



**Manual for Survey of
Chemical Substances Contained
in Parts and Materials**

For Business Partners

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Sakai Display Products Corporation

Table of Contents

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1. Purpose	…P.3
2. Applicable Scope	…P.3
3. Chemical Substance Management Categories	…P.4
4. Classification of Items Procured	…P.5
5. Documents to Be Submitted	…P.6–7
6. Chemical Substances Subject to the Survey, Criteria	…P.8–21
7. Non-Disclosure	…P.21
8. For Inquiries	…P.21
9. Attachments	
Attachment 1: Examples of Application Areas	…P.22–24
Attachment 2: RoHS analysis method guideline	…P.25–31

1. Purpose

Sakai Display Products Corporation (hereinafter referred to as “SDP”) promotes green procurement from suppliers who are constructively engaged in environmental preservation activities to ensure user safety and to protect the environment at the time a product is finally disposed of.

Green procurement at SDP encompasses two aspects: an “Environmental Management Evaluation” that evaluates efforts aimed at protecting the environment by the supplier’s organization as a whole, and a “Delivered Goods Evaluation” to assess the reduction in environmental impact of parts and materials purchased from the supplier (including materials, general components, finished and semi-finished products, and indirect materials).

This manual explains the criteria covering chemical substances contained in products and the survey methods used in the Delivered Goods Evaluation.

The Delivered Goods Evaluation consists of two processes: a Report on Chemical Substances Contained in the Product and a Content Survey.

Survey	Description	Remarks
Report on Chemical Substances Contained in the Product	A prescribed document attached to delivery specifications and submitted to SDP that indicates whether substances banned by SDP are contained in delivered goods.	Posted on the SDP Green Procurement website https://www.sdp.co.jp/en/suppliers/green.html
Parts Environment survey sheet		

2. Applicable scope and Conduct survey

1). Applicable scope

This survey applies to all parts and materials purchased by SDP. More specifically, it applies to the following:

- (1) Parts, materials and units incorporated into the product
- (2) Auxiliary materials used in production and contained in the product (solder, oil, grease, tape etc.)
- (3) Finished products, options, supplies and similar items purchased for sale
- (4) Printed matters and accessories enclosed with products (manuals, cables, remote controllers etc.)
- (5) Container materials for packaging products (The survey does not apply to packaging materials when parts/materials are delivered. But, it applies to packaging materials used when parts/materials to be shipped as packaging for a service part from our company.)

The following parts and materials may contain chemical substances that are subject to this survey. Check thoroughly whether they are present.

- Lubricants, such as grease
- Flame retardants in resin materials
- Polyvinyl chloride, flame retardants, and stabilizers in lead wire insulation
- Special metals (alloys) for lubrication of electrical contacts, etc.
- Additives (plasticizers) in rubber for belts, rollers, bushings, tubing, etc.
- Marking paints for color codes, pigments, etc.

By-materials and indirect materials which are used in production process and do not remain with product/part are not applied.

2). Conduct survey

For the parts and materials in the applicable scope, conduct this survey before the specification is exchanged. If this survey document is not submitted, purchase of parts and materials is prohibited. We will also request additional product environmental surveys and renewal of old product environmental data due to customer requests, destination laws, enforcement of regulations, etc. Please cooperate.

3. Chemical Substance Management Categories

As shown in the table below, chemical substances contained in the parts and materials purchased by SDP are managed by classifying them into (1) Banned substances, (2) Substances banned depending on the application, and (3) Managed substances.

Categories	Explanation	Remarks
(1)Banned substances	Substances that cannot be used for any purpose. If contained in a part or material, immediately discontinue and eliminate their use. In principle, SDP will not purchase parts and materials containing these substances.	<ul style="list-style-type: none"> ▪ Substances whose inclusion in products is currently regulated or is expected to be regulated in the future under laws and regulations and on environmental labels in Japan or overseas. ▪ Substances that SDP regulates on its own initiative in advance of global trends because it is widely known that their environmental impact is high and alternative substances exist.
(2)Substances banned depending on the application	Substances regarded as banned by SDP depending on the application (excluded applications). In excluded applications, these substances shall be treated as Managed substances.	
(3)Managed substances	Substances for which it is necessary to ascertain whether the specified substance is present, the amount contained, and so on.	<ul style="list-style-type: none"> ▪ Substances for which disclosure of information on their usage status in products is required, or is expected to be required in the future, under laws and regulations and on environmental labels in Japan or overseas. ▪ Substances for which customers have requested, or for which there is a possibility of being requested, that their usage status information in products be disclosed. ▪ All SDP-specific survey-targeted chemical substances that do not fall under the category of “SDP-banned substances” shall be treated as Managed substances.

4. Classification of Items Procured

At SDP, parts and materials used in products are classified from the standpoint of biosafety into “specified items” (A, B, C) and “general items”, as indicated in the table below.

Item		Classification/Definition	Examples of Procured Items
Specified Items	Specified Item A (items with large social responsibility)	1. SDP-developed procured item <ul style="list-style-type: none"> ▪ Procured item developed by Sharp, or that uses chemicals specified by SDP ▪ Procured item bearing the SDP brand 	Procured items for copiers (toner, developer, ink, etc.), ink ribbon, ink roll, air purifier filter, vacuum cleaner bag, SDP custom-order product (procured items with SDP-designated model number), etc.
		2. Procured item in powder, liquid, or gas form <ul style="list-style-type: none"> ▪ SDP-developed procured item to which users and other organisms are directly exposed to 	SDP-designated cleaning agent (for air conditioners, washing machines, etc.), base material for composters, etc.
	Specified Item B (items that come into contact with food or eating utensils, or that use special chemicals)	1. Procured item that has the possibility of coming into direct contact with food or utensils during cooking or storage	Parts for the internal compartments of refrigerators and microwave ovens, etc.
		2. Procured item that has been given functions such as antibacterial, antimold, and insect repellency via chemicals	External parts such as cabinets with antibacterial, antimold, or insect repellent functions
Specified Item C (items with which users come into contact for a long period of time)	Procured item that can be expected to enter or attach to the human body; or to which bodily parts other than fingers and hands constantly come into contact during product use	Ear pads on headphones, blood pressure cuff, electric carpet, etc.	
General Items		Procured item other than specified item	Procured items other than the above

5. Documents to Be Submitted

(1) List of Documents to Be Submitted

The table below specifies the documents to be submitted and the format for submission.

Document	Format	Method of Submission	Chemical Substances Targeted in Survey *1	Remarks
Report on Chemical Substances Contained in the Product	Report on Chemical Substances Contained in the Product *2	Submitted by attaching to specifications for newly adopted parts and materials	SDP-banned substances*3 <ul style="list-style-type: none"> ▪ Banned substances ▪ Substances banned depending on the application 	Range of applicable packaging materials: <ul style="list-style-type: none"> ▪ Also covers packaging materials at the time of parts and materials delivery. Also report chemical substances contained in packaging materials under the same criteria. ▪ However, packaging materials that will clearly be disposed of at SDP bases*4 and for which there is no risk of migration or contamination by targeted substances from the packaging materials into parts or materials are not subject to the survey.
Parts Environment survey sheet	Parts Environment survey sheet*2	Submit with Specification	Fill out chemical substance information and RoHS information for each homogeneous material*6.	–
Analysis Data of RoHS Target Substances	Actual measurement data (May be substituted by other material, for which RoHS compliance can be confirmed)	Submitted by attaching to specifications for newly adopted parts/ materials	The ten substances regulated under RoHS (lead, mercury, cadmium, hexavalent chromium, PBB, PBDE, DIBP, DEHP, DBP, BBP)	It is required for each homogeneous material*6.
SDS*5	Industry standards		–	–
Food Sanitation Act Test Data	Certificate of analysis, etc.		–	–
Safety Evaluation Data	Evaluation data from analysis laboratories, etc.		Refer to “Criteria for Safety Evaluation Data” (p5) in the “(2) Documents to Be Submitted for Each Item” section.	–

*1. Chemical substances subject to the survey may be changed or added depending on trends in regulations and customer requests.

We may ask you to survey other substances as well depending on the business unit or base in the SDP.

*2. The Report on Chemical Substances Contained in the Product will be posted on the SDP Green Procurement website.

(<https://www.sdp.co.jp/suppliers/green.html>)

*3. For details of SDP-banned substances, please see “List of substances subject to the survey and management classification”.

*4. “Bases” refers to plants and service bases in Japan and overseas designated by SDP.

*5. SDS: Safety Data Sheet.

*6. Homogeneous material (Please see the “Attachment 1: Examples of Application Areas”)

– Material which cannot be mechanically separated into different materials

– “Mechanical separation” refers to separation through mechanical work, such as screw removal, cutting, crushing, grinding, polishing etc.

– Examples of homogeneous materials include: plastic, ceramics, glass, metal, alloy, paper, coatings etc.

(2) Documents to Be Submitted for Each Item

Information to be submitted for each category of items that SDP procures is given in the table below. Beyond this table, we may ask you to provide additional information to comply with laws and regulations, and/or industry standards and norms.

(● = Must; ▲ = Advised; — = Not required)

	Specified Items				General Items
	Specified Item A	Specified Item B-1	Specified Item B-2	Specified Item C	
Report on Chemical Substances Contained in the Product	●	●	●	●	●
Parts Environment survey sheet*7	●	●	●	●	●
Analysis Data of RoHS Target Substances	●	●	●	●	●
EU eco label conformance statement	—	—	—	—	▲*8
SDS*9	●	—	●*10	—	▲*8
Food Sanitation Act Test Data	—	●	—	—	—
Safety Evaluation Data*11	1) Acute toxicity (oral intake)	●	—	—	●
	2) Skin irritancy *12	●	—	—	●
	3) Eye/mucous membrane irritancy*12	●	—	—	●
	4) Mutagenicity test (Ames test)	●*13	—	—	●*13
	5) Mutagenicity test, chromosomal aberration test	▲	—	—	▲
	6) Mutagenicity test, micronucleus test	▲	—	—	▲

<Criteria for Safety Evaluation Data>

Test Item	Hazard Identification Criteria	(Reference) Test Method (OECD test no.)*14
1) Acute toxicity (oral intake)	Oral: Lethal dose 50% (LD50) > 2000 mg/kg (Rat)	423, 425
2) Skin irritancy*12	Primary irritation index (PII) ≥ 2	404
3) Eye/mucous membrane irritancy*12	Present	405
4) Mutagenicity test (Ames test)	Positive	471
5) Mutagenicity test, chromosomal aberration test	Positive	473
6) Mutagenicity test, micronucleus test	Positive	474

*7. In order to confirm the entry contents of the "parts environment survey sheet", check sheet also fill in, please submit.

*8. "EU eco label conformance statement" requires a complementary material, please submit the SDS (former name MSDS).

* Target parts: plastic parts, cables, wiring, power supply units, PCB, etc.

Not target parts: Electronic parts(Example : IC, PCB mounted parts, Connectors, etc.), Part of no resin, etc.

*9. Submit when there is the possibility of exposure.

*10. Submit SDS for antibacterial and antimold agents.

*11. Submit when there is the possibility of exposure.

*12. Not necessary if no direct exposure to skin, eyes, or mucosa.

*13. Also submit as much other genotoxicity data as possible in addition to tests in 5) and 6).

*14. "OECD Guidelines for the Testing of Chemicals" URL:

<http://www.oecd.org/chemicalsafety/testing/oecdguidelinesforthetestingofchemicals.htm>

(3) Criteria for Providing Composition Information

SDP asks that you always transfer composition information if it falls under any of the following:

- SDP-banned substances(banned substances, substances banned depending on the application) and managed substances to providing composition Information. For details of the target chemical substances, please see "List of substances subject to the survey and management classification".

<Example>

Be sure to transfer information when the criteria (values) for a SDP-banned substances is "not intentionally added and content is 1,000 ppm or less," and when a SDP survey-targeted chemical substance has been "intentionally added."

6. Chemical Substances Subject to the Survey, Criteria

1. List of Criteria for Banned Substances

Chemical substances contained in parts and materials purchased by the SDP are managed by classifying them into three categories: (1)Banned substances, (2)Substances banned depending on the application, and (3)Managed substances.

(1) Banned substances

The substances shown in Table 1-1 are banned at SDP and cannot be used for any purpose. If contained in a part or material, their use must be immediately discontinued.

In principle, SDP will not purchase parts and materials containing these banned substances.

Table 1-1: Criteria (Reference Values) of Banned substances

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
1	Hexavalent chromium compounds	①Pigments and dyes used in plastics (including rubber)	Content is 1,000 ppm or less.	Immediately
		②Pigments, paints, inks		
		③Rust-preventive plating treatments		
		④Batteries		
		⑤All uses including catalysts		
		⑥Leather products/components that come into contact with the human skin	Less than 3 ppm per total dry weight of leather	
		⑦Packaging materials, packaging components	See Table 1-3	
2	Polybrominated biphenyls(PBBs)	①All uses including flame retardants for plastics	Content is 1,000 ppm or less.	Immediately
3	Polybrominated diphenylethers (PBDEs)	①All uses including flame retardants for plastics	Content is 1,000 ppm or less.	Immediately
4	Diisobutyl phthalate (DIBP)	①All uses	Content is 1,000 ppm or less.	Immediately
5	Bis(2-ethylhexyl)phthalate (DEHP), dibutyl phthalate (DBP), butylbenzylphthalate (BBP)	①All uses	Each content is 1,000 ppm or less.	Immediately
		②Parts and materials used in children's toys	Total content of three substances (DEHP, DBP, BBP) 1,000 ppm or less	
6	Tributyl tin oxide (TBTO)	①All uses including paints, inks, preservatives, and mold inhibitors	Content is 1,000 ppm or less. Not intentionally added.	Immediately
7	Tri-substituted organostannic compounds	①All uses including paints, inks, preservatives, and mold inhibitors	Content is 1,000 ppm or less. Not intentionally added.	Immediately
8	Polychlorinated biphenyls (PCBs) and specific substitutes	①All uses including insulating oils and lubricating oils	Not intentionally added.	Immediately
9	Polychlorinated naphthalenes (having 1 to 8 chlorine atoms)	①All uses including lubricating oils and paints	Not intentionally added.	Immediately
10	Short-chain chlorinated paraffins (SCCPs) (C10-C13)	①All uses including pigments, paints, inks, lubricants, and plasticizers	Not intentionally added.	Immediately
11	Asbestos	①All uses including insulation materials and filling agents	Not intentionally added.	Immediately
12	Polychlorinated terphenyls (PCTs)	①All uses	Content is 50 ppm or less. Not intentionally added.	Immediately

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
13	2-(2H-1,2,3-benzotriazol-2-yl)-4, 6-di-tert-butylphenol	①All uses	Not intentionally added.	Immediately
14	Hexabromocyclododecane (HBCDD) and all major diastereoisomers	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately
15	Cobalt dichloride (COCl ₂)	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately
16	Dimethyl fumarate	①All uses	Content is 0.1 ppm or less. Not intentionally added.	Immediately
17	Aluminosilicate, refractory ceramic fibers	①All uses	Not intentionally added.	Immediately
18	Zirconia aluminosilicate, refractory ceramic fibers	①All uses	Not intentionally added.	Immediately
19	Dibutyltin (DBT) compounds	①All uses	1,000 ppm or less as elemental tin in material.	Immediately
20	Ozone-depleting substances	①All uses	Not intentionally added.	Immediately
21	Beryllium oxide	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately
22	Diarsenic pentoxide	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately
23	Japan Chemical Substances Control Act Class I specified chemical substance	①All uses	Not intentionally added.	Immediately
24	TSCA target substances	①All uses	Not intentionally added.	Immediately
25	POP target substances	①All uses	Not intentionally added.	Immediately
26	Musk xylene	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately
27	Nonylphenol compounds and their ethoxylates	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately
28	Anthracene	①All uses	Content is 1,000 ppm or less. Not intentionally added.	Immediately

*1) Unit for calculating content rate is homogeneous material if not otherwise specified.

Table 1-2. Specific targeted Banned substances for SDP

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
1	Chemical Substances Control Act Class II specified chemical substances	①All uses	Not intentionally added.	Immediately
2	Chemical Substances Control Act monitoring substances	①All uses	Not intentionally added.	Immediately
3	Long-chain chlorinated paraffins (LCCPs)(C20-C30) (CAS No : 108171-27-3)	①All uses	Not intentionally added.	Immediately
4	Medium-chain chlorinated paraffins (MCCPs) (group) (C14-C19)	①All uses	Not intentionally added.	Immediately
5	1,3-Dichloropropene (CAS No : 542-75-6)	①All uses	Not intentionally added.	Immediately
6	p-Dimethylaminoazobenzene (CAS No : 60-11-7)	①All uses	Not intentionally added.	Immediately
7	Hydrogen chloride (CAS No : 7647-01-0)	①All uses	Not intentionally added.	Immediately
8	N,N'-Ethylenebisdithiocarbamate manganese (Maneb) (CAS No : 12427-38-2)	①All uses	Not intentionally added.	Immediately
9	1-Naphthylamine (CAS No : 134-32-7)	①All uses	Not intentionally added.	Immediately

*1) Unit for calculating content rate is homogeneous material if not otherwise specified.

Table 1-3. Criteria for Content of Heavy Metals (Cadmium, Lead, Mercury, Hexavalent Chromium) in Packaging Materials and Components

Categories	Applications	Criteria (Value)	Date of Abolition
Banned	①Materials and components for product packaging (cardboard, bags, cushioning materials, sheeting, tape, staples, binding bands, labels, cushions, paint, ink, etc.) ②Packaging materials for servicing parts (cardboard, bags, cushioning materials, sheeting, tape, staples, binding bands, labels, cushions, paint, ink, etc.)	Total content 100 ppm or less in each component, ink, or paint that makes up the package	Immediately
Declarable	①Packaging materials and components used for delivered parts and materials	-	-

(2) Substances Banned Depending on the Application

Table 2-2: Exempted Applications for Substances Banned Depending on the Application and Their Criteria (Reference Values)

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition	
1	Cadmium and its compounds	Banned	①Stabilizers, pigments, and dyes used in plastics including rubber)	Content is 1,000 ppm or less.	Immediately
			②Pigments, paints, inks ③Surface treatments (plating, etc.), coatings ④Small fluorescent lamps, straight-tube fluorescent lamps ⑤All applications except those in the Declarable category		
		Declarable	⑥Packaging materials, packaging components	See Table 1-3	
			①Used for electrical contacts.<8(b)> ②Used in striking optical filter glass types, excluding applications falling under point 39 of EU RoHS directive annex III*2)<13(b)-(II)> ③Used in white glass used for an optical purpose*2)<13(b)-(III)> ④Exempted applications specified under the EU RoHS Directive other than ① and ③ above, and permission obtained from the adopting department	-	
			⑤Batteries	In compliance with EU battery directive	
2	Lead and its compounds	Banned	①Stabilizers, pigments, and dyes used in plastics (including rubber) (AC adapters, power cords, connection cables, etc.) ②Pigments, paints, inks ③Balancer weights ④Lead solder (solder for component mounting, terminal plating, etc.) ⑤Consumer products designed or intended primarily for children age 12 and younger and used at 0.01 wt% or more in exterior parts ⑥Parts and materials for toy applications, 0.009% or more used per unit in surface coatings such as paint ⑦All applications except those in the Declarable category	Contained at less than below: ①In resins: 300 ppm ②Other: 1,000 ppm	Immediately
			⑧Packaging materials, packaging components	See Table 1-3	

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition										
	Declarable	<ul style="list-style-type: none"> ① High-melting point solder (lead-based alloys containing 85 % by weight or more lead). <7(a)> ② Electrical and electronic components in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound <7(c)-I> ③ Glass of fluorescent tubes not exceeding 0.2 wt% <5(b)> ④ Contained as an alloying element (less than 0.35% by weight in steel alloy <6(a)>, less than 0.4% by weight in aluminium alloy <6(b)>, less than 4% by weight in copper alloy <6(c)>) ⑤ Solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages <15> ⑥ White glass used for an optical purpose*2) <13(a)> ⑦ Ion coloured optical filter glass types*2) <13(b)-(I)> ⑧ Glazes used for reflectance standards*2) <13(b)-(III)> ⑨ Bearing shells and bushes for refrigerant-containing hermetic scroll compressors with a stated electrical power input equal or below 9kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications*2) <9(b)-I> ⑩ Dielectric ceramic used in a capacitor with rated voltage of 125V AC or 250V DC or larger. <7(c)-II> ⑪ PZT-based dielectric ceramic materials in a capacitor part of an IC chip or a discrete semiconductor. (single function semiconductor) <7(c)-IV> ⑫ Exempted applications specified under the EU RoHS Directive other than ① to ⑪ above, and permission obtained from the adopting department 	—	—										
		⑬ Batteries	In compliance with EU battery directive											
3	Mercury and its compounds	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td data-bbox="220 1368 352 1615">Banned</td> <td data-bbox="352 1368 1054 1615"> <ul style="list-style-type: none"> ① Stabilizers, pigments, and dyes used in plastics (including rubber) ② Pigments, paints, inks ③ Mercury batteries ④ Relays, switches, and sensors using mercury ⑤ All applications except those in the Declarable category </td> <td data-bbox="1054 1368 1342 1615">Content is 1,000 ppm or less.</td> <td data-bbox="1342 1368 1493 1615">Immediately</td> </tr> <tr> <td data-bbox="220 1615 352 1648"></td> <td data-bbox="352 1615 1054 1648">⑥ Packaging materials, packaging components</td> <td data-bbox="1054 1615 1342 1648">See Table 1-3</td> <td data-bbox="1342 1615 1493 1648"></td> </tr> <tr> <td data-bbox="220 1648 352 2033">Declarable</td> <td data-bbox="352 1648 1054 2033"> <ul style="list-style-type: none"> ① Used in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes (per lamp): <ul style="list-style-type: none"> (a) Short length (≤ 500 mm): under 3.5mg <3(a)> (b) Medium length (> 500 mm and ≤ 1500 mm): under 5mg <3(b)> (c) Long length (> 1500 mm): under 13mg <3(c)> ② Metal halide lamps (MH) <4(e)> ③ Other discharge lamps for special purposes specified in of EU RoHS directive Annex III 4(f) (2011/65/EU). <4(f)> </td> <td data-bbox="1054 1648 1342 2033">—</td> <td data-bbox="1342 1648 1493 2033">—</td> </tr> </table>	Banned	<ul style="list-style-type: none"> ① Stabilizers, pigments, and dyes used in plastics (including rubber) ② Pigments, paints, inks ③ Mercury batteries ④ Relays, switches, and sensors using mercury ⑤ All applications except those in the Declarable category 	Content is 1,000 ppm or less.	Immediately		⑥ Packaging materials, packaging components	See Table 1-3		Declarable	<ul style="list-style-type: none"> ① Used in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes (per lamp): <ul style="list-style-type: none"> (a) Short length (≤ 500 mm): under 3.5mg <3(a)> (b) Medium length (> 500 mm and ≤ 1500 mm): under 5mg <3(b)> (c) Long length (> 1500 mm): under 13mg <3(c)> ② Metal halide lamps (MH) <4(e)> ③ Other discharge lamps for special purposes specified in of EU RoHS directive Annex III 4(f) (2011/65/EU). <4(f)> 	—	—
Banned	<ul style="list-style-type: none"> ① Stabilizers, pigments, and dyes used in plastics (including rubber) ② Pigments, paints, inks ③ Mercury batteries ④ Relays, switches, and sensors using mercury ⑤ All applications except those in the Declarable category 	Content is 1,000 ppm or less.	Immediately											
	⑥ Packaging materials, packaging components	See Table 1-3												
Declarable	<ul style="list-style-type: none"> ① Used in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes (per lamp): <ul style="list-style-type: none"> (a) Short length (≤ 500 mm): under 3.5mg <3(a)> (b) Medium length (> 500 mm and ≤ 1500 mm): under 5mg <3(b)> (c) Long length (> 1500 mm): under 13mg <3(c)> ② Metal halide lamps (MH) <4(e)> ③ Other discharge lamps for special purposes specified in of EU RoHS directive Annex III 4(f) (2011/65/EU). <4(f)> 	—	—											

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
		④Exempted applications specified under the EU RoHS Directive other than ① to ③ above, and permission obtained from the adopting department		
		⑤Batteries	In compliance with EU battery directive	
4	Beryllium and its compounds (except beryllium oxide)			
	Banned	①All applications except those in the Declarable category	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①Alloys, ceramics, glass, and semiconductors	—	—
5	Azo colorants			
	Banned	①A contact part with human body of a product (e.g.: electric carpet, earphone, strap and etc.) which is manufactured based on the premise that the product continuously contacts human body, and may produce carcinogenic amine over 30ppm when discomposed.	Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category (used for parts not in continuous contact with the human body)	—	—
6	Polyvinyl Chloride and its copolymer			
	Banned	①Packaging materials/parts (for packaging SDP products)	Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category	—	—
7	Phthalates other than the four RoHS related Phthalates			
		①Dinonyl phthalate (DINP), diisodecyl phthalate (DIDP), and di-n-octyl phthalate (DNOP) used in parts and materials in products for children age 12 and younger	Total content of three substances 1,000 ppm or less	Immediately
	Declarable	①All applications except those in the Banned category	—	—
8	Radioactive substances			
	Banned	①All applications except those in the Declarable category	Not intentionally added.	Immediately
	Declarable	①Thorium used in the magnetron of a microwave oven ②Krypton 85 used in the electric bulb of an LCD projector	—	—
9	Perfluorooctane sulfonate (PFOS)			
	Banned	①All applications except those in the Declarable category	Not intentionally added. 50 ppm or less in substances or preparations; 1,000 ppm or less in semi-finished products or articles other than substances and preparations; 1 μ g/m ² or less in coated materials	Immediately
	Declarable	①Photoresists and antireflective coatings for photolithography processes ②Photographic coatings applied to films, paper, or printing plates ③Mist suppressants for non-decorative hard chromium (VI) plating and wetting agents for use in electroplating systems	—	—
10	Fluorinated greenhouse gases (HFC, PFC, SF ₆)			
	Banned	①All applications except those in the Declarable category	Not intentionally added.	Immediately
	Declarable	①HFC used for the refrigerant and/or the thermal insulator	—	—

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
11	Formaldehyde			
	Banned	①Wooden parts ②Used in a direct human body contact part of a product which is intended to continuously contact with human body. (e.g.: electric carpet, earphone, strap and etc.)	①Atmospheric concentration of 0.1 ppm or less in an airtight test chamber having a volume of at least 10 m ³ (chamber method) ②According to the Japanese Act on Control of Household Products Containing Harmful Substances (75 ppm or less)	
	Declarable	①All applications except those in the Banned category	—	—
12	Nickel and its compounds			
	Banned	①Applications with prolonged contact with human skin	Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category	—	—
13	Arsenic and its compounds (except diarsenic trioxide)			
	Banned	①All applications except those in the Declarable category	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①Glass of the lamp of an LCD projector. (Diarsenic trioxide) ②Exempted components (Semiconductors, photosensitizers, magnet filters, copper foil, and batteries)	—	—
14	Boric acid			
	Banned	①All applications except those in the Declarable category	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①Used for applications ; Polarizers (made of PVA), Glass, Adhesive agent	—	—
15	Disodium tetraborate, anhydrous, Tetraboron disodium heptaoxide, hydrate			
	Banned	①All applications except those in the Declarable category	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①Used for applications ; Polarizers (made of PVA), Glass, Adhesive agent, Fiber	—	—
16	Dioctyltin (DOT) compounds			
	Banned	①Two-component room temperature vulcanization molding kits (RTV-2 molding kits)	1,000 ppm or less as elemental tin in material.	Immediately
	Declarable	①All applications except those in the Banned category	—	—
17	Perfluorooctanoic acid (PFOA) and its salts and esters			
	Banned	①All applications except those in the Declarable category	Not intentionally added. Content of coating agent is 1 μg/m ² or less and content in other items is 1,000 ppm or less *3)	Immediately
	Declarable	①Photoresists and antireflective coatings for photolithography processes	—	—

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
		②Photographic coatings applied to films, paper, or printing plates ③Mist suppressants for non-decorative hard chromium (VI) plating and wetting agents for use in electroplating systems		
18	Chlorinated flame retardants			
	Banned	①All applications except those in the Declarable category	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①Difficult to substitute, and permission obtained from the adoption decision department within SDP	—	—
19	Tris (2-chloroethyl) phosphate (TCEP)			
	Banned	①Products for children age 12 and younger, and home furnishings covered with fiber, etc.	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category	—	—
20	Tris (2-chloro-1-methylethyl) phosphate (TCPP)			
	Banned	①Products for children age 12 and younger, and home furnishings covered with fiber, etc.	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category	—	—
21	Tris (1,3-dichloro-2-propyl) phosphate (TDCPP)			
	Banned	①Products for children age 12 and younger, and home furnishings covered with fiber, etc.	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category	—	—
22	Polycyclic aromatic hydrocarbons (PAHs)*4)			
	Banned	①Rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity	Content concentration of less than 1 ppm for each targeted PAH	Immediately
	Declarable	①All applications except those in the Banned category	—	—
23	Red phosphorus			
	Banned	①Used in plastic or rubber. ②In the vicinity of the external conducting part, it is used other than alloy.	Content is 1,000 ppm or less. Not intentionally added.	Immediately
	Declarable	①All applications except those in the Banned category ②Falls under the category of Banned, but is difficult to substitute and permission obtained from the adoption decision department within SDP	—	—
24	REACH regulation-controlled substances on Appendix A			
	Banned	①All applications except those in the Declarable category	Not intentionally added.	Immediately
	Declarable	①Not a restricted application specified under law, and there is residual content in the article and its residual concentration is less than 0.1 wt% with respect to the mass of the entire product ②Not a restricted application specified under law and there is residual content in the article and its residual concentration is 0.1 wt% or more with respect to the mass of the entire product, and it is difficult to substitute	—	—
25	Antimony trioxide (Sb ₂ O ₃)*6)			
	Banned	①Part or material destined for a specific customer*7)	1000 ppm	as required
	Declarable	①All applications except those in the Banned category	—	—

No.	Substance (Group)	Applications	Criteria (Value)*1)	Date of Abolition
26	Natural rubber			
	Banned	①All applications except those in the Declarable category	Not intentionally added.	Immediately
	Declarable	①Parts not in direct contact with the human skin ②Packaging materials	—	—
	27 Polyvinyl chloride (PVC)			
	Banned	①Packaging materials ②All applications except those in the Declarable category	Not intentionally added.	as required
	Declarable	①Difficult to substitute, and permission obtained from the adopting decision department within SDP	—	—
28 Tetrachlorophthalic anhydride				
	Banned	①All applications except those in the Declarable category	Not intentionally added.	as required
	Declarable	①Difficult to substitute, and permission obtained from the adopting decision department within SDP	—	—
29 Halogens*8)				
	Banned	①Part or material destined for a specific customer*7)	Br : <900ppm Cl : <900ppm Br + Cl : <1500ppm	as required
	Declarable	①All applications except those in the Banned category	—	—

*1) Unit for calculating content rate is homogeneous material if not otherwise specified.

*2) Prohibit the use on SDP delivered items after July 21, 2020. But, it is different from the date regulated by EU RoHS directive (2011/65/EU).

*3) Prohibit the use on SDP delivered items after July 21, 2018. But, it is different from the date regulated by EU RoHS directive (2011/65/EU).

*4) Total of the substances having these CAS numbers(335-67-1, 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 376-27-2, 3108-24-5)

*5) Substances having these CAS numbers(50-32-8, 192-97-2, 56-55-3, 218-01-9, 205-99-2, 205-82-3, 207-08-9, 53-70-3)

*6) We may request analysis data when there is request from the adopting department within SDP that it be free of antimony.

*7) Confirm with the adopting department within SDP whether it is a part or material destined for a specific customer.

*8) We may request analysis data when there is request from the adopting department within SDP that it be free of halogens.

Appendix A

No.	Substance Group	Substance name	CAS No.
1		Salts of 2-naphthylamine	553-00-4
2	Salts of 2-naphthylamine	Salts of 2-naphthylamine<2>	612-52-2
3		Salts of 2-naphthylamine [group]	SN0042
4	4-aminobiphenyl and its salts	4-Aminodiphenyl hydrochloride	2113-61-3
5		Salts of 4-Aminobiphenyl(xenylamine) [group]	SN0044
6	4-nitrobiphenyl and its salts	4-nitrobiphenyl	92-93-3
7	Azobenzene	Azobenzene	103-33-3
8	Aniline and its salts	2,4,5-trimethylaniline hydrochloride	21436-97-5
9		salts of 2,2'-dichloro-4,4'-methylenedianiline [group]; salts of 4,4'-methylenebis(2-chloroaniline) [group]	SN0041
10	Alkanes	Alkanes, C12-26-branched and linear	90622-53-0
11	Isocyanates	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; Bis(4-isocyanatophenyl)methane	101-68-8
12		Methylenediphenyl diisocyanate; MDI	26447-40-5
13	Isobutane	Isobutane (containing ? 0.1 % butadiene (203-450-8))	75-28-5
14	Ethanol	2-(2-aminoethylamino)ethanol (AEEA)	111-41-1
15		2,2'-(nitrosoimino)bisethanol	1116-54-7
16		Ethanol, 2-(2-methoxyethoxy)-; 2-(2-methoxyethoxy)ethanol; DEGME	111-77-3
17		2-(2-butoxyethoxy)ethanol; DEGBE	112-34-5
18	Chloroethanes	Pentachloroethane	76-01-7
19		1,1,2-Trichloroethane	79-00-5

No.	Substance Group	Substance name	CAS No.
20	Chloroethanes	1,1,2,2-Tetrachloroethane	79-34-5
21	Chloroethylenes	Chloro-1-ethylene (monomer vinyl chloride)	75-01-4
22		1,1-Dichloroethylene	75-35-4
23	Chlorotoluenes	alpha-chlorotoluene; benzyl chloride	100-44-7
24		alpha,alpha,alpha,4-tetrachlorotoluene; p-chlorobenzotrichloride	5216-25-1
25		alpha,alpha,alpha-trichlorotoluene; benzotrichloride	98-07-7
26	Chloroform	Chloroform	67-66-3
27	Chlorofluorophenol	2-chloro-6-fluoro-phenol	2040-90-6
28	Chloropropanol	1,3-dichloro-2-propanol	96-23-1
29	Chloropropane	1,2-dibromo-3-chloropropane	96-12-8
30	Chlorobenzenes	1,4-dichlorobenzene	106-46-7
31		1,2,4-trichlorobenzene	120-82-1
32	Chloromethylmethlether	Chlormethyl methyl ether; chlorodimethyl ether	107-30-2
33	Cyclohexane	Cyclohexane	110-82-7
34	Dichloromethane	Dichloromethane	75-09-2
35	Bromoethylene	Bromoethylene	593-60-2
36	Bromopropane	2,3-dibromopropan-1-ol; 2,3-dibromo-1-propanol	96-13-9
37	Tetrachloroethane	1,1,1,2-tetrachloroethane	630-20-6
38	Toluene	Toluene	108-88-3
39	Nitrosoamine	Dimethylnitrosoamine; N-nitrosodimethylamine	62-75-9
40	Nitrotoluenes	Dinitrotoluene	25321-14-6
41		2,3-dinitrotoluene	602-01-7
42		2,6-dinitrotoluene	606-20-2
43		3,4-dinitrotoluene	610-39-9
44		3,5-dinitrotoluene	618-85-9
45		2,5-dinitrotoluene	619-15-8
46		2-nitrotoluene	88-72-2
47	Nitrophenylether	Nitrofen (ISO); 2,4-dichlorophenyl 4-nitrophenyl ether	1836-75-5
48	Nitrobenzaldehyde	O-nitrobenzaldehyde	552-89-6
49	Bis(chloromethyl)ether	Bis (chloromethyl) ether; oxybis(chloromethane)	542-88-1
50	Hydrazines	Phenylhydrazine;	100-63-0
51		Hydrazobenzene; 1,2-diphenylhydrazine	122-66-7
52		Phenylhydrazine hydrochloride;	27140-08-5
53		1,2-dimethylhydrazine	540-73-8
54		N,N-dimethylhydrazine	57-14-7
55		Phenylhydrazinium chloride;	59-88-1
56		hydrazine bis(3-carboxy-4-hydroxybenzenesulfonate)	SN0021
57		hydrazine-trinitromethane	SN0022
58		salts of hydrazine [group]	SN0048
59	Pyrrolidone	N-ethyl-2-pyrrolidone; 1-ethylpyrrolidin-2-one	2687-91-4
60	Phenols	(E)-3-[1-[4-[2-(dimethylamino)ethoxy]phenyl]-2-phenylbut-1-enyl]phenol	82413-20-5
61		Phenols, ammonia liquor ext.; Alkaline Extract	84988-93-2
62		Phenols, C9-11; Distillate Phenols	91079-47-9
63	Formamide	N-methylformamide	123-39-7
64	Butadiene	1,3-butadiene; buta-1,3-diene	106-99-0
65	Phthalate	n-pentyl-isopentylphthalate	SN0029
66	Butane	Butane (containing ? 0.1 % butadiene (203-450-8));	106-97-8
67	Propanols	2-methoxypropanol	1589-47-5
68		R-2,3-epoxy-1-propanol	57044-25-4
69	Propane	2-bromopropane	75-26-3

No.	Substance Group	Substance name	CAS No.
70	Bromoethane	1,2-dibromoethane	106-93-4
71	Benzidine and its salts or its derivatives	Direct Orange 1	13164-93-7
72		Benzidine sulphate	21136-70-9
73		4,4'-Diaminodiphenyl-2,2'-disulfonic acid disodium salt	27336-24-9
74		Benzidine acetate	36341-27-2
75		[1,1'-Biphenyl]-4,4'-diamine, dihydrochloride	531-85-1
76		Benzidine salt	531-86-2
77		3,3'-Dimethylbenzidine dihydrochloride	612-82-8
78		3,3'-Dichlorobenzidine dihydrochloride	612-83-9
79		N,N'-diacetylbenzidine	613-35-4
80		Salts of 3,3'-dichlorobenzidine; salts of 3,3'-dichlorobiphenyl-4,4'-ylenediamine	64969-34-2
81		Salts of 4,4'-bi-o-toluidine; salts of 3,3'-dimethylbenzidine; salts of o-toluidine<2>	64969-36-4
82		[1,1'-Biphenyl]-4,4'-diamine, 2,2'-dichloro-, sulfate (1:1)	70146-07-5
83		Dipotassium O,O'-(4,4'-diaminobiphenyl-3,3'-ylene)diglycollate	74220-10-3
84		biphenyl-3,3',4,4'-tetrayltetraamine; diaminobenzidine	91-95-2
85		salts of 3,3'-dimethoxybenzidine [group]; salts of o-dianisidine [group]	SN0043
86	Salts or derivatives of benzidine [group]	SN0051	
87	Benzene	Benzene	71-43-2
88	Chloropnenol	Salts or esters of pentachlorophenol [group]	SN0052
89	Petrolatum	Petrolatum; Petrolatum	8009-03-8
90	Nitrite	Isobutyl nitrite	542-56-3
91	Refractory Ceramic Fibres	Refractory Ceramic Fibres, Special Purpose Fibres; [Man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide (Na ₂ O+K ₂ O+CaO+MgO+BaO) content less or equal to 18 % by weight]	SN0077
92	-	O-isobutyl-N-ethoxy carbonylthiocarbamate	103122-66-3
93	-	1-chloro-2,3-epoxypropane; epichlorohydrin	106-89-8
94	-	Acrylonitrile	107-13-1
95	-	(6-(4-hydroxy-3-(2-methoxyphenylazo)-2-sulfonato-7-naphthylamino)-1,3,5-triazin-2,4-diyl)bis[(amino-1-methylethyl)ammonium] formate	108225-03-2
96	-	2-methoxyethyl acetate; methylglycol acetate	110-49-6
97	-	(methylenebis(4,1-phenylenazo(1-(3-(dimethylamino)propyl)-1,2-dihydro-6-hydroxy-4-methyl-2-oxopyridine-5,3-diyl)))-1,1'-dipyridinium dichloride dihydrochloride	118658-99-4
98	-	(+/-)- tetrahydrofurfuryl-(R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenyloxy]propionate	119738-06-6
99	-	Phenyl glycidyl ether; 2,3-epoxypropyl phenyl ether; 1,2-epoxy-3-phenoxypropane	122-60-1
100	-	Chloroprene (stabilized); 2-chlorobuta-1,3-diene	126-99-8
101	-	3-amino-9-ethyl carbazole; 9-ethylcarbazol-3-ylamine	132-32-1
102	-	Dimethylsulfamoylchloride	13360-57-1
103	-	2,2'-bioxirane; 1,2:3,4-diepoxybutane	1464-53-5
104	-	Ethyleneimine; aziridine	151-56-4
105	-	2-[2-hydroxy-3-(2-chlorophenyl)carbamoyl-1-naphthylazo]-7-[2-hydroxy-3-(3-methylphenyl)carbamoyl-1-naphthylazo]fluoren-9-one	151798-26-4

No.	Substance Group	Substance name	CAS No.
106	-	Trisodium [4'-(8-acetylamino-3,6-disulfonato-2-naphthylazo)-4''-(6-benzoylamino-3-sulfonato-2-naphthylazo)-biphenyl-1,3',3'',1''']-tetraolato-O,O',O'',O''']copper(II)	164058-22-4
107	-	potassium 1-methyl-3-morpholinocarbonyl-4-[3-(1-methyl-3-morpholinocarbonyl-5-oxo-2-pyrazolin-4-ylidene)-1-propenyl]pyrazole-5-olate [containing >= 0.5 % N,N-dimethylformamide (EC No 200-679-5)]	183196-57-8
108	-	7-methoxy-6-(3-morpholin-4-yl-propoxy)-3H-quinazolin-4-one [containing >= 0.5 % formamide (EC No 200-842-0)]	199327-61-2
109	-	1-(2-amino-5-chlorophenyl)-2,2,2-trifluoro-1,1-ethanediol, hydrochloride [containing >= 0.1 % 4-chloroaniline (EC No 203-401-0)]	214353-17-0
110	-	indium phosphide	22398-80-7
111	-	Tridemorph (ISO); 2,6-dimethyl-4-tridecylmorpholine	24602-86-6
112	-	1,4,5,8-tetraaminoanthraquinone; C.I. Disperse Blue 1	2475-45-8
113	-	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate;	2536-05-2
114	-	N,N-(dimethylamino)thioacetamide hydrochloride	27366-72-9
115	-	2,3-epoxypropyltrimethylammonium chloride; Trimethyl(oxiran-2-ylmethyl)ammonium chloride	3033-77-0
116	-	4-chloro-o-toluidine hydrochloride	3165-93-3
117	-	Diazomethane	334-88-3
118	-	chloro-N,N-dimethylformiminium chloride	3724-43-4
119	-	6-(2-chloroethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane; etacelasil	37894-46-5
120	-	2,4-diaminoanisole sulphate	39156-41-7
121	-	4-amino-3-fluorophenol	399-95-1
122	-	(2-chloroethyl)(3-hydroxypropyl)ammonium chloride	40722-80-3
123	-	Binapacryl (ISO); 2-sec-butyl-4,6-dinitrophenyl-3-methylcrotonate	485-31-4
124	-	R-1-chloro-2,3-epoxypropane	51594-55-9
125	-	Urethane (INN); ethyl carbamate	51-79-6
126	-	Phenylhydrazinium sulphate (2:1)	52033-74-6
127	-	Tris-aziridinylphosphin oxide	545-55-1
128	-	2,3-epoxypropan-1-ol; glycidol; oxiranemethanol	556-52-5
129	-	cyclic 3-(1,2-ethanediylacetale)-estra-5(10),9(11)-diene-3,17-dione	5571-36-8
130	-	3-propanolide; 1,3-propiolactone	57-57-8
131	-	2-nitronaphthalene	581-89-5
132	-	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,4'-Diphenyl methane diisocyanate	5873-54-1
133	-	Methyl-ONN-azoxymethyl acetate; methyl azoxy methyl acetate	592-62-1
134	-	5-nitroacenaphthene	602-87-9
135	-	Tetrahydrothiopyran-3-carboxaldehyde	61571-06-0
136	-	Nitrosodipropylamine	621-64-7
137	-	Thioacetamide	62-55-5
138	-	ketoconazole; 1-[4-[4-[[[(2SR,4RS)-2-(2,4-dichlorophenyl)-2-(imidazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl]piperazin-1-yl]ethanone	65277-42-1
139	-	Toluene-2,4-diammonium sulphate; 4-methyl-m-phenylenediamine sulfate	65321-67-7
140	-	Cycloheximide	66-81-9
141	-	Hexamethylphosphoric triamide; hexamethylphosphoramidate	680-31-9

No.	Substance Group	Substance name	CAS No.
142	-	Carbadox (INN); methyl 3-(quinoxalin-2-ylmethylene)carbazate 1,4-dioxide; 2-(methoxycarbonylhydrazonomethyl)quinoxaline 1,4-dioxide	6804-07-5
143	-	4,4-isobutylethylidenediphenol	6807-17-6
144	-	Soap bark powder (Quillaja saponaria) and its derivatives containing saponines	68990-67-0
145	-	Fluazifop-butyl (ISO); butyl (RS)-2-[4-(5-trifluoromethyl-2-pyridyloxy)phenoxy]propionate	69806-50-4
146	-	1-methyl-3-nitro-1-nitrosoguanidine	70-25-7
147	-	2-methoxypropyl acetate	70657-70-4
148	-	Oxiranemethanol, 4-methylbenzene-sulfonate, (S)-	70987-78-9
149	-	Salts of 3,3'-dichlorobenzidine; salts of 3,3'-dichlorobiphenyl-4,4'-ylenediamine	74332-73-3
150	-	Salts of 4,4'-bi-o-toluidine; salts of 3,3'-dimethylbenzidine; salts of o-tolidine<3>	74753-18-7
151	-	Lubricating greases; Grease	74869-21-9
152	-	Ethylene oxide; oxirane	75-21-8
153	-	2-methylaziridine; propyleneimine	75-55-8
154	-	1,4-dichlorobut-2-ene	764-41-0
155	-	Methyl acrylamidomethoxyacetate (containing ? 0,1 % acrylamid)	77402-03-0
156	-	Methyl acrylamidoglycolate (containing ? 0,1 % acrylamide)	77402-05-2
157	-	Potassium bromate	7758-01-2
158	-	Isoprene (stabilized); 2-methyl-1,3-butadiene	78-79-5
159	-	Dimethylcarbamoyl chloride	79-44-7
160	-	2-nitropropane	79-46-9
161	-	2-ethylhexyl[[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]thio]acetate	80387-97-9
162	-	N-[6,9-dihydro-9-[[2-hydroxy-1-(hydroxymethyl)ethoxy] methyl]-6-oxo-1H-purin-2-yl]acetamide	84245-12-5
163	-	6-hydroxy-1-(3-isopropoxypropyl)-4-methyl-2-oxo-5-[4-(phenylazo)phenylazo]-1,2-dihydro-3-pyridinecarbonitrile	85136-74-9
164	-	Flusilazole (ISO); bis(4-fluorophenyl)(methyl)(1H-1,2,4-triazol-1-ylmethyl)silane	85509-19-9
165	-	Slack wax (petroleum), acid-treated; Slack wax	90669-77-5
166	-	Slack wax (petroleum), clay-treated; Slack wax	90669-78-6
167	-	2-nitroanisole	91-23-6
168	-	slimes and sludges, copper electrolyte refining, decopperised	94551-87-8
169	-	Safrole; 5-allyl-1,3-benzodioxole	94-59-7
170	-	2-butyryl-3-hydroxy-5-thiocyclohexan-3-yl-cyclohex-2-en-1-one	94723-86-1
171	-	Styrene oxide; (epoxyethyl)benzene; phenyloxirane	96-09-3
172	-	4-tert-butylbenzoic acid	98-73-7
173	-	A mixture of: 1,3,5-tris(3-aminomethylphenyl)-1,3,5-(1H,3H,5H)-triazine-2,4,6-trione; a mixture of oligomers of 3,5-bis(3-aminomethylphenyl)-1-poly[3,5-bis(3-aminomethylphenyl)-2,4,6-trioxo-1,3,5-(1H,3H,5H)-triazin-1-yl]-1,3,5-(1H,3H,5H)-triazine-2,4,6-trione	SN0003
174	-	A mixture of: 4-[[bis-(4-fluorophenyl)methylsilyl]methyl]-4H-1,2,4-triazole; 1-[[bis-(4-fluorophenyl)methylsilyl]methyl]-1H-1,2,4-triazole	SN0004

No.	Substance Group	Substance name	CAS No.
175	-	A mixture of: disodium 4-(3-ethoxycarbonyl-4-(5-(3-ethoxycarbonyl-5-hydroxy-1-(4-sulfonatophenyl)pyrazol-4-yl)penta-2,4-dienylidene)-4,5-dihydro-5-oxopyrazol-1-yl)benzenesulfonate; trisodium 4-(3-ethoxycarbonyl-4-(5-(3-ethoxycarbonyl-5-oxido-1-(4-sulfonatophenyl)pyrazol-4-yl)penta-2,4-dienylidene)-4,5-dihydro-5-oxopyrazol-1-yl)benzenesulfonate	SN0005
176	-	A mixture of: N-[3-hydroxy-2-(2-methylacryloylaminomethoxy)propoxymethyl]-2-methylacrylamide; N-[2,3-bis-(2-methylacryloylaminomethoxy)propoxymethyl]-2-methylacrylamide; methacrylamide; 2-methyl-N-(2-methylacryloylaminomethoxymethyl)acrylamide; N-(2,3-dihydroxypropoxymethyl)-2-methylacrylamide	SN0006
177	-	methyl-phenylene diamine; diaminotoluene; [technical product - mixture of 4-methyl-m-phenylene diamine (EC No 202-453-1) and 2-methyl-m-phenylene diamine (EC No 212-513-9)]	SN0025
178	-	mixture of: dimethyl (2-(hydroxymethylcarbamoyl)ethyl)phosphonate; diethyl (2-(hydroxymethylcarbamoyl)ethyl)phosphonate; methyl ethyl (2-(hydroxymethylcarbamoyl)ethyl)phosphonate	SN0026
179	-	O-hexyl-N-ethoxycarbonylthiocarbamate	SN0031

(3) Managed substances

Managed substances cover all chemical substances (groups) that do not fall into the category of SDP-banned substances and which fit the categories listed in Table 3-1. For Managed substances, you must ascertain whether the specified substance is present, the amount contained, and so on.

※ SDP there are chemical substances to add to specific survey-targeted.

Table 3-1 Survey-targeted Chemical substances

Chemical substances (groups)	Covered Laws & Regulations, Industrial Criteria
CSCL	Japan Chemical Substances Control Act Class I specified chemical substance
TSCA	USA Toxic Substances Control Act (TSCA): Section 6; prohibited or restricted substances
ELV	EU ELV directive 2011/37/EU
RoHS	EU RoHS directive 2011/65/EU, Annex II
POPs	EU POPs regulation(EC) No. 850/2004, Annex I
SHVC	EU REACH regulation (EC) No. 1907/2006 Candidate List of SVHC for Authorisation and Annex XIV
REACH Annex X VII	EU REACH regulation (EC) No. 1907/2006, Annex XVII
GADSL	Global Automotive Declarable Substance List (GADSL)
IEC62474	IEC 62474 DB Declarable substance groups and declarable substances
※Specific Survey-targeted	See Table 3-2 Specific Survey-targeted Chemical substances for SDP

Table 3-2 Specific Survey-targeted Chemical substances for SDP

No.	Substance Group or Name	CAS No.	Reporting Threshold
1	Alkylphenol (C5-9) excluding nonylphenol	-	Content is 1,000 ppm or less. Not intentionally added.
2	Benzophenone	119-61-9	
3	Chromium and its compounds excluding chromium(VI) compounds	-	
4	2,4-Dichlorophenol	120-83-2	
5	Ethylbenzene	100-41-4	
6	Isocyanate	71000-82-3	
7	Octachlorostyrene	29082-74-4	
8	Phosphorus flame retardant excluding red phosphorus	-	
9	Antimony and its compounds excluding antimony trioxide(Sb ₂ O ₃)	-	
10	Perchlorates ^{*1)}	-	Contained above 6ppb by weight per battery

*1) If contained above 6ppb by weight per battery, necessary to caution on operation manual.

7. Non-disclosure

Your response will be basically used only within our company, and will never be disclosed to the outside, but if disclosure of information is requested from outside of Sakai display products, we may disclose the chemical substances contained in parts and materials.

8. Contact info for inquiries

Sakai Display Products Corporation

1, Takumi-cho Sakai-ku Sakai-city, Japan (〒590-8522)

Mail: mailto:shizai_csr_green@sdp.co.jp

Depending on the contents of inquiries, a response may be given from a person in charge in the product group from which the survey is requested.

9. Attachments

Attachment 1: Examples of Application Areas …p.22-24

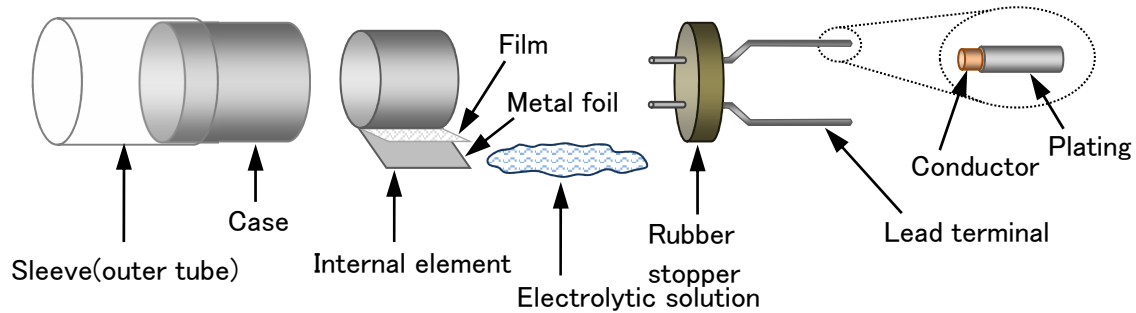
Attachment 2: RoHS analysis method guideline …p.25-31

Attachment 1: Examples of Application Areas

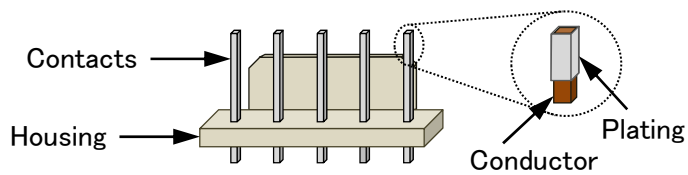
The following are example names of application areas that serve as references when completing the "application area" column of the survey.

Note: These examples do not represent all the application areas.

【Component Part Example 1】: Aluminum electrolytic capacitor

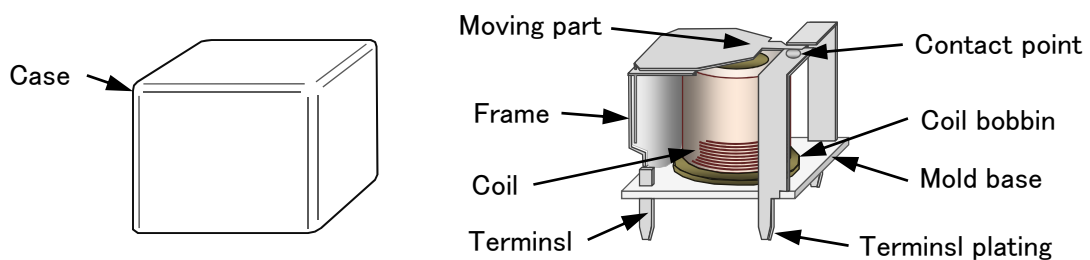


【Component Part Example 2】 Connectors



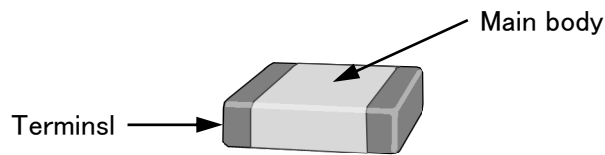
【Component Part Example 3】

Switches, relays, and other parts with mechanical components



* 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

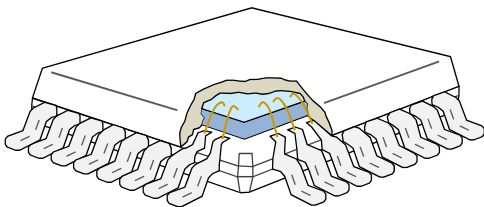


* The main body of the part is made of multiple materials and the substance concerned is present, break it down.

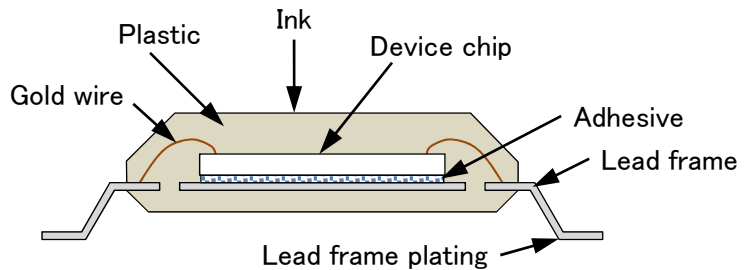
Example) Part (main body) → Ceramic, internal electrode

【Component Part Example 5】 Semiconductor devices

Outward appearance



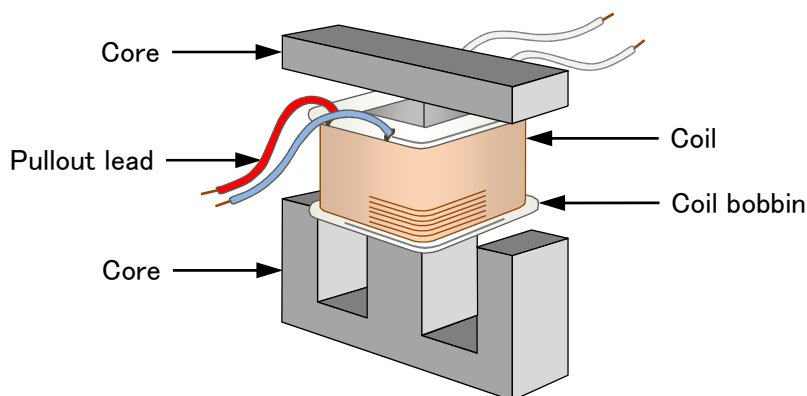
Cross section



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

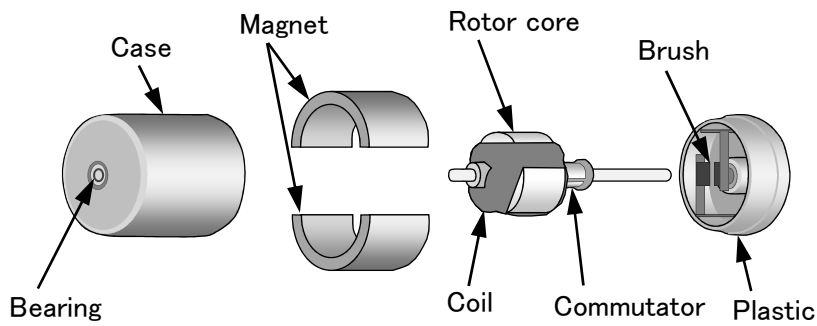
* Make the response concerning the device chip as best you can.

【Component Part Example 6】 Transformers and inductors



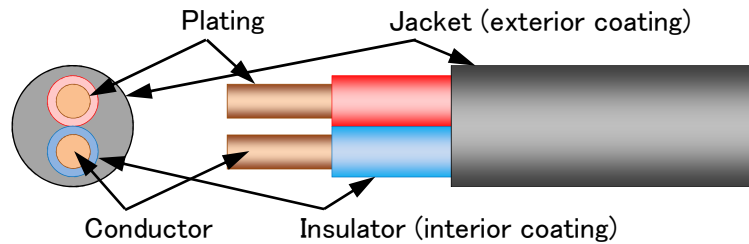
* Pay particular attention to flame retardants in plastic materials or insulating parts, impregnant in the coil, PVCs or flame retardants in the lead wire.

【Component Part Example 7】 DC motors



* 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.

【Component Part Example 8】Electrical cable (power cord)



* Because contaminants are different when colors are different with the resin of insulator and jacket, please reply it by individual data.

Attachment 2: RoHS analysis method guideline

I. General

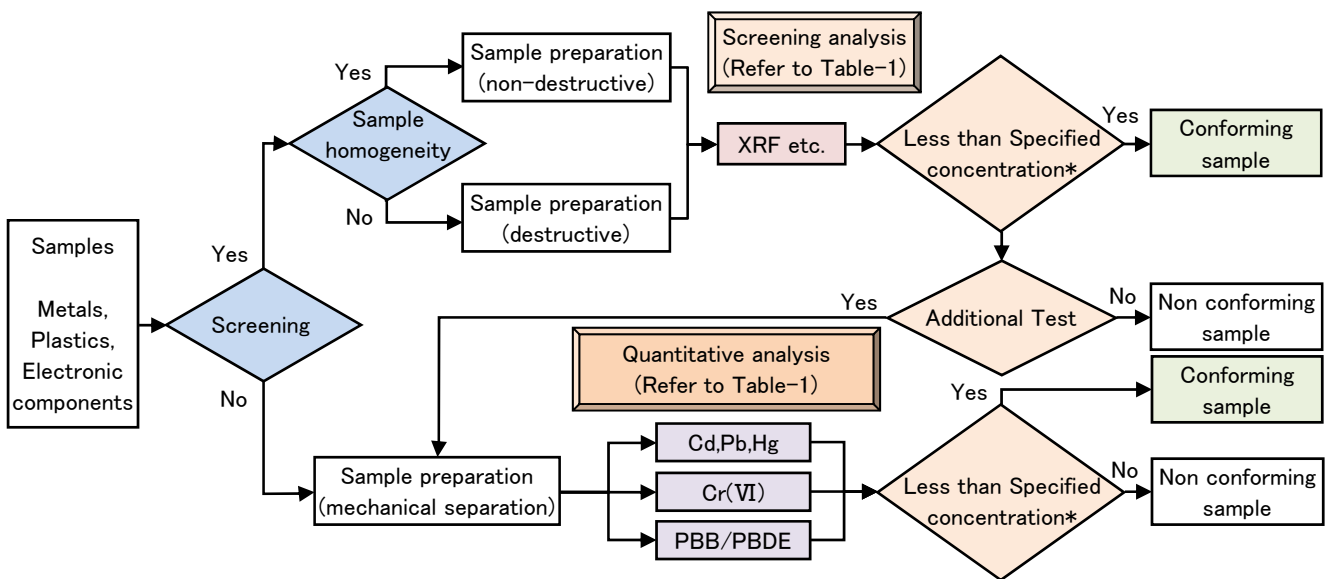
(1) How to proceed RoHS analysis

The basic way of RoHS analysis is shown in Fig.1 in the form of a flowchart. Conformance shall be determined either by screening analysis by means of an X-ray fluorescence spectrometer (XRF) etc.* shown in Table-1 or by quantitative analysis by means of ICP-OES or other methods also shown in Table-1. If the result of screening analysis turns out to be in the gray zone shown in Table-2 or Table-3, additional quantitative analysis shall be carried out for a final determination. If no additional test is carried out even though the result of analysis is in the gray zone, such a test sample shall be taken as a nonconforming item.

If any other analysis method than shown in Table-1 is to be used, submit the documentation to support the reliability of the method, and to receive a confirmation of our company.

However, if a certain analysis method is specified by the suppliers, use of such an analysis method shall not be inhibited.

*: Including 2nd screening for PBB and PBDE by Pyro/GC-MS etc., after 1st screening by XRF.



*: Specified concentration : Cd 100ppm, Pb (Resin)300ppm, Others 1000ppm.
Heavy metal contained in packaging material 100ppm (Based on the total amount of all heavy metals)

Figure-1 Flow chart of the methods(In conformity to IEC62321 [Ed1])

(2) Applied analytical method

Table-1. Overview of the analysis method (In conformity to IEC62321 [Ed1])

Steps	Substances	Plastics	Metals, Ceramics	Electronic components
Sample preparation	Mechanical sample Preparation(homogenized) (see IEC62321 Clause 5)	Direct measurement, Cutting, milling or grinding	Direct measurement, Cutting, milling or grinding	Cutting, milling, Grinding
	Chemical sample preparation	Microwave digestion, Acid digestion, Dry-ashing, Solvent extraction	Microwave digestion, Acid digestion	Microwave digestion, Acid digestion, Solvent extraction
Screening/ Qualitative Analysis	5 elements (Hg, Pb, Cd, Br, Cr)	X-ray fluorescence (XRF) (see IEC62321 Clause 6)		
	PBBs ,PBDEs ^(*1)	IAMS, HPLC-UV, Pyro/GC-MS		IAMS, HPLC-UV, Pyro/GC-MS
Analytical technique definition (Definition of abbreviations are described last page.)	Hg	CV-AAS, CV-AFS, ICP-OES, ICP-MS(see IEC62321 Clause 7)		
	Pb/Cd	ICP-OES, ICP-MS, AAS (see IEC62321 Clause 8)	ICP-OES, ICP-MS, AAS (see IEC62321 Clause 9)	ICP-OES, ICP-MS, AAS (see IEC62321 Clause 10)
	PBB/PBDE	GC-MS (see IEC62321 Annex A)	NA	GC-MS (see IEC62321 Annex A)
	CrVI	Alkaline digestion / colorimetric method (see IEC62321 Annex C)	Boiling water extraction procedure(see IEC62321 Annex B) ^(*2)	Alkaline digestion / colorimetric method(see IEC62321 Annex C)

*1: Regarding PBB/PBDE, IAMS, HPLC-UV and Pyro/GS-MS can be used for 2nd screening, after 1st screening by XRF.

*2: Hot water (80°C) extraction/color development method is available. Determination of conformance with spot test method is not accepted.

II. Qualitative/quantitative analysis

(1) Screening/qualitative analysis by X-ray fluorescence (XRF)

When a test sample is subjected to screening measurement using X-ray fluorescence and the reading is $N \pm 3\sigma$ [unit: ppm], the value of 3σ is substituted in the judgment formula in Table-2. And if the value of N is BL, the test sample is judged as being conforming, if the value is OL, it is judged as being nonconforming, and if the value is X, it is judged as being in the gray zone.

The judgment formula in Table-2 serves as a basis for judgment, but the accurate analysis more than formula in Table-2 is possible depending on analysis organizations, analysis equipment, test samples, measurement conditions, etc. When it is appropriate to narrow the gray zone, a special exception for the judgment formula is approved. In this case, submit the documentation to support the reliability, and to receive a confirmation of our company.

When a plated test sample is subjected to screening by X-ray fluorescence, use of a thin film FP method is essential.

Table-2. Screening limits in mg/kg for regulated elements in various matrix (extract from IEC62321 Ed1 Annex D)

Element	Plastics	Metals	Electronic components
Cd	$BL \leq (70 - 3\sigma) < X < (130 + 3\sigma) \leq OL$		$LOD < X < (150 + 3\sigma) \leq OL$
Pb	$BL \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq OL$		$BL \leq (500 - 3\sigma) < X < (1500 + 3\sigma) \leq OL$
Hg			
Br	$BL \leq (300 - 3\sigma) < X$	—	$BL \leq (250 - 3\sigma) < X$
Cr	$BL \leq (700 - 3\sigma) < X$		$BL (500 - 3\sigma) < X$

X: region where further investigation is necessary, BL: Below Limit, OL: Over Limit, LOD: Limit of detection
X-ray fluorescence cannot identify PBB, PBDE, Cr(VI), therefore you cannot judge OL(over limit) about Br and Cr.

(2) 2nd Screening/qualitative analysis for PBBs and PBDEs

The existence of PBBs and PBDEs cannot be judged by Screening by XRF. When the value of Br in a test sample by using XRF is in the gray zone, IAMS, HPLC-UV or Pyro/GC-MS can be used for 2nd screening. After measuring the value of Br by using these equipment, the measured value N[unit: ppm] is substituted in the judgment formula in Table-3. If N is in BL, it is judged as a conforming sample. If not, it is judged as a sample in the gray zone. The sample in the gray zone has to be judged whether it is confirming sample or not by using quantitative analysis.

Additionally, the judgment formula of Table-3 will basically be used in most cases. However, according to the analysis organization, analysis equipment, test samples and measurement conditions etc., the analysis that is more accurate than formula in Table-3 may be able to be used. Therefore, if it is possible to narrow the gray zone, a special exception for the judgment formula is approved. In this case, submit the documentation to support the reliability, and to receive a confirmation of our company.

Table-3. Judgment formula for 2nd Screening limits of PBBs and PBDEs

	Plastics	Metals	Electronic components
PBBs, BDEs	$BL \leq 500 < X$	—	$BL \leq 500 < X$

X: Gray zone for judgment, BL: Below Limit

Judgment value of gray zone (500ppm) for PBBs and PBDEs are in conformity to draft of IEC62321 [Ed2]

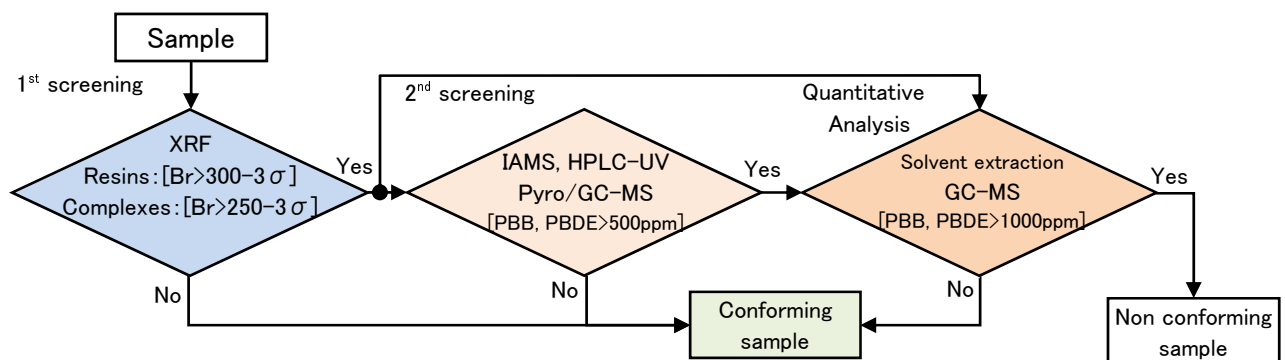


Figure-2 Flow chart on analysis method on the 2nd screening for PBBs and PBDEs.

(3) Quantitative analysis of lead and cadmium [in conformance with IEC62321 Article 8 – Article 10]

Analysis methods differ between surface-treated items such as plated ones and other homogeneous materials. Therefore, according to the purposes, analysis methods should be selected.

(3)-A. Surface-treated material such as plating

1) Surface treated material such as commonly-used plating etc.

Only the surface-treated layer of a plated test sample is selectively ground and dissolved, and is extracted as a homogeneous material, and the liquid in which it is dissolved, after being weighed, in an enclosed system (microwave decomposition) or an open system (acid decomposition) depending on the test sample is used for its analysis.

The solution of the test sample is quantitatively determined with an atomic absorption spectrometry (a flameless atomic absorption spectrometry is also available) or ICP emission spectrometry (ICP mass analysis is also available). Select acid suitable for the testing material using Table-4 as a guide

Table-4. Recommended acid by test sample material

Test sample material	Acids
Fe, Cu, Al, Solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Au, Pt, Pd, Ceramic	Aqua regia
Polymer	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Glass	HNO ₃ , HF
Ag	HNO ₃
Others	Various acid

2) Surface treated material whose plated layer is 0.1 μ m or less and surface area is 10mm² or less

As a company standard, analysis method 3-(B) is applicable

EU Commission accepts alternative method on an exemption as stated in RoHS Enforcement Guidance Document (*3), in case that a analysis is economically and technically difficult when huge test material is required to dissolve selectively its plated portion to make analysis in ppm basis for such test material that plated in extremely small area and at extremely thin.

*3: RoHS Enforcement Guidance Document Ed.1, (2006/05)

3) Neither of the methods above is possible to apply, because its plated portion is too small area and thick

The analysis of object substance concentration within a plating bath is applicable.

Standard control concentration shall be 1/100 of RoHS' s allowable concentration.

(Cadmium is 1ppm or less, and lead is 10ppm or less)

(3)-B. Homogeneous material, such as solder, resin, paint, ink, and pigment

- The liquid in which the test sample is dissolved, after being weighed, in an enclosed system (microwave decomposition) or an open system (acid decomposition) depending on the test sample is used for its analysis.
- The solution sample is quantitatively determined by using an atomic absorption spectrometry (a flameless atomic absorption spectrometry is also available) or ICP emission spectral analysis. (ICP mass analysis is also available) You can select acid in response to material quality. (Reference Table-4)

(4) Quantitative analysis of mercury [in conformance with IEC62321 Article 7]

- The liquid in which the test sample is dissolved, after being weighed, in an enclosed system (microwave decomposition) or an open system (acid decomposition) depending on the test sample is used for its analysis. If a test sample residue remains failing to be completely dissolved, make sure that there is no mercury in the residue by XRF or other method.
- The solution of test material is quantitatively determined by using an atomic absorption spectrometry (a flameless atomic absorption spectrometry is also available) or ICP emission spectral analysis (ICP mass analysis is also available).

(5) Quantitative analysis of hexavalent chromium compound
[in conformance with IEC62321 Annexes B and C]

Analysis methods differ between chromate-treated components and other materials. Therefore, according to the purposes, analysis methods should be selected.

(5)-A. Components subjected to chromate treatment on the metal surface
[In conformance with IEC62321 Annex B],

“Boiling water (or hot water) extraction – diphenylcarbazide absorption photometry method”

- Take a sample having a surface area of 50cm² (20 – 30cm²), and perform extraction for 10 minutes by immersing the sample in 100 °C (80 °C) boiling water (hot water).
- After extraction, remove the sample, add water to the extraction liquid to make 50ml (30ml), and carry out analysis using this solution.
- For the sample solution, selectively quantify only the hexavalent chromium, using the diphenylcarbazide absorption photometry method or ion chromatograph analysis method.
- From the extracted amount measured in the preceding step and the surface area of the sample, calculate the extracted amount of hexavalent chromium (Cr⁶⁺) μg/cm².

Although IEC62321 prescribes the boiling water extraction method, boiling water can pose a high risk of burns. Therefore, application of the hot water extracting method that is our conventional analysis method [Ver.1.2] is also allowed only for in-house measurement (including business partners).

Table-5 shows the comparison of extraction conditions between both methods.

Table-5. Comparison of conditions between boiling water extraction method and hot water extraction method (*4)

Items	Boiling water extraction method	Hot water extraction method
Extraction water temperature (°C)	100	80
Extraction time (minute)	10±0.5	10±0.5
Surface area of the sample (cm ²) (*5)	50±5	25±5
Extraction water volume (ml)	50	30
Extraction efficiency (%)	100	50

*4 In the test method mentioned above, the measurement result is obtained by (Cr⁶⁺) μg/cm². To determine RoHS conformity, it is necessary to calculate the concentration in the chromate coating by determining the thickness of the chromate coating, the specific gravity of the chromate coating, the extraction efficiency, etc. However, it is considered that the chromate coating has a complicated multinuclear complex structure and conversion to the concentration in the chromate coating is very difficult because the thickness of the chromate coating and the specific gravity of the chromate coating vary with temperature and humidity. Therefore, even IEC62321 merely sets the criterion to determine the presence or absence of Cr⁶⁺ to 0.02 μg/cm², and does not define a criterion of judgment for conformance to RoHS standard (1,000ppm). When assuming the coating thickness to be 0.25 μm, the specific gravity of the coating to be 4, and the extraction efficiency to be 100% for convenience sake, the concentration in the chromate coating of 0.02 μg/cm² is estimated to be 200ppm. From this estimation, this guideline sets the criterion for RoHS conformance to 0.1 μg/cm² when measured using boiling water extraction method (0.05 μg/cm²

for hot water extraction method assuming the extraction efficiency to be 50%).

*5: As for calculation of the surface area of a screw, please refer to the surface area calculation formula shown in IEC62321 Annex B or the surface area calculation formula by the schematic diagram and the approximation formula as follows.

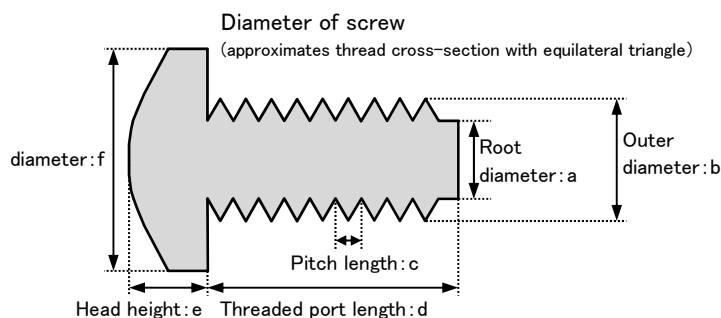
(Approximation formula)

When the cross section of threads is approximated with equilateral triangle, the surface area is given by the following formula.

Total surface area of screw = (1) Surface area of screw head and bottom + (2) Surface area of threads

$$(1) = \pi \times f \times e + 2 \times \pi \times \left(\frac{f}{2}\right)^2$$

$$(2) = \pi \times \left\{ \left(\frac{b}{2}\right) - \left(\frac{a}{2}\right) \right\} \times \frac{d}{c} \times 2 \times \frac{2}{\sqrt{3}}$$



(5)-B. Homogeneous material, such as resin, paint, ink, and pigment and electronic parts [in conformance with IEC62321 Annex C]

“Alkaline extraction – diphenylcarbazide absorptiometrical method”

- Smashed test samples which pass through a screen (250 μ m) shall be used for analysis. After weighing them, perform extraction using alkaline/hot water.
- After extraction, remove the test samples from alkaline water and adjust the alkaline water to pH7.5±0.5 with diluted nitric acid , and then use it as a sample solution.
- Quantify only the hexavalent chromium in the solution sample using the diphenylcarbazide absorptiometrical method.
- Convert the quantifying result to the hexavalent chromium content in homogeneous material (Cr⁶⁺) μ g/(the total mass of test samples)g.
- A method by which the above-mentioned extraction sample is subjected to ICP measurement and the total chromium concentration is found to be lower than the criterion value is also available.

The extraction efficiency of hexavalent chromium depends heavily on the kind of resin. Therefore, Table-6 shows the extraction methods according to the kind of resin.

Table-6. Applicability for Alkaline extraction method

Resin materials	Applicability
PVC、ABS	Allowed
EVAC、PE	Not allowed
Others	Seek the extraction efficiency experimentally and correct.

(6) 2nd Screening and Quantitative Analysis of PBBs and PBDEs in Resins
[in conformity to Draft of IEC62321 Ed2 Part 6]

The sample that is judged as being in gray zone by 1st screening is better to be analyzed by quantitative analysis. It is allowed that you can implement 2nd screening before quantitative analysis, and then do the quantitative analysis after being judged as gray zone by the result of 2nd screening.

Pyro/GC-MS, IAMS or HPLC-UV can be used for 2nd screening analysis of PBBs and PBDEs

Prepare the sample for 2nd screening (different from the each equipments)

- Pyro/GC/MS, IAMS:
 - Test samples crushed under 500 μ m shall be used for analysis.
- HPLC-UV
 - Test samples crushed under 500 μ m shall be extracted by appropriate organic solvent for dissolving the sample (e.g. toluene, tetrahydrofuran).
 - Appropriate extraction procedure such as soxhlet extraction method. Test samples are either dissolution or swelling.
 - The extracted test material is cleaned up by dry silica gel and used to be analyzed.

The judgment of gray zone by 2nd screening is obeyed this formula.

$$500\text{ppm} < \text{The analyzed results of PBBs, PBDEs}$$

Prepare the sample for quantitative analysis and analyze

- Test samples crushed under 500 μ m shall be extracted by appropriate organic solvent for dissolving the sample (e.g. toluene, tetrahydrofuran).
- Appropriate extraction procedure such as soxhlet extraction method. Test samples are either dissolution or swelling.
- The extracted test material is cleaned up by dry silica gel and used to be analyzed.
- The extracted solution of test sample is quantitatively determined by using quadrupole GC-MS (Gas Chromatography Mass Spectroscopy analysis) equipment or magnetic sector-type high resolution mass spectrometer.

---End of Message---

Abbreviations

ICP-OES : Inductively coupled plasma optical emission spectrometry

ICP-MS : Inductively coupled plasma mass spectrometry

CV-AAS : Cold vapour atomic absorption spectrometry

CV-AFS : Cold vapour atomic fluorescent spectrometry

AAS : Atomic absorption spectrometry

UV-Vis : Ultraviolet and visible spectrometry

GC-MS : Gas chromatography – mass spectrometry

IA-MS : Ion attached mass spectrometry

Pyro/GC-MS : Pyrolyzer/GC-MS

HPLC-UV : High performance liquid chromatography– Ultraviolet and visible spectrum

【Revision History】

(Revision history subsequent to publication of Version 3.0)

No.	Revision Date	Revised Content	Details
3.0	Nov. 2018	Revised all items	Significant changes due to review of chemical substances subject to survey and standards.