



Green Procurement Standards (14th Edition) (Appendices)



Revised (14th Edition):

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TOKIN Corporation

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1. Environmentally Hazardous Substances which are Prohibited from Being Used in Manufacturing processes (Does not apply if there is no manufacturing process, such as companies that provide software services, etc.)

Refers to environmentally hazardous substances that TOKIN prohibits for use in the manufacturing process due to the restrictions by law, regulations, etc. In principle, TOKIN does not purchase goods from any supplier who uses such substances in the manufacturing of any of its products. (Prerequisite)

*Does not apply to refrigerant and/or fire extinguishing equipment.

For details, refer to "Table 1: Substances Banned for Use in Manufacturing Processes."

[Table 1] Substances Banned for Use in Manufacturing Processes

No.	JGPSSI represented substance classification No.	Substance Name	Applicable Law, Etc.
1	C04097 C044099 C04097 C04099	CFCs (Note 1)	Ozone Layer Protection Law (Montreal Protocol)
2	C04098	Specified halons (Note 1)	Same as above
3	C04100	Carbon tetrachloride CAS_No.56-23-5	Same as above (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
4	C04101	1,1,1-trichloroethane CAS_No.71-55-6	Same as above (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
5	C04104	HBFCs (Note 1)	Same as above
6	C04105	HCFCs (Note 1)	Limited by TOKIN's customers
7	C04103	Methyl bromide CAS_No.74-83-9	Ozone Layer Protection Law (Montreal Protocol)
8	C02661	Bromochloromethane CAS_No.74-97-5	Ozone Layer Protection Law (Montreal Protocol)
9	-	1,2-dichloroethane CAS_No.107-06-2	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
10	-	1,1-dichloroethylene CAS_No.75-35-4	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
11	-	Cis-1,2-dichloroethylene CAS_156-59-2	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
12	-	1,3-dichloropropane CAS_No.542-75-6	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
13	-	Methylene chloride (dichloromethane) CAS_No.75-09-2	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
14	-	Tetrachloroethylene CAS_No.127-18-4	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
15	-	1,1,2-trichloroethane	Limited by TOKIN's customers

		CAS_No.79-00-5	(Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
16	-	Trichloroethylene CAS_No.79-01-6	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)
17	-	Benzene CAS_No.71-43-2	Limited by TOKIN's customers (Type 1 specific toxic substance of the Soil Contamination Countermeasures Act)

2. Environmental Impact Substances Contained in Products

Environmentally hazardous substances which are contained in manufactured goods (see Note 1) should be controlled according to the following classifications ① to ③.

- ① 【Table2】 「Substances Banned for Containment in Products」 list and 【Table3】 「Conditionally Containment-prohibited Substances in Products」 list (Prerequisite)
- ② 【Table4】 「Containment-prohibited Substances in Specific Products」 (Request conformity certificate etc, as necessary)
- ③ 【Table5】 「Containment-controlled Substances in Products」 (If you intentionally use it, please report it)

Designation of environmentally hazardous substances is given in Tables 2 to 5.

Substance banned for use in manufactured goods by domestic/overseas laws and regulations and/or TOKIN voluntary regulations. In principle, TOKIN does not purchase products that contain banned substances.

[Table 2] Substances Banned for Containment in Products

No.	JGP SSI class	Substance class (name)	Regulated application	Regulated value (threshold level)	Main use (Applicable Law, etc)
1	C01	Asbestos (Note 1)	All applications	Not intentionally contained	Insulator, filling material (Toxic substances, etc. Prohibited from use in the Manufacturing process by Article 16 of the Industrial Safety and Health Act Enforcement Order)
2		Yellow phosphorus match (yellow (white) phosphorus) CAS_No.12185-10-3			Fuel, explosive (same as above)
3		Benzidine and its chlorides CAS_No.92-87-5			Dye (same as above)
4		4-aminodiphenyl and its chlorides CAS_No.92-67-1			Dye, analysis reagent (same as above)
5		4-nitrodiphenyl and its chlorides			Dye, analysis reagent (same as above)

		CAS_No.92-93-3	All applications	Not intentionally contained	
6		Bis (chloromethyl) ether CAS_No.542-88-1			Dye, analysis reagent (same as above)
7		Beta-naphthylamine and its chlorides CAS_No.91-59-8			Dye, analysis reagent (same as above)
8		Rubber cement containing benzene (benzene)			Rubber cement (same as above)
9	C04	Ozone-depleting substances (Montreal Protocol substances Group I & II) (Note 1)	All applications except refrigerant		Cleaning agent, refrigerant (Ozone Layer Protection Law (Montreal Protocol))
10	B05	Polyhalogenated biphenyl, polychlorinated terphenyl (PCB, PCT)	All applications		Insulation oil, lubrication oil, oil for condensers (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
11	B06	Polychlorinated naphthalenes (PCN) (chlorine count of 1 or more)		Lubrication oil, coating material (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)	
12		Hexachlorobenzene CAS_No.118-74-1		Raw material for organic synthesis (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)	
13		Aldrin CAS_No.309-00-2		Agriculture chemicals, antiseptic agent, insecticide, antimold, coating (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)	
14		Dieldrin CAS_No.60-57-1		Agriculture chemicals, antiseptic agent, insecticide, antimold, coating (Type 1 of the Law Concerning the Examination and Regulation of	

			All applications	Not intentionally contained	Manufacturer, etc. of Chemical Substances)
15		Endrin CAS_No.72-20-8			Agriculture chemicals, antiseptic agent, insecticide, antimold, coating (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
16		DDTs CAS_No.789-02-6			Agriculture chemicals antiseptic agent, insecticide, antimold, coating (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
17		Chlordane			Agriculture chemicals, antiseptic agent, insecticide, adhesive, coating (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
18	A17	Tributyltin oxide (TBTO) CAS_No.56-35-9			Antiseptic agent, coating, pigment, etc. (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances) REACH/SVHC substance
19	A28	Tri-substituted organostannic compounds (containing tributyltin (TBT) compounds and triphenyltin (TPT) compounds)			Antiseptic agent, coating, pigment, etc. (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
20		N-para-phenylene-Diamine (Note 1)			Rubber antioxidant, styrene-butadiene rubber (Type 1 of the Law Concerning the Examination and

			All applications	Not intentionally contained	Regulation of Manufacturer, etc. of Chemical Substances)
21		2,4,6-tri-t-butyl phenol CAS_No.732-26-3			Antioxidant, lubrication oil (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
22		Toxaphene CAS_No.8001-35-2			Insecticide, insect repellent (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
23		Mirex CAS_No.2385-85-5			Fire retardant, insecticide (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
24		Kelthane (dicofol) CAS_No.115-32-2			Acaricide (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
25		Hexachlorobuta-1, 3-diene CAS_No.87-68-3			Solvent (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
26	C06	Radioactive materials			(JIG)
27	B09	Short Chain Chlorinated Paraffins (SCCPs) (C10-13)			Pigments, paints, ink, lubricant, and plasticizer (JIG) REACH/SVHC substance
28	C08	Specific benzotriazole 2-(2H-1,2,3-benzotriazole-yl)-4, 6-di-tert-butylphenol CAS_No.3846-71-7			adhesive, paint, printing ink, plastic, ink ribbon (ultraviolet absorber) (JIG)
29		Dimethyl fumarate (DMF)	All applications	Not intentionally contained And, less than 0.1ppm (※1)	Mold prevention medicine and desiccant, etc.(JIG guideline)

30		Perfluorooctanoic acid (PFOA) and its salt, related substances	All applications	Not intentionally contained PFOA less than 25ppb (including its salt), related substance less than 1000ppb	Important agent used when producing fluorocarbon polymer. REACH/SVHC
31		Polycyclic aromatic hydrocarbons (PAHs)	All applications	Not intentionally contained	tar, crude oil, contained in petroleum, rubber, plasticizer, color pigment for plastic, etc. REACH/SVHC substance
32		Hexabromocyclododecane (HBCDD and HBCD) and all main diastereoisomers			flame retardant REACH/SVHC substance
33		Tris(2-chloroethyl) phosphate (TCEP), Tris(2-chloro-1-methylethyl) phosphate (TCPP), Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)			flame retardant used in the Manufacturing of liquid unsaturated polyester resin, coating flux for backing fabric of textiles, compound in PVC, also used as a coating agent for cellulosic ester compounds
34	A20 A21	Arsenic and its compounds Arsenic pentoxide (CAS_No.1303-28-2) Arsenic (III) oxide (CAS_No.1327-53-3)	All applications	Not intentionally contained	Antifungal agents, adhesives, catalysts, pigments, paints, dyes. REACH/SVHC substance
35		N-Phenyl-benzenamine reaction products with styrene and 2,4,4-trimethylpentene (BNST)	All applications	Not intentionally contained	Substances used as antioxidants for automobile oils and additives for commercial and industrial lubricants
36		Some azo dye and pigments (colorants) that produce specified amines	All applications	Not intentionally contained	REACH/SVHC substance
37		γ -Hexachlorocyclohexane (γ -HCH or Lindane) CAS_No.58-89-9	All Applications	Not intentionally contained	Mainly used for insecticides (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
38		α -Hexachlorocyclohexane			By-product of γ -Hexachlorocyclohexane

		(α - HCH) CAS_No.319-84-6	All applications	Not intentionally contained	(Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
39		β - Hexachlorocyclohexane (β - HCH) CAS_No.319-85-7			By-product of γ - Hexachlorocyclohexane (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
40		Chlordecone (Kepone) CAS_No.143-50-0			Mainly used for insecticides (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
41		Pentachlorobenzene CAS_No.608-93-5			Mainly used for pesticides (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
42		Perfluorooctane sulfonyl fluoride CAS_No.307-35-7			Precursor of PFOS (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
43		Endsulfan CAS_No.115-29-7			Mainly used for pesticides (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
44		Pentachlorophenol CAS_No.87-86-5			Mainly used for insect repellent, preservative, Antifungal agent, and glue (Type 1 of the Law Concerning the Examination and Regulation of Manufacturer, etc. of Chemical Substances)
45		Tris (1-aziridiny) phosphine oxide			Mainly used for plastic, and flame retardant of

		CAS_No.545-55-1			synthetic fiber REACH Substance
46		Tris (2,3dibromopropyl) phosphate CAS_No.126-72-7	Textile products that may come into direct contact with human skin	Not intentionally contained Prohibition of adhesion, contamination, and production during the manufacturing process	REACH Substance
47		Halogenated diphenylmethanes CAS_No.76253-60-6、81161-70-8、99688-47-8	All applications	1000ppm Br/Cl<900ppm	Capacitor、Transformer
48		Methylphenol compound CAS_No.95-48-7、106-44-5、108-39-4、1319-77-3	All applications	Total 10ppm	At all levels of the supply chain, cleaning compound, glue, resin, Coating agent
49		Normal hexane CAS_No.110-54-3	All applications	1000ppm	Included in products manufactured by material manufactures, paint, coating agent, ink glue, and undercoat
50		Perchlorates CAS_No.7601-89-0、7778-74-7、7790-98-9、7791-03-9、10034-81-8	All applications	Total 0.1ppm	Lithium perchlorate coin cell battery
51		PFCA(C9-C14)、there salts and related substance	All applications	(C9-C14)PFCA and salts total 25ppb (C9-C14)PFCA relatable substance total 260ppb	
52		PFHxS、 its salts and related substance	All applications	PFHxS and its salts total 25ppb PFHxS relatable substance total 1000ppb	
53		Tetrabromobisphenyl A (TBBA、TBBPA)	All applications	900ppm (Br) 1500ppm (Cl+Br)	Electrical insulator, cable, tape, plumbing, cable enclosure, flame retardant used for vibration absorption
54		Isopropylphenyl phosphate (PIP3:1) CAS_No.68937-41-7	Applies to other than, Adhesives and sealants, lubricants and greases, Containing from recycled plastic.	Prohibition of adhesion, contamination, and production during the manufacturing process	Toxic Substances Control Act (TSCA)
55		Pentachlorothiophenol	All	Prohibition of	Toxic Substances

		CAS_No.133-49-3	applications	adhesion, contamination, and production during the manufacturing process	Control Act (TSCA)
56		Dechlorane Plus	All applications	Not intentionally contained	Prohibition of Certain Toxic Substance Regulation. (CANADA)
57		Decabromodiphenyl-ethane CAS_No.84852-53-9	All applications	Not intentionally contained	Prohibition of Certain Toxic Substance Regulation. (CANADA)

For details, refer to “Attachment 1: Detailed Substance List.”

Note 1: If it can be confirmed the substances concerned were not used intentionally by tracing back to the supply chain, it is unnecessary to chemically analyze and confirm the non-use of these substances.

Conditionally Containment-prohibited Substances in Products

These are substance that TOKIN prohibits intentional use of or containment in excess of limit values (threshold level [*]) or any combination for both substances and their applications.

*: Refers to maximum or minimum numerical value for determination.

For details, refer to “Table 3: Conditional Containment-Prohibited Substances in Products.”

[Table 3] Conditionally Containment-prohibited Substances in Products

Six Substances in the RoHS Directive (No.56~61)

No.	JGP SSI class	Substance class (name)	Regulated application	Threshold level	Main use
58	A05	Cadmium and its compounds RoHS substance	All applications other than those listed below	100 ppm / not intentionally contained	Pigment, alkaline battery, chemical synthesis raw material, semiconductor, paint, ink, plating, vinyl chloride stabilizer
			Stabilizers, pigments, dyes (electrical wiring insulation, plastic casing for electronic components, bundling bands, labels, etc.) Used for plastic materials (including rubber), paint, pigments, ink, surface treatment (electroplating, electroless plating, etc.), coating	5 ppm / not intentionally contained	
			Plating (excluding electrical contact plating for ensuring reliability)	Not intentionally contained	
			Fluorescent lighting	Not intentionally contained	
			Solder	20 ppm	
			Packaging materials (pursuant to the EU packaging materials directive 94/62/EC)	(Note 2) 100 ppm	

59	A09	Lead and its compounds RoHS substance	Manganese, Alkaline manganese, Nickel metal hydride rechargeable battery	0.001wt%	
			Batteries (pursuant to the EU batteries directive 2013/56/EU)	0.002 wt%	
			Products or parts made of metal containing zinc (brass, die-casting zinc, etc.)	100 ppm	
			All applications other than those listed below	1,000 ppm / not intentionally contained	Lead contained in alloys, pigment, coating, coloring, vulcanization accelerator, solid lubricant, vinyl chloride stabilizer, plastic stabilizer, ink
			Additives in plastic or resin (stabilizer and colorant), coating, pigment, and ink	100 ppm	
			Steel products	0.35 wt%	
			Aluminum base alloy	0.4 wt%	
			Copper base alloy	4 wt%	
			Solder (solder bars, wire solder, soldering paste)	500 ppm	
			Mounting solder and surface treatment for external electric terminals and leads	800 ppm	
			Lead in plating film (electroless nickel, electroless gold, tin)	1,000 ppm	
			Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	Not intentionally contained	
			Lead used in other than C-press compliant connector systems	Not intentionally contained	
			Packaging materials (in accordance with EU packaging materials directive 94/62/EC)	(Note 2) 100 ppm	
			Batteries (in accordance with EU batteries directive 2013/56/EU)	0.004 wt%	
			Plastic, ink, coating agent, display(housing, wiring, printed board)	50ppm	
			Parts and materials for consumer products for children	100ppm	
			Paints or product paints for toys and children's products, mobile phone cases and headphones	90ppm	
			<ul style="list-style-type: none"> Wires / cables / cords coated with thermosetting / thermoplastic resin. The part of the mobile phone case or earphone that comes into direct contact with the ear. 	300ppm	

			High melting point solder used for connections inside electronic parts (containing lead at 85% or above)	Exempt	
			Glass used inside electronic parts (including glass material contained in conductive paste)	Exempt	
			Parts of electronic ceramics (piezoelectric elements, dielectrics, etc.)	Exempt	
60	A10	mercury and its compounds RoHS substance	All applications other than those listed below (in accordance with ELV and RoHS directives)	1,000 ppm / not intentionally contained	Dry-cell battery, Metal etching Mercury battery
			Packaging materials (in accordance with EU packaging materials directive 94/62/EC)	(Note 2) 100 ppm	
			Small fluorescent lamps (the mercury content must be 2.5mg or less per lamp)	Exempt	
			Fluorescent striplighting (the mercury content must be 3mg or less per lamp)	Exempt	
			Fluorescent lamps other than small or striplighting	Exempt	
61	A07	Hexavalent chromium compounds RoHS substance	Band containing leather and textiles	1ppm	All wearable products and accessories
			Leather	3ppm	Leather for all other uses
			All applications other than listed below (in accordance with ELV and RoHS directives)	1,000 ppm / not intentionally contained	Photograph, pigment, catalytic agent, plating, ink, coating, battery
			Packaging materials (in accordance with the EU packaging materials directive 94/62/EC)	(Note 2) 100 ppm	
62	B02	PBBs (Note 1) RoHS substance	All applications	1,000 ppm / not intentionally contained	Plastic fire retardant
63	B03	PBDEs (Note 1) (Includes DecaBDE CAS_No.1163-19-5) RoHS substance	All applications	1,000 ppm / not intentionally contained	Plastic fire retardant
64	C09	Specific phthalate compounds (amount contained must be declared if contained)			
		Phthalate bis (2-ethylhexyl) (DEHP [DOP]) CAS_No.117-81-7	All except the below Paste for piezoelectric ceramics	<ul style="list-style-type: none"> intentionally added 1,000 ppm (or	Plasticizer REACH/SVHC specified substance RoHS/substance*

65		Di-n-butyl phthalate (DBP) CAS_No.84-74-2	All material etc. to be delivered after July 1, 2016	0.1wt% or more of phthalate compound in homogenous material	Plasticizer REACH/SVHC specified substance RoHS/substance*
66		Butyl benzyl phthalate (BBP) CAS_No.85-68-7			Plasticizer REACH/SVHC specified substance RoHS/substance*
67		Diisobutyl phthalate (DIBP) CAS No. 84-69-5			Plasticizer REACH/SVHC specified substance RoHS/substance*
68		Diisononyl phthalate (DINP)	Limited to use in toys and commodities for children	<ul style="list-style-type: none"> intentionally added 1,000 ppm (or 0.1wt% or more of phthalate compound in homogenous material (However, di-n-hexyl phthalate is the total value with other phthalates)) 	Plasticizer
69		Diisodecyl phthalate (DIDP)			Plasticizer
70		Di-n-octyl phthalate (DNOP)			Plasticizer
71		Di-n-hexyl phthalate (DnHP) CAS_No.84-75-3			Plasticizer
72	C07	Formaldehyde CAS_No.50-00-0	Limited to wooden products using fiber board, particle board or plywood	Not intentionally contained	Speaker, rack, etc. (Limited by TOKIN's customers)
73	B13	Perfluorooctane sulfonate (PFOS) and its salts CAS_No.2795-39-3	Does not apply to any except the following: *Film, paper, photograph coating material used for printing *Photoresist for photolithography process and coating material for preventing reflection	Not intentionally contained / 0.1 wt% in material and 1µg/m ² in coated material	Hydraulic oil for aircraft, oil used to spin yarn, etching agent used for metal processing, fire extinguisher, fire extinguishing agent for fire extinguisher and foam fire extinguishing agent
74		Cobalt chloride CAS_No.7646-79-9 (Anhydride)	Limited to containment as indicator for desiccant	Not intentionally contained	Indicator for desiccant (Limited by TOKIN's customers) REACH/SVHC specified substance
75		Natural rubber	Used if toys, commodities for children and products that come in direct contact with the human body	Not intentionally contained	(Limited by TOKIN's customers)

77	B07	Polyvinyl chloride (PVC), PVC mixture and its copolymers	(1) Packaging / wrapping material	intentionally added 1,000 ppm (or 0.1wt% or more of PVC in homogenous material)	Packaging / wrapping material (Limited by TOKIN's customers)
			(2) Limited to bands for tying connection cords. etc. (3) Limited to heat-shrinkable tubing. (4) Limited to hoses that supply air or liquid for product processing. (5) Limited to sheets and mats used on worktables and desks for product processing.	Not intentionally contained	(Limited by TOKIN's customers)
			Limited to other application for power cord, sheets, insulating plates, vinyl wiring for internal wiring	Not applicable (If contained, be sure to report the amount.	(Limited by TOKIN's customers)
77		Hydrofluorocarbons (HFC) and perfluorocarbons (PFC)	All applications excluding those that do not have an alternative due to a special use	Not intentionally contained	(Limited by TOKIN's customers)
78	A23	Dibutyltin (DBT) compounds	All applications such as additives to plastics (excluding those below)	1,000 ppm (0.1 wt%) of tin in material	
			RTV-1/RTV-2 sealants, adhesives, catalysts of coating and coating agents, etc.	1,000 ppm (0.1 wt%) of tin in material	
			An additive to packing parts and materials used for parts and is re-used, and an additive agent to packing part materials (tray, magazine stick, stopper, reel, embossed carrier tape, etc.)	Exempt	
79	A24	Diocetyl tin (DOT) compounds	An additive to a fiber and cloth material	1,000 ppm (0.1 wt%) of tin in material	Does not apply to metallic tin, tin alloy, tin plating and inorganic tin.

80		Beryllium oxide and its compounds	Applies to all applications except beryllium copper	intentionally added 1,000 ppm (or 0.1wt% or more of PVC in homogenous material	(Limited by TOKIN's customers)
81		red phosphorus	Be limited to the flame retardants used in plastic resin However, Apply product from 7/1/2016	Not intentionally contained	(Limited by TOKIN's customers)
			Red phosphorus unit (metal)	Not eligible	

For details, refer to "Attachment 1: Detailed Substance List."

Note 2: Total content of heavy metals (lead, cadmium, mercury, hexavalent chromium) must be less than 100 ppm in ratio by weight for homogenous materials that make up packaging materials such as resin, ink, paint and cardboard.

Containment-prohibited Substances in Specific Products (TOKIN requires presentation as needed)

These are substance that TOKIN prohibits their intentional use and their containment in excess of the limit values (threshold values [*]) or any combination for both substances and their applications in components of specific products.

For details, refer to "Table 4 Containment-prohibited Substances in Specific Products"

* Boundary value used to determine a certain numeric value.

Submit Form 3-1 "Assurance that no banned substances are contained in products" along with the "Halogen-free Certificate of Compliance" (including analysis data (ICP)) and the "Certificate of Compliance for Free of Specified Chemical Substances" (including analysis data (ICP)) when requested by TOKIN.

[Table 4] Containment-prohibited Substances in Specific Products

No.	Substance class (name)	Regulated application	Threshold Values	Remarks
82	Brominated organic compounds	All applications	900 ppm	The total amount of Brominated organic compounds and Chlorinated organic compounds together must be less than 1,500 ppm in materials. 【Halogen-Free】 (as required by TOKIN's
83	Chlorinated organic compounds	All applications	900 ppm	

				customers)
84	Antimony trioxide	All applications	900 ppm	【Specified Chemical Substances-Free】 (as required by TOKIN's customers)
85	4,4'-isopropylidenediphenol (Bisphenol A (BPA)) CAS_No.80-05-7	All applications	Not intentionally contained	【Specified Chemical Substances-Free】 (as required by TOKIN's customers)

Containment-controlled Substances

Substance for which the usage mode is ascertained, and health, safe hygiene and proper disposal pertaining to the substance itself and its application is considered by TOKIN.

A containment-controlled substance refers not to those substances for which the intentional use or containment is regulated, but to those for which data pertaining to whether or not it is used and in what concentration it is used is to be ascertained.

Notably, the substances for which data is ascertained are those contained in a concentration exceeding 1,000 ppm or those that are intentionally used.

If containment-controlled substances are used intentionally, chemSHERPA forms must be filled in and reported to TOKIN.

For details, refer to “Table 5: Containment-controlled Substances”

[Table 5] Containment-controlled Substances

	JGP SSI class	Substance class (name)	Regulated application	Threshold Level	Main use
1	A04	Bismuth and its compounds	All applications	0.1 wt% (1,000 ppm) of a product	Lead-free solder, terminal plating, alloy
2	A11	Nickel and its compounds	Long term indirect contact with human body	0.1 wt% (1,000 ppm) of a product	Case, plating
3	A13	Selenium and its compounds	All applications	0.1 wt% (1,000 ppm) of products	Semiconductor, pigment, coating material, catalyser, photo conductor, oxidizing agent
4	B08	Brominated flame retardants (other than PBB and PBDE) including tetra-bromobisphenol A	All applications	0.09% (900 ppm) of the total bromine in a laminate	Fire retardant
5		Bis(2-methoxyethyl) phthalate (DMEP) CAS No. 117-82-8	All applications	0.1 wt% of a product (1,000 ppm)	Plasticizer

6		Alkylphenol (Carbon number: 5-9)	All applications	0.1 wt% of a product (1,000 ppm)	Raw materials such as synthetic resins such as phenolic resins, and surfactants
7		2,4-dichlorophenol CAS_No.120-83-2	All applications	0.1 wt% of a product (1,000 ppm)	Raw materials for organophosphorus insecticides, fungicides, and herbicides
8		Di(2-ethylhexyl)adipate CAS_No.103-23-1	All applications	0.1 wt% of a product (1,000 ppm)	Cold-resistant plasticizer for vinyl chloride resin and synthetic rubber
9		Benzophenone CAS_No.119-61-9	All applications	0.1 wt% of a product (1,000 ppm)	Pharmaceutical synthetic raw materials, fragrance retainers, UV absorbers
10		Octachlorostyrene CAS_No.29082-74-4	All applications	0.1 wt% of a product (1,000 ppm)	No commercial production
11		TRIS(2-Carboxyethyl)phosphine Hydrochloride (TCEP) CAS No. 51805-45-9	All applications	0.1 wt% of a product (1,000 ppm)	
12		Boric acid Specific sodium borates	All applications	0.1 wt% of a product (1,000 ppm)	
13		1,2-benzenedicarboxylic acid, and di-C7-11-branched and linear alkyl esters (DHNUP)	All applications	0.1 wt% of a product (1,000 ppm)	PVC plasticizers used in a wide range of fields such as phthalate compounds, automobiles, and building materials
14		1,2-benzenedicarboxylic acid, and di-C6-8-branched alkyl esters, C7-rich (DIHP)	All applications	0.1 wt% of a product (1,000 ppm)	Plasticizer of Polyvinyl chloride (PVC)
15		Bis(2-methoxyethyl) ether CAS No. 111-96-6	All applications	0.1 wt% of a product (1,000 ppm)	Diluent, cleaning agent
16		4-(1,1,3,3-tetramethylbutyl) phenol CAS_No.140-66-9	All applications	0.1 wt% of a product (1,000 ppm)	
17		Diethylene glycol dimethyl ether CAS_No.110-71-4	All applications	0.1 wt% of a product (1,000 ppm)	
18		N,N-dimethyl-acetamide CAS_No.127-19-5	All applications	0.1 wt% of a product (1,000 ppm)	Synthetic raw material for surfactants and new oily phenolic resins
19		Sodium ; 2-methylpropan-1-sulfonic acid CAS_No.68187-47-3	All except the following	Not intentionally contained	Mixtures such as coating or coating materials

			<ul style="list-style-type: none"> · Use for adhesives · Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components 	Not eligible	
20		Perfluoro-C8-C14-alkylalcohols CAS_No.68391-08-2	All except the following	Not intentionally contained	Mixtures such as coating or coating materials
			<ul style="list-style-type: none"> · Use in the manufacture and processing of surface coatings and finishes used for the surface treatment of fiber, leather and hard materials (resins, wood, metals, etc.), and in the manufacture of wetting agents · Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components 	Not eligible	
21		Thiols, C8-20, gamma-omega-perfluoro, telomer with acrylamide	All except the following	Not intentionally contained	Mixtures such as coating or coating materials

		CAS_No.70969-47-0	· Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components	Not eligible	
22		Thiols, C4-20, gamma-omega-perfluoro, telomers with acrylamide and acrylic acid, sodium salts CAS_No.1078712-88-5	All except the following	Not intentionally contained	Mixtures such as coating or coating materials
			· Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components	Not eligible	
23		P1-Propanaminium, 3-amino-N- (carboxymethyl) -N, N-dimethyl, N- (2- ((gamma-Omega-perfluoro-C4-20-alkyl) thio) acetyl) derivs., inner salts CAS_No.1078715-61-3	All except the following	Not intentionally contained	Mixtures such as coating or coating materials
			· Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components	Not eligible	
24		Polyfluoroalkyl betaine (generic name)	All except the following	Not intentionally contained	Mixtures such as coating or coating materials

			· Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components	Not eligible	
25		Modified fluoroalkyl urethane (generic name)	All except the following	Not intentionally contained	Mixtures such as coating or coating materials
			· Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components	Not eligible	
26		Perfluorinated polyamine (generic name)	All except the following	Not intentionally contained	Mixtures such as coating or coating materials
			· Anti-reflective coating, photoresists or surfactants used in photolithography and other processes for the manufacture of semiconductors or similar electronic components and other small components	Not eligible	

3. Control and Information Provision of Substances of Very High Concern (SVHC) of the EU REACH Regulation

At the time of "Survey on Chemical Substances" asked separately by TOKIN, the inclusion survey of SVHC (hereinafter referred to as SVHC) of the European-REACH regulation is conducted in one of three types of survey formats (however, the basic format is chemSHERPA) So please provide us with ingredient

information by grasping actual usage of inclusion of substances added and updated in the SVHC list and their uses.

The specific additionally updated SVHC will be advertised on the website of the European Chemicals Agency (ECHA) every June and December every year, so check the information as appropriate and investigate the situation on the presence or absence and its use etc. - Please grasp and report to TOKIN.

SVHC details are published on the European Chemicals Agency (ECHA) website.

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

4. Chinese VOC regulated substances and list of limit amount

(At TOKIN, the product type, application, and ink type of vermilion characters are targeted)

① GB 30981-2020 Limit amount of harmful substances in industrial protective paint.

(Regulation start date : December 1, 2020)

Paints (including coating materials) subject to this standard must meet the limit value of volatile organic compounds (VOC) and the content of other harmful substance other than VOC. It is necessary the product type, etc. on the packing and instruction manual.

However, the following paints are exempt from the requirements for compliance with the volatile organic Compounds shown in Table 1 to 4.

- insulation coating
- Touch screen (fingerprint resistant paint for optical plastic sheets)
- Freon coating sintered at 150°C or higher (has special functions such as wear resistance, lubrication, and non-adhesion)
- Fluorine-based silicone coating for elastic bodies
- Mark paint
- Electric silver plating effect paint (radiation solidification type)
- Protective coating for electronic components (special effects such as acid mist, dust, humidity prevention, etc.)

■ Limit value of volatile organic compounds

Do not consider the dilution ratio of water-based paint and water-based radioactive solidified paint. Other Types of paints should be blended according to the blending ratio specified on product before measurement. (When there is a range in the mixing ratio of the components (diluting material, etc.) to be mixed in the state of construction, measure after blending so that the amount of the paint used is the maximum and the amount of the paint product used is the minimum. (Measure after blending so that the amount of the diluent used is the maximum and the amount of the paint product used is the minimum.)

Table.1 Limit value of VOC content in water-based paint

Product type		Types of major product	Limit value / (g/L)
	Paints for process machinery and agricultural machinery (Including paint for parts)	Undercoat	≤300
		Intermediate coating	≤300
		Topcoat	≤420
		Varnish	≤420
	Paints for port machinery and	Shop primer	≤300

Paint for mechanical equipment	Chemical industry machinery (Including paint for parts)		Undercoat		≤300	
			Intermediate coat		≤250	
			Topcoat		≤300	
			Varnish		≤300	
	Other		Undercoat		≤250	
			Intermediate coat		≤200	
			Topcoat		≤300	
			Varnish		≤300	
Protective Paint for Buildings and Structures (Exclude Building wall paint)	Anticorrosive paint for metal substrates	1-constituent	Alkyd resin paint		≤350	
			Other	Undercoat	≤300	
				Topcoat	≤300	
				Effect pigment	≤420	
		2-constituents	Shop primer		≤300	
			Undercoat		≤300	
			Intermediate coat		≤250	
			Topcoat		≤300	
	Effect pigment		≤420			
	Concrete protective paint		Undercoat for sealing		≤300	
			Undercoat		≤250	
			Intermediate coat		≤250	
			Topcoat		≤300	
	Other		—		≤300	
	Container paint			Undercoat		≤350
				Intermediate coat		≤250
Topcoat				≤300		
Packaging paint	Nonstick paint		Undercoat		≤480	
			Intermediate coat		≤350	
			Topcoat		≤300	
	Other		Roll coating (board material)		≤480	
			Spray		≤400	
Paint for mold materials (Including metal base screen wall panel board paint)			Electrophoretic paint (Electroplated paint)		≤250	
			Fluororesin paint		≤350	
			Other		≤300	
Paint for electronic appliances			Undercoat/Coloring/Varnish		≤420	

Table.2 Limit value of VOC content in solvent-based paint

Product type		Types of major product		Limit value / (g/L)
Paint for mechanical equipment	Paints for process machinery and agricultural machinery (Including paint for parts)	Undercoat		≤540
		Intermediate coat		≤540
		Topcoat		≤550
		Varnish		≤550
	Paints for port machinery and Chemical industry machinery (Including paint for parts)	Shop primer		≤680
		Undercoat	Inorganic	≤600
			Other	≤550
		Intermediate coat		≤500
		Topcoat		≤500
		Varnish		≤500
		Special paint (High temperature resistant paint, etc.)		≤650
	Other	Undercoat		≤500
		Intermediate coat		≤480
		Topcoat		≤550
		Varnish		≤550
Protective Paint for Buildings and Structures	Anticorrosive paint for metal substrates	Shop primer	Inorganic	≤720
			Organic	≤650
		Inorganic zinc undercoat		≤600
		1-constituent paint		≤630
		2-constituents paint	Undercoat	≤500
			Intermediate coat	≤500
			Topcoat	≤550
			Varnish	≤580
	Concrete protective paint (Including railroad concrete bridge surface thin coating waterproof paint)	Undercoat for sealing		≤700
		Undercoat		≤540
		Intermediate coat		≤540
		Topcoat		≤550
	Special paint (High temperature resistant paint、Chemical Resistant paint、Binder paint etc.)	—		≤650
	Other	—		≤650
Container paint		Shop primer	Spray	≤700
			Roll coating	≤650
		Undercoat		≤550

		Intermediate coat		≤500
		Topcoat		≤550
Pre-coated coil material	Fluororesin paint	—		≤780
	Other	Undercoat		≤650
		Intermediate coat		≤700
		Topcoat		≤600
		Varnish		≤600
Packaging paint	Nonstick coating	—		≤420
	Other	Roll coating	Rolling material	≤780
			片材	≤680
		Spray		≤750
Paint for mold Materials (Including metal base screen wall panel board paint)	Fluororesin paint	—		≤780
	Other	Undercoat		≤520
		Topcoat		≤600
		Varnish		≤550
Paint for electronic appliances		Undercoat		≤600
		Coloring		≤700
		Varnish		≤650

Table.3 Limit value of VOC content in solvent-free paint

Item	Limit value / (g/L)
VOC content	≤100

Table.4 Limit value of VOC content in radioactive solidified paint

Product type	Painting method	Limit value / (g/L)
Water-based paint	Spray	≤400
	Other	≤150
Non-water-based paint	Spray	≤550
	Other	≤200

■ Limit value on the content of other harmful substances

Table.5 Limit value of organic substance content

Item	Limit value
Benzene content ^a (Limited to non-water-based radioactive solidified paint and solvent type paint) /%	≤0.3
Total content of Toluene and Xylene (Including ethylbenzen) ^a (Limited to non-water-based radioactive solidified paint and solvent type paint) /%	≤35
Halogenated hydrocarbons total content ^a (Limited to non-water-based radioactive	≤1

solidified paint and solvent type paint) /%		
(Limited to cyclohexane, Chloroform, Carbon tetrachloride, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,2-Dichloropropane, 1,2,3-Trichloropropane, Trichloroethylene, Tetrachloroethylene)		
Polycyclic aromatic hydrocarbons total content ^a (Limited to non-water-based radioactive solidified paint and solvent type paint) /(mg/kg) (Limited to naphthalene, Anthracene)		≤500
Methanol content ^a (Limited to inorganic paints) /%		≤1
Total content of glycol ether and ether ester ^a (Limited to water-based paint, Solvent type paint, radioactive solidified paint) /% (Limited to Ethylene glycol methyl ether, Ethylene glycol methyl ether acetate, Glycol ether, Ethylene glycol ether acetate, Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Diethylene glycol dimethyl ether, Triethylene glycol dimethyl ether)		≤1
Heavy metal content [*] (Limited to Color paint ^b , Powder paint, Alkyd resin, Varnish) /(mg/kg)	Lead (Pb) content	≤1000
	Cadmium (Cd) content	≤100
	Hexavalent chromium (Cr ⁶⁺) content	≤1000
	Mercury (Hg) content	≤1000
<p>a Measure after blending according to the enforcement formula under the construction conditions specified for the product. If the amount of a certain constituent of the multi-constituent is within a certain range, measure after compounding according to the enforcement compounding ratio prescription under the enforcement state of the product. All item of water-based paints and water-based radioactive solidified paints do not consider the dilution ratio of water.</p> <p>b Refers to class 1 paints containing pigment, extender pigments, and dye.</p> <p>* Compliant with GB/T30647, measured in a state in which the sample is dried.</p>		

② GB 33372-2020 Limit amount of volatile organic compounds in adhesive.

(Regulation start date : December 1, 2020)

Adhesives subject to this standard must meet the limits of volatile organic compounds (VOC) and must be labeled on the packing and instruction manual to indicate that they comply with the standard.

However, the following adhesives are excluded from the scope of this standard.

- Adhesive that are not in circulation as intermediates or production raw materials.
- Adhesive used for R&D applications, quality assurance, analytical testing, and evaluation.
- Urea, phenol, melamine formaldehyde adhesive.
- Special function surface treatment agent for adhesive.

■ Limit value of volatile organic compounds

If the adhesive product has many uses, the strictest limit will be applied. The assembly includes the manufacture of electrical and electronic products.

Limit value of VOC content in solvent-based adhesive

Application area	Limit value / (g/L)、≤				
	Neoprene	Styrene-Butadiene-Styrene Block copolymer rubbers	Polyurethane	Acrylates	Other
Architecture	650	550	500	510	500
Interior	600	500	400	510	450
Woodworking and furniture	600	500	400	510	400
Shoes and bag	600	500	400	—	400
Assembly	600	550	250	510	250
Packaging	600	500	400	510	500
Special	850 ^a	—	550 ^b	—	700 ^c
Other	600	500	250	510	250

Supplement) a : For on-site repair b : For heavy protection only

c : Car and thermosulfuric adhesive for bridge seismic isolation

Limit value of VOC content in water-based adhesive

Application area	Limit value/ (g/L)、≤						
	Polyvinyl acetate	Polyvinyl alcohol	Rubbers	Polyurethane	Vinyl acetate ethylene copolymer emulsion	Acrylate	other
Architecture	100	100	150	100	50	100	50
Interior	50	50	100	50	50	50	50

Shoes and bag	50	—	150	50	50	100	50
Woodworking and furniture	100	—	100	50	50	50	50
Transportation	50	—	50	50	50	50	50
Assembly	100	—	100	50	50	50	50
Packaging	50	—	50	50	50	50	50
Other	50	50	50	50	50	50	50

Limit value of VOC content in adhesive with a dispersion medium content of less than 5%.

Application area	Limit value /(g/kg)、≤								
	Organo silicon	MS ^{*1}	Polyurethane	Polysulfide	Agrylate	Epoxy resin	a-Cyan acrylic	Thermoplastic ^{*2}	Other
Architecture	100	100	50	50	—	100	20	50	50
Interior	100	50	50	50	—	50	20	50	50
Shoes and bag	—	50	50	—	—	—	20	50	50
Sanitary materials, clothing, textile processing	—	50	50	—	—	—	—	50	50
Paper processing and book binding	—	50	50	—	—	—	—	50	50
Transport	100	100	50	50	200	100	20	50	50
Assembly	100	100	50	50	200	100	20	50	50
Packing	100	50	50	—	—	—	—	50	50
Other	100	50	50	50	200	50	20	50	50

*1 : MS is an adhesive whose main material is a silane-modified polymer.

*2 : Thermoplastics are thermoplastic polyolefins or thermoplastic rubbers

Supplement

Regarding adhesives for shoes and bags, we also comply with the following harmful substance content limits in accordance with the requirements of GB19340.

Item	Limit value of solvent-based adhesive (g/kg)、≤
Benzene	5.0
Toluene+Xylene	200

Free toluene diisocyanate	10.0
Normal hexane	150
1,2-dichloroethane	5.0
Total halogenated achillyl (Including 1,2-dichloroethane/dichloromethane/ 1,1,1-Trichloroethane/1,1,2-Trichloroethanewo)	50.0

③ GB 38508-2020 Limit amount of volatile organic compounds in cleaning agent.

(Regulation start date : December 1, 2020)

Cleaning agent products subject to this standard must meet the limits of volatile organic compounds and specified volatile organic compounds in cleaning agents, and the compounding ratio, etc. according to the conditions of use must be stated in the packing and instruction manual.

However, the following adhesives are excluded from the scope of this standard.

- Cleaning agent used in aerospace, nuclear industry, military, and semiconductor (including integrated circuit) manufacturing.

■ Limit value of volatile organic compounds.

Volatile organic compounds and specific volatile organic compounds in the cleaning agent shall meet the following limits.

For products that are used after diluting the cleaning agent, measure after blending according to the blending ratio specified on the product. If there is a range blending ratio of the components (diluent, etc.) to be blended in the state of construction, measure after blending so that the amount of diluent used is the minimum and the amount of cleaning agent product used is the maximum.

Item	Limit value		
	Aqueous cleaning agent	Semi-aqueous Cleaning agent	Organic solvent Cleaning agent
Content of volatile organic compounds (VOC) / (g/L)、≤	50	300	900
Content of Dichloromethane, Chloroform, Trichloroethylene, Tetrachloroethylene / %、≤	0.5	2	20
Formaldehyde	0.5	0.5	—
Content of Benzene, Toluene, Xylene, Ethylbenzene / %、≤	0.5	1	2

* — has no required value.

④ GB 38507-2020 Limit amount of volatile organic compounds in ink.

(Regulation start date : April 1, 2021)

According to this standard, it is required to satisfy the limit value of the volatile organic compound (VOC) contained in the ink, and to indicate the classification of ink on the packing material.

However, the following cases are excluded.

- Additive.
- Diluent used to adjust the printing performance of ink.
- Cleaning agent for printing ink.
- Other products used for printing

Ink type			Limit value /%
Solvent ink	Gravure ink		≤75
	Flexo ink		≤75
	Ink jet printing ink		≤75
	Screen printing ink		≤75
Water-based ink	Gravure ink	Absorbent base material	≤15
		Non-absorbent base material	≤30
	Flexo ink	Absorbent base material	≤5
		Non-absorbent base material	≤25
	Ink jet printing ink		≤30
	Screen printing ink		≤30
Offset printing ink	Sheet-fed offset printing ink		≤3
	Cold set web ink		≤3
	Thermosetting rotary ink		≤10
Energy cure ink	Offset printing ink		≤2
	Flexo ink		≤5
	Screen printing ink		≤5
	Ink jet printing ink		≤10
	Gravure ink		≤10
Engraving gravure ink			≤20

In addition, halogenated hydrocarbons and the solvents listed below are not intentionally added in the manufacturing process.

Number	Substance	CAS. number
1	Ethylbenzen	100-41-4
2	Propylene oxide	75-56-9
3	Styrene	100-42-5
4	Benzene	71-43-2
5	Isopropyl nitrite	541-42-4

6	Butyl nitrite	544-16-1
7	Ethylene glycol monoethyl ether	110-80-5
8	Ethylene glycol monoethyl ether acetate	111-15-9
9	Ethylene glycol monoethyl ether	109-86-4
1 0	Ethylene glycol monomethyl ether acetate	110-49-6
1 1	2-Nitropropane	79-46-9
1 2	N-methyl 2-pyrrolidone	872-50-4
1 3	Trigrim	112-49-2
1 4	Ethylene glycol dimethyl ether	110-71-4
1 5	Ethylene glycol diethyl ether	629-14-1
1 6	Toluene	108-88-3
1 7	Xylene	1330-20-7

Attachment 1

Detailed Substance List

The lists below do not cover all substances. The known CAS No. is given just as an example.

- Certain Amines that must Not be Formed in Decomposition

[Some azo dye and pigments (colorants) that produce specified amines]

No.	Substance	Molecular Formula	CAS. No.
1	4-aminoazobenzene REACH/SVHC specified substance	C ₁₂ H ₁₁ N ₃	60-09-3
2	σ-anisidine REACH/SVHC specified substance	C ₇ H ₉ NO	90-04-0
3	2-naftylamine	C ₁₀ H ₉ N	91-59-8
4	3,3'-dichlorbenzidin	C ₁₂ H ₁₀ Cl ₂ N ₂	91-94-1
5	4-aminodiphenyl	C ₁₂ H ₁₁ N	92-67-1
6	benzidine	C ₁₂ H ₁₂ N ₂	92-87-5
7	σ-toluidine REACH/SVHC specified substance	C ₇ H ₉ N	95-53-4
8	4-chloro-2-methylaniline	C ₇ H ₈ ClN	95-69-2
9	2,4-toluene diamine REACH/SVHC specified substance	C ₇ H ₁₀ N ₂	95-80-7
10	σ-aminoazotoluene REACH/SVHC specified substance	C ₁₄ H ₁₅ N ₃	97-56-3
11	5-nitro-σ-toluidine	C ₇ H ₈ N ₂ O ₂	99-55-8
12	3,3'-dichloro-4, 4'-diaminodiphenylmethane REACH/SVHC specified substance	C ₁₃ H ₁₂ Cl ₂ N ₂	101-14-4
13	4,4-methylenedianiline REACH/SVHC specified substance	C ₁₃ H ₁₄ N ₂	101-77-9
14	4,4'-diaminodiphenyl ether REACH/SVHC specified substance	C ₁₂ H ₁₂ N ₂ O	101-80-4
15	p-chloroaniline	C ₆ H ₆ ClN	106-47-8
16	3,3'-dimethoxybenzidine	C ₁₄ H ₁₆ N ₂ O ₂	119-90-4
17	3,3'-dimethylbenzidine	C ₁₄ H ₁₆ N ₂	119-93-7
18	2-methoxy-5-methylaniline REACH/SVHC specified substance	C ₈ H ₁₁ NO	120-71-8
19	2,4,5-trimethylaniline	C ₉ H ₁₃ N	137-17-7
20	4,4'-diaminodiphenylsulfide	C ₁₂ H ₁₂ N ₂ S	139-65-1
21	2,4-diamineanisole	C ₇ H ₁₀ N ₂ O	615-05-4
22	4,4'-diamino-3,3'-dimethyldiphenylmethane REACH/SVHC specified substance	C ₁₅ H ₁₈ N ₂	838-88-0
23	N,N'-ditolyl-1,4-phenylenediamine	C ₂₀ H ₂₀ N ₂	27417-40-9
24	2-(2-aminoethylamino)ethanol	C ₄ H ₁₂ N ₂ O	111-41-1

- Chlordane Ozone Depleting Substance (as stipulated in the Montreal Protocol)

Controlled Substance Listed in Annex A				
Group	Represented substance classification No.	Substance name	Chemical formula	CAS. No.
I	C04097 "CFC"	Trichlorofluoromethane	CFC ₁₃ (CFC-11)	75-69-4
I		Dichlorodifluoromethane	CF ₂ Cl ₂ (CFC-12)	75-71-8
I		1,1,2-Trichlorotrifluoroethane	C ₂ F ₃ Cl ₃ (CFC-113)	354-58-5

I		Dichlorotetrafluoroethane	C ₂ F ₄ Cl ₂ (CFC-114)	76-14-2
I		Monochloropentafluoroethane	C ₂ F ₅ Cl (CFC-115)	76-15-3
II	C04098 "Halon"	Bromochlorodifluoromethane	CF ₂ BrCl (halon-1211)	353-59-3
II		Bromotrifluoromethane	CF ₃ Br (halon-1301)	75-63-8
II		Dibromotetrafluoroethane	C ₂ F ₄ Br ₂ (halon-2402)	124-73-2

Controlled Substance Listed in Annex B				
Group	Represented substance classification No.	Substance name	Chemical formula	CAS. No.
I	C04099	Chlorotrifluoromethane	CF ₃ Cl (CFC-13)	75-72-9
I	"Other CFC"	Pentachloroethane	C ₂ FCl ₅ (CFC-111)	354-56-3
I		Tetrachlorodifluoroethane	C ₂ F ₂ Cl ₄ (CFC-112)	76-12-0
I		Heptachlorofluoropropane	C ₃ FCl ₇ (CFC-211)	422-78-6
I		Hexachlorodifluoropropane	C ₃ F ₂ Cl ₆ (CFC-212)	3182-26-1
I		Pentachlorotrifluoropropane	C ₃ F ₃ Cl ₅ (CFC-213)	2354-06-5
I		Tetrachlorotetrafluoropropane	C ₃ F ₄ Cl ₄ (CFC-214)	29255-31-0
I		Trichloropentafluoropropane	C ₃ F ₅ Cl ₃ (CFC-215)	1599-41-3
I		Dichlorohexafluoropropane	C ₃ F ₆ Cl ₂ (CFC-216)	661-97-2
I		Chloroheptafluoropropane	C ₃ F ₇ Cl (CFC-217)	422-86-6
II	C04100	Carbon tetrachloride	CCl ₄	56-23-5
III	C04101	1,1,1-trichloroethane (Methyl Chloroform)	C ₂ H ₃ Cl ₃	71-55-6
III	C04102	Bromochloromethane	CH ₂ BrCl	74-97-5

Controlled Substance Listed in Annex C				
Group	Represented substance classification No.	Substance name	Chemical formula	CAS. No.
I	C04105 "HCFC"	Dichlorofluoromethane	CHFCl ₂ (HCFC-21)	75-43-4
I		Monochlorodifluoromethane	CHF ₂ Cl (HCFC-22)	75-45-6
I		Monochlorofluoromethane	CH ₂ FCl (HCFC-31)	593-70-4
I		Tetrachlorofluoroethane	C ₂ HFCl ₄ (HCFC-121)	134237-32-4
I		Trichlorodifluoroethane	C ₂ HF ₂ Cl ₃ (HCFC-122)	41834-16-6
I		Dichlorotrifluoroethane	C ₂ HF ₃ Cl ₂ (HCFC-123)	34077-87-7
I		2,2-dichloro-1,1,1-trifluoroethane	CHCl ₂ CF ₃ (HCFC-123)	306-83-2
I		chlorotetrafluoroethane	C ₂ HF ₄ Cl (HCFC-124)	63938-10-3
I		2-chloro-1,1,1,2-tetrafluoroethane	CHFClCF ₃ (HCFC-124)	2837-89-0
I		Trichlorofluoroethane	C ₂ H ₂ FCl ₃ (HCFC-131)	27154-33-2
I		Dichlorodifluoroethane	C ₂ H ₂ F ₂ Cl ₂ (HCFC-132)	25915-78-0
I		Chlorotrifluoroethane	C ₂ H ₂ F ₃ Cl (HCFC-133)	1330-45-6

I		Dichlorofluoroethane	$C_2H_3FCl_2$ (HCFC-141)	1717-00-6
I		1,1-dichloro-1-fluoroethane	CH_3CFCl_2 (HCFC-141 b)	1717-00-6
I		Chlorodifluoroethane	$C_2H_3F_2Cl$ (HCFC-142)	25497-29-4
I		1-chloro-1,1-difluoroethane	CH_3CF_2Cl (HCFC-142 b)	75-68-3
I		Chlorofluoroethane	C_2H_4FCl (HCFC-151)	
I		Hexachlorofluoropropane	C_3HFCl_6 (HCFC-221)	134237-35-7
I		Pentachlorodifluoropropane	$C_3HF_2Cl_5$ (HCFC-222)	134237-36-8
I		Tetrachlorotrifluoropropane	$C_3HF_3Cl_4$ (HCFC-223)	134237-37-9
I		Trichlorotetrafluoropropane	$C_3HF_4Cl_3$ (HCFC-224)	134237-38-0
I		Dichloropentafluoropropane, (ethyne, fluoro-)	$C_3HF_5Cl_2$ (HCFC-225)	127564-92-5
I		Dichloropentafluoropropane	$CF_3CF_2CHCl_2$ (HCFC -225ca)	422-56-0
I		Dichloropentafluoropropane	CF_2ClCF_2CHClF (HCFC-225cb)	507-55-1
I		Monochlorohexafluoropropane	C_3HF_6Cl (HCFC-226)	134308-72-8
I		Pentachlorofluoropropane	$C_3H_2FCl_5$ (HCFC-231)	134190-48-0
I		Tetrachlorodifluoropropane	$C_3H_2F_2Cl_4$ (HCFC-232)	134237-39-1
I		Trichlorotrifluoropropane	$C_3H_2F_3Cl_3$ (HFC-233)	134237-40-4
I		Dichlorotetrafluoropropane	$C_3H_2F_4Cl_2$ (HCFC-234)	127564-83-4
I		Monochloropentafluoropropane	$C_3H_2F_5Cl$ (HCFC-235)	134237-41-5
I		Tetrachlorofluoropropane	$C_3H_3FCl_4$ (HCFC-241)	134190-49-1
I		Trichlorodifluoropropane	$C_3H_3F_2Cl_3$ (HCFC-242)	134237-42-6
I		Dichlorotrifluoropropane	$C_3H_3F_3Cl_2$ (HCFC-243)	134237-43-7
I		Monochlorotetrafluoropropane	$C_3H_3F_4Cl$ (HCFC-244)	134190-50-4
I		Trichlorofluoropropane	$C_3H_4FCl_3$ (HCFC-251)	134190-51-5
I		Dichlorodifluoropropane	$C_3H_4F_2Cl_2$ (HCFC-252)	134190-52-6
I		Monochlorotrifluoropropane	$C_3H_4F_3Cl$ (HCFC-253)	134237-44-8
I		Dichlorofluoropropane	$C_3H_5FCl_2$ (HCFC-261)	134237-45-9
I		Monochlorodifluoropropane	$C_3H_5F_2Cl$ (HCFC-262)	134190-53-7
I		Monochlorofluoropropane	C_3H_8FCl (HCFC-271)	134190-54-8
II	C04104 "HBFC"	Dibromofluoromethane	$CHFBr_2$	
II		Bromodifluoromethane	CHF_2Br (HBFC-22B1)	
II		Bromofluoromethane	CH_2FBr	
II		Tetrabromofluoroethane	C_2HFBr_4	
II		Tribromodifluoroethane	$C_2HF_2Br_3$	
II		Dibromotrifluoroethane	$C_2HF_3Br_2$	
II		Bromotetrafluoroethane	C_2HF_4Br	
II		Tribromofluoroethane	$C_2H_2FBr_3$	
II		Dibromodifluoroethane	$C_2H_2F_2Br_2$	
II		Bromotrifluoroethane	$C_2H_2F_3Br$	
II		Dibromofluoroethane	$C_2H_3FBr_2$	

II	Bromodifluoroethane	$C_2H_3F_2Br$	
II	Bromofluoroethane	C_2H_4FBr	
II	Hexabromofluoropropane	C_3HFBr_6	
II	Pentabromodifluoropropane	$C_3HF_2Br_5$	
II	Tetrabromotrifluoropropane	$C_3HF_3Br_4$	
II	Tribromotetrafluoropropane	$C_3HF_4Br_3$	
II	Dibromopentafluoropropane	$C_3HF_5Br_2$	
II	Bromohexafluoropropane	C_3HF_6Br	
II	Pentabromofluoropropane	$C_3H_2FBr_5$	
II	Tetrabromodifluoropropane	$C_3H_2F_2Br_4$	
II	Tribromotrifluoropropane	$C_3H_2F_3Br_3$	
II	Dibromotetrafluoropropane	$C_3H_2F_4Br_2$	
II	Bromopentafluoropropane	$C_3H_2F_5Br$	
II	Tetrabromofluoropropane	$C_3H_3FBr_4$	
II	Tribromodifluoropropane	$C_3H_3F_2Br_3$	
II	Dibromotrifluoropropane	$C_3H_3F_3Br_2$	
II	Bromotetrafluoropropane	$C_3H_3F_4Br$	
II	Tribromofluoropropane	$C_3H_4FBr_3$	
II	Dibromodifluoropropane	$C_3H_4F_2Br_2$	
II	Bromotrifluoropropane	$C_3H_4F_3Br$	
II	Dibromofluoropropane	$C_3H_5FBr_2$	
II	Bromodifluoropropane	$C_3H_5F_2Br$	
II	Bromofluoropropane	C_3H_6FBr	

Controlled Substance Listed in Annex E				
Group	Represented substance classification No.	Substance name	Chemical formula	CAS. No.
	CO4103	Methyl bromide	CH_3Br	74-83-9

● Asbestos

Substance name	CAS. No.
Actinolite asbestos	77536-66-4
Grunerite, amosite	12172-73-5
Anthophyllite asbestos	77536-67-5
Serpentine chrysotile	12001-29-5
Crocidolite asbestos	12001-28-4
Tremolite	77536-68-6
Other types of asbestos	

- Chlordane

Substance name	CAS. No.
Oxychlordane	27304-13-8
Gamma-chlordane	3734-48-3
Cis-chlordane	5103-71-9
Cis-nonachlor	5103-73-1
Trans-chlordane	5103-74-2
Trans-nonachlor	39765-80-5
Heptachlor	76-44-8
Other types of chlordane	

- N-para-phenylenediamine

Substance name	CAS. No.
N,N'-Ditolyl-para-phenylenediamine	
N-tolyl-N'-xylyl-para-phenylenediamine	
N,N'-Dixylyl-para-phenylenediamine	

- Polybrominated biphenyl (PBB)

Substance name	CAS. No.
Hexabromo-1,1'-biphenyl ^ポ	36355-01-8
Polybrominated biphenyls	59536-65-1
PBBs (octobromomixture)	27858-07-7
Other PBB's	

- Polybrominated diphenyl ether (PBDE)

Substance name	CAS. No.
Monobromodiphenylether	101-55-3
Dibromodiphenylether	2050-47-7
Tribromodiphenylether	49690-94-0
Tetrabromodiphenylether 40088-47-9	40088-47-9
Pentabromodiphenylether	32534-81-9
Hexabromodiphenylether	36483-60-0
Octabromodiphenylether	32536-52-0
Nonabromodiphenylether	63936-56-1
Decabromodiphenylether	1163-19-5
Other PBDEs	—

- Hexa-bromocyclododecane (HBCDD and HBCD)

Substance name	CAS. No.
Hexa-bromocyclododecane	3194-55-6
Hexa-bromocyclododecane (Mixture of isomers)	25637-99-4

- Specific phthalate compounds (phthalate)

Abbreviation	Substance name	CAS. No.
DEHP (DOP)	Bis(2-ethylhexyl) phthalate (DEHP [DOP])	117-81-7
DBP	Di-n-butyl phthalate (DBP)	84-74-2
BBP	Butyl benzyl phthalate (BBP)	85-68-7
DIBP	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	84-69-5
DINP	Diisononyl phthalate (DINP)	28553-12-0 68515-48-0
DIDP	Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1
DNOP	Di-n-octyl phthalate (DNOP)	117-84-0
DNHP	Di-n-hexyl phthalate (DNHP)	84-75-3

- Radioactive substances

Substance name	JGPSSI represented substance classification No.	CAS. No.
Uranium	C06001	-
Plutonium	C06002	-
Radon	C06003	-
Americium	C06004	-
Thorium	C06005	-
Cesium (radioactive isotope only)	C06006	-
Strontium (radioactive isotope only)	C06007	-
Other radioactive substances	C06007-9	-

- Tri-substituted organostannic compounds (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)

Inorganic compounds of metallic tin, tin alloy, tin plating, and tin are not applicable.

Substance name	CAS. No.
Bis(tributyltin)oxide	56-35-9
Trimethyltin bromide	1066-44-0
Trimethyltin chloride	1066-45-1
Tributyltin methoxide	1067-52-3
Tributyltinhydroxide	1067-97-6
Trimethyltin <i>azide</i> .	1118-03-2
Trimethyltin acetate	1118-14-5
Tributyl[(methylsulfonyl)oxy]stannane	13302-06-2
Triphenyltin dimethyldithiocarbamate	1803-12-9
Triethyltin acetate.	1907-13-7
Fluoro(tributyl) <i>stannane</i>	1983-10-4
Tributyltin dimethyldithiocarbamate.	20369-63-5

Tributyltin=methacrylat	2155-70-6
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Attachment 2

Analysis Standards for RoHS II Directive Substances

Analysis Methods for the 10 RoHS II Substances are as follows:

1. Standard Analysis Equipment

1) Cadmium, Lead, Mercury, and Total Chromium (please refer to Item 3)

- Inductively Coupled Plasma-Atomic Emission Spectrometer (ICP-AES)
- Inductively Coupled Plasma Mass Spectrometer (ICP-MS or ICPMS)
- Atomic Absorption Spectroscope (AAS)

or other similar analysis equipment

Should total chromium exceed regulated values (threshold level), perform a hexavalent chromium analysis.

2) Hexavalent Chromium

- diphenylcarbazide absorptiometer
- or other similar analysis equipment

3) PBBs and PBDEs

Gas Chromatograph and Mass Spectrometer (GC-MS) or other similar analysis equipment

4) Specific phthalate compounds (phthalate):DEHP,DBP,BBP,DIBP

Gas Chromatograph and Mass Spectrometer (GC-MS) or other similar analysis equipment

Reference: There is USEPA3540C8270D as an Analysis method. (or IEC62321-8)

2. Preparation

Please perform appropriate pretreatment. If dissolution is necessary, please confirm that there is complete dissolution. Checkmark the applicable entries in Form 4 **RoHS II Directive**

10 Substance Containment Analysis Data or other document clearly indicating complete dissolution has taken place. (Please indicate the forms to be completed when requesting the analysis) Ensure that the analysis equipment conforms to the minimum limit of detection as shown in item 4 below.

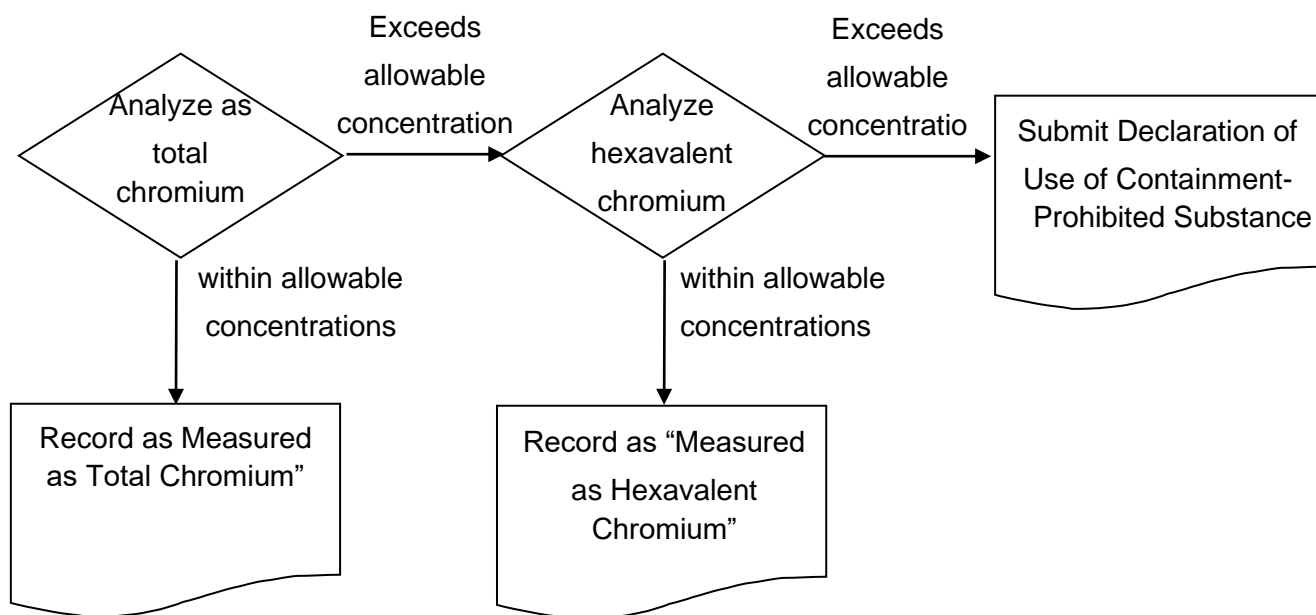
3. Analysis Procedure for Hexavalent Chromium

- Total Chromium as an Alternate Analysis

We principally want to determine the content of hexavalent chromium. However according to concentrations, we can analyze total chromium as an alternative. (Please refer to the following chart) If the analysis value is total chromium, please specify this on the reporting form.

- How to Calculate Content Amount

In the case of chromate treated products, convert hexavalent chromium per surface plating volume from the extraction concentration. In the case of coatings, etc., convert hexavalent chromium per data mass.

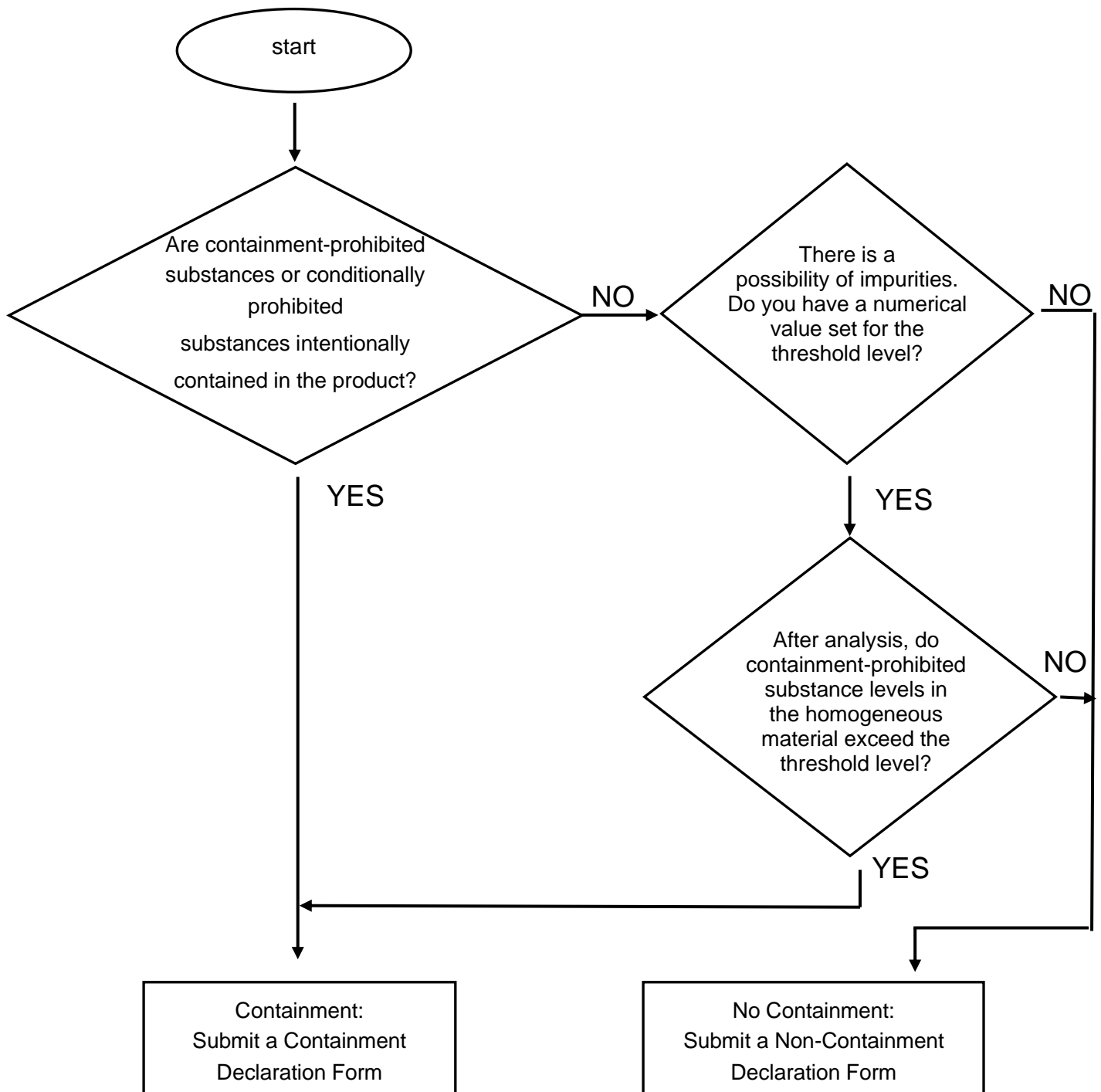


4. Minimum Limits of Detection

Clearly indicate the lower limit detection certificates for each analysis equipment used.

- | | |
|---------------------------|--------|
| 1) Cadmium | 5 ppm |
| 2) Lead | 30 ppm |
| 3) Mercury | 5 ppm |
| 4) Hexavalent chromium | 5 ppm |
| 5) PBBs | 50 ppm |
| 6) PBDEs | 50 ppm |
| 7) Specific phthalic aids | 50 ppm |

5. Containment Judgment Flow



Attachment 3

Cautionary Materials List

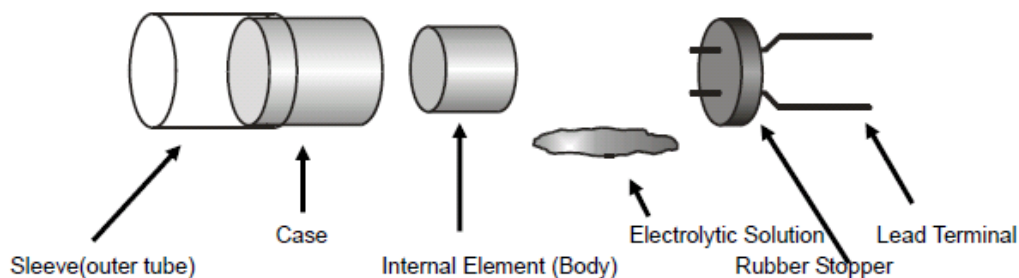
Type	Product examples	Assumed containment-prohibited substance (brackets contain purpose and parameters)
Colored resin	Molding resin (bobbin, cap, case)	Lead (colorant)
	Heat-shrink sleeve, PVC tube	Cadmium (colorant, stabilizer for polyvinyl Chloride)
	Adhesive	Hexavalent chromium (colorant)
	Tape	PBDEs (fire retardant)
	PET sheet	PBBs (fire retardant)
	Electric wire coating	Specific phthalic aids (plasticizer)
Coating, ink	Lubricant, solvent, coating, Chemical, ink	Lead (colorant) Cadmium (colorant) Hexavalent chromium (colorant) Specific phthalic aids (plasticizer)
Rubber	Rubber roller	Lead (vulcanizing accelerator, receptor, heat Stabilizer) Specific phthalic aids (plasticizer)
Metalwork parts	Holder case, cover, lid, bracket	Cadmium (impurity in free-machining brass)
	Wire terminals, lead frame	Lead (impurity in free-machining aluminum, Stabilizer for electroless plating, impurity in tin)
	Screw, spacer, collar, shaft	Hexavalent chromium (to increase corrosion Resistance)
	Roller bearing bush	Lead (plastic coat)
Electric wire Terminals	Lead wires, harness, cable	Lead (impurity in tin plating)
Electric parts	Fuse	Cadmium (to adjust resistor melting point) Electric parts lead (to adjust resistor melting point)
	Terminal parts (condenser, etc.)	Lead (to diffuse internal high-temperature solder to terminals)

Attachment 4

Example of Parts

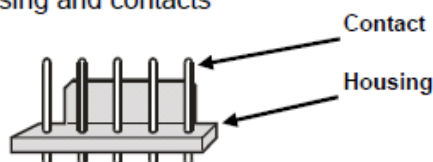
[Component Part Example 1] Aluminum electrolytic capacitor

Component parts: Sleeve, Case, Internal Element, Electrolytic Solution, Lead Terminal



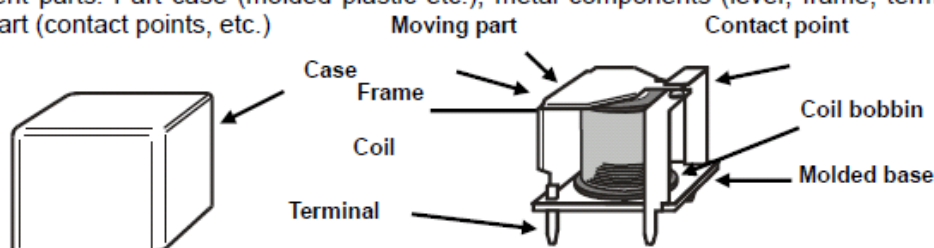
[Component Part Example 2] Connectors

Component parts: Housing and contacts



[Component Part Example 3] Switches, relays, and other parts with mechanical components

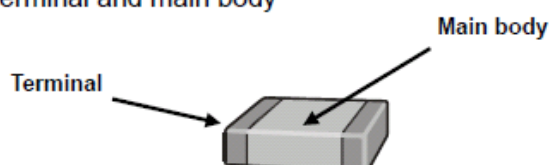
Component parts: Part case (molded plastic etc.), metal components (lever, frame, terminals, etc.), moving part (contact points, etc.)



* Please pay particular attention to special metals (alloys) used for plastic flame retardants, and electrical characteristics and lubrication of contact points.

[Component Part Example 4] Surface-mounted chip parts

Component parts: Terminal and main body



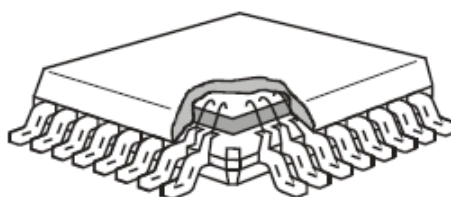
* The main body of the part is made of multiple materials and the substance concerned is present, break it down.
e.g.) Part (main body) → ceramic and internal electrode

(from JGPSSI Material Composition Survey and Response Manual, English 2011.4.8 1.2 Edition)

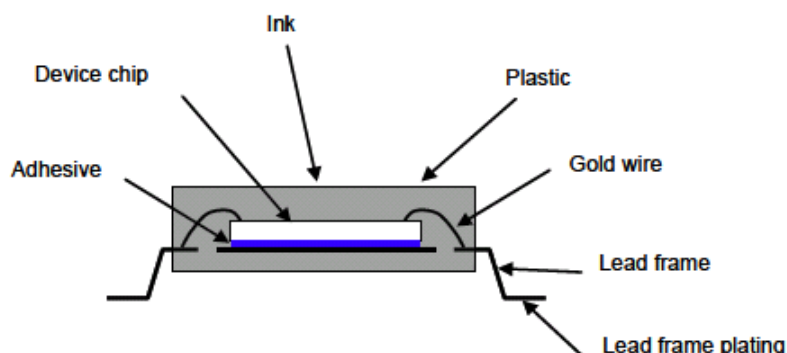
[Component Part Example 5] Semiconductor devices

Component parts: Lead terminal (lead frame, etc.), package main body (molded plastic, etc.), and device chip

Outward appearance:



Cross section:

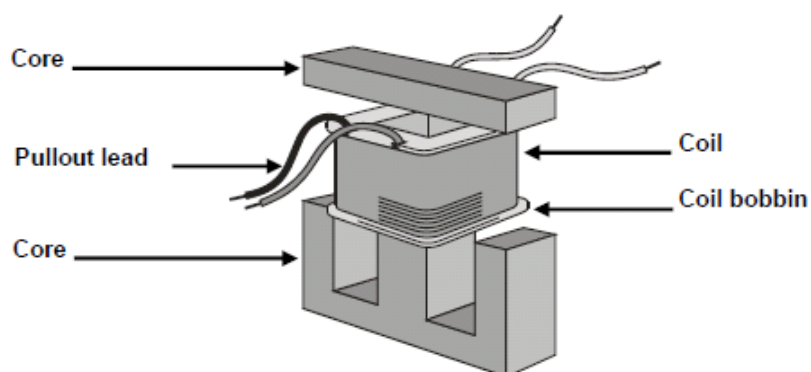


* Please pay particular attention to any flame retardants in the package plastic, and the lead material and treatment

* Make the response concerning the device chip as best you can

[Component Part Example 6] Transformers and inductors

Component parts: Core, coil, bobbin, lead wire, insulator, case frame, etc.

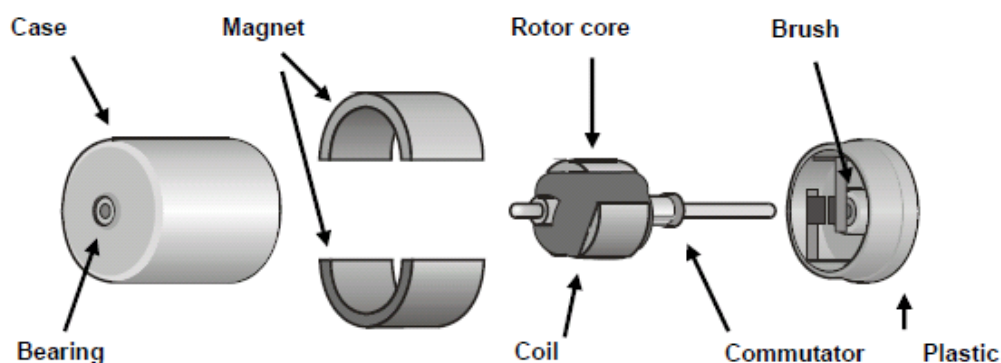


* Pay particular attention to flame retardants in plastic materials or insulating parts, impregnant in the coil, PVCs or flame retardants in the lead wire.

(from JGPSSI Material Composition Survey and Response Manual, English 2011.4.8 1.2 Edition)

[Component Part Example 7] DC motors

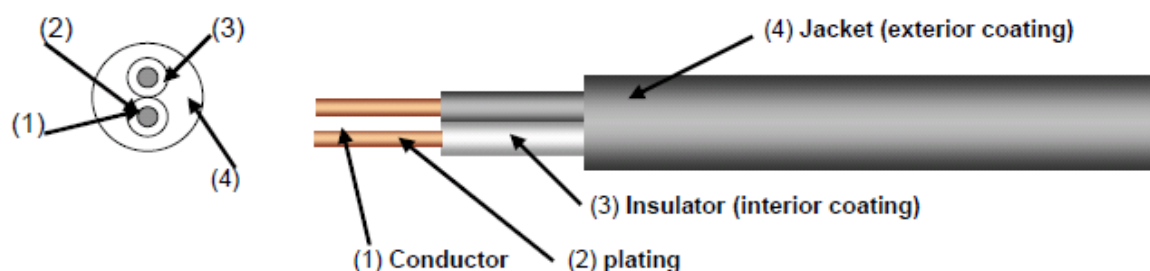
Component parts: Part case (molded plastic, etc.), metal parts (shaft, rotor core, terminal, frame, etc.) brush, magnet, coil, and other



- * Pay particular attention to special metals (alloys) used for flame retardants in plastic, and electrical characteristics and lubrication in commutators, as well as grease in bearings.
- * Calculate the amount contained per part from the amounts contained in each of the part components, when the substance is contained in lead wire and electronic circuits.

[Component Part Example 8] Electrical cable (power cord)

Component parts: Conductor, plating, insulator (interior coating), and jacket (exterior coating)



(from JGPSSI Material Composition Survey and Response Manual, English 2011.4.8 1.2 Edition)