances	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture (Chemical Substances Control Act)	<p>[Class I Specified Chemical]</p> <p>Examination and regulation system of chemicals focusing principally on their characteristics, such as degradability, accumulation rate, and chronic toxicity, is established. Substances determined to have low degradability, high accumulation rates, and chronic toxicity are designated as Class I Specified Chemical Substances under the Chemical Substance Control Act and their manufacture and importation are virtually banned. The Order for the Enforcement of the Chemical Substance Control Act includes a list of Class I Specified Chemical Substances specified in Article 2, Paragraph 2.</p>
	Industrial Safety and Health Act	<p>A large number of chemicals are hazardous to the human body, and exposure to them by workers during the production processes or handling can frequently cause malignant tumors or acute intoxication. Accordingly, such chemicals are controlled by banning the manufacturer, depending on the degree of hazard. The Cabinet Order, the Order for Enforcement of the Industrial Safety and Health Act (Cabinet Order 318) under Articles 16 and 55 specifies the substances where manufacture is prohibited.</p>
	Act on the Protection of the Ozone Layer Through the Control of Specified Substances and Other Measures (Ozone Layer Protection Act)	<p>Substances whose production volume is restricted by the Montreal Protocol are specified as Specified Substances, and the production volume of such Specified Substances is controlled according to the schedule specified in the Protocol. The following substances have been totally abolished according to the schedule for developed nations:</p> <ul style="list-style-type: none"> · Totally abolished CFCs, halon, carbon tetrachloride , 1.1.1 trichloroethane , HBFCs , bromochloromethane, and methyl bromide · Totally abolished on and after January 1, 2020 HCFCs

Control Rank	Applied Regulations	Summary
Prohibited Substances	Directive on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2 Directive)	<p>Basic concept of the RoHS Directive [2011/65/EU] is to, in principle, prohibit the use of lead, mercury, cadmium, hexavalent chromium heavy metal, brominated flame retardants, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic equipment. The Directive commonly called the RoHS2 [(EU) 2015/863] was published in June 2015, which added four phthalic esters as controlled substances.</p> <p>The following 10 substances are controlled.</p> <ul style="list-style-type: none"> · Lead · Mercury · Cadmium · Hexavalent chromium heavy metal · Brominated flame retardants: Polybrominated biphenyls (PBB) · Brominated flame retardants: Polybrominated diphenyl ethers (PBDE) · Benzyl butan-1-yl phthalate (BBP) Another Name: Phthalic acid benzyl butyl ester (BBP) ----Applicable on and after July 22, 2019 · Dibutyl Phthalate (DBP) Another Name: Phthalic acid dibutyl ester (DBP) ----Applicable on and after July 22, 2019 · Phthalic acid bis(2-ethylhexyl) (DEHP) ---- Applicable on and after July 22, 2019 · Diisobutyl phthalate (DIBP) Another Name: Phthalic acid diisobutyl ester (DIBP)---- Applicable on and after July 22, 2019
	POPs Regulation	<p>POPs are substances that have low degradability, high accumulation rates, long-range mobility, and hazards (to human health and ecosystem). As global pollution by POPs was feared, the Stockholm Convention on Persistent Organic Pollutants (POPs Convention) was established in May 2004.</p> <p>The POPs Regulation [(EC) No. 850/2004] is the regulation to enforce EU's commitment under the Stockholm Convention. Manufacturing, marketing, and use of the substances listed in Annex A of this regulation are prohibited.</p>

Control Rank	Applied Regulations	Summary
Prohibited Substances	REACH Regulation	<p>The REACH Regulation is EU's regulation that took effect on June 1, 2007, and provides a comprehensive system of registration, evaluation, authorization, and restriction of chemicals. Manufacturers and importers who market substances, preparations, and articles in the EU market are obliged to provide the information on evaluation and registration of the substance, registration, and notification of the substances in the article and substances contained in the article under certain conditions. Substances that required to provide information on the contents of the article are called Substances of Very High Concern (SVHC), which are published step by step. Furthermore, substances of very high concern are subject to authorization [Annex XIV] or restriction [Annex XVII].</p> <ul style="list-style-type: none"> · Substances of Very High Concern (also called SVHC) <p>The substances designated by European Commission or the member state from the substances that have carcinogenicity, mutagenicity, genotoxicity, low degradability, bioaccumulation rate, and toxicity.</p> <ul style="list-style-type: none"> · Annex XIV Substances are called substances subject to authorization designated as the extremely high hazardous substance from the Substances of Very High Concern (HVHC). Their use is permitted when authorized or approved as an exception. · Annex XVII Substances are called restricted substances whose manufacture, import or use are restricted.
	Toxic Substance Control Act (US) (TSCA)	<p>The purpose is to regulate chemicals that are harmful to human health and the environment as substances taking effect on January 1, 1977, and amended in 2016. Section 6 provides prohibition of manufacture and use or restriction on quantity and application.</p>
Controlled Substances	REACH Regulation	<p>Substances of Very High Concern (also called as SVHC)</p> <p>The substances designated by the European Commission or the member state from the substances that have carcinogenicity, mutagenicity, genotoxicity, low degradability, bioaccumulation rate, and toxicity.</p> <p>However, a substance is excluded when it falls within the scope of a prohibited substance.</p>
	California Proposition 65 under case law (US)	<p>The Act took effect in November 1986 in the state of California for the following purposes to prevent exposure of chemicals that are hazardous to the human body.</p> <ul style="list-style-type: none"> · Environmental protection to prevent the mixture of hazardous chemicals to drinking water sources. · To prevent exposure of hazardous chemicals to the human body

4. List of Controlled Chemicals

4.1 Prohibited Substances

The international standard IEC 62474 provides that the substance whose manufacture and import of the substance is prohibited or regulated under domestic or international regulations, such as the Chemical Substances Control Act or RoHS2 Directive are prohibited substances.

Refer to Table 4: RoHS Exemption List for exemptions from the substances exempted from the list of substances of the RoHS Directive.

Representative CAS numbers are shown for *1 affixed substances or substance groups. See the IEC 62474 Standard for details.

Timing and application of *2 affixed substances are subject to change depending on the direction of the Toxic Substance Control Act (TSCA) (US).

Table 2. Prohibited Substances

Chemicals	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID
Asbestos *1	1332-21-4 77536-66-4	Immediately	All	Intentionally added	REACH Annex X VII Industrial Safety and Health Act Toxic Substance Control Act (US) (TSCA)	00003
Azocolourants and Azodyes which form certain aromatic amines *1	101-14-4 101-77-9	Immediately	Textiles and Leather	0.003% by weight of the finished textile/leather product	REACH Annex X VII	00004
Cadmium/Cadmium compounds *1	7440-43-9 1306-19-0 1306-23-6	Immediately	All, except batteries	0.01 mass% of total Cd in homogenous material	RoHS Directive REACH Annex X VII	00010
	10108-64-2 7790-79-6	Immediately	Batteries	0.001% by weight of battery	Battery Directive 2006/66/EC	00011
	10124-36-4 31119-53-6 10325-94-7 21041-95-2 513-78-0	Immediately	Video display devices, with a screen size of greater than four inches	0.01 mass% of total Cd in homogenous material	California RoHS	00166
Chromium (VI) Compounds *1	24613-89-6 7758-97-6 7789-06-2	Immediately	All	0.1 mass% of total Cr+6 in homogenous material	RoHS Directive	00012
	12656-85-8 1344-37-2	Immediately	Video display devices, with a screen size of greater than four inches	0.1 mass% of total Cr+6 in homogenous material	California RoHS	00167
Dibutyltin (DBT) compounds*1	818-08-6 1067-33-0	Immediately	All	0.1 mass% of tin in the part	REACH Annex X VII	00014

Chemicals	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID
Diocetyl tin (DOT) compounds * 1	870-08-6 3648-18-8	Immediately	(a) textile and leather articles intended to come into contact with the skin, (b) childcare articles, (c) two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)	0.1 mass% of tin in the part	REACH Annex XV II	00015
Fluorinated Greenhouse Gases (PFC, SF6, HFC) * 1	75-73-0 76-16-4	Immediately	All	Intentionally Added	EU No.842/2006 EU No.517/2014	00018
Hexabromocyclododecane (HBCDD) * 1	25637-99-4 134237-50-6 134237-51-7 134237-52-8 3194-55-6	Immediately	All	Intentionally added or 0.01 mass% of article	POPs Regulation	00020
Lead/Lead Compounds * 1	7439-92-1	Immediately	All, except batteries	0.1 mass% of total Pb in homogenous material	RoHS Directive	00021
	7446-14-2 598-63-0 1319-46-6 6080-56-4 12069-00-0	Immediately	Consumer products designed or intended primarily for children 12 years of age or younger	0.01 mass%	[USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314	00022
	1309-60-0 1314-41-6 1314-87-0 7446-27-7 12060-00-3	Immediately	Paint and similar surface coatings of toys and other articles intended for use by children	0.009 mass% of surface coating material	[USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314	00023
	15739-80-7 12202-17-4 1072-35-1	Immediately	Cables/cords with thermoset or thermoplastic coatings	0.03 mass% of surface coating material	California Proposition 65	00024
	7758-97-6 12656-85-8 1344-37-2	Immediately	Batteries	0.004 mass% of battery	Battery Directive 2006/66/EC	00025
		Immediately	Video display devices, with a screen size of greater than four inches	0.1 mass% of total Pb in homogenous material	California RoHS	00168

Chemicals	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID
Mercury/Mercury Compounds * 1	7439-97-6	Immediately	All, except batteries	Intentionally Added or 0.1 mass% of total Hg in homogenous material	RoHS Directive REACH Annex X VII	00029
	33631-63-9 7487-94-7 7783-35-9	Immediately	Batteries	Intentionally added or 0.0001 mass% of battery	Battery Directive 2006/66/EC	00030
	10045-94-0 21908-53-2 1344-48-5	Immediately	Batteries	0.0005 mass% of total Hg in homogenous material	[Canada] Products containing Mercury Regulations SOR/2014-254	00132
		Immediately	Video display devices, with a screen size of greater than four inches	0.1 mass% of total Hg in homogenous material	California RoHS	00169
Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others) * 1	75-69-4 75-71-8 75-72-9 354-56-3	Immediately	All	Intentionally Added	[Japan] Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures	00032

Chemicals	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
Perfluorooctane sulfonates (PFOS)	306975-62-2 2991-51-7	Immediately	Textiles or other coated materials.	Intentionally added or 1 microgram/m ² of coated material	POPs Regulation [Canada] Products containing Mercury Regulations SOR/2014-254 Japanese Chemical Substances Control Act	00124
		Immediately	All except textiles or other coated materials.	Intentionally added or 0.1 mass% of the part (as the sum of PFOS)	POPs Regulation [Canada] Products containing Mercury Regulations SOR/2014-254 Japanese Chemical Substances Control Act	00125
Phthalates, Selected Group 1 (DEHP, DBP, BBP, DIBP)	85-68-7 84-74-2 117-81-7	Immediately	Children's toy or child care article	0.1 mass% as the sum of the phthalate concentrations in plasticized material	REACH Annex XVII	00036
Phthalates, Selected Group 2 (DIDP, DINP, DNOP)	26761-40-0 68515-49-1 28553-12-0 68515-48-0 117-84-0	Immediately	Children's toy or child care article that can be placed in a child's mouth	0.1 mass% as the sum of the phthalate concentrations in plasticized material	REACH Annex XVII	00037
Polybrominated biphenyls (PBB) * 1	59536-65-1 92-86-4 2052-07-5 2113-57-7 92-66-0	Immediately	All	0.1 mass% in homogeneous material	RoHS Directive	00044
Polybrominated diphenyl ethers (PBDE) * 1	101-55-3 2050-47-7 49690-94-0 40088-47-9 36483-60-0 68928-80-3	Immediately	All	0.1 mass% in homogeneous material or Intentionally added	RoHS Directive	00045
		Immediately	All	Intentionally added or 0.1 mass% of article	Toxic Substance Control Act (US) (TSCA) Japanese Chemical Substances Control Act	00064
Polychlorinated Biphenyls (PCBs) and specific substitutes	1336-36-3 76253-60-6 81161-70-8 99688-47-8	Immediately	All	Intentionally added	Japanese Chemical Substances Control Act POPs Regulation Toxic Substance Control Act (US) (TSCA)	00046
Polychlorinated Terphenyls (PCTs))	61788-33-8 70776-03-3	Immediately	All	0.005 mass% in material	REACH Annex XVII	00047
Polychlorinated naphthalenes * 1	90-13-1 91-58-7 1825-30-5 1825-31-6 2050-69-3 2050-73-9	Immediately	All	Intentionally added	Japanese Chemical Substances Control Act POPs Regulation	00048

Substance	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) * 1	85535-84-8 108171-26-2 71011-12-6 61788-76-9	Immediately	All	Intentionally added or 0.1 mass% of article	POPs Regulation	00052
Tri-substituted organostannic compounds * 1	1803-12-9 379-52-2 900-95-8 639-58-7 76-87-9	Immediately	All	Intentionally added or 0.1 mass% of tin in the part	REACH Annex X VII	00055
Nickel/Nickel Compounds * 1	7440-02-0 1313-99-1 7718-54-9 7791-20-0 10101-97-0	Immediately	All, where prolonged skin contact is expected	Intentionally Added	REACH Annex X VII	00031
Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	Immediately	All	0.1 mass% in homogenous material	RoHS Directive	00038
Polycyclic-aromatic hydrocarbons (PAH) Benzo[e]pyrene (BeP) Benzo[j]fluoranthene (BjFA) Benzo[b]fluoranthene (BbFA) Benzo[k]fluoranthene (BkFA) Chrysen (CHR) Benzo[a]pyrene (BaP) Dibenzo[a,h]anthracene (DBAhA) Benzo[a]anthracene (BaA)	192-97-2 205-82-3 205-99-2 207-08-9 218-01-9 50-32-8 53-70-3 56-55-3	Immediately	Rubber or plastic parts that come into direct, prolonged or repetitive skin or oral cavity contact except those for toys or childcare articles	0.0001 mass% of the plastic or rubber part	REACH Annex X VII	00109 00113 00112 00114 00111 00108 00115 00110
		Immediately	Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	0.00005 mass% of the plastic or rubber part	REACH Annex X VII	00117 00121 00120 00122 00119 00116 00123 00118
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	Immediately	All	Intentionally added or 0.1 mass% of article	Japanese Chemical Substances Control Act	00035

Chemicals	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
Bis(tributyltin) oxide (TBTO)	56-35-9	Immediately	All	Intentionally added or 0.1 mass% of article (1000ppm)	Japanese Chemical Substances Control Act	00054
Dimethylfumarate (DMF)	624-49-7	Immediately	All	0.00001 mass% of the part	REACH Annex XVII	00016
Diisobutyl phthalate	84-69-5	Immediately	All	0.1 mass% in homogeneous material	RoHS Directive	00041
Dibutyl phthalate (DBP)	84-74-2	Immediately	All	0.1 mass% in homogeneous material	RoHS Directive	00039
Benzyl butyl phthalate (BBP)	85-68-7	Immediately	All	0.1 mass% in homogeneous material	RoHS Directive	00040
Perfluorooctanoic acid and its salts	335-67-1 3825-26-1 335-95-5 2395-00-8 335-93-3	Immediately	All	Intentionally added or 0.0000025 mass% of PFOA including its salts in article or mixture	POPs Regulation Japanese Chemical Substances Control Act	00160
PFOA-related compounds	335-67-1 3825-26-1 335-95-5 2395-00-8 335-93-3 335-66-0 376-27-2 3108-24-5 678-39-7	Immediately	All	Intentionally added or 0.0001 mass% of one or a combination of PFOA-related compounds, in article or mixture	POPs Regulation	00161
Halogenated Flame Retardants * 1	101-55-3 103426-92-2 103426-93-3 103426-94-4 103426-95-5 103426-96-6 103426-97-7 108171-26-2	Immediately	enclosure and stand of electronic displays, including televisions, monitors and digital signage displays with a screen area greater than 100 square centimetres	0.1 mass% of halogen content in homogeneous material Intentionally added	(EU)2019/2021	00171
Red Phosphorus	7723-14-0	Immediately	Flame retardants for resin materials used in the electrical insulation parts of electrical/electronic components. (Except when red phosphorus is coated with water-resistant coating or its safety has been confirmed.)	Intentionally added	-	-

Substance	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
Phenol, Isopropylated Phosphate (3:1) (PIP (3:1)) * 2	68937-41-7	Prohibited after 1 May 2024 (Set six months before expiry date 31 October 2024)	All (Excludes the following Adhesive and sealant Applications(Until Jan. 5, 2025) Lubricating oil and grease applications Plastic recycled from PIP (3:1)-containing plastic,)	Intentionally added	Toxic Substance Control Act (US) (TSCA)	00174
C9-C14 PFCAs and their salts	2058-94-8 21049-39-8 307-55-1 3108-42-7 335-76-2 375-95-1 376-06-7 3830-45-3 4149-60-4 72629-94-8	Immediately	All (Excludes the following) C9-C14 PFCAs, their salts and C9-C14 PFCA related substances, where they are present in a substance to be used as a transported isolated intermediate, provided that the conditions are met for the manufacturing of fluorochemicals with a perfluoro carbon chain length equal to or shorter than 6 atoms.	0.000025 mass% for the sum of C9-C14 PFCAs and their salts in Article or Mixture	REACH Annex XVIII	00182
C9-C14 PFCA-related substances * 1	16486-96-7 1765-48-6 18024-09-4 307-71-1 3658-63-7 3793-74-6 68015-87-2 115592-83-1 125328-29-2 129783-45-5 144031-01-6 15811-52-6 16083-87-7 17741-60-5 1895-26-7 2043-54-1		(i) Textiles for oil- and water-repellency for the protection of workers from dangerous liquids that comprise risks to their health and safety; (ii) the manufacture of polytetrafluoroethylene (PTFE) and polyvinylidene fluoride (PVDF) for the production of: - high performance, corrosion resistant gas filter membranes, water filter membranes and membranes for medical textiles; - industrial waste heat exchanger equipment; - industrial sealants capable of preventing leakage of volatile organic compounds and PM 2,5 particulates (Prohibited after 4 January 2023.)	0.000026 mass% for the sum of C9-C14 PFCA-related substances in Article or Mixture		

Substance	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
C9-C14 PFCAs and their salts	2058-94-8	Immediately	Exclusion continued (i)photolithography or etch processes in semiconductor manufacturing (ii) photographic coatings applied to films (iii) invasive and implantable medical devices (Prohibited after 5 January 2025)	0.0000025 mass% for the sum of C9-C14 PFCAs and their salts in Article or Mixture	REACH Annex XVIII	00182
	21049-39-8		The can coating for pressurised metered-dose inhalers (Prohibited after 26 February 2028)			
	307-55-1		(a)semiconductors on their own;			
	3108-42-7		(b)semiconductors incorporated in semi-finished and finished electronic equipment (Prohibited after 1 July 2023)			
C9-C14 PFCA-related substances * 1	335-76-2	Immediately	Semiconductors used in spare or replacement parts for finished electronic equipment placed on the market before 31 December 2023. (Prohibited after 1 July 2030.)	0.000026 mass% for the sum of C9-C14 PFCA-related substances in Article or Mixture	REACH Annex XVIII	00183
	375-95-1		C9-C14 PFCAs in fluoroplastics and fluoroelastomers that contain perfluoroalkoxy groups.			
	376-06-7		The sum of C9-C14 PFCAs equal to or below 1000 ppb where these are present in PTFE micro powders produced by ionising irradiation or by thermal degradation, as well as in mixtures and articles for industrial and professional uses containing PTFE micro powders.			
	3830-45-3					
	4149-60-4					
	72629-94-8					
	16486-96-7					
	1765-48-6					
	18024-09-4					
	307-71-1					
	3658-63-7					
	3793-74-6					
	68015-87-2					

Chemicals	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
Formaldehyde	50-00-0	Immediately	(a) clothing or related accessories, (b) textiles other than clothing which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing, (c) footwear	0.0075 mass% in homogenous material	REACH Annex XVIII	00019
Pentachlorophenol and its salts and esters * 1	2879-60-9 19745-69-8 87-86-5 131-52-2 2917-32-0	Immediately	All	Intentionally added or 0.0005 mass% of PCP including its salts and esters in article or mixture	Japanese Chemical Substances Control Act POPs Regulation	00201

4.2 Controlled Substances

These substances are excluded from Controlled Substances when falling within the scope of Prohibited Substances.

Examples: Compounds of lead, compounds of mercury, azo dye/pigment, compounds of hexavalent chromium, compounds of dibutyltin (DBT), benzyl butan-1-yl phthalate (BBP), and other substances.

Representative CAS numbers are shown for * 1 affixed substances or substance groups.

See the IEC 62474 Standard for details.

For the semiannual addition of Substances of Very High Concern (or SVHC) of the REACH Regulation, such substances will not be added in the following Table 3 but are to be added as Controlled Substances when listed in the chemSHERPA Controlled Substance Reference List.

Table 3. Controlled Substances

Substance	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
REACH Regulation Substances of Very High Concern (also called as SVHC) However, those falling under the applicable scope of prohibited substances in Table 2 are excluded.	chemSHERPA reference list of controlled substances. See sheet name [LR06_SVHC].	-	All	0.1 mass% (1000ppm)	REACH REGULATION	
Brominated flame retardants (other than PBBs, PBDEs, or HBCDD) * 1	69882-11-7 58965-66-5 37853-59-1	-	Printed wiring board laminate	0.09 mass% total bromine content in laminate	(STANDARD) IPC-4101, IEC61249-2-21	00008
	79-94-7 30496-13-0 40039-93-8	-	Plastic materials except printed wiring board laminates	0.1 mass% of bromine in plastic materials	(Standard) JEDEC JS709	00009
Perchlorates * 1	7791-03-9 7790-98-9 13465-95-7 13637-76-8 10034-81-8	-	All	6×10^{-7} mass% of battery or product part	[USA California] Perchlorate Contamination Prevention Act of 2003 AB 826	00033
Radioactive substances * 1	7440-61-1 10043-92-2 14596-10-2 7440-29-1 10045-97-3 10098-97-2	-	All	Intentionally added	EU-D 96/29/Euratom	00049

Substance	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID
Chlorinated Flame Retardants (CFR) * 1	38051-10-4 13674-84-5 66108-37-0	-	Plastic materials except printed wiring board laminates	0.1 mass% chlorine in plastic materials	(Standard) JEDEC JS709	00062
		-	Printed Wiring Board (PWB) Laminates	0.09 mass% total chlorine content in laminate	(STANDARD) IPC-4101 , IEC61249-2-21	00063
Di-isodecyl phthalate (DIDP)	68515-49-1 26761-40-0	-	All	Intentionally added	California Proposition 65	00090
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	-	All	Intentionally added	California Proposition 65	00107
Beryllium Oxide	1304-56-9	-	All	0.1 mass%	(Guidance) EICTA, CECE D and EERA Joint Position : Guidance on implementing article 11 of Directive 2002/96(EC) concerning information for treatment facilities	00005
4,4'-isopropylidenediphenol	80-05-7	-	All	Intentionally added or 0.1 mass% of article	California Proposition 65 REACH REGULATION	00141
Formaldehyde	50-00-0	-	Textiles	0.0075 mass % of textile	[Austria] BCB I 1990/194: Formaldehyde Restriction §2, 12/2/1990; [Lithuania] Hygiene Norm HN 96:2000 (Hygiene Norms and Regulations)	00049
Di-n-hexyl phthalate (DnHP)	84-75-3	-	All	Intentionally added or 0.1 mass% of article	California Proposition 65 REACH REGULATION	00091
Cobalt/Cobalt compounds	-	-	batteries used in computer servers and online data storage products	Intentionally Added	2009/125/EC (EU) 2021/341 (EU) 2019/424	00175
Neodymium/Neodymium compounds	-	-	HDDs used in computer servers and online data storage products	Intentionally Added	2009/125/EC (EU) 2021/341 (EU) 2019/424	00176
Per- and poly-fluoroalkyl substances (PFAS) * 1	335-67-1 93062-53-4 93776-00-2 93776-12-6 93776-13-7 93776-15-9 93857-44-4	-	All	Intentionally added	[USA Maine] Maine Public Law, Chapter 447 (LD 1503, 2021) PFAS regulation	00193

Substance	CAS No.	Date of ban on delivery	Reportable Application	Threshold	Main Environmental Regulations	IEC62474 DSL ID.
Diisooctyl phthalate (DIOP)	27554-26-3	-	All	0.1 mass% of article or mixture	[France] Anti-Waste and Circular Economy Law 2020-105	00203
Colecalciferol	67-97-0	-	All	0.1 mass% of article or mixture	[France] Anti-Waste and Circular Economy Law 2020-105	00204

4.3 Exemption from RoHS

For the substance to which ‘Extended Review’ is indicated on the expiration date column of the RoHS Directive, review by the EU is continuing, which means a new expiration date may be established or exempted use may be restricted. Even when the application for extension is rejected, one year grace period applies. Under the proposed recommendations, the expiration date will be extended by five years (July 21, 2021) or seven years (July 21, 2023) depending on the particulars of the exemption.

The expiration date for Amano is set a half year before the expiration date. ‘Immediately’ for the expiration date for Amano is not exempted because the expiration date of the RoHS has expired.

Table 4. RoHS Exemption List

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Cadmium and its compounds	8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	1 to 7 and 10 Expires on 1 January 2012	Immediately 2 July 2011.
	8(b)	Cadmium and its compounds in electrical contacts	1 to 7 and 10 Expires on 29 February 2020.	Immediately (30 August 2019.)
			8 and 9 other than in vitro and industrial Requested for renewal (Expires on 21 July 2021.)	---
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	---
			9 industrial Requested for renewal (Expires on 21 July 2024.)	---
			11 other EEE Requested for renewal (Expires on 21 July 2024.)	---
8(b)-I	Cadmium and its compounds in electrical contacts used in: —circuit breakers, —thermal sensing controls, —thermal motor protectors (excluding hermetic thermal motor protectors), —AC switches rated at: —6 A and more at 250 V AC and more, or — 12 A and more at 125 V AC and more, —DC switches rated at 20 A and more at 18 V DC and more, and —switches for use at voltage supply frequency 200 Hz.	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-	

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Cadmium and its compounds	13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	1 to 7 and 10 Expires on 5 July 2018	Immediately (6 Jan 2018)
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	-
			9 industrial , 11 other EEE Requested for renewal (Expires on 21 July 2024.)	-
			Sub-categories of categories 8 and 9 other than those listed above Requested for renewal (Expires on 21 July 2021.)	-
	13(b)-II	Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-
	13(b)-III	Cadmium and lead in glazes used for reflectance standards	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-
	21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	1 to 7 and 10 Expires on 29 February 2020.	Immediately (30 August 2019.)
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial , 11 other EEE Expires on 21 July 2024.	Immediately (22 January 2024.)
	21(a)	Cadmium when used in colour printed glass to provide filtering functions, used as a component in lighting applications installed in displays and control panels of EEE	Applies to categories 1 to 7 and 10 except applications covered by entry 21(b) or entry 39 Expires on 21 July 2021.	Immediately (22 January 2021.)
	21(b)	Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	Applies to categories 1 to 7 and 10 except applications covered by entry 21(a) or 39 Expires on 21 July 2021.	Immediately (22 January 2021.)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Cadmium and its compounds	30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	1 to 7 and 10 Expires on 21 July 2016.	Immediately (22 January 2016.)
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial Expires on 21 July 2024.	Immediately (22 January 2024.)
			11 other EEE Expires on 21 July 2024.	Immediately (22 January 2024.)
	38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	1 to 7 and 10 Expires on 21 July 2016.	Immediately (22 January 2016.)
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial Expires on 21 July 2024.	Immediately (22 January 2024.)
			11 other EEE Expires on 21 July 2024.	Immediately (22 January 2024.)
	39	Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm ² of light-emitting area) for use in solid state illumination or display systems	1 to 11 Expires on 20 November 2018.	Immediately (21 May 2018.)
	39(a)	Cadmium selenide in downshifting cadmium-based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0,2 µg Cd per mm ² of display screen area)	1 to 11 Requested for renewal (Expires on 31 October 2019.)	-
	40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	1 to 7 and 10 Expires on 31 December 2013.	Immediately (1 July 2013.)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Cadmium and its compounds	46	<p>Cadmium and lead in plastic profiles containing mixtures produced from polyvinyl chloride waste (hereinafter referred to as recovered rigid PVC), used for electrical and electronic windows and doors, where the concentration in the recovered rigid PVC material does not exceed 0,1 % cadmium by weight and 1,5 % lead by weight.</p> <p>From 28 May 2026, rigid PVC recovered from electrical and electronic windows and doors shall only be used for the production of new articles under the categories specified in entry 63, points 18(a) to (d) of Annex XVII to Regulation (EC) No 1907/2006.</p> <p>Suppliers of PVC articles containing recovered rigid PVC with a concentration of lead equal to or greater than 0,1 % by weight of the PVC material shall ensure, before placing those articles on the market, that they are visibly, legibly and indelibly marked with the statement: 'Contains 0,1 % lead.' Where the marking cannot be provided on the article due to the nature of the article, it shall be on the packaging of the article.</p> <p>Suppliers of PVC articles containing recovered rigid PVC shall submit to national enforcement authorities upon request documentary evidence to substantiate the claims on the recovered origin of the PVC in those articles. Certificates issued by schemes to provide proof of traceability and recycled content, such as those developed according to EN 15343:2007 or equivalent recognised standards, may be used to substantiate such claims for PVC articles produced in the Union. Claims made on the recovered origin of the PVC in imported articles shall be accompanied by a certificate that provides equivalent proof of traceability and recycled content, issued by an independent third party.</p>	11 other EEE Expires on 28 May 2028.	29 November 2027.

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
hexavalent chromium compounds	9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	1 to 7 and 10 Expires on 5 March 2020.	Immediately (6 September 2019.)
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial , 11 Expires on 21 July 2024.	Immediately (22 January 2024.)
	9(a)-I	Up to 0,75% hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators (including minibars) designed to operate fully or partly with electrical heater, having an average utilised power input < 75 W at constant running conditions	1 to 7 and 10 Expires on 5 March 2021.	Immediately (6 September 2020.)
	9(a)-II	Up to 0,75% hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators: —designed to operate fully or partly with electrical heater, having an average utilised power input 75 W at constant running conditions; —designed to fully operate with non-electrical heater.	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-
9(a)-	Up to 0,7 % hexavalent chromium by weight, used as an anticorrosion agent in the working fluid of the carbon steel sealed circuit of gas absorption heat pumps for space and water heating	1 Expires on 31 December 2026.	1 July 2026.	
45	Lead diazide, lead styphnate, lead dipicramate, orange lead (lead tetroxide), lead dioxide in electric and electronic initiators of explosives for civil (professional) use and barium chromate in long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	11 other EEE Expires on 20 April 2026.	21 October 2025.	

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	5(a)	Lead in glass of cathode ray tubes	1 to 7 and 10 Expires on 21 July 2016.	Immediately (22 January 2016.)
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial Expires on 21 July 2024.	Immediately (22 January 2024.)
			11 other EEE Expires on 21 July 2024.	Immediately (22 January 2024.)
	5(b)	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	1 to 7 and 10 Requested for renewal (Expires on 21 July 2016.)	-
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial Expires on 21 July 2024.	Immediately (22 January 2024.)
			11 other EEE Expires on 21 July 2024.	Immediately (22 January 2024.)
	6(a)	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	1 to 7 and 10 Expires on 30 June 2019.	Immediately (1 January 2019.)
			8 and 9 other than in vitro and industrial Requested for renewal (Expires on 21 July 2021.)	-
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	-
			9 industrial Requested for renewal (Expires on 21 July 2024.)	-
			11 other EEE Requested for renewal (Expires on 21 July 2024.)	-

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	6(a)-I	Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0,2 % lead by weight	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-
	6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	1 to 7 and 10 Expires on 30 June 2019.	Immediately (1 January 2019.)
			8 and 9 other than in vitro and industrial Requested for renewal (Expires on 21 July 2021.)	-
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	-
			9 industrial Requested for renewal (Expires on 21 July 2024.)	-
			11 other EEE Requested for renewal (Expires on 21 July 2024.)	-
	6(b)-I	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-
	6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight	1 to 7 and 10 Requested for renewal (Expires on 18 May 2021.)	-
	6(c)	Copper alloy containing up to 4 % lead by weight	1 to 7 and 10 Requested for renewal (Expires on 21 July 2021.)	-
			8 and 9 other than in vitro and industrial Requested for renewal (Expires on 21 July 2021.)	-
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	-
			9 industrial Requested for renewal (Expires on 21 July 2024.)	-
			11 other EEE Requested for renewal (Expires on 21 July 2024.)	-

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	1 to 7 and 10(Excluding application of No.24) Requested for renewal (Expires on 21 July 2021.)	-
			8 and 9 other than in vitro and industrial Requested for renewal (Expires on 21 July 2021.)	-
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	-
			9 industrial Requested for renewal (Expires on 21 July 2024.)	-
			11 other EEE Requested for renewal (Expires on 21 July 2024.)	-
	7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	1 to 7 and 10 Expires on 21 July 2016.	Immediately (22 January 2016.)
			8 and 9 other than in vitro and industrial Expires on 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro Expires on 21 July 2023.	Immediately (22 January 2023.)
			9 industrial , 11 other EEE Expires on 21 July 2024.	Immediately (22 January 2024)
	7(c)-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	1 to 7 and 10 (Excluding application of No.34) Requested for renewal (Expires on 21 July 2021.)	-
			8 and 9 other than in vitro and industrial Requested for renewal (Expires on 21 July 2021.)	-
			8 in vitro Requested for renewal (Expires on 21 July 2023.)	-
			9 industrial Requested for renewal (Expires on 21 July 2024.)	-
			11 other EEE Requested for renewal (Expires on 21 July 2024.)	-

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
			8 and 9 other than in vitro and industrial Requested for renewal (21 July 2021.)	-
			8 in vitro Requested for renewal (21 July 2023.)	-
			9 industrial Requested for renewal (21 July 2024.)	-
			11 other EEE Requested for renewal (21 July 2024.)	-
	7(c)-	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	1 to 7 and 10 1 January 2013.	Immediately (2 July 2012)
	7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors which are part of integrated circuits or discrete semiconductors	1 to 7 and 10 21 July 2021.	Immediately (22 January 2021)
			8 and 9 other than in vitro and industrial 21 July 2021.	Immediately (22 January 2021)
			8 in vitro 21 July 2023.	Immediately (22 January 2023)
			9 industrial , 11 other EEE 21 July 2024.	Immediately (22 January 2024)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	1 to 7 and 10 Expires on 5 July 2018	Immediately (6 Jan 2018)
			8 (subcategory: In vitro diagnostic medical devices) 21 July 2023.	Immediately (22 January 2023)
			9(sub-category: Industrial monitoring and control equipment) and 11 other EEE 21 July 2024.	Immediately (22 January 2024)
			Sub-categories of categories 8 and 9 other than those listed above 21 July 2021.	Immediately (22 January 2021)
	9(b)-I	Lead in bearing shells and bushes for refrigerant-containing hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications	1 to 7 and 10 21 July 2019.	Immediately (22 January 2019)
	11(a)	Lead used in C-press compliant pin connector systems	1 to 7 and 10 24 September 2010. May be used in spare parts for EEE placed on the market before 24 September 2010	Immediately (25 March 2010)
	11(b)	Lead used in other than C-press compliant pin connector systems	1 to 7 and 10 1 January 2013. Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013	Immediately (2 July 2012)
12	Lead as a coating material for the thermal conduction module C-ring	1 to 7 and 10 24 September 2010. May be used in spare parts for EEE placed on the market before 24 September 2010	Immediately (25 March 2010)	
13(a)	Lead in white glasses used for optical applications	8 (subcategory: In vitro diagnostic medical devices) Requested for renewal (21 July 2023.)	-	
		9(sub-category: Industrial monitoring and control equipment) and 11 other EEE Requested for renewal (21 July 2024.)	-	
		All other categories and sub-categories not listed above Requested for renewal (21 July 2021.)	-	

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	1 to 7 and 10 Expires on 5 July 2018	Immediately (6 Jan 2018)
			8 (subcategory: In vitro diagnostic medical devices) Requested for renewal (21 July 2023.)	-
			9(sub-category:Industrial monitoring and control equipment) and 11 other EEE Requested for renewal (21 July 2024.)	-
			Sub-categories of categories 8 and 9 other than those listed above Requested for renewal (21 July 2021.)	-
	13(b)-I	Lead in ion coloured optical filter glass types	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
	13(b)-III	Cadmium and lead in glazes used for reflectance standards	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
	14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	1 to 7 and 10 1 January 2011. Expired on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011	Immediately (2 July 2010)
	15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	1 to 7 and 10 2020年2月29日	Immediately (30 August 2019)
			8 and 9 other than in vitro and industrial Requested for renewal (21 July 2021.)	-
			8 in vitro Requested for renewal (21 July 2023.)	-
9 industrial Requested for renewal (21 July 2024.)			-	
			11 other EEE Requested for renewal	-

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	15(a)	Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies: — a semiconductor technology node of 90 nm or larger; — a single die of 300 mm ² or larger in any semiconductor technology node; — stacked die packages with die of 300 mm ² or larger, or silicon interposers of 300 mm ² or larger.	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
	16	Lead in linear incandescent lamps with silicate coated tubes	1 to 7 and 10 2013年9月1日	Immediately (2 March 2013)
	17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	1 to 7 and 10 21 July 2016.	Immediately (22 Jan 2016.)
			8 and 9 other than in vitro and industrial 21 July 2021.	Immediately (22 January 2021.)
			8 in vitro 21 July 2023.	Immediately (22 January 2023.)
			9 industrial 21 July 2024.	Immediately (22 January 2024)
			11 other EEE 21 July 2024.	Immediately (22 January 2024).
	18(a)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)2MgSi2O7:Pb)	1 to 7 and 10 1 January 2011.	Immediately (2 July 2010)
	18(b)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi2O5:Pb)	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
			8 and 9 other than in vitro and industrial Requested for renewal	-
8 in vitro 21 July 2023.			Immediately (22 January 2023)	
9 industrial 21 July 2024.			Immediately (22 January, 2024)	
11 other EEE Requested for renewal (21 July 2024.)			-	

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	18(b)-1	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps containing phosphors such as BSP (BaSi2O5:Pb) when used in medical phototherapy equipment	Applies to categories 5 and 8, excluding applications covered by entry 34 of Annex IV, and expires on 21 July 2021. ----- 8 in vitro 21 July 2021.	- ----- Immediately (22 January 2021.)
	19	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact energy saving lamps (ESL)	1 to 7 and 10 1 June 2011	Immediately (2 December 2010)
	20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	1 to 7 and 10 1 June 2011	Immediately (2 December 2010)
	21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	1 to 7 and 10 2020年2月29日 ----- 8 and 9 other than in vitro and industrial 21 July 2021.	Immediately (30 August 2019) ----- Immediately (22 January 2021)
			8 in vitro 21 July 2023. -----	Immediately (22 January 2023)
			9 industrial , 11 other EEE 21 July 2024.	Immediately (22 January 2024)
21(c)	Lead in printing inks for the application of enamels on other than borosilicate glasses	1 to 7 and 10 21 July 2021.	Immediately (22 January 2021)	
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less	1 to 7 and 10 24 September 2010. May be used in spare parts for EEE placed on the market before 24 September 2010	Immediately (25 March 2010)	

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments Requested for renewal (21 July 2021.)	-
			8 in vitro Requested for renewal (21 July 2023.)	-
			9 industrial Requested for renewal (21 July 2024)	-
			11 other EEE 21 July 2024.	Immediately (22 January 2024)
	25	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	1 to 7 and 10 21 July 2016.	Immediately (22 January 2016)
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments 21 July 2021.	Immediately (22 January 2021)
			8 in vitro 21 July 2023.	Immediately (22 January 2023)
			9 industrial 21 July 2024.	Immediately (22 January 2024)
			11 other EEE 21 July 2024.	Immediately (22 January 2024)
	26	Lead oxide in the glass envelope of black light blue lamps	1 to 7 and 10 1 June 2011	Immediately (2 December 2010)
	27	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers	1 to 7 and 10 24 September 2010.	Immediately (25 March 2010)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC ()	1 to 7 and 10 Requested for renewal (21 July 2021.)	— 22 January, 2024
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments 21 July 2021.	Immediately (22 January 2021)
			8 in vitro 21 July 2023.	Immediately (22 January 2023)
			9 industrial 21 July 2024.	Immediately (22 January 2024)
			11 other EEE Requested for renewal	—
			1 to 7 and 10 21 July 2016.	Immediately (22 January, 2016)
	31	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, design or industrial lighting)	categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments 21 July 2021.	Immediately (22 January, 2021)
			8 in vitro 21 July 2023.	Immediately (22 January, 2023)
			9 industrial 21 July 2024.	Immediately (22 January 2024)
			11 other EEE 21 July 2024.	Immediately (22 January 2024)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments Requested for renewal (21 July 2021.)	-
			8 in vitro 21 July 2023.	Immediately (22 January 2023)
			9 industrial Requested for renewal (21 July 2024.)	-
			11 other EEE 21 July 2024.	Immediately (22 January 2024).
	33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	1 to 7 and 10 21 July 2016.	Immediately (22 January, 2016)
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments 21 July 2021.	Immediately (22 January, 2021)
			8 in vitro 21 July 2023.	Immediately (22 January, 2023)
			9 industrial 21 July 2024.	Immediately (22 January, 2024)
			11 other EEE 21 July 2024.	Immediately (22 January, 2024)
	34	Lead in cermet-based trimmer potentiometer elements	1 to 7 and 10 Requested for renewal (21 July 2021.)	-
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments Requested for renewal (21 July 2021.)	-
			8 in vitro Requested for renewal (21 July 2023.)	-
			9 industrial Requested for renewal (21 July 2024.)	-
			11 other EEE Requested for renewal (21 July 2024.)	-

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	1 to 7 and 10 21 July 2021.	Immediately (22 January 2021)
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments 21 July 2021.	Immediately (22 January 2021)
			8 in vitro 21 July 2023.	Immediately (22 January 2023)
			9 industrial , 11 other EEE 21 July 2024.	Immediately (22 January 2024)
	41	Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council	1 to 7 and 10 , 11 31 March 2022	Immediately (1 October 2021) 30 June 2018
			categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments 21 July 2021.	Immediately (22 January 2021)
			8 in vitro 21 July 2023.	Immediately (22 January 2023)
			9 industrial 21 July 2024.	Immediately (22 January 2024)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	42	Lead in bearings and bushes of diesel or gaseous fuel powered internal combustion engines applied in non-road professional use equipment: —with engine total displacement 15 litres; Or —with engine total displacement < 15 litres and the engine is designed to operate in applications where the time between signal to start and full load is required to be less than 10 seconds; or regular maintenance is typically performed in a harsh and dirty outdoor environment, such as mining, construction, and agriculture applications. Applies to category 11, excluding applications covered by entry 6(c) of this Annex. Expires on 21 July 2024. '	11 other EEE Requested for renewal (21 July 2024.)	- 22 January 2024.
	44	Lead in solder of sensors, actuators, and engine control units of combustion engines within the scope of Regulation (EU) 2016/1628 of the European Parliament and of the Council (*1), installed in equipment used at fixed positions while in operation which is designed for professionals, but also used by non-professional users	11 other EEE Requested for renewal (21 July 2024.)	- 22 January 2024.
	45	Lead diazide, lead styphnate, lead dipicramate, orange lead (lead tetroxide), lead dioxide in electric and electronic initiators of explosives for civil (professional) use and barium chromate in long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	(Applicable from 1 November 2021.) 11 other EEE 20 April 2026.	21 October 2025.

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Lead and its compounds	46	<p>Cadmium and lead in plastic profiles containing mixtures produced from polyvinyl chloride waste (hereinafter referred to as recovered rigid PVC), used for electrical and electronic windows and doors, where the concentration in the recovered rigid PVC material does not exceed 0,1 % cadmium by weight and 1,5 % lead by weight.</p> <p>From 28 May 2026, rigid PVC recovered from electrical and electronic windows and doors shall only be used for the production of new articles under the categories specified in entry 63, points 18(a) to (d) of Annex XVII to Regulation (EC) No 1907/2006.</p> <p>Suppliers of PVC articles containing recovered rigid PVC with a concentration of lead equal to or greater than 0,1 % by weight of the PVC material shall ensure, before placing those articles on the market, that they are visibly, legibly and indelibly marked with the statement: Contains 0,1 % lead.' Where the marking cannot be provided on the article due to the nature of the article, it shall be on the packaging of the article.</p> <p>Suppliers of PVC articles containing recovered rigid PVC shall submit to national enforcement authorities upon request documentary evidence to substantiate the claims on the recovered origin of the PVC in those articles. Certificates issued by schemes to provide proof of traceability and recycled content, such as those developed according to EN 15343:2007 or equivalent recognised standards, may be used to substantiate such claims for PVC articles produced in the Union. Claims made on the recovered origin of the PVC in imported articles shall be accompanied by a certificate that provides equivalent proof of traceability and recycled content, issued by an independent third party.</p>	11 other EEE Expires on 28 May 2028.	29 November 2027.

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Mercury/ Mercury Compounds	1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):		
	1(a)	For general lighting purposes < 30 W: 2,5 mg-	1-11. 24 February 2023.	Immediately (25 August 2022)
	1(b)	For general lighting purposes 30 W and < 50 W: 3,5 mg	1-11. 24 February 2023.	Immediately (25 August 2022)
	1(c)	For general lighting purposes 50 W and < 150 W: 5 mg	1-11. 24 February 2023.	Immediately (25 August 2022)
	1(d)	For general lighting purposes 150 W: 15 mg	1-11. 24 February 2023.	Immediately (25 August 2022)
	1(e)	For general lighting purposes with circular or square structural shape and tube diameter 17 mm: 5 mg	1-11. 24 February 2023.	Immediately (25 August 2022)
	1(f)-	For lamps designed to emit mainly light in the ultraviolet spectrum: 5 mg	1-11. 2027年2月24日	25 August 2026
	1(f)-	For special purposes: 5 mg	1-11. Expires on 24 February 2025	Immediately (25 August 2024)
	1(g)	For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg	1-11. 24 August 2023.	Immediately (25 February 2023.)
	2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):		
	2(a)(1)	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4 mg	1-11. 24 February 2023.	Immediately (25 August 2022)
	2(a)(2)	Tri-band phosphor with normal lifetime and a tube diameter 9 mm and 17 mm (e.g. T5): 3 mg ÷	1-11. 24 August 2023.	Immediately (25 February 2023.)
	2(a)(3)	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and 28 mm (e.g. T8): 3,5 mg	1-11. 24 August 2023.	Immediately (25 February 2023.)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Mercury/ Mercury Compounds	2(a)(4)	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 3,5 mg	1-11. 24 February 2023.	Immediately (25 August 2022)
	2(a)(5)	Tri-band phosphor with long lifetime (> 25 000 h): 5 mg.	1-11. 24 February 2023.	Immediately (25 August 2022)
	2(b)	Mercury in other fluorescent lamps not exceeding (per lamp):		
	2(b)(1)	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	1 to 7 and 10 13 Apr 2012.	Immediately (14 October 2011)
	2(b)(2)	Non-linear halophosphate lamps (all diameters): 15 mg	1-10. 13 Apr 2016.	Immediately (14 October 2015)
	2(b)(3)	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9): 15 mg	1-11. 15mg :24 February 2023. 10mg : 25 February 2023 ~ Expires on 24 February 2025	15mg:Immediately (25 August 2022) 10mg:Expires on 25 August 2024
	2(b)(4)-	Lamps for other general lighting and special purposes (e.g. induction lamps): 15 mg	1-11. Requested for renewal (Expires on 24 February 2025)	-
	2(b)(4)-	Lamps emitting mainly light in the ultraviolet spectrum: 15 mg	1-11. 24 February 2027.	25 August 2026
	2(b)(4)-	Emergency lamps: 15 mg	1-11. 24 February 2027.	25 August 2026
	3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes used in EEE placed on the market before 24 February 2022 not exceeding (per lamp)		
	3(a)	Short length (< 500 mm): 3,5 mg	1-11. Expires on 24 February 2025	Immediately (25 August 2024)
	3(b)	Medium length (> 500 mm and < 1 500 mm): 5 mg	1-11. Expires on 24 February 2025	Immediately (25 August 2024)
	3(c)	Medium length (> 500 mm and < 1 500 mm): 5 mg	1-11. Expires on 24 February 2025	Immediately (25 August 2024)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Mercury/ Mercury Compounds	4(a)	Mercury in other low pressure discharge lamps (per lamp): 15 mg	1-11. Expires on 24 February 2023	Immediately (25 August 2022)
	4(a)-	Mercury in low pressure non-phosphor coated discharge lamps, where the application requires the main range of the lamp-spectral output to be in the ultraviolet spectrum: up to 15 mg mercury may be used per lamp	1-11. Expires on 24 February 2027	25 August 2026
	4(b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 80: P 105 W: 16 mg may be used per burner	1-11. Expires on 24 February 2027	25 August 2026
	4(b)-I	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60: P 155 W: 30 mg may be used per burner	1-11. Expires on 24 February 2023	Immediately (25 August 2022)
	4(b)-II	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60: 155 W < P 405 W: 40 mg may be used per burner	1-11. 7-10 Expires on 24 February 2023	Immediately (25 August 2022)
	4(b)-III	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60: P > 405 W: 40 mg may be used per burner	1-11. Expires on 24 February 2023	Immediately (25 August 2022)
	4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):		
	4(c)-I	P 155 W: 20 mg	1-11. Expires on 24 February 2027	25 August 2026
	4(c)-II	155 W < P 405 W: 25 mg	1-11. Expires on 24 February 2027	25 August 2026
	4(c)-III	P > 405 W: 25 mg	1-11. Expires on 24 February 2027	25 August 2026

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Mercury/ Mercury Compounds	4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	1-10. Expires on 13 April 2015	Immediately (14 October 2014)
	4(e)	Mercury in metal halide lamps (MH)	1-11. Expires on 24 February 2027	25 August 2026
	4(f)-	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	1-11. Requested for renewal (Expires on 24 February 2025)	-
	4(f)-	Mercury in high pressure mercury vapour lamps used in projectors where an output 2000 lumen ANSI is required	1-11. Expires on 24 February 2027	25 August 2026
	4(f)-	Mercury in high pressure sodium vapour lamps used for horticulture lighting	1-11. Expires on 24 February 2027	25 August 2026
	4(f)-	Mercury in lamps emitting light in the ultraviolet spectrum	1-11. Expires on 24 February 2027	25 August 2026
	4(g)	Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair + 0,3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 °C; (b) 15 mg per electrode pair + 0,24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.	Expires on 31 December 2018	Immediately (1 July 2018)

Substance	Exemption No.	Exemption from RoHS	RoHS Expiration date	Amano Expiration date (Prohibited after)
Bis (2-ethylhexyl) phthalate (DEHP)	43	<p>Bis(2-ethylhexyl) phthalate in rubber components in engine systems, designed for use in equipment that is not intended solely for consumer use and provided that no plasticised material comes into contact with human mucous membranes or into prolonged contact with human skin and the concentration value of bis(2-ethylhexyl) phthalate does not exceed:</p> <p>(a) 30 % by weight of the rubber for</p> <ul style="list-style-type: none"> (i) gasket coatings; (ii) solid-rubber gaskets; or (iii) rubber components included in assemblies of at least three components using electrical, mechanical or hydraulic energy to do work, and attached to the engine. <p>(b) 10 % by weight of the rubber for rubber-containing components not referred to in point (a).</p> <p>For the purposes of this entry, prolonged contact with human skin 'means continuous contact of more than 10 minutes duration or intermittent contact over a period of 30 minutes, per day.</p>	Applies to category 11 and expires on 21 July 2024.	Immediately (22 January 2024).

5. List of Substances Used in the Manufacturing Process (including Isomers)

Use of the following substances in the manufacturing process is prohibited. The suppliers should implement voluntary activities to completely stop (abolish) the use of these substances.

Table 5.

List of Substances Used in the Manufacturing Process to be Surveyed (including Isomers)

Substance	chemical structural formula	control rank
CFC-11	CFCl_3	Prohibited Substances
CFC-12	CF_2Cl_2	
CFC-113	$\text{C}_2\text{F}_3\text{Cl}_3$	
CFC-114	$\text{C}_2\text{F}_4\text{Cl}_2$	
CFC-115	$\text{C}_2\text{F}_5\text{Cl}$	
Halon 1211	CF_2BrCl	
Halon 1301	CF_3Br	
Halon 2402	$\text{C}_2\text{F}_4\text{Br}_2$	
CFC-13	CF_3Cl	
CFC-111	C_2FCl_5	
CFC-112	$\text{C}_2\text{F}_2\text{Cl}_4$	
CFC-211	C_3FCl_7	
CFC-212	$\text{C}_3\text{F}_2\text{Cl}_6$	
CFC-213	$\text{C}_3\text{F}_3\text{Cl}_5$	
CFC-214	$\text{C}_3\text{F}_4\text{Cl}_4$	
CFC-215	$\text{C}_3\text{F}_5\text{Cl}_3$	
CFC-216	$\text{C}_3\text{F}_6\text{Cl}_2$	
CFC-217	$\text{C}_3\text{F}_7\text{Cl}$	
Carbon tetrachloride	CCl_4	
1, 1, 1-Trichloroethane	$\text{C}_2\text{H}_3\text{Cl}_3$	
Methyl bromide	CH_3Br	
Dibromofluoromethane	CHFBr_2	
Bromodifluoromethane	CHF_2Br	
Bromofluoromethane	CH_2FBr	
Tetrabromofluoroethane	C_2HFBr_4	
Tribromodifluoroethane	$\text{C}_2\text{HF}_2\text{Br}_3$	

Substance	chemical structural formula	control rank
Dibromotrifluoroethane	$C_2HF_3Br_2$	Prohibited Substances
Bromotetrafluoroethane	C_2HF_4Br	
Tribromofluoroethane	$C_2H_2FBr_3$	
Dibromodifluoroethane	$C_2H_2F_2Br_2$	
Bromotrifluoroethane	$C_2H_2F_3Br$	
Dibromofluoroethane	$C_2H_3FBr_2$	
Bromodifluoroethane	$C_2H_3F_2Br$	
Bromofluoroethane	C_2H_4FBr	
Hexabromofluoropropane	C_3HBr_6	
Pentabromodifluoropropane	$C_3HF_2Br_5$	
Tetrabromotrifluoropropane	$C_3HF_3Br_4$	
Tribromotetrafluoropropane	$C_3HF_4Br_3$	
Dibromopentafluoropropane	$C_3HF_5Br_2$	
Bromohexafluoropropane	C_3HF_6Br	
Pentabromofluoropropane	$C_3H_2FBr_5$	
Tetrabromodifluoropropane	$C_3H_2F_2Br_4$	
Tribromotrifluoropropane	$C_3H_2F_3Br_3$	
Dibromotetrafluoropropane	$C_3H_2F_4Br_2$	
Bromopentafluoropropane	$C_3H_2F_5Br$	
Tetrabromofluoropropane	$C_3H_3FBr_4$	
Tribromodifluoropropane	$C_3H_3F_2Br_3$	
Dibromotrifluoropropane	$C_3H_3F_3Br_2$	
Bromotetrafluoropropane	$C_3H_3F_4Br$	
Tribromofluoropropane	$C_3H_4FBr_3$	
Dibromodifluoropropane	$C_3H_4F_2Br_2$	
Bromotrifluoropropane	$C_3H_4F_3Br$	
Dibromofluoropropane	$C_3H_5FBr_2$	
Bromodifluoropropane	$C_3H_5F_2Br$	
Bromofluoropropane	C_3H_6FBr	
Chlorobromomethane	CH_2BrCl	

6. About Revision of Regulated Chemicals List

The contents of this List (control rank, prohibition timing, reporting subject, threshold level, etc.) may be revised without prior notice depending on the regulatory trend of chemicals inside and outside of Japan or the trend in the industries. When a revision takes place, we will inform the suppliers and suppliers are requested to understand details of the revision and to implement appropriate actions.

Revision History

Department Responsible		Headquarters Site Green Procurement Promotion Committee
Rev.	Revision Date	Revision Summary/Periodic Review
13	March 28, 2019	<p>Totally revised due to introduction of the information transfer scheme chemSHERPA complying with IEC 62474. (Conforming to the substances to be controlled Ver. 1.07.00 in IEC 62474 D17.00 /chemSHERPA) Revision history before Rev. 12 is deleted. Principal changes related to 4. List of Regulated Chemicals are as follows.</p> <ul style="list-style-type: none"> Descriptions deleted <ul style="list-style-type: none"> · EU's Packaging and Packaging Waste Directive The following items with the control rank "Prohibited Substances" because they are not regulated in IEC 62474 are deleted. Mercury, cadmium, hexavalent chromium, lead – Reporting Subject: Packaging material · REACH Annex XVII The following items with the control rank "Prohibited Substances" because they are not regulated in IEC 62474 are deleted. Bisphenol A - Reporting Subject: Thermal paper · Substances subject to JIG List The following items with the control rank "Controlled Substances" because they are not regulated in IEC 62474 are deleted. Formaldehyde – Reporting Subject: Product or part made of wood composite Polyvinyl chloride (PVC) and PVC copolymer – Reporting subject: Plastics Change in control rank <ul style="list-style-type: none"> · As the substances subject to authorization in REACH Regulation, Annex XIV excludes the article manufactured outside EU, the control rank of the following substances is changed from Prohibited Substances to Controlled Substances. Diarsenic trioxide, diarsenic pentoxide, tris phosphate (2-chloroethyl) (TCEP) 2,4-dinitrotoluene, trichloroethylene, formaldehyde, polymer with benzenamine Arsenic acid: Orthoarsenic acid, bis(2-methoxyethyl) ether Oligomers of chromic acid and dichromic acid: 1,2-Dichloroethane · As the following substances fall under REACH Regulation, Annex XVII, the control rank is changed from Controlled Substances to Prohibited Substances. Phthalic acid esters Group 2 (DIDP, DINP, DNOP), nickel
14	October 1, 2019	<p>Revision due to revision of the substance list of chemSHERPA-Ver. 2 (Corresponding to Controlled Substance Reference List Ver. 2.00.00 of IEC 62474 D18.00/chemSHERPA) Principal changes related to 4. List of Regulated Chemicals are as follows.</p> <ul style="list-style-type: none"> Addition in 4.1 Prohibited Substances (Substances listed in REACH Annex XVII) <ul style="list-style-type: none"> · Perfluorooctanoic Acid (PFOA) and its salt · PFOA related substance Review of 4.3 Exemptions from RoHS (Corresponds to IEC 62474 Exemption Lists (EU-RoHS-Annex III)) <ul style="list-style-type: none"> · "Extended Review" comment for the following exemptions to which new expiration date is established is deleted. Expiration date by category is added. 8(b),8(b)-I,21,21(a),21(b),30,38,5(a),7(c)- ,7(c)-IV, 15,15(a),17,18,18(b),18(b)-1,21,21(c),25,29, 31,32,33,37,42 · Changed to "Extended Review" according to the review. 39(a)

Rev.	Revision Date	Revision Summary/Periodic Review
15	September 30, 2020	<p>Addition in 4.1 Prohibited Substances and Change in Prohibition Timing</p> <p>Phosphorus (Red) (CAS No. 7723-14-0) is added as prohibited substance limiting applications .</p> <p>Prohibition timing on and after January 4, 2020, of the following two substances is changed to 'Immediately "because such timing is expired.</p> <ul style="list-style-type: none"> · Perfluorooctanoic Acid (PFOA) and its salt · PFOA related substances
16	March 31, 2021	<p>Revision due to revision of the substance list of chemSHERPA-Ver. 2.02.00 and Ver. 2.03.00</p> <p>3. Addition of the Toxic Substance Control Act (TSCA) in Table 1 Principal Environmental Regulations as "hazard "</p> <p>4.1 The following revisions are made in Table 2: Prohibited Substances</p> <p>Changes due to exclusion of California's RoHS Laws from the regulations requiring the listing of cadmium, hexavalent chromium, lead, and mercury.</p> <p>Reportable application of lead is changed from "all products excluding the following "to "all products excluding batteries. "</p> <p>Halogenated flame retardant is added. (According to (EU)2019/2021, Prohibition timing: 2021/3/1)</p> <p>Principal regulation for perfluorooctanoic acid (PFOA) and its salt and for PFOA related substance is changed from the REACH Regulation to the POPs regulation.</p> <p>The Toxic Substance Control Act (TSCA) is added as the principal regulations for asbestos, Polychlorinated biphenyls, (PCBs), and related substance of the specific alternative substance.</p> <p>4.3 Review of exemptions from RoHS (2021/1/27 version)</p> <p>Changed to "Immediately "for the exemptions expired: 5(a), 7(c)-IV, 9,9(b), 13(b), 17,21, 21(a), 21(b), 21(c), 25, 29, 31, 33,30, 37, 38</p> <p>Addition of items in extended review: 6(a), 6(a)-I, 6(b), 6(b)-I, 6(b)-II, 6(c), 7(a), 7(c)-I, 7(c)-II ,8(b), 8(b)-I, 13(a), 13(b)-I ,13(b)-II,13(b)-III, 15, 15(a), 18(b), 18(b)-1, 24, 29, 32, 34,</p> <p>Addition of exemptions by category: 1(f), 2(b)(3), 2(b)(4), 3(a), 3(b), 3(c), 4(a), 4(e), 4(f),5(b), 6(b)-I, 6(b)-II, 7(b),8(b)-I, 9, 41</p> <p>Addition of exemptions: 9(a)-I, 9(a)-II, 43, 44</p> <p>Addition of category number: 1(a) ~ (g),2(a)(1)-(5), 4(b)- -</p>
17	September 30, 2021	<p>Revision due to revision of the substance list of chemSHERPA-Ver. 2.04.00</p> <p>4.1 The following revisions are made in Table 2: Prohibited Substances</p> <p>Revision required by the Toxic Substance Control Act (TSCA)</p> <ul style="list-style-type: none"> · Prohibitions by the Toxic Substance Control Act (TSCA) are added to Polybrominated diphenyl ethers (PBDEs). (Intentional addition of CAS No. 1163-19-5: decaBDE) · Addition of isopropylated phosphate (PIP (3:1) (CAS No. 68937-41-7). <p>Addition of ID No. of IEC 62474 DSL</p> <p>4.2 The following revisions are made in Table 3: Controlled Substances.</p> <p>The following two substances are added according to 2009/125/EC (EU)2021/341 and (EU)2019/424.</p> <ul style="list-style-type: none"> · Cobalt and its compounds · Neodymium and neodymium compounds <p>Addition of ID No. of IEC 62474 DSL</p> <p>Review of 4.3 Exemptions from RoHS (2021/7/20 version)</p> <p>Changed to "Immediately "for the exemptions expired: 18(b)-1</p> <p>Addition of items in extended review: 6(a), 6(b), 6(c), 7(a), 7(c)-I, 7(c)-II, 8(b), 13(a), 13(b), 15, 24, 29, 32, 34</p> <p>Deletion of exemptions by category: 6(b)-I, 6(b)-II</p> <p>Addition of exemption: 45</p> <p>Addition of category number: 9(b)-I</p>

Rev.	Revision Date	Revision Summary/Periodic Review
18	25 March, 2022	<p>Revision due to revision of the substance list of chemSHERPA-Ver. 2.05.00</p> <p>The following revisions are made in Table 2 Prohibited Substances in 4.1</p> <p>PFOA by Norwegian Product Regulations with ID No. 00103,00104 is deleted as it is covered by ID00160 and ID00161.</p> <p>'Intentional addition "is added to respective threshold of ID00160 of the PFOA substance as it is regulated by the Chemical Substance Control Act in Japan and to threshold of ID00161 that is regulated by the POP Regulation in Korea. The Chemical Substances Control Act is added as the governing regulation.</p> <p>Change in prohibition timing of phenol, isopropylated phosphate (PIP (3;1))</p> <p>Expiration date of Amano is changed from immediate to May 1, 2024, a half year ahead of October 31, 2024, from "Immediately " as the March 8, 2022, expiration date when Rev. 17 was issued is published and is extended further to October 31, 2024.</p>
19	November 10, 2022	<p>Revision due to revision of the substance list of chemSHERPA-Ver. 2.06.00</p> <p>Addition of the prohibited substances in Table 2 in 4.1 Prohibited Substances (Listed substances in REACH Annex XVII)</p> <p>C9-C14 PFCAs and their salts (ID00182 of IEC 62474DSL)</p> <p>C9-C14 PFCa related substance (ID00183 of IEC 62474DSL)</p> <p>Review of 4.3 Exemptions from RoHS (2022/8/1 version) (Conforming to IEC 62474 Exemption Lists (EU-RoHS-Annex III))</p> <p>Changed to "Immediately " for the exemptions expired: 41</p> <p>Incorporation of extended review results</p> <ul style="list-style-type: none"> · Addition of expiration date: 1(a),1(b),1(c),1(d),1(f),1(g),2(a)(1),2(a)(2),2(a)(3),2(a)(4),2(a)(5), 2(b)(4),3(a),3(b),3(c),4(a),4(b)-I,4(b)-II,4(b)-III,4(e),4(f), 6(a),6(b),6(c),7(a),7(c)-I,7(c)-II,13(a),13(b),15,24,29,32,34 · Addition of expiration date and change in exemptions: 1(e), 2(b)(3), 4(b), 4(c)-I,4(c)-II,4(c)-III · Abolition due to replacement: 2(b)(4), 4(f) · Addition of exemption: 1(f)-I, 1(f)- ,2(b)(4)- ,2(b)(4)- , 2(b)(4)- ,4(a)- ,4(f)- , 4(f)- ,4(f)- ,4(f)- <p>Exemption 45 is added to hexavalent chromium</p>
20	March 27, 2023	<p>Revision due to revision of the substance list of chemSHERPA-Ver. 2.07.00</p> <p>The following revisions are made in Table 3 in 4.2 Controlled Substances.</p> <p>Addition of substance according to Maine Public Law, Chapter 447, in the US</p> <ul style="list-style-type: none"> · Per- and Polyfluoroalkyl Substances (PFAS) <p>Review of 4.3 Exemptions from RoHS (2023/1/30 version)</p> <p>Addition of exemption: 9(a)-</p> <p>Addition of extended review: 6(a),6(b),7(a),7(c)-I,18(b), 42, 44</p> <p>Changed to "Immediately " for the exemptions expired: 1(g),2(a)(2),2(a)(3),5(a),5(b),7(b),7(c)-IV, 9,9(b),17,18(b),21,25,29,30,31,32,33,37,38,41</p>
21	Jul. 22, 2024	<p>Revisions in accordance with the revised list of substances in chemSHERPA- Ver. 2.09.00</p> <p>4.1 In Table 2 of Prohibited Substances, the following changes have been made.</p> <p>Addition of formaldehyde (REACH Annex XVII listed substances)</p> <p>Change of thresholds for halogens.</p> <p>Addition of pentachlorophenol or its salt or ester (Chemical Substances Control Law)</p> <p>4.2 In Table 3 of controlled substances, the following actions are taken</p> <p>Deletion of formaldehyde. (Changed to a prohibited substance due to inclusion in REACH Annex XVII)</p> <p>4.3 Review of RoHS exemptions (Version 2023/9/6)</p> <p>Addition of exemptions: 46</p> <p>Additions under extended discussion: 24,34, 2(b)(4)-I, 4(f)-I</p> <p>Immediate changes to overdue items: 5(a), 5(b), 7(b), 7(c)-IV, 9, 9(b), 17, 17, 18(b),21,24,25,29, 30,31,32,33,37,38,41,43</p>

Rev.	Revision Date	Revision Summary / Periodic Review
22	Nov. 08, 2024	<p>Revisions due to the revision of the substance list in chemSHERPA- Ver.2.10.00</p> <p>4.1 Table 2 of Prohibited Substances:</p> <ul style="list-style-type: none"> Added " Intentionally added " to the threshold value for polybrominated diphenyl ethers (PBDEs) Added "Japanese Chemical Substances Control Act" to the main environmental laws for decabromodiphenyl ether (DecaBDE). <p>4.2 Table 3 of Controlled Substances:</p> <ul style="list-style-type: none"> Added substances under the French Circular Economy Law ·Diisooctyl phthalate (DIOP) (IEC62474DSL ID00203) ·Colecalciferol (IEC62474DSL ID00204) <p>4.3 Review of RoHS exemptions</p> <p>Immediately change those that have passed the deadline: 1(f)-II, 3(a), 3(b), 3(c)</p>