MANAGEMENT REGULATIONS FOR THE ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED WHICH ARE INCLUDED IN PARTS AND MATERIALS

SS-00259 for General Use, Tenth Edition

SONY

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1. PURPOSE

With regard to the "Environment-related Substances to be Controlled ('Controlled Substances')" contained in the parts and devices employed in Sony electronics products, this Standard clarifies (1) banned substances, (2) substances to be phased out, and (3) exempted substances and their uses, in order to realize the following aims and objectives:

1) To prevent the above-mentioned substances from being used for Sony electronics products;
2) To comply with related laws and regulations;
3) To reduce the influence of the above substances upon the ecosystem; and
4) To contribute to the preservation of the global environment.

2. SCOPE

2.1 Scope applicable to parts and materials

Targets are the parts, materials, and other articles that are procured by the Sony group, or by third parties to which the Sony group outsources the design and manufacture of its electronics products.

The targets need to satisfy the criteria/threshold levels specified in this Standard.
Target parts and materials:

- Semi-finished products (e.g. modules, functional units, board assemblies, and other assembly parts)
- Parts (electrical parts, mechanical parts, semiconductor devices, PWBs, recording media, and packaging components and materials)
- Screws
- Accessories (mice, remote commanders, AC adaptors, and other accessories with which you can use products)
- Materials constituting subsidiary parts and materials (e.g. adhesives, adhesive tapes, soldering materials, etc.) used for products
- Printed materials (e.g. instruction manuals, warranty cards, additional product/parts information)
- Repair parts (The application of some repair parts for products on the market shall be followed the instructions on the separately issued notice.)
- Packaging components and materials that parts suppliers use for delivery and protection (See Section 4.2.1 "Definition of packaging components and materials" for details.)
- Batteries

2.2 Scope applicable to products

1) Sony electronics products that are designed and manufactured by the Sony group for sale, loan, or distribution
2) Sony electronics products being sold and loaned or distributed with the Sony group's logos on them, whose design and/or manufacture are outsourced to third parties
3) Third parties' electronics products whose design and/or manufacture are outsourced to the Sony group (except when the parts and materials are specified by the third parties)

Regarding the use of substances prohibited or restricted by regional or country laws and ordinances, the laws and ordinances must be observed and followed even though the substances and their uses are not clearly regulated in this Standard.

3. TERMS AND DEFINITIONS

In this Standard, terms are defined in the following manners.

1) "Environment-related Substances to be Controlled ('Controlled Substances')"
Among the substances contained in parts and devices, "Environment-related Substances to be Controlled ('Controlled Substances')" are those which, according to Sony's judgment, have significant environmental-impact on both humans and the global environment.

2) Management standards
To manage the above-mentioned substances, the following Levels and Exemption are used:
   a) Level 1
   The substances and their applications classified into this Level are those that are banned for the use in parts and materials.
   b) Level 2
   On the date set in each table, the substances and their applications in the respective tables shall be reclassified into Level 1.
   c) Level 3
   Considering possibility of phase-out in the future (i.e. reclassification into Level 2), technical investigations on substances and their applications are conducted.
   d) Exemption
   Not subject to level 1, level 2 and level 3 because of reasons also being reflected by exemptions from laws. Technical investigations and monitoring of substances and their applications are conducted as necessary.

3) Contained
"Contained" means that a substance remains in parts, devices, or their materials because of addition, filling, blend, or adhesion, whether intended or not. When a substance is unintentionally contained in, or added to a product in a processing process, this situation is also regarded as "Contained."
There are substances called Dopants (Doping Agents) that are intentionally added to manufacture semiconductor devices, etc. They are not treated as "Contained" if present in the devices in a very small amount.

4) Intentionally added
"Intentionally added" means a situation where a substance is contained in the part, device, or its materials because of intentional addition, filling, blend, or adhesion, in order to provide a specific characteristic, appearance, or quality.

5) Impurity
An "Impurity" is a substance that satisfies either or both of the following conditions:
   a) One contained in a natural material, which cannot be completely removed in a refining process by adequate technical means (i.e. natural impurities); and
   b) One generated in a synthesis process, which cannot be completely removed by adequate technical means.

   There are substances called "impurities," the name of which is used to distinguish them from main materials. If they are used for the purpose of changing the characteristics of a material, they are treated as "Intentionally added."

   Note: The 'Controlled Substance,' which is contained in parts or devices as an "Impurity," must not exceed the value specified in "Criteria/threshold levels" of this Standard.

6) Effective date of the ban on the delivery
This indicates the date on or after which Sony won't accept the parts and/or materials specified in the corresponding columns of Table 4.2.

7) Plastics defined in this Technical Standard
Plastics refer to materials and raw materials composed of synthetic high-molecular polymers in this Standard.
More specifically, "plastics" mainly mean the following articles composed of synthetic high-molecular polymers: resins, films, adhesives, adhesive tapes, molded products, products made of synthetic rubber, and plastics made from raw materials of plant origin.
When a natural resin is synthesized with any one of the above articles, the synthetic substance is a plastic.

4. MANAGEMENT STANDARDS FOR "ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED"

4.1 "Environment-related Substances to be Controlled ('Controlled Substances')"

The table below lists the "Environment-related Substances to be Controlled ('Controlled Substances')," defined in this Standard.

Table 4.1 List of "Environment-related Substances to be Controlled ('Controlled Substances')"

Substances
Cadmium and cadmium compounds
Lead and lead compounds
Mercury and mercury compounds
Hexavalent chromium compounds
Polychlorinated biphenyls (PCB), Polychlorinated naphthalenes (PCN), Polychlorinated terphenyls (PCT)
Short-chain chlorinated paraffins (SCCP)
Polyvinyl chloride (PVC) and PVC blends
Tris(2-chloroethyl) phosphate (TCEP)
Other chlorinated organic compounds
Polybrominated biphenyls (PBB)
Polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])
Hexabromocyclododecane (HBCDD)
Other brominated organic compounds
Trisubstituted organotin compounds (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)
Dibutyltin (DBT) compounds
Dioctyltin (DOT) compounds
Asbestos
Specific azo compounds
Formaldehyde
Specific benzotriazole
Dimethyl fumarate (DMF)
Beryllium oxide
Beryllium copper
Cobalt dichloride
Diarsenic trioxide, Diarsenic pentaoxide
Bis (2-ethylhexyl)phthalate, Dibutyl phthalate, Benzyl butyl phthalate, Diisobutyl phthalate
Di-isononyl phthalate, Di-isodecyl phthalate, Di-n-octyl phthalate, Di-n-hexyl phthalate
Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)
Ozone depleting substances (ODS)
Perfluorooctane sulfonates (PFOS)
Boric acid, specific sodium borates

Table 4.2 Main "Targets" and "Effective date of the ban on the delivery" regarding 'Controlled Substances'

<table>
<tr><td colspan="4">Substances: Cadmium and cadmium compounds</td></tr>
<tr><td colspan="2">Targets</td><td>Criteria/threshold levels</td><td>Effective date of the ban on the delivery</td></tr>
<tr><td rowspan="3">Level 1</td><td>- Plastics (including synthetic rubbers)
- Paints
- Inks</td><td>- 5 ppm or more of the cadmium in homogeneous materials (*)</td><td rowspan="3">Banned</td></tr>
<tr><td>- Solders</td><td>- More than 20 ppm of the cadmium in solder</td></tr>
<tr><td>- All applications other than the above (See 4.2 Additional rules for packaging components and materials. See 4.3 Additional rules for batteries.)</td><td>- More than 100 ppm of the cadmium in homogeneous materials</td></tr>
<tr><td>Exemption</td><td colspan="2">- Plating of electrical contacts, for which high reliability is required and which has no alternative materials
- Filter glass</td><td>N/A</td></tr>
<tr><td colspan="4">(*) Test objects: plastics (including rubber), paints, and inks
Threshold level: Less than 5 ppm</td></tr>
<tr><td colspan="4">Standards for measurement
1) Sample preparation
Typical sample preparation methods: e.g. IEC 62321:2008, EPA 3052:1996
(1) Closed system for acid decomposition method (e.g. microwave decomposition method)
(2) Acid digestion method
(3) Dry ashing method
Note: Precipitates must be completely dissolved by some technical means (e.g. alkali fusion). Any extraction methods (including EN71-3:1994, ASTM F 963-96a, ASTM F 963-03, ASTM D 5517, and ISO 8124-3:1997) shall not be applied.

2) Measurement methods
Typical measurement methods: e.g. IEC 62321:2008
(1) Inductively Coupled Plasma-Optical (Atomic) Emission Spectroscopy (ICP-OES [ICP-AES])
(2) Atomic Absorption Spectroscopy (AAS)
(3) Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)
Note: If a combination of a sample preparation method and a measurement method can ensure that the limit of quantification for cadmium is less than 5 ppm, the combination is applicable.</td></tr>
</table>

<table>
<tr><th colspan="4">Substances: Lead and lead compounds</th></tr>
<tr><th colspan="2">Targets</th><th>Criteria/threshold levels</th><th>Effective date of the ban on the delivery</th></tr>
<tr><td rowspan="8">Level 1</td><td>- Plastics (including synthetic rubbers)
- Paints
- Inks</td><td>- 100 ppm or more of the lead in homogeneous materials (*)</td><td rowspan="8">Banned</td></tr>
<tr><td>- Solders</td><td>- More than 1000 ppm (or 0.1 wt%) of the lead in solder</td></tr>
<tr><td>- Platings (including platings by nonelectrolytic plating such as nickel plating and gold plating)</td><td>- More than 1000 ppm (or 0.1 wt%) of the lead in plating</td></tr>
<tr><td>- Steels</td><td>- More than 3500 ppm (or 0.35 wt%) of the lead in steel</td></tr>
<tr><td>- Aluminum alloys</td><td>- More than 4000 ppm (or 0.4 wt%) of the lead in aluminum alloy</td></tr>
<tr><td>- Copper alloys (including brass and phosphor bronze)</td><td>- More than 40000 ppm (or 4 wt%) of the lead in copper alloy</td></tr>
<tr><td>- Glass of fluorescent tubes</td><td>- More than 2000 ppm (or 0.2 wt%) of the lead in glass</td></tr>
<tr><td>- All applications other than the above, Level 2 and Level 3 (See 4.2 Additional rules for packaging components and materials. See 4.3 Additional rules for batteries.)</td><td>- More than 1000 ppm (or 0.1 wt%) of the lead in homogeneous materials</td></tr>
<tr><td>Level 2</td><td>- Dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC</td><td>- More than 1000 ppm (or 0.1 wt%) of the lead in homogeneous materials</td><td>January 1, 2012</td></tr>
<tr><td>Level 3</td><td colspan="2">- Electroless plating films such as electroless nickel plating and electroless gold plating whose lead content is 1000 ppm or less</td><td>N/A</td></tr>
<tr><td>Exemption</td><td colspan="2">- High melting temperature type solders (i.e. lead based alloys containing 85 wt% by weight or more lead)
- Optical glass, filter glass
- Glass of cathode ray tubes
- Glass, glass matrix compound, ceramic or ceramic matrix compound, which is used in electrical and electronic components (e.g. piezoelectronic devices)
Note that dielectric ceramic in capacitors is excluded.
- Dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher
- Solder to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages
- Crystal glass as defined in Annex 1 (Categories 1, 2, 3 and 4) of EU Directive 69/493/EEC
Note: A solder whose lead content is equal to or less than the threshold level of solder shown in "Criteria/threshold levels" shall be used if it is used for anisotropic conductive film (ACF) and anisotropic conductive paste (ACP) as a conductive material.</td><td>N/A</td></tr>
</table>

Substances: Lead and lead compounds
(*) Test objects: plastics (including rubber), paints, and inks Threshold level: Less than 100 ppm
Standards for measurement 1) Sample preparation Typical sample preparation methods: e.g. IEC 62321:2008, EPA 3052:1996 (1) Closed system for acid decomposition method (e.g. microwave decomposition method) (2) Acid digestion method (3) Dry ashing method Note: Precipitates must be completely dissolved by some technical means (e.g. alkali fusion). Any extraction methods (including EN71-3:1994, ASTM F 963-96a, ASTM F 963-03, ASTM D 5517, and ISO 8124-3:1997) shall not be applied. Additionally, EN1122:2001 is not applicable for lead. 2) Measurement methods Typical measurement methods: e.g. IEC 62321:2008 (1) Inductively Coupled Plasma-Optical (Atomic) Emission Spectroscopy (ICP-OES [ICP-AES]) (2) Atomic Absorption Spectroscopy (AAS) (3) Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) Note: If a combination of a sample preparation method and a measurement method can ensure that the limit of quantification for lead is less than 30 ppm, the combination is applicable.

Substances: Mercury and mercury compounds			
Targets		Criteria/threshold levels (*)	Effective date of the ban on the delivery
Level 1	- Mercury in cold cathode fluorescent lamps (CCFL) and external electrode fluorescent lamps (EEFL): Not over 500 mm in length	- 3.5 mg or more of mercury per lamp intentionally added	Banned
	- All applications other than the above (See 4.2 Additional rules for packaging components and materials. See 4.3 Additional rules for batteries.)	- Intentionally added - More than 1000 ppm (or 0.1 wt%) of the mercury in the homogeneous materials	
Exemption	- Mercury in cold cathode fluorescent lamps (CCFL) and external electrode fluorescent lamps (EEFL): Short length (not over 500 mm): Less than 3.5 mg of mercury per lamp Medium length (over 500 mm and not over 1500 mm): Less than 5 mg of mercury per lamp Long length (over 1500 mm): Less than 13 mg of mercury per lamp - Mercury in high-pressure gas discharge lamps (e.g. projector lamps)		N/A

* When "Intentionally added" and a numerical value are shown in "Criteria/threshold levels", both of them shall be satisfied.

Substances: Hexavalent chromium compounds			
Targets		Criteria/threshold levels (*)	Effective date of the ban on the delivery
Level 1	- Surfaces of screws, steel sheets, etc. that are processed with plating or conversion coating	- Residue in the processed surface	Banned
	- All applications other than the above (See 4.2 Additional rules for packaging components and materials. See 4.3 Additional rules for batteries.)	- Intentionally added - More than 1000 ppm (or 0.1 wt%) of the hexavalent chromium in the homogeneous materials	

* When "Intentionally added" and a numerical value are shown in "Criteria/threshold levels", both of them shall be satisfied.

Substances: Polychlorinated biphenyls (PCB), polychlorinated naphthalenes (PCN), polychlorinated terphenyls (PCT)			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added	Banned

Substances: Short-chain chlorinated paraffins (SCCP)			
Short-chain chlorinated paraffins with carbon chain length;10-13			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- All uses	- More than 1000 ppm (or 0.1 wt%) of the materials	Banned

Substances: Polyvinyl chloride (PVC) and PVC blends			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- Substrates for FeliCa contactless IC cards	- Intentionally added	Banned
	- Fabrics and coating agents used for carrying bags, carrying cases, and carrying pouches for the following products (excluding those for professional use): - Personal computers, digital cameras, video camcorders, and portable audio products		
	- Cable ties used for accessories and connecting cords		
	- Packaging components and materials to protect, contain, or transport products or supplied accessories (e.g. bags, adhesive tapes, cartons, and blister packs)		
	- Heat shrink tubes		
	- Flexible flat cables (FFC) - Sheets and laminates used for exterior of wooden speakers - Insulating plates, decorative panels, labels, sheets, and laminates		
	- Suction cups for mounting in-vehicle products		

Substances: Polyvinyl chloride (PVC) and PVC blends		
Targets		Effective date of the ban on the delivery
Level 3	- Cords for wearable equipment (e.g. cords for ear phones, head phones, and ear microphones) - Coating for insulation and protection used for the inside or outside of devices, insulating tubes, carrying belts, spacers, holders, covers, ducts, etc. - Power supply cords (including ones with some or all of the following: plugs, connectors, or cord bushes) designed for use in Japan, the U.S., and Canada (2P and 3P) - Parts consisting of wires (e.g. connectors with cords) and wires used for internal wiring (e.g. motor leads) - Connection cords (e.g. USB cables, i.LINK cables, AV cables, antenna cables, cords with DC plug of AC adaptors, flat wires, multi core cables, speaker cords, etc.) - Harnesses and processing wires (e.g. coaxial cables, flat wires, double insulation wires, and shielded wires) - Fabrics and coating agents used for the carrying bags, carrying cases, and carrying pouches, which are designed for exclusive use with professional-electronics products - Insulation caps for capacitors, power supply switches, and fuses - Packaging components or materials for devices, semiconductors, and any other components (e.g. trays, magazine sticks, stoppers, reels, embossed carrier tapes) - Wiring clip used for the inside of devices (made of polyvinyl chloride-coated metal) Other parts except those classified into Level 1	N/A
Exemption	- Binder for resins - Polyvinyl electrical wires for high voltage - Insulating tapes - Speaker grilles - Power supply cords designed for use in countries and regions other than Japan, the U.S., and Canada - Parts that are not classified into Levels 1 and 3, and are composed of vinyl chloride copolymers or blends of PVC and other polymers - Transformer leads whose joint is fixed by varnish impregnation - Curl cords - Extra fine electrical wires that are AWG (American Wire Gauge) 36 or more - Professional cables for which general-purpose ones cannot be substituted (e.g. cables for broadcast cameras and microphone cables)	N/A

Substances: Tris(2-chloroethyl) phosphate (TCEP)			
CAS No. 115-96-8			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 2	- Flame retardants used in plastics, resins, fabrics, and textiles	- More than 1000 ppm (or 0.1 wt%) of the parts	July 1, 2014

Substances: Other chlorinated organic compounds		
Targets		Effective date of the ban on the delivery
Level 3	- Plasticizers or flame retardants contained in plastics, and flame retardants used for PWBs etc.	N/A

Substances: Polybrominated biphenyls (PBB)			
Targets		Criteria/threshold levels (*)	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added - More than 1000 ppm (or 0.1 wt%) in the homogeneous materials	Banned

* When "Intentionally added" and a numerical value are shown in "Criteria/threshold levels", both of them shall be satisfied.

Substances: Polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])			
Targets		Criteria/threshold levels (*)	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added - More than 1000 ppm (or 0.1 wt%) in the homogeneous materials	Banned

* When "Intentionally added" and a numerical value are shown in "Criteria/threshold levels", both of them shall be satisfied.

Substances: Hexabromocyclododecane (HBCDD)			
CAS No. 25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7, 134237-52-8			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 2	- Flame retardants used in plastics and resins	- More than 1000 ppm (or 0.1 wt%) in the parts	January 1, 2015

Substances: Other brominated organic compounds		
Targets		Effective date of the ban on the delivery
Level 3	- Flame retardants contained in plastics, or used for PWBs etc.	N/A

Substances: Trisubstituted organotin compounds (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)			
Metal tin, tin alloys, tin plating and tin inorganic compounds do not fall under this category.			
Targets		Criteria/threshold levels (*)	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added - More than 1000 ppm (or 0.1 wt%) of the tin contained in materials	Banned

* When "Intentionally added" and a numerical value are shown in "Criteria/threshold levels", both of them shall be satisfied.

Substances: Dibutyltin (DBT) compounds			
Metal tin, tin alloys, tin plating and tin inorganic compounds do not fall under this category.			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 2	- All applications including additives of plastics (except Level 2 below)	- More than 1000 ppm (or 0.1 wt%) of the tin contained in materials	July 1, 2011
Level 2	- One-component and two-component room temperature vulcanisation sealants (RTV-1 and RTV-2 sealants) - One-component and two-component room temperature vulcanisation adhesives (RTV-1 and RTV-2 adhesives) - Catalysts for paints or coating agents - Stabilizers in PVC used for coating of fabrics intended for outdoor applications - Additives of soft polyvinyl chloride (PVC) profiles whether by themselves or coextruded with hard PVC	- More than 1000 ppm (or 0.1 wt%) of the tin contained in materials	July 1, 2014
Exemption	- Additives of reused packaging components and materials for parts and devices - Additives of packaging components or materials for devices, semiconductors, and any other components (e.g. trays, magazine sticks, stoppers, reels, embossed carrier tapes)		N/A

Substances: Dioctyltin (DOT) compounds			
Metal tin, tin alloys, tin plating and tin inorganic compounds do not fall under this category.			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 2	- Additives of textiles	- More than 1000 ppm (or 0.1 wt%) of the tin contained in materials	July 1, 2011

Substances: Asbestos			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added	Banned

Substances: Specific azo compounds			
Azodyes that form any of the amine compounds listed in Table 4.2a through the decomposition methods cited in REACH Regulation (EC) No 1907/2006 / Annex XVII and amine compounds in Table 4.2a			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- Additives of textiles and leathers	- More than 30 ppm (or 0.003 wt%) in textiles and leathers	Banned
Test methods (for reference) The methods for decomposing azo compounds and then extracting amines are as follows. 1) EN 14362-1:2003 2) CEN ISO/TS 17234:2003 3) EN 14362-2:2003			

Table 4.2a List of specific amine compounds

CAS No.	Amine compounds
92-67-1	4-aminodiphenyl
92-87-5	benzidine
95-69-2	4-chloro-o-toluidine; 4-chloro-2-methylaniline
91-59-8	2-naphthylamine
97-56-3	o-aminoazotoluene
99-55-8	2-amino-4-nitrotoluene; 5-nitro-o-toluidine
106-47-8	p-chloroaniline
615-05-4	2,4-diaminoanisole
101-77-9	4,4'-diaminodiphenylmethane; 4,4'-methylenedianiline
91-94-1	3,3'-dichlorobenzidine
119-90-4	3,3'-dimethoxybenzidine
119-93-7	3,3'-dimethylbenzidine
838-88-0	3,3'-dimethyl-4,4'-diaminodiphenylmethane; 4,4'-diamino-3,3'-diphenylmethane
120-71-8	p-cresidine; 6-methoxy-m-toluidine
101-14-4	4,4'-methylene-bis-(2-chloroanilene)
101-80-4	4,4'-oxideaniline
139-65-1	4,4'-thiodianiline; 4,4'-diaminodiphenylsulfide
95-53-4	o-toluidine
95-80-7	2,4-toluylenediamine; 4-methyl-m-phenylenediamine
137-17-7	2,4,5-trimethylaniline
90-04-0	o-anisidine
60-09-3	4-aminoazobenzene

Substances: Formaldehyde			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- The wooden products made from fiberboard, particleboard, or plywood, which are employed in products (e.g. speakers and racks)	The details are as follows.	Banned
Threshold level (emission content): Obtain the value by any one of the following methods. 1) [With a chamber method] Concentration in the air: Equal to or less than 0.1 ppm (or 0.124 mg/m^3) in an air-tight test chamber whose volume is 12 m^3, 1 m^3, or 0.0225 m^3 2) [With a perforator method] - Equal to or less than 6.5 mg in 100 g of a particleboard without a surface treatment (the average value during six months) - Equal to or less than 7.0 mg in 100 g of a fiberboard without a surface treatment (the average value during six months) - Equal to or less than 8.0 mg in 100 g of a particleboard/fiberboard without a surface treatment (the value derived from the one-time measurement based on EN120) 3) [With a desiccator method] - Average content: 0.5 mg/l or less - Maximum content: 0.7 mg/l or less (Use N=2 to check the average and maximum values.)			
Measurement methods: - A chamber method specified in EN 717-1:2004 - A perforator method specified in EN 120:1992 - A desiccator method specified in JIS A 5905 (Fiberboards) and JIS A 5908 (Particleboards)			

Substances: Specific benzotriazole			
2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole (CAS No. 3846-71-7)			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	Ultraviolet protectants and ultraviolet absorbers applied to decorative laminate, developing papers, molded plastic parts, lenses and frames of eyeglasses	- Intentionally added	Banned

Substances: Dimethyl fumarate (DMF)			
CAS No. 624-49-7			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- All uses	- More than 0.1 ppm of the materials	Banned

Substances: Beryllium oxide			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added	Banned

Substances: Beryllium copper		
Targets		Effective date of the ban on the delivery
Level 3	- All uses	N/A

Substances: Cobalt dichloride			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- Moisture indicator used for a desiccant agent (e.g. silica gel) - Humidity indicator card which is impregnated with cobalt dichloride	- Intentionally added	Banned

Substances: Diarsenic trioxide, Diarsenic pentaoxide			
The target substances are as follows: CAS No. 1303-28-2, 1327-53-3. The following threshold level for each substance shall be applied.			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 2	- Antifoam agents or fining agents for LCD panels (including cover glasses, touchscreens, and backlights)	- More than 1000 ppm (or 0.1 wt%) of the parts	July 1, 2014

Substances: Bis (2-ethylhexyl)phthalate, Dibutyl phthalate, Benzyl butyl phthalate, Diisobutyl phthalate			
The target substances are as follows: CAS No. 117-81-7, 84-74-2, 85-68-7, 84-69-5 (Refer to Table 4.2b). The following threshold level for each substance shall be applied.			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 2	- Plasticizers used for cables and cords (including plugs and connectors)	- More than 1000 ppm (or 0.1 wt%) of the parts	July 1, 2014
Level 3	- All uses other than the above		N/A

Substances: Di-isononyl phthalate, Di-isodecyl phthalate, Di-n-octyl phthalate, Di-n-hexyl phthalate		
CAS No. 28553-12-0, 68515-48-0, 26761-40-0, 68515-49-1, 117-84-0, 84-75-3 (refer to Table 4.2b)		
Targets		Effective date of the ban on the delivery
Level 3	- Plasticizers used for cables and cords (including plugs and connectors)	N/A

Table 4.2b List of specific phthalates (phthalic esters)

Abbreviation	CAS No.	Name
DEHP	117-81-7	Bis (2-ethylhexyl)phthalate; Di (2-ethylhexyl) phthalate
DBP	84-74-2	Dibutyl phthalate; Di-n-butyl phthalate
BBP	85-68-7	Benzyl butyl phthalate; Butyl benzyl phthalate
DIBP	84-69-5	Diisobutyl phthalate; Di-i-butyl phthalate
DINP	28553-12-0 68515-48-0	Di-isononyl phthalate; Diisononyl phthalate
DIDP	26761-40-0 68515-49-1	Di-isodecyl phthalate; Diisodecyl phthalate
DNOP	117-84-0	Di-n-octyl phthalate
DNHP	84-75-3	Di-n-hexyl phthalate

Substances: Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- Uses installed into product (e.g. refrigerant and insulation)	- Intentionally added	Banned

Substances: Ozone depleting substances (ODS)			
ODS in Table 4.2c			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- Uses for refrigerant, insulation and other products	- Intentionally added	Banned
	- All uses	- Treatments such as cleaning and foaming	

Table 4.2c List of ozone depleting substances (ODS)

CAS No.	Name
75-69-4	CFC-11; trichlorofluoromethane
75-71-8	CFC-12; dichlorofluoromethane
76-13-1	CFC-113; trichlorofluoroethane
76-14-2	CFC-114; dichlorotetrafluoroethane
76-15-3	CFC-115; chloropentafluoroethane
353-59-3	Halon-1211; bromochlorodifluoromethane
75-63-8	Halon-1301; bromotrifluoromethane
124-73-2	Halon-2402; dibromotetrafluoroethane
75-72-9	CFC-13; chlorotrifluoromethane
354-56-3	CFC-111; pentachlorofluoroethane
76-12-0	CFC-112; tetrachlorodifluoroethane
422-78-6	CFC-211; heptachlorofluoropropane
3182-26-1	CFC-212; hexachlorodifluoropropane
2354-06-5	CFC-213; pentachlorotrifluoropropane
29255-31-0	CFC-214; tetrachlorotetrafluoropropane
4259-43-2	CFC-215; trichloropentafluoropropane
661-97-2	CFC-216; dichlorohexafluoropropane
422-86-6	CFC-217; chloroheptafluoropropane
56-23-5	Carbon tetrachloride; tetrachloromethane
71-55-6	1,1,1-Trichloroethane; methyl chloroform

Substances: Perfluorooctane sulfonates (PFOS)			
Targets		Criteria/threshold levels	Effective date of the ban on the delivery
Level 1	- All uses	- Intentionally added	Banned
Exemption	- Photographic films for professional use - Resists for semiconductors		N/A

Substances: Boric acid, specific sodium borates		
Boric acid, specific sodium borates listed in Table 4.2d		
Targets		Effective date of the ban on the delivery
Level 3	- All uses	N/A

Table 4.2d List of boric acids and specified sodium borates

CAS No.	Name
10043-35-3	Boric acid
11113-50-1	Boric acid
12179-04-3	Disodium tetraborate, anhydrous; Tetraboron disodium heptaoxide pentahydrate
1330-43-4	Disodium tetraborate, anhydrous; Tetraboron disodium heptaoxide
1303-96-4	Disodium tetraborate, anhydrous; Disodium tetraborate decahydrate; Borax
12267-73-1	Tetraboron disodium heptaoxide, hydrate

4.2 Additional rules for packaging components and materials

4.2.1 Definition of "packaging components and materials"

Packaging components and materials are defined as products made from any materials and components of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods from the producer to the user or consumer.

Note: The definition excludes the components and materials for the returnable boxes, which are reused or recycled under the control of carriers or parts suppliers, and are not disposed of by end-users or Sony.

Table 4.3 Additional rules for packaging components and materials

<table>
<tr><td colspan="3">Substances: Heavy metals (cadmium, lead, mercury, and hexavalent chromium)</td></tr>
<tr><td colspan="3">Articles that satisfy not only the rules specified in Table 4.2, but also the following conditions determined by the regulations of relevant laws</td></tr>
<tr><td colspan="2">Targets</td><td>Effective date of the ban on the delivery</td></tr>
<tr><td>Level 1</td><td>- All packaging components and materials
Some examples are given in PACKAGING of Table 4.3a.</td><td>Banned</td></tr>
<tr><td>Exemption</td><td>- Cartons for returnable boxes owned by carriers or parts suppliers</td><td>N/A</td></tr>
<tr><td colspan="3">Threshold levels
- "Less than 100 ppm" is determined as the allowable total-concentration of four heavy metals (cadmium, lead, mercury, and hexavalent chromium) contained in each part, ink, or paint that constitutes a package. Regarding threshold levels of cadmium and lead contained in plastics (including rubber), paints, and inks, however, regulations for "Cadmium and cadmium compounds" and "Lead and lead compounds" must also be satisfied.
(Typical plastic parts: handles, cushions, films, reels, adhesive tapes, magazine sticks [including stoppers], polyvinyl bags, bands, and trays)</td></tr>
<tr><td colspan="3">For hexavalent chromium:
1) First analyze total chromium content and verify that the total concentration of cadmium, lead, mercury and total chromium is less than 100 ppm. When analyzing, the same sample preparation methods as those used for cadmium and lead are applicable.
2) If this total concentration is more than 100 ppm, verify that the sum of the cadmium, lead and mercury concentration is less than the 100 ppm limit. When the sum of the cadmium, lead and mercury concentration is less than the 100 ppm limit, analyze and confirm that no hexavalent chromium is present, using the standard methods for detecting hexavalent chromium provided in Table4.3.

Standards for four heavy metals measurement
1) Sample preparation
For cadmium and lead, follow the methods respectively specified in Table 4.2 (*3) (*4).
For total chromium, follow the methods specified in Table 4.2 (*3).
For mercury, typical test methods are as follows.
(1) Closed system for acid decomposition method (e.g. a microwave decomposition method) (e.g. IEC 62321:2008, EPA 3052:1996)
(2) A heating evaporation-cold-vapor mercury-atomic-absorption method
(3) A wet decomposition method (e.g. Kjeldahl method) in which a decomposition flask with a reflux condenser is used to decompose mercury by sulfuric acid or nitric acid
Note: In the process of sample preparation, particular attention is required to avoid mercury sublimation, and precipitates must be completely dissolved by some technical means.

2) Measurement methods
Regarding the measurement of cadmium; lead; and total-chromium concentrations, follow the methods specified in Table 4.2 (*3) (*4).
Regarding the measurement of mercury concentrations, follow the same methods as cadmium and lead specified in Table 4.2 (*3) (*4).
When the mercury concentration is predicted to be low, you are advised to use one of the following methods.
(1) A reduction-evaporation atom-absorption method
(2) ICP-OES (ICP-AES) method with a hydride-generation apparatus
(3) ICP-MS method with a hydride-generation apparatus</td></tr>
</table>

Standard methods for detecting hexavalent chromium:
Note: Standard methods specified hereafter are applicable when total concentration of the four elements of cadmium, lead, mercury, and total chromium in packaging components and materials is 100 ppm or more.

Detection methods:
1) Sample preparation
   - Extraction methods such as boiling water extraction and alkaline extraction (e.g. IEC 62321:2008 Annex C, EPA 3060A)
2) Measurement method
   - Ultraviolet-Visible (UV/VIS) Spectroscopy (e.g. IEC 62321:2008 Annex C, EPA 7196A)

- If a combination of a sample preparation method and a measurement method can ensure the following limits of quantification, the combination is also available.
  (1) Less than 5 ppm for mercury
  (2) Less than 5 ppm for cadmium
  (3) Less than 5 ppm for the total chromium
  (4) Less than 30 ppm for lead

(*3) Refer to "Test objects: plastics (including rubber), paints, and inks," "Substances: Cadmium and cadmium compounds," in Table 4.2 "Main "Targets" and "Effective date of the ban on the delivery" regarding 'Controlled Substances.'"
(*4) Refer to "Test objects: plastics (including rubber), paints, and inks," "Substances: Lead and lead compounds," in Table 4.2 "Main "Targets" and "Effective date of the ban on the delivery" regarding 'Controlled Substances.'"

Table 4.3a Illustrative examples of PACKAGING components/materials and NOT PACKAGING components/materials

Note: The following lists provide some examples of the products, which we categorize as "packaging" as well as "not packaging," to serve as a reference. They are not intended to include all products in both categories.

For consumer- and professional-electronics products (used for transporting Sony electronics products)		
PACKAGING		
1.	Carton	Including master carton and sub-master carton made from any materials.
2.	Cushion	
3.	Protection bag, protection sheet	Such as made from foamed plastic or nonwoven fabric
4.	Plastic bag	
5.	Envelope	Such as used for warranty card
6.	Blister pack	
7.	Film	Including protection films such as used for the LCD displays
8.	Clamshell	
9.	Separator, spacer, partition	
10.	Printing ink	Used for packaging components
11.	Adhesive tape	Such as used for closing carton or poly bag, or, fixing or protection for removable component
12.	Staple	
13.	Label	Attached to the packaging components under control of Sony, such as bar-code label
14.	Joint	Carton joint
15.	Band	Such as PP band
16.	Hanging tab	
17.	Carrying handle	Including its related components
18.	Crate	Such as wooden frame
19.	Shrink film	
20.	Bottle	
21.	Sleeve	
22.	Jewel box	Such as packaging for fountain pen
23.	Skid	

NOT PACKAGING		
1.	CD case, CD bag	Cases or bags such as used for video tape, MD, MO, DVD and spindle case which are defined as part of product
2.	Inlay card, inlay label	Such as index-card or label for CD and other recording media which are defined as part of product
3.	Carrying case, carrying pouch	Such as used for headphones, camera, and walkman®, which are defined as part of product
4.	Label	Labels attached to products and others except those attached to packaging components and materials
5.	Label	Labels attached by third parties such as cargo label and/or invoice

For devices, semiconductors, and any other components		
PACKAGING		
1.	Magazine stick	Such as used for IC
2.	Stopper	
3.	Tray	
4.	Reel	

For physical distribution		
PACKAGING		
1.	Pallet	Made from wood, plastic, paper, etc. which is used in one-way transportation, including slip sheet.
2.	Crate	Such as wooden container
3.	Stretch film	Wrap around palletized unit
4.	Wooden container	
5.	Items used for over packaging	Such as carton, cushion, adhesive tape, etc. which is used for component delivery
6.	Band, string	Such as PP band
NOT PACKAGING		
1.	Shipping container, air container	Such as 40 ft container for boat, and air cargo container

4.3 Additional rules for batteries (Applicable to all batteries in commercial distribution)

4.3.1 Definitions of "Battery," "Battery pack," and "Button cell" in this Technical Standard

"Battery" means any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or consisting of one or more secondary battery cells (rechargeable).
"Battery Pack" means any set of batteries that are connected together and/or encapsulated within an outer casing so as to form a complete unit that the end-user is not intended to split up or open.
"Button Cell" means any small round portable battery whose diameter is greater than its height and which is used for special purposes such as hearing aids, watches, small portable equipment and back-up power.
Battery cells used for "Battery packs" shall be compliant with the rules specified in Table 4.4, because they are identified as "Battery."
For "Battery packs", parts which constitute except the cell follow the standards specified in Section 4.1 and 4.2 also. The cells must comply with the rules specified in table 4.4.

Table 4.4 Rules for batteries

Substances: Heavy metals (cadmium, lead, and mercury)			
Targets			Effective date of the ban on the delivery
Level 1	Cd	- NiCd batteries	Banned
		- "Batteries" whose cadmium content, in proportion to their weight, is 0.002% or more - "Battery packs" whose cadmium content, in any of their cells, is 0.002% or more	
		- Zinc carbon batteries, alkaline batteries, and a nickel hydrogen (nickel-MH) rechargeable batteries whose cadmium content, in proportion to their weight, is 0.001% or more.	
		- "Batteries" or "Battery packs" built into an instrument fixed, whose cadmium content in any cell is 0.0005% or more.	
	Pb	- "Batteries" whose lead content, in proportion to their weight of each one, is 0.4% or more - "Battery packs" whose lead content, in any of their cells, is 0.4% or more	
		- Zinc carbon batteries and alkaline batteries whose lead content, in proportion to their weight, is 0.1% or more	
		- "Batteries" or "Battery packs" built into an instrument fixed, whose lead content in any of their cells is 0.1% or more.	
	Hg	- Button cell batteries whose mercury content, in proportion to their weight, is 2% or more - The following batteries and battery packs except button cell batteries "Batteries" whose mercury content, in proportion to their weight, is 0.0005% or more "Battery packs" whose mercury content, in any of their cells, is 0.0005% or more	
		- Zinc carbon batteries and alkaline batteries whose mercury content, in proportion to their weight, is 0.0001% or more	

5. REPLACEMENT OF CHEMICAL SUBSTANCES CONTAINED IN PARTS OF SPECIFIC PRODUCT CATEGORIES

Sony declares in "Sony Group Environmental Mid-Term Target" that:
Sony analyzes the use of chemical substances and the contents in parts and products.
Based on the risk evaluation, Sony identifies and discontinues high-risk uses of these substances.

Polyvinyl chloride (PVC)

PVC may pose a risk to the environment if disposed of improperly. Another concern is that PVC might contain various other chemical substances, including plasticizers and stabilizers, which could pose risks to the environment and human health.
Sony is concerned with the possibility that in particular its small electronics products in developing countries could be collected for obtaining valuable materials, and then the unwanted parts could be improperly incinerated and disposed of in landfills. Considering the impact of these activities on the environment, Sony will replace PVC with an alternative substance for the product categories or models as listed at below web site link.

Brominated Flame Retardants (BFR)

Some BFRs are harmful to human health and tend to remain in the environment and accumulate in living organisms. As is the case with PVC, improper incineration of BFRs carries a risk of releasing harmful substances into the environment. Considering the impact of these activities on the environment, Sony will replace BFR with an alternative substance for the product categories or models as listed at below web site link.

Parts to be replaced: A product specified at below web site link and newly released at least after April 1st, 2011:
http://www.sony.net/SonyInfo/csr/environment/chemical/products/index.html#hyo
(This does not apply to accessories and products designed for professional use.)

Parts including PVC to be replaced: casing and cables for internal wiring (intentional use of Polyvinyl chloride (PVC) and PVC blends)

Parts including BFR to be replaced: Resins of casing (concentration of BFR is more than 1000 ppm) and main printed wiring boards (PWB) (concentration of bromine (Br) is more than 900 ppm)

Note: This does not apply to items in "exemption" in "Polyvinyl chloride (PVC) and PVC blends". This except in cases where doing so would negatively affect product quality or cause technical problems.

Detailed instructions should be given to business partners separately with the specifications of the parts used for target products.

APPENDIXES

1. MAJOR CONTROLLED SUBSTANCES, AND EXAMPLES OF APPLICABLE LAWS AND REGULATIONS

2. DETAILS OF MAJOR CONTROLLED SUBSTANCES (TYPICAL EXAMPLES) AND MAJOR APPLICATIONS

- Cadmium and cadmium compounds
- Lead and lead compounds
- Mercury and mercury compounds
- Hexavalent chromium compounds
- Polychlorinated biphenyls (PCB), polychlorinated naphthalenes (PCN), polychlorinated terphenyls (PCT)
- Short-chain chlorinated paraffins (SCCP)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenylethers (PBDE)
- Trisubstituted organotin compounds
  (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)
- Dibutyltin (DBT) compounds
- Dioctyltin (DOT) compounds
- Asbestos
- Formaldehyde
- Polyvinyl chloride (PVC) and PVC blends
- Beryllium oxide
- Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)
- Perfluorooctane sulfonates (PFOS)
- Specific benzotriazole
- Cobalt dichloride
- Dimethyl fumarate (DMF)

Disclaimer: Applicable laws and regulations, and controlled substances in Appendixes 1 and 2 are illustrative only, not all the substances and its alias name are listed.

3. HISTORY OF UPDATES ON EFFECTIVE DATE OF THE BAN ON THE DELIVERY FOR EVERY SUBSTANCE

1. MAJOR CONTROLLED SUBSTANCES, AND EXAMPLES OF APPLICABLE LAWS AND REGULATIONS

Note: This information is confirmed as of February 2011. The revised edition and appendix should be also referred if there are.
The laws and regulations cited herein are subject to change, and it is essential to consult the latest editions of the relevant laws and regulations.

Substances	Laws and regulations (examples)
Cadmium and cadmium compounds	European Union. REACH Regulation (EC) No 1907/2006.
	European Union. RoHS Directive 2002/95/EC.
	European Union. Batteries Directive 2006/66/EC.
	South Korea. Quality Management and Safety Control of Industrial Products Act
Lead and lead compounds	European Union. RoHS Directive 2002/95/EC.
	European Union. Batteries Directive 2006/66/EC.
	Argentina. The Law No.26.184 Portable Power and Resolution 14/2007.
	Brazil. Battery Regulation (Resolution No.401)
	South Korea. Quality Management and Safety Control of Industrial Products Act
Mercury and mercury compounds	European Union. RoHS Directive 2002/95/EC.
	European Union. Batteries Directive 2006/66/EC.
	China. 1997 Regulation on Mercury Content Limitation for Batteries.
	China. Inspection and Management Methods for the Import and Export of Battery Products Containing Mercury. (English translation by EIA)
Hexavalent chromium compounds	European Union. RoHS Directive 2002/95/EC.
Polychlorinated biphenyls (PCB)	European Union. REACH Regulation (EC) No 1907/2006.
Polychlorinated naphthalenes (PCN) Polychlorinated terphenyls (PCT)	Japan. Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances, Class I.
Short-chain chlorinated paraffins (SCCP)	Norway. Regulations relating to restrictions on the use, etc. of certain dangerous chemicals.
Tris(2-chloroethyl) phosphate (TCEP)	European Union. REACH Regulation (EC) No 1907/2006.
Polybrominated biphenyls (PBB)	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
	European Union. RoHS Directive 2002/95/EC.
Polybrominated diphenylethers (PBDE)	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
	European Union. RoHS Directive 2002/95/EC
Hexabromocyclododecane (HBCDD)	European Union. REACH Regulation (EC) No 1907/2006.
Trisubstituted organic tin compounds (incl. tributyltin (TBT) compounds and triphenyltin (TPT) compounds)	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
	Japan. Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances, Class I and Class II.
Dibutyltin (DBT) compounds	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
Dioctyltin (DOT) compounds	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
Asbestos	Japan. Industrial Safety and Health Law.
	Germany. Chemicals Prohibition Ordinance. (German abbreviation: ChemVerbotsV)
Specific azo compounds	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.

Formaldehyde	Germany. Chemicals Prohibition Ordinance. (German abbreviation: ChemVerbotsV)
	Denmark: Statutory Order No. 289.
Beryllium oxide	European Union. WEEE Directive 2002/96/EC and EU Directive 1999/45/EC.
Bis (2-ethylhexyl)phthalate, Dibutyl phthalate, Benzyl butyl phthalate, Diisobutyl phthalate	European Union. REACH Regulation (EC) No 1907/2006.
Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)	European Union. EU regulation (EC) No 842/2006.
	Denmark: Statutory Order No. 552.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
Perfluorooctane sulfonates (PFOS)	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
Specific benzotriazole	Japan. Law Concerning the Examination and Regulation of Manufacture of Chemical Substances, Class I.
Cobalt dichloride	European Union. REACH Regulation (EC) No 1907/2006 Annex XVII.
Ozone depleting substances (ODS)	European Union. EU regulation (EC) No.2037/2000.
	Japan. Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures.
	United States. Clean Air Act Amendments of 1990.
	Republic of Indonesia. Regulation of the Minister of Industry of the Republic of Indonesia No. 33/M-IND/PER/4/2007 dated April 17, 2007.
Dimethyl fumarate (DMF)	European Union. European Commission decision (2009/251/EC)
Diarsenic trioxide, Diarsenic pentaoxide	European Union. REACH Regulation (EC) No 1907/2006.
Heavy metals (lead, cadmium, mercury, and hexavalent chromium)	European Union. EU Directive 94/62/EC on packaging and packaging waste and its amendments.
	New York State and other 15 states in the United States. Regulations on Heavy Metals in Packaging Materials.

2. DETAILS OF MAJOR CONTROLLED SUBSTANCES (TYPICAL EXAMPLES)

● Cadmium and cadmium compounds

1. Examples

Name	CAS No.	Chemical formula
Cadmium	7440-43-9	Cd
Cadmium alloys		
Cadmium oxide	1306-19-0	CdO
Cadmium chloride	10108-64-2	$CdCl_2$
Cadmium sulfide	1306-23-6; 8048-07-5	CdS
Cadmium nitrate	10325-94-7	$Cd(NO_3)_2$
Cadmium nitrate tetrahydrate	10022-68-1	$Cd(NO_3)_2 \cdot 4H_2O$
Cadmium sulfate	10124-36-4	$CdSO_4$
Cadmium stearate	2223-93-0	$Cd(C_{18}H_{35}O_2)_2$
Other cadmium compounds and alloys		

2. Major applications

- Contact materials and additives for electrical contact points including DC motors, switches, relays and breakers
- Surface treatment (e.g. electroplating, electroless plating, etc.)
- Materials for battery including Nickel-Cadmium batteries, cadmium batteries, and Alkaline batteries
- Solder, low melting point solder
- Reagents, raw materials for chemical synthesis
- Plating bath, plating brighteners
- Polyvinyl chloride stabilizers
- Pigments, semiconductor light receiving elements, paint, coating, inks and coloring agents
- Stabilizers used for plastics (including rubber) materials
- Pigments and dyes (including insulators of electrical wiring, keys of remote commanders, cable ties, outer plastic resins of electrical parts, cabinets, labels, phonograph records)
- Photographic materials, photographic films
- Fluorescent lamps (small-sized ones, straight-tube ones)
- Fuses (Fuse elements of temperature fuses)
- Glass, and the pigments as well as dyes of glass paints (paints for glass and the pigments as well as dyes used for glass)
- CdS-photocells and the phosphors contained in fluorescent display devices
- Resistor elements (glass frit)
- Impurities in metals containing zinc (brass, hot dip galvanizing, etc.)
- Additives for optical glass

• Lead and lead compounds

1. Examples

Name	CAS No.	Chemical formula
Lead; metal	7439-92-1	Pb
Lead -tin alloy		Pb-Sn
Lead (II) oxide	1317-36-8	PbO
Lead (IV) oxide	1309-60-0	PbO_2
Dilead trioxide	1314-27-8	Pb_2O_3
Lead (II, IV) oxide	1314-41-6	Pb_3O_4
Lead azide	13424-46-9	PbN_6
Lead (II) fluoride	7783-46-2	PbF_2
Lead (II) chloride	7758-95-4	$PbCl_2$
Lead (IV) chloride	13463-30-4	$PbCl_4$
Lead (II) iodide	10101-63-0	PbI_2
Lead (II) sulfide	1314-87-0	PbS
Lead (II) cyanide	592-05-2	$Pb(CN)_2$
Lead tetrafluoro borate	13814-96-5	$Pb(BF_4)_2$
Lead hexa fluorosilicate	25808-74-6	$PbSiF_6$
Lead nitrate	10099-74-8	$Pb(NO_3)_2$
Lead carbonate	598-63-0	$PbCO_3$
Lead hydroxycarbonate	1344-36-1	$(PbCO_3)_2Pb(OH)_2$
Lead perchlorate	13637-76-8	$Pb(ClO_4)_2$
Lead (II) sulfate	7446-14-2; 15739-80-7	$PbSO_4$
Lead oxide sulfate	12202-17-4	Pb_4SO_7
Lead (II) phosphate	7446-27-7	$Pb_3(PO_4)_2$
Lead thiocyanate	592-87-0	$Pb(SCN)_2$
Lead (II) acetate, trihydrate	6080-56-4	$Pb(CH_3COO)_2 \cdot 3H_2O$
Lead (II) acetate	301-04-2	$Pb(CH_3COO)_2$
Lead (IV) acetate	546-67-8	$Pb(CH_3COO)_4$
Lead oleate	1120-46-3	$Pb[CH_3(CH_2)_7CH=CH(CH_2)_7COO]_2$
Lead stearate	7428-48-0	$Pb(C_{17}H_{36}COO).xPb$ $(x \geq 1)$
Lead (II) metaborate	10214-39-8	$Pb(BO_2)_2 \cdot H_2O$
Lead metasilicate	11120-22-2; 10099-76-0	$PbSiO_3$

Lead antimonite	13510-89-9	$Pb_3(SbO_4)_2$
Lead arsenate (1:1)	7784-40-9	$PbHAsO_4$
Lead (II) arsenite	10031-13-7	$Pb(AsO_2)_2$
Lead chromate; chrome yellow; lead sulfochromate yellow	1344-37-2	$PbCrO_4$
Lead molybdate	10190-55-3	$PbMoO_4$
Calcium plumbate	12013-69-3	Ca_2PbO_4
Tetramethyl lead	75-74-1	$Pb(CH_3)_4$
Tetraethyl lead	78-00-2	$Pb(C_2H_5)_4$
Lead chromate	7758-97-6	$PbCrO_4$
Lead chromate molybdate sulfate red	12656-85-8	
Other lead compounds and alloys		

2. Major applications

- Solder and brazing materials
- Additives for electrical contact points
- Rubber vulcanization accelerators, rubber curing agents, rubber compounding ingredients, solid lubricants
- Lead-acid batteries and battery materials
- Pigments, raw materials for pigments and antirust pigments
- Paints and inks (used for PWBs and exterior and interior of electronic devices)
- Additives for glass, optical glass and special optical glass
- Reagents and raw materials for print and photographs
- Infrared ray detectors in which semiconductor elements are used
- Plating bath and anticorrosive surface treatment
- Residues in electroless plating films such as electroless nickel plating and electroless gold plating
- Lead refinement
- Stabilizers contained in the plastic (including rubber) materials and polyvinyl chloride stabilizers that are used for AC adaptors, power supply cords, connection cords, remote commanders, mice and other devices
- Dyeing
- Lubricants, curing agents, oxidizers and desiccants for paint
- Ceramics and coloring agents for glass
- Pesticides and matches
- Surface coatings (plating) for the external electrodes and lead terminals of parts incorporated in AC adaptors, remote commanders and semiconductor devices, etc. (e.g. electrical parts, semiconductor devices, and heat sinks)
- Additives and impurities in all kinds of alloys (including bronze)

• Mercury and mercury compounds

1. Examples

Name	CAS No.	Chemical formula
Mercury	7439-97-6	Hg
Mercury alloys; amalgam		
Mercury (I) oxide	15829-53-5	Hg_2O
Mercury (II) oxide	21908-53-2	HgO
Mercury (I) chloride	10112-91-1	Hg_2Cl_2
Mercury (II) chloride	7487-94-7	$HgCl_2$
Mercury (II) nitrate	10045-94-0	$Hg(NO_3)_2$
Mercury (I) sulfate	7783-36-0	Hg_2SO_4
Mercury (II) fulminate	628-86-4	$Hg(ONC)_2$
Mercury (II) acetate	1600-27-7	$Hg(CH_3COO)_2$
Methylmercury salts	e.g. 22967-92-6	CH_3HgX; X=Cl, Br, I, OH, etc.
Ethymercury salts		C_2H_5HgX; X=Cl, Br, I, OH, etc.
Propylmercury salts		C_3H_7HgX; X=Cl, Br, I, OH, etc.
Phenylmercury salts		C_6H_5HgX; X=Cl, Br, I, OH, etc.
Methoxyethyl-mercury salts		$CH_3OC_2H_4HgX$; X=Cl, Br, I, OH, etc.
Dialkylmercury		R_2Hg; R=alkyl group (C_nH_{2n+1})
Diphenylmercury	587-85-9	$(C_6H_5)_2Hg$
Other mercury compounds		

2. Major applications

- Paint, inks and pigments
- Hour meters
- Relays, switches and sensors whose contacts contain mercury
- Additives for plastics
- Electrodes
- Fluorescent lamps and mercury lamps
- Materials for mercury cells and batteries
- Metal etching
- Felt and catalysts
- Fungicides, preservatives, disinfectants

• Hexavalent chromium compounds

Note: Only substances containing hexavalent chromium compounds belong to this category.

1. Examples

Name	CAS No.	Chemical formula
Chromium (VI) oxide; Chromium trioxide	1333-82-0	CrO_3
Lithium chromate	14307-35-8	Li_2CrO_4
Sodium chromate	7775-11-3	Na_2CrO_4
Potassium chromate	7789-00-6	K_2CrO_4
Patassium chlorochromate	16037-50-6	$K[CrO_3Cl]$
Ammonium chromate	7788-98-9	$(NH_4)_2CrO_4$
Copper chromate	13548-42-0	$CuCrO_4$
Magnesium chromate	13423-61-5	$MgCrO_4$
Calcium chromate	13765-19-0	$CaCrO_4$
Strontium chromate	7789-06-2	$SrCrO_4$
Barium chromate	10294-40-3	$BaCrO_4$
Lead chromate; Chrome yellow; Lead sulfochromate yellow	1344-37-2	$PbCrO_4$
Zinc chromate	12018-19-8; 13530-65-9; 14018-95-2	$ZnCrO_4$
Sodium dichromate; Sodium bichromate	10588-01-9	$Na_2Cr_2O_7$

Potassium dichromate; Potassium bichromate	7778-50-9	$K_2Cr_2O_7$
Ammonium dichromate; Ammonium bichromate	7789-09-5	$(NH_4)_2Cr_2O_7$
Calcium dichromate; Calcium bichromate	14307-33-6	$CaCr_2O_7$
Zinc dichromate; Zinc bichromate		$ZnCr_2O_7$
Lead chromate	7758-97-6	$PbCrO_4$
Lead chromate molybdate sulfate red	12656-85-8	
Other hexavalent chromium compounds		

2. Major applications

- Coloring agents for ceramics, pigments, paint, inks, mordants and other additives
- Catalysts
- Surface treatment such as plating, tanning and conversion coating
- Corrosion inhibitors and anticorrosives
- Additives and their raw materials for photographs
- Materials and additives for batteries

• Polychlorinated biphenyls (PCB), polychlorinated naphthalenes (PCN), polychlorinated terphenyls (PCT)

1. Examples

Name	CAS No.	Chemical formula
PCB; Polychlorinated biphenyls	1336-36-3	$C_{12}H_{10-x}Cl_x$ (x = 1 – 10)
PCN; Polycholorinated naphthalenes	70776-03-3	$C_{10}H_{8-x}Cl_x$ (x = 1 – 8)
Trichloronaphthalenes	1321-65-9	$C_{10}H_5Cl_3$
Tetrachloronaphthalenes	1335-88-2	$C_{10}H_4Cl_4$
Pentachloronaphthalenes	1321-64-8	$C_{10}H_3Cl_5$
Octachloronaphthalenes	2234-13-1	$C_{10}Cl_8$
PCT; Polychlorinated terphenyls	61788-33-8	$C_{18}H_{14-x}Cl_x$ (x = 1 – 14)

2. Major applications

- Oils for transformers, oils for capacitors, insulating oils, lubricants, heating mediums
- Flame retardants contained in plastics
- Paint
- Preservatives

• Short-chain chlorinated paraffins (SCCP)

1. Examples

Name	CAS No.	Chemical formula
Short-chain Chlorinated paraffins C10-13	e.g. 85535-84-8	

2. Major applications

- Cabinets of products and flame retardants for PWBs
- Plasticizers

• Polybrominated biphenyls (PBB)

1. Examples

Name	CAS No.	Chemical formula
PBB; Polybrominated biphenyls; Polybrobiphenyl	67774-32-7	$C_{12}H_{10-x}Br_x$ (x = 1 – 10)
PBB; Polybrominated biphenyls; Polybrobiphenyl	59536-65-1	$C_{12}H_{10-x}Br_x$ (x = 1 – 10)
Dibromobiphenyl	92-86-4	$C_{12}H_8Br_2$
2-Bromobiphenyl	2052-07-5	$C_{12}H_9Br$
3-Bromobiphenyl	2113-57-7	$C_{12}H_9Br$
4-Bromobiphenyl	92-66-0	$C_{12}H_9Br$
Tribromobiphenyl	59080-34-1	$C_{12}H_7Br_3$
Tetrabromobiphenyl	40088-45-7	$C_{12}H_6Br_4$
Pentabromobiphenyl	56307-79-0	$C_{12}H_5Br_5$
Hexabromobiphenyl	36355-01-8	$C_{12}H_4Br_6$
2,2',4,4',5,6'-Hexabromobiphenyl	36402-15-0	$C_{12}H_4Br_6$
2,2',3,3',5,5'-Hexabromobiphenyl	55066-76-7	$C_{12}H_4Br_6$
2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	$C_{12}H_4Br_6$
2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	$C_{12}H_4Br_6$
3,3',4,4',5,5'-Hexabromobiphenyl	60044-26-0	$C_{12}H_4Br_6$
2,2',3,4,4',5'-Hexabromobiphenyl	67888-98-6	$C_{12}H_4Br_6$
2,3',4,4',5,5'-Hexabromobiphenyl	67888-99-7	$C_{12}H_4Br_6$
2,2',3,4',5',6-Hexabromobiphenyl	69278-59-7	$C_{12}H_4Br_6$
2,3,3',4,4',5-Hexabromobiphenyl	77607-09-1	$C_{12}H_4Br_6$

2,2',3,4,4',5-Hexabromobiphenyl	81381-52-4	$C_{12}H_4Br_6$
2,2',3,3',4,4'-Hexabromobiphenyl	82865-89-2	$C_{12}H_4Br_6$
2,2',3,3',4,5'-Hexabromobiphenyl	82865-90-5	$C_{12}H_4Br_6$
2,3,3',4',5',6-Hexabromobiphenyl	82865-91-6	$C_{12}H_4Br_6$
2,3,3',4,4',5'-Hexabromobiphenyl	84303-47-9	$C_{12}H_4Br_6$
2,3',4,4',5',6-Hexabromobiphenyl	84303-48-0	$C_{12}H_4Br_6$
2,2',3,4',6,6'-Hexabromobiphenyl	93261-83-7	$C_{12}H_4Br_6$
2,2',3,3',4,6'-Hexabromobiphenyl	119264-50-5	$C_{12}H_4Br_6$
2,2',3,3',5,6'-Hexabromobiphenyl	119264-51-6	$C_{12}H_4Br_6$
2,2',3,4,5',6-Hexabromobiphenyl	119264-52-7	$C_{12}H_4Br_6$
2,2',3,5,5',6-Hexabromobiphenyl	119264-53-8	$C_{12}H_4Br_6$
2,2',3,4,5,5'-Hexabromobiphenyl	120991-47-1	$C_{12}H_4Br_6$
2,3,3',4,5,5'-Hexabromobiphenyl	120991-48-2	$C_{12}H_4Br_6$
Heptabromobiphenyl	35194-78-6	$C_{12}H_3Br_7$
Octabromobiphenyl	61288-13-9	$C_{12}H_2Br_8$
Nonabromo-1,1'-biphenyl	27753-52-2	$C_{12}HBr_9$
Decabromobiphenyl	13654-09-6	$C_{12}Br_{10}$

2. Major applications

- Flame retardants contained in plastics

• Polybrominated diphenylethers (PBDE)

1. Examples

Name	CAS No.	Chemical formula
Polybromodiphenyl ethers; Polybromodiphenyloxides; Polybrominated biphenyl ethers; PBDE; PBDO; PBBE		$C_{12}H_{10-x}Br_xO$ (x = 1 – 10)
Decabromodiphenyl ether; Decabromodiphenyloxide; DBDE; DecaBDE; DBDPE; DBDPO	1163-19-5	$C_{12}Br_{10}O$
Octabromodiphenyl ether; Octabromodiphenyloxide; OBDE; OctaBDE	32536-52-0	$C_{12}H_2Br_8O$
Hexabromodiphenyl ether; Hexabromodiphenyloxide	36483-60-0	$C_{12}H_4Br_6O$
Hexabromodiphenyl ether; hexabromodiphenyloxide	31153-30-7	$C_{12}H_4Br_6O$
Hexabromodiphenyl ether; hexabromodiphenyloxide	35854-94-5	$C_{12}H_4Br_6O$
Hexabromodiphenyl ether; hexabromodiphenyloxide	68631-49-2	$C_{12}H_4Br_6O$
Hexabromodiphenyl ether; hexabromodiphenyloxide	116995-33-6	$C_{12}H_4Br_6O$
Hexabromodiphenyl ether; hexabromodiphenyloxide	207122-15-4	$C_{12}H_4Br_6O$
Pentabromodiphenyl ether; Pentabromodiphenyloxide; PentaBDE	32534-81-9	$C_{12}H_5Br_5O$

Pentabromodiphenyl ether; pentabromodiphenyloxide; PentaBDE	60348-60-9	$C_{12}H_5Br_5O$
Pentabromodiphenyl ether; pentabromodiphenyloxide; PentaBDE	189084-65-9	$C_{12}H_5Br_5O$
Bromodiphenyl ether	101-55-3	$C_{12}H_9BrO$
Dibromodiphenyl ether	2050-47-7	$C_{12}H_8Br_2O$
Tribromodiphenyl ether	49690-94-0	$C_{12}H_7Br_3O$
Tetrabromodiphenyl ether	40088-47-9	$C_{12}H_6Br_4O$
Tetrabromodiphenyl ether	5436-43-1	$C_{12}H_6Br_4O$
Tetrabromodiphenyl ether	93703-48-1	$C_{12}H_6Br_4O$
Tetrabromodiphenyl ether	103173-66-6	$C_{12}H_6Br_4O$
Heptabromodiphenyl ether	68928-80-3	$C_{12}H_3Br_7O$
Heptabromodiphenyl ether	116995-32-5	$C_{12}H_3Br_7O$
Heptabromodiphenyl ether	117948-63-7	$C_{12}H_3Br_7O$
Heptabromodiphenyl ether	207122-16-5	$C_{12}H_3Br_7O$
Heptabromodiphenyl ether	446255-22-7	$C_{12}H_3Br_7O$
Nonabromodiphenyl ether	63936-56-1	$C_{12}HBr_9O$

2. Major applications

- Flame retardants such as plastics, paint and adhesives

● Trisubstituted organotin compounds (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)

Note: Metal tin, tin alloys, tin plating, and tin inorganic compounds do not fall under this category.

1. Examples

Name	CAS No.	Chemical formula
Tributyltin bromide	1461-23-0	$(C_4H_9)_3SnBr$
Tributyltin oxide; Bis (tributyltin) oxide; Distannoxane, hexabutyl-	56-35-9	$C_{24}H_{54}OSn_2$
Triphenyl tin	668-34-8	$(C_6H_5)_3Sn$
Triphenyltin chloride; Fentin chloride; Stannane, chlorotriphenyl-	639-58-7	$(C_6H_5)_3SnCl$
Triphenyltin hydroxide; Fentin hydroxide; Stannane, hydroxytriphenyl-	76-87-9	$(C_6H_5)_3SnOH$
Triphenyltin N, N' –dimethyldithiocarbamate; Stannane, [[(dimethylamino) thiomethyl] thio] triphenyl-	1803-12-9	$(C_6H_5)_3Sn(CH_3)_2NCS_2$
Triphenyltin fluorid; Fentin fluoride	379-52-2	$(C_6H_5)_3SnF$
Triphenyltin acetate; Fentin acetate; Stannane, (acetyloxy) triphenyl-	900-95-8	$(C_6H_5)_3SnOCOCH_3$
Triphenyltin fatty acid salts Note: The triphenyltin fatty acid salts specified here are limited to those with a 9-, 10-, or 11-carbon chain.	18380-71-7; 18380-72-8; 47672-31-1; 94850-90-5	
Triphenyltin chloroacetate; (chloroacetoxy) triphenylstannane	7094-94-2	$(C_6H_5)_3SnOCOCH_2Cl$
Tributyltin methacrylate; Tributyl (methacryloyloxy) stannane; Stannane, tributyl [(2-methyl-1-oxo-2-propenyl) oxy]-	2155-70-6	$(C_4H_9)_3SnC_4H_5O_2$

Bis (tributyltin) fumarate	6454-35-9; 24291-45-0	$C_2H_2(COO)_2$ $([C_4H_9]_3Sn)_2$
Tributyltin fluoride	1983-10-4; 7304-48-5	$(C_4H_9)_3SnF$
Bis (tributyltin) 2, 3-dibromosuccinate	31732-71-5; 56323-17-2	$([C_4H_9]_3Sn)_2C_2H_2$ $(BR)_2(COO)_2$
Tributyltin acetate	56-36-0	$(C_4H_9)_3SnOCOCH_3$
Tributyltin laurate; Tributyl (lauroyloxy) stannane	3090-36-6	$(C_4H_9)_3SnC_{12}H_{23}O_2$
Bis (tributyltin) phthalate; [(Phthaloylbis (oxy)] bis (tributylstannane)	4782-29-0	$(C_6H_4)(COO)_2$ $([C_4H_9]_3Sn)_2$
Tributyltin sulfamate; Stannane, [(aminosulfonyl) oxy] tributyl-	6517-25-5	$(C_4H_9)_3SnSO_3NH_2$
Bis (tributyltin) maleate	14275-57-1; 24291-45-0	$C_{28}H_{56}O_4Sn_2$
Tributyltin chloride; Tributylchlorostannane; Stannane, tributylchloro-	1461-22-9; 7342-38-3	$(C_4H_9)_3SnCl$
Mixture of tributyltin 1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthlenecarboxylate and its analogs; Tributyltin rosin salt	85409-17-2	
[1R-(1alpha,4a.beta.,4b.alpha.,10a.alpha.)]-tributyl [[[1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthryl]carbonyl] oxy] stannane	26239-64-5	$C_{32}H_{56}O_2Sn$
Octyl acrylate-methyl methacrylate-tributyltin methacrylate copolymer (alkyl; C = 8)	67772-01-4	

2. Major applications

- Paint and inks - Preservatives, fungicides and disinfectants

• Dibutyltin (DBT) compounds

Note: Metal tin, tin alloys, tin plating, and tin inorganic compounds do not fall under this category.

1. Examples

Name	CAS No.	Chemical formula
Dibutyltin oxide; Stannane, dibutyloxo-;	818-08-6	$C_8H_{18}OSn$
Dibutyltin dichloride; Stannane, dibutyldichloro-	683-18-1	$C_8H_{18}C_{l2}Sn$
Dibutyltin dilaurate; Stannane, dibutylbis[(1-oxododecyl)oxy]-	77-58-7	$C_{32}H_{64}O_4Sn$
Dibutyltin bis(benzyl maleate); Benzyl (Z,Z)-8,8-dibutyl-3,6,10-trioxo-1-phenyl-2,7,9-trioxa-8-stannatrideca-4,11-dien-13-oate;	7324-74-5	$C_{30}H_{36}O_8Sn$
Dibutyltin maleate; 2,2-Dibutyl-1,3,2-dioxastannepin-4,7-dione	78-04-6	$C_{12}H_{20}O_4Sn$
Dibutuyltin di(acetate); Diacetic acid dibutyltin salt	1067-33-0	$C_{12}H_{24}O_4Sn$

2. Major applications

- Additives in plastics such as stabilizers and antioxidants - Catalysts

• Dioctyltin (DOT) compounds

Note: Metal tin, tin alloys, tin plating, and tin inorganic compounds do not fall under this category.

1. Examples

Name	CAS No.	Chemical formula
Dioctyltin oxide	870-08-6	$C_{16}H_{34}OSn$
Dioctyltin dichloride; Stannane, dichlorodioctyl-,	3542-36-7	$C_{16}H_{34}Cl_2Sn$
Dioctyltin maleate; 2,2-Dioctyl-1,3,2-dioxastannepin-4,7-dione	16091-18-2	$C_{20}H_{36}O_4Sn$
Di(n-octyl)tin bis(isooctylthioglycolate) ; Diisooctyl 2,2'-[(dioctylstannylene)bis(thio)]diacetate	26401-97-8	$C_{36}H_{72}O_4S_2Sn$
Dioctyltin dilaurates (DOTL); Dioctylbis[(1-oxododecyl)oxy]stannane	3648-18-8	$C_{40}H_{80}O_4Sn$

2. Major applications

- Ingredients of stabilizers
- Additives in plastics such as stabilizers and antioxidants
- Catalysts

• Asbestos

1. Examples

Name	CAS No.	Chemical formula
Asbestos	1332-21-4; 132207-32-0; 132207-33-1	
Crocidolite	12001-28-4	$Na_2Fe_5(Si_8O_{22})(OH)_2$
Chrysotile	12001-29-5	$Mg_3Si_2O_5(OH)_4$
Amosite	12172-73-5	$(Mg, Fe)_7Si_8O_{22}(OH)_2$
Anthophyllite	77536-67-5	$(Mg, Fe)_7Si_8O_{22}(OH)_2$
Tremolite	77536-68-6	$Ca_2Mg_5Si_8O_{22}(OH)_2$
Actinolite	77536-66-4	$Ca_2(Mg, Fe)_5Si_8O_{22}(OH)_2$

2. Major applications

- Insulators and fillers

• Formaldehyde

1. Examples

Name	CAS No.	Chemical formula
Formaldehyde; formalin; formic aldehyde; formol	50-00-0	CH_2O

2. Major applications

- Preservatives - Monomers (e.g. phenol resin, melamine resin and polyoxymethylene (POM))

• PVC and PVC blends

1. Examples

Name	CAS No.	Chemical formula
PVC and PVC blends; Polyvinyl chloride and polyvinyl chloride blends	e.g. 9002-86-2	

• Beryllium oxide

1. Examples

Name	CAS No.	Chemical formula
Beryllium oxide	e.g. 1304-56-9	BeO

2. Major applications

- Heat sinks

• Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)

1. Examples

Name	CAS No.	Chemical formula
HFC-23; Trifluoromethane	75-46-7	CHF_3
HFC-32; Difluoromethane	75-10-5	CH_2F_2
HFC-41; Fluoromethane; Methyl fluoride	593-53-3	CH_3F
HFC-125; Pentafluoroethane	354-33-6	C_2HF_5
HFC-134; 1,1,2,2-tetrafluoroethane	359-35-3	CHF_2CHF_2
HFC-134a; 1,1,1,2-tetrafluoroethane	811-97-2	CH_2FCF_3
HFC-143; 1,1,2-trifluoroethane	430-66-0	CHF_2CH_2F
HFC-143a; 1,1,1-trifluoroethane	420-46-2	CH_3CF_3
HFC-152a; 1,1-difluoroethane	75-37-6	CH_3CHF_2
HFC-227ea; 1,1,1,2,3,3,3-heptafluoropropane	431-89-0	C_3HF_7
HFC-236fa; 1,1,1,3,3,3-hexafluoropropane	690-39-1	$C_3H_2F_6$
HFC-245ca; 1,1,2,2,3-pentafluoropropane	679-86-7	$C_3H_3F_5$
HFC-43-10mee; 1,1,1,2,3,4,4,5,5,5-decafluoropentane; 2H,3H-decafluoropentane	138495-42-8	$C_5H_2F_{10}$
HFC-236cb; 1,1,1,2,2,3-hexafluoropropane	677-56-5	$C_3H_2F_6$

HFC-236ea; 1,1,1,2,3,3- hexafluoropropane	431-63-0	$C_3H_2F_6$
HFC-245fa; 1,1,1,3,3- pentafluoropropane	460-73-1	$C_3H_3F_5$
HFC-365mfc; 1,1,1,3,3- pentafluorobutane	406-58-6	$C_4H_5F_5$
PFC-14; Perfluoromethane; Tetrafluoromethane; Carbon tetrafluoride	75-73-0	CF_4
PFC-116; Perfluoroethane; Hexafluoroethane	76-16-4	C_2F_6
PFC-218; Perfluoropropane; Octafluoropropane	76-19-7	C_3F_8
PFC-31-10; Perfluorobutane; Decafluorobutane	355-25-9	C_4F_{10}
PFC-c318; Perfluorocyclobutane; Octafluorocyclobutane	115-25-3	$c\text{-}C_4F_8$
PFC-41-12; Perfluoropentane; Dodecafluoropenthane	678-26-2	C_5F_{12}
PFC-51-14; Perfluorohexane; Tetradecafluorohexane	355-42-0	C_6F_{14}

2. Major applications

- Refrigerants
- Insulation and foaming agents
- Solvent, cleaning agents and dry etching
- Extinguishing agents

• Perfluorooctane sulfonates (PFOS)

1. Examples

Name	CAS No.	Chemical formula
PFOS; Perfluorooctane sulfonates	e.g. 2795-39-3	$C_8F_{17}SO_2X$ (X=hydroxyl, metallic salt, halide, amide, and other derivatives, including polymers)

2. Major applications

- Water repellant agents and oil repellant agents
- Photographic films for professional use
- Resists for semiconductors
- Etching agents
- Surface treatment agents for plating and their prepared additives
- Anti-reflective coating agents used for manufacture of semiconductors
- Polishing agents
- Extinguishers, fire extinguishing agents and foam extinguishing agents for extinguishers
- Insect repellent
- Developing papers

• Specific benzotriazole

1. Examples

Name	CAS No.	Chemical formula
2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole; 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole; Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-	3846-71-7	$C_{20}H_{25}N_3O$

2. Major applications

- Ultraviolet protectants and ultraviolet absorbers

• Cobalt dichloride

1. Examples

Name	CAS No.	Chemical formula
Cobalt dichloride	7646-79-9	$CoCl_2$

2. Major applications

- Moisture indicator used for a desiccant agent (e.g. silica gel)

• Dimethyl fumarate (DMF)

1. Examples

Name	CAS No.	Chemical formula
Dimethyl fumarate	624-49-7	$C_6H_8O_4$

2. Major applications

- Fungicides and desiccant agents

3. HISTORY OF UPDATES ON EFFECTIVE DATE OF THE BAN ON THE DELIVERY FOR EVERY SUBSTANCE

Substances: Cadmium and cadmium compounds	
Targets	Effective date of the ban on the delivery
- Packaging components and materials (See 4.2.1.) - The stabilizers, pigments, or dyes used for plastics (including rubber) materials (e.g. labels, cabinets, phonograph records, cable tie, the keys of remote commanders, the outer plastic resins of electrical parts, and the insulators of electrical wiring) - Paints, inks - Surface treatment (e.g. electroplating, electroless plating, etc.) and coating - Photographic films - Fluorescent lamps (small-sized ones, straight-tube ones)	Banned since the establishment of this Standard
All uses except those specified in Level 2 and Exemption Typical examples are given below: - Switches, relays, breakers, DC motors, and other electrical contact points - Fuse elements of temperature fuses - Glass, and the pigments as well as dyes of glass paints (paints for glass and the pigments as well as dyes used for glass) - Solder (whose cadmium concentration is more than 20 ppm) - CdS-photocells and the phosphors contained in fluorescent display devices - Resistor elements (glass frit)	Banned since January 1, 2005
- Parts composed of metals containing zinc (e.g. brass, hot dip galvanizing, etc.) whose cadmium concentration is more than 100 ppm	Banned since October 1, 2005
- Optical glass	Banned since June 1, 2010

Substances: Lead and lead compounds	
Targets	Effective date of the ban on the delivery
- Packaging components and materials (See 4.2.1.) - The paints, and inks containing lead, which are used for PWBs	Banned since the establishment of this Standard
- Surface coatings (plating) for the external electrodes, lead wires, and other areas of parts (e.g. electrical parts, semiconductor devices, and heat sinks) - The stabilizers, pigments, and dyes contained in the plastic (including rubber) materials that are used for outer and exposed areas of the following articles: mice, devices, AC adaptors, connection cords, remote commanders, and power supply cords - The paints and inks used for outer and exposed areas of devices	Banned since April 1, 2004
All uses except those specified in Level 2, Level 3 and Exemption Typical examples are given below: - The surface coatings for the external electrodes, lead wires, etc. of the parts contained in AC adaptors, remote commanders, semiconductor devices, etc. - Leaded solder that meets both of the following conditions: 1) lead content is less than 85 wt%; and 2) lead content is more than 1000 ppm - All kinds of alloys (including solder materials) whose individual lead concentrations exceed their allowable ones provided in the table at the bottom of Exemption below. (*1) - The stabilizers, pigments, and dyes contained in the plastic (including rubber) materials that are used for areas (excluding outer and exposed ones) of the following articles: mice, devices, AC adaptors, connection cords, remote commanders, and power supply cords - The paints and inks used for areas other than the outer and exposed ones of devices	Banned since January 1, 2005
- Electroless plating films such as electroless nickel plating and electroless gold plating whose lead content is more than 1000 ppm	Banned since February 1, 2006
- Glass for all uses except those specified in Exemption - Solder consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 wt% and less than 85 wt%	Banned since June 1, 2010

(*1) Allowable lead concentrations

Type of alloy	Allowable lead concentration
Steel	up to 0.35 wt%
Aluminum alloy	up to 0.4 wt%
Copper alloys (including brass and phosphor bronze)	up to 4 wt%
Solder (*2)	up to 1000 ppm

Substances: Mercury and mercury compounds	
Targets	Effective date of the ban on the delivery
- Packaging components and materials (See 4.2.1.) - Paints, and inks - Hour meters - Relays, switches, or sensors whose contacts contain mercury - Mercury or its compounds mixed in plastics	Banned since the establishment of this Standard
- All uses except those specified in Level 2 and Exemption	Banned since January 1, 2005
- Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL): Short length (not over 500 mm) : 3.5 mg or more, and less than 5 mg per lamp	Banned since January 1, 2011

Substances: Hexavalent chromium compounds	
Targets	Effective date of the ban on the delivery
- Packaging components and materials (See 4.2.1.)	Banned since the establishment of this Standard
- Constituents of parts or materials (e.g. inks, paints, additives, etc.) - Residues in the surfaces of screws, steel sheets, etc. that are processed with plating or conversion coating	Banned since January 1, 2005

Substances: Polychlorinated biphenyls (PCB), polychlorinated naphthalenes (PCN), polychlorinated terphenyls (PCT)	
Targets	Effective date of the ban on the delivery
- All uses (e.g. capacitors, lubricants, insulating oils, transformers containing oil, paints, and flame retardants in plastics)	Banned since the establishment of this Standard

Substances: Short-chain chlorinated paraffins (SCCP)	
Short-chain chlorinated paraffins with carbon chain length;10-13	
Targets	Effective date of the ban on the delivery
- The cabinets of products (including accessories) and PWBs	Banned since the establishment of this Standard
- All uses other than the above	Banned since February 1, 2006

Substances: Polybrominated biphenyls (PBB)	
Targets	Effective date of the ban on the delivery
- All uses (e.g. flame retardants contained in plastics)	Banned since the establishment of this Standard

Substances: Polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])	
Targets	Effective date of the ban on the delivery
- All uses (e.g. flame retardants contained in plastics)	Banned since the establishment of this Standard
- The parts manufactured using the molding dies, which were made in or before December 2002 (Applicable only to the bodies of the displays and TV sets shipped to countries and regions other than European ones) The parts whose molding dies have been made since January 2003 must not contain PBDE.	Banned since January 1, 2005

Substances: Trisubstituted organotin compounds (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)	
Metal tin, tin alloys, tin plating and tin inorganic compounds do not fall under this category.	
Targets	Effective date of the ban on the delivery
- All uses (e.g. paints, inks, preservatives, and fungicides)	Banned since the establishment of this Standard

Substances: Asbestos	
Targets	Effective date of the ban on the delivery
- All uses (e.g. insulators and fillers)	Banned since the establishment of this Standard

Substances: Specific azo compounds	
Azodyes that form any of the amine compounds listed in Table 4.2a through the decomposition methods cited in REACH Regulation (EC) No 1907/2006 / Annex XVII and amine compounds in Table 4.2a	
Targets	Effective date of the ban on the delivery
- The substances which are used in parts or articles that may come into direct and prolonged contact with the human skin (e.g. belts, straps, ear phones, head phones, and shoulder pads for bags)	Banned since the establishment of this Standard

Substance: Formaldehyde	
Targets	Effective date of the ban on the delivery
- The wooden products made from fiberboard, particleboard, or plywood, which are employed in products for import into Europe (e.g. speakers and racks)	Banned since the establishment of this Standard
- The wooden products made from fiberboard, particleboard, or plywood, which are employed in products for destinations other than Europe (e.g. speakers and racks)	Banned since January 1, 2005

Substances: Polyvinyl chloride (PVC) and PVC blends	
Targets	Effective date of the ban on the delivery
- Substrates for FeliCa contactless IC cards * For reference, the targets have never contained PVC or PVC blends.	Banned since before the establishment of this Standard
- Coating agents and fabrics for the carrying bags, carrying cases, and carrying pouches, which are designed for use with personal computers, digital cameras, camcorders, and portable audio products (excluding those for professional use)	Banned since the establishment of this Standard
- Cable ties used for accessories and connecting cords	Banned since July 1, 2002
- Packaging components and materials to protect, contain, or transport products or supplied accessories (e.g. bags, adhesive tapes, cartons, and blister packs)	Banned since January 1, 2005
- Heat shrink tubes	Banned since April 1, 2005
- Flexible flat cables (FFC) - Sheets and laminates used for exterior of wooden speakers - Insulating plates, decorative panels, labels, sheets, and laminates	Banned since April 1, 2007
- Suction cups for mounting in-vehicle products	Banned since April 1, 2010

Substances: Beryllium oxide	
Targets	Effective date of the ban on the delivery
- All uses	Banned since April 1, 2008

Substances: Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)	
Targets	Effective date of the ban on the delivery
- All uses installed into product (e.g. refrigerant and insulation)	Banned since April 1, 2008

Substances: Perfluorooctane sulfonates (PFOS)	
Targets	Effective date of the ban on the delivery
- Materials whose PFOS concentration is 0.1 wt% or more - Textiles or other coated materials whose amount of PFOS is 1 μg/m^2 or more of the coated material	Banned since April 1, 2008
- All uses except those specified in Exemption (photographic films for professional use and resists for semiconductors)	Banned since April 1, 2010

Substance: Specific benzotriazole	
2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole (CAS No. 3846-71-7)	
Targets	Effective date of the ban on the delivery
Ultraviolet protectants and ultraviolet absorbers applied to decorative laminate, developing papers, molded plastic parts	Banned since April 1, 2008
- Lenses and frames of glasses	Banned since April 1, 2011

Substance: Cobalt dichloride	
Targets	Effective date of the ban on the delivery
- Moisture indicator used for a desiccant agent (e.g. silica gel)	Banned since April 1, 2009
- Humidity indicator card which is impregnated with cobalt dichloride	Banned since April 1, 2011

Substance: Ozone depleting substances (ODS)	
ODS in Table 4.2c	
Targets	Effective date of the ban on the delivery
- All uses for refrigerant, insulation and other products - Components and materials processed with ODS during cleaning, foaming and other processes	Banned since before the establishment of this Standard

Substances: Dimethyl fumarate (DMF)	
CAS No. 624-49-7	
Targets	Effective date of the ban on the delivery
- All uses (e.g. fungicides and desiccant agents)	Banned since April 1, 2010

(Note)
This document is subject to change without prior notice, as a result of a revision or modifications on the SS-00259, the Sony Technical Standard titled "Management Regulations for the Environment-related Substances to be Controlled which are included in Parts and Materials."

Management Regulations for the Environment-related Substances to be Controlled which are included in Parts and Materials

SS-00259 for General Use, Tenth Edition

Enforced 2011.04.01
Issued by Secretariat of the Sony Technical Standards, Sony Corporation

零部件和材料中的环境管理物质　管理规定

（SS-00259 第 10 版　一般公开版）

SONY

（注意）

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本书是索尼技术标准 SS-00259　第 10 版的一般公开版。

目　　录

1. 目的

本技术标准是：通过明确构成索尼电子产品的零部件和组件等中含有的环境管理物质之(1)禁止使用物质、(2)计划全废物质、(3)适用对象外项目，以防止其混入索尼电子产品中，同时实现遵守法令、保护地球环境以及减轻对生态系统的影响等的目的。

2. 适用范围

2.1 零部件和材料的适用范围

本技术标准适用于：索尼集团以及由索尼集团委托设计、制造的产品所包含的零部件、材料及其他物品。这些对象均必须符合本技术标准规定的标准/界限值水准。

所适用的零部件和材料等为：

- 半成品(功能单元、模组、板组件(board assemblies)等的组装零部件等)
- 零部件(电气零部件、机械零部件、半导体器件、印刷线路板、记录媒体、包装零部件和材料)
- 螺丝
- 附件(配合机器使用的附属品，例如，遥控指挥器、鼠标、AC 适配器等)
- 产品采用的辅助材料(胶带(adhesive tape)、焊接材料、粘结剂等)之组成材料等
- 印刷品(操作说明书、保证书、产品和零部件相关的补充信息等)
- 修理用零部件(对于已出货产品的修理用部分零部件，应依照另行规定的通知书执行)
- 零部件交货厂商为了发送或保护货物而使用「4.2.1 包装零部件和材料的定义」中定义的包装零部件和材料
- 电池

2.2 产品的适用范围

(1) 由索尼集团设计和制造、销售、借阅以及发布的索尼电子产品。
(2) 索尼集团委托第三者设计和制造，且贴有索尼集团的商标进行销售、借阅或发布的索尼电子产品。
(3) 第三者委托索尼集团进行设计和制造的电子产品。(但是，由该第三者指定的零部件和材料除外)

此外，对本技术标准中未明确规定的物质或是其用途，如果各国或当地法令规定禁止使用或限制使用该物质或用途时，则必须遵照相关法令执行。

3. 术语的定义

本技术标准中所使用的术语定义如下：

(1) 环境管理物质

包含在零部件和组件等的物质中，由索尼判断对地球环境和人体存在着显著影响的物质。

(2) 管理级别

按照以下 3 种管理级别和适用对象外的分类进行管理。

(a) 1 级

相应对象物质及其用途禁止使用于零部件和材料中。

(b) 2 级

表中规定的该日期开始(即：禁止供货时期栏中所指定的日期)指定提升为「1 级」。

(c) 3 级

今后，考虑到上升至 2 级，须把握的物质及其用途的相关使用状况。

(d) 适用对象外

考虑到法令适用对象外项目等，从 1～3 级对象中刨除的物质及其用途。必要时，需要把握的物质及其用途的使用状况。

(3) 含有

含有是指：无论是否有意图地，通过添加、充填、混入、或者付着的形式，在产品的零部件、组件以及其所使用的材料中残留的情况。

在加工过程中无意图地向产品里混入或者付着后残留的情况也作为含有。

但是，半导体设备等制造中的掺杂物（Dopant），即使有意图的添加，实质上在半导体设备等里残存量极少的话，不作为「含有」。

(4) 意图添加

为了达到特定的特性、外观、和质量，通过有意图的添加、填充、混入、和付着，使物质残留在构成产品的零部件、设备以及其所使用的材料中的情况。

(5) 杂质

作为天然素材中里含有的工业材料，在精制过程中技术上无法完全除去的物质（natural impurity），或者在合成反应的过程中技术上没有完全被除去的物质。

为了和主原料做区别将叫「杂质」的物质以改变素材特性为目的来使用时，作为「意图添加」判断。

（注）本技术标准中指定了「标准/界限值水准」的值，如果该环境管理物质在零部件和组件中作为杂质含有时，其浓度不能超过该值。

(6) 禁止供货时期

禁止向索尼供应零部件和材料的时期。

(7) 本技术标准中定义的塑料

－由合成高分子物质形成的材料或素材－

包括由合成高分子制成的纤维、薄膜、胶带(adhesive tape)、成型产品、合成橡胶产品、植物原料塑料、粘结剂等。

另外，天然树脂与上述的合成高分子物质合成的材料，也定义为塑料。

4. 环境管理物质的管理标准

4.1 环境管理物质

本技术标准中作为对象的环境管理物质名称如表 4.1 所示。

表 4.1　环境管理物质名称一览表

物质名称
镉以及镉化合物
铅以及铅化合物
汞以及汞化合物
六价铬化合物
多氯联苯(PCB) 、多氯化萘(PCN) 、多氯三联苯(PCT)
短链型氯代烷烃(SCCP)
聚氯乙烯(PVC)以及聚氯乙烯混合物
三(2-氯乙基)磷酸酯(TCEP)
其他有机氯化合物
多溴联苯(PBB)
包含十溴联苯醚(DecaBDE)的多溴联苯醚(PBDE)
六溴环十二烷(HBCDD)
其他有机溴化合物
三取代基有机锡化合物(包括三丁基锡化合物(TBT)、三苯基锡化合物(TPT))
二丁基锡化合物(DBT)
二辛基锡化合物(DOT)
石棉
特定偶氮化合物
甲醛
特定苯并三氮唑
富马酸二甲酯(DMF)
氧化铍
铍青铜
氯化钴
三氧化二砷、五氧化二砷
邻苯二甲酸(2-乙基己基酯)、邻苯二甲酸二丁酯、邻苯二甲酸丁苄酯、邻苯二甲酸二异丁酯
邻苯二甲酸二异壬酯、邻苯二甲酸二异癸酯、邻苯二甲酸二正辛酯、邻苯二甲酸二己酯
氢氟碳化合物(HFC)、全氟化碳(PFC)
臭氧层破坏物质(ODS)
全氟辛烷磺酸(及其盐)(PFOS)
硼酸、特定硼酸钠

表 4.2　关于环境管理物质的主要对象和禁止收货时期

<table>
<tr><td colspan="4">物质名称：镉及镉化合物</td></tr>
<tr><td colspan="2">对象</td><td>标准/界限值水准</td><td>禁止收货日期</td></tr>
<tr><td rowspan="3">1 级</td><td>• 塑料（包括橡胶）
• 涂料
• 油墨</td><td>• 均质材料中，镉含有 5 ppm 以上(*)</td><td rowspan="3">立即执行</td></tr>
<tr><td>• 焊料</td><td>• 焊料中，镉含有超过 20 ppm</td></tr>
<tr><td>• 上述以外的所有用途
（关于包装零部件和材料，参照 4.2。
关于电池，参照 4.3。）</td><td>• 均质材料中，镉含有超过 100 ppm</td></tr>
<tr><td>适用对象外</td><td colspan="2">• 要求使用可靠性高的电气接点电镀，但是没有替代材料的电镀
• 滤光玻璃</td><td></td></tr>
<tr><td colspan="4">(*)测定对象：塑料(包括橡胶)、涂料、油墨
镉的界限值：小于 5 ppm</td></tr>
<tr><td colspan="4">(*)测定标准：
(1) 预处理
主要的预处理方法：例如 IEC 62321:2008, EPA 3052:1996
- 在密闭容器内进行的加压酸分解法(例如微波分解法)
- 酸分解法
- 干式灰化法
(注)如果在预处理过程中，产生沉淀物(不溶解物)时，应采取某种方法(碱溶法等)完全溶解该沉淀物。以 EN 71-3:1994、ASTM F963-96a、ASTM F963-03、ASTM D 5517、ISO 8124-3: 1997 为代表的萃取法是不适合的预处理方法。
(2) 测定法
主要测定方法：例如 IEC 62321:2008
- 电感耦合等离子体发射光谱法(ICP-OES[ICP-AES])
- 原子吸收分光光度法(AAS)
- 电感耦合等离子体质谱法(ICP-MS)
(注)预处理和测定方法的组合方法，若能保证镉的最小测试极限小于 5 ppm，则可以采用。</td></tr>
</table>

物质名称：铅以及铅化合物			
对象		标准/界限值水准	禁止收货时期
1 级	• 塑料（包含橡胶） • 涂料 • 油墨	•均质材料中，铅含有 100 ppm 以上 (*)	立即执行
	• 焊料	• 焊料中，铅含有超过 1000 ppm (0.1wt%)	
	• 镀（无电解镀镍、无电解镀金等的包括无电解镀皮膜）	• 电镀皮膜中，铅含有超过 1000 ppm (0.1wt%)	
	• 钢材	• 铅含有超过 3500 ppm (0.35 wt%)	
	• 铝合金	• 铅含有超过 4000 ppm (0.4 wt%)	
	• 铜合金（包含黄铜、磷青铜）	• 铅含有超过 40000 ppm (4 wt%)	
	• 荧光管的玻璃	• 铅含有超过 2000 ppm (0.2 wt%)	
	• 上述以及 2、3 级以外的所有用途 （关于包装零部件・材料，也请参照 4.2。 关于电池，也请参照 4.3。）	• 均质材料中，铅含有超过 1000 ppm (0.1wt%)	
2 级	• 低于 125V AC 或 250V DC 额定电压的电容器上的介电陶瓷。	• 均质材料中，铅含有超过 1000 ppm (0.1wt%)	从 2012 年 1 月 1 日开始执行
3 级	• 在无电解镀镍、无电解镀金等的无电解电镀皮膜中的铅含量小于 1000 ppm 的皮膜		
适用对象外	• 连接零部件和组件用的高熔点焊料(即，铅的重量百分比在 85wt%以上的有铅焊锡)。 • 光学玻璃、滤光玻璃 • 用于显像管的玻璃材料 • 电气・电子部品所使用的，玻璃、陶瓷、或这些的基质化合物（例如，压电元件） 但是，电容器的介电陶瓷除外 • 125 V AC 或 250V DC 以上额定电压的电容器的介电陶瓷 • 连接集成电路板叩焊晶片内部的半导体芯片和连接电路板的焊料(包括 C4 突块(bump)下面使用的焊锡膏) • EU 指令 69/493/EEC 附录 I(分类 1、2、3 和 4)中定义的水晶玻璃 (注）各向异性的导电胶片(ACF)及各向异性的导电糊剂(ACP)中使用焊料时，要使用其导电物质在「标准/界限值水准」中所示浓度以下的焊料。		

物质名称：铅以及铅化合物
(*)测定对象象：塑料(包括橡胶)、涂料、油墨 铅的界限值：小于 100 ppm
(*)测定标准： (1) 预处理 主要的预处理方法：例如 IEC 62321:2008, EPA 3052:1996 - 在密闭容器内进行的加压酸分解法(例如微波分解法) - 酸分解法 - 干式灰化法 (注)如果在预处理过程中，产生沉淀物(不溶解物)时，应采取某种方法(碱溶法等)完全溶解该沉淀物。EN 71-3:1994、ASTM F963-96a、ASTM F963-03、ASTM D 5517、ISO 8124-3:19971997 为代表的萃取法是不适合的预处理方法。另外，EN 1122:2001 不适合作为铅的预处理方法。 (2) 测定方法 主要测定方法：例如 IEC 62321:2008 - 电感耦合等离子体-光发射光谱法、(ICP-OES[ICP-AES]) - 原子吸收光分析法(AAS) - 电感耦合等离子体-质谱法(ICP-MS) (注)预处理和测定方法的组合方法，若能保证铅的最小测试极限小于 30 ppm，则可以采用。

物质名称：汞以及汞化合物			
对象		标准/界限值水准(*)	禁止收货时期
1 级	• 冷阴极荧光灯管(CCFL)及外置电极荧光灯(EEFL)：长度在 500mm 以下	• 每根中汞含有量为 3.5 mg 以上的意图添加	立即执行
	• 上述以外的所有用途 （有关包装零部件・材料，也请参照 4.2。 有关电池，也请参照 4.3。）	• 意图添加 • 均质材料中，汞含有超过 1000 ppm (0.1wt)	
适用对象外	• 冷阴极荧光灯管(CCFL)及外置电极荧光灯(EEFL)： 长度在 500mm 以下的：每根汞的含有量少于 3.5 mg 长度超过 500mm 但小于 1500mm，且每支汞的含量少于 5mg 的产品 长度超过 1500mm，且每支汞的含量少于 13mg 的产品 • 高压气体放电管(幻灯机灯管等)		

*标准/界限值水准，「意图添加」和数值两方同时要求时，都要满足。

物质名称：六价铬化合物			
对象		标准/界限值水准(*)	禁止收货时期
1 级	• 电镀、化学转化处理等的表面处理(螺丝、钢板等)	• 残留在被处理部位	立即执行
	• 上述以外的所有用途 （有关包装零部件和材料，也请参照 4.2。 有关电池，也请参照 4.3。）	• 意图添加 • 均质材料中，六价铬的含有超过 1000 ppm (0.1wt)	

*标准/界限值水准，「意图添加」和数值两方同时要求时，都要满足。

物质名称：多氯联苯(PCB)、多氯化萘(PCN)、多氯三联苯(PCT)			
对象		标准/界限值水准	禁止收货时期
1 级	• 所有的用途	• 意图添加	立即执行

物质名称：短链型氯代烷烃(SCCP)			
对象为「碳链长为 10－13 的短链型氯代烷烃」			
对象		标准/界限值水准	禁止收货时期
1 级	• 所有的用途	• 材料中，含有超过 1000 ppm (0.1wt)	立即执行

物质名称：聚氯乙烯(PVC)以及聚氯乙烯混合物			
对象		标准/界限值水准	禁止收货时期
1 级	• 非接触 IC 卡(FeliCa)用基材	• 意图添加	立即执行
	• 下列产品所使用的配件背包，专用携带配件盒、配件腰包的材料和涂装剂(但是，业务用除外) ：电脑、数码相机、摄像机、便携式多媒体播放器		
	• 捆绑附件、连接电源线的扎线带		
	• 产品以及与产品一同包装的附件等使用的包装零部件和材料(袋、胶带、纸箱、泡罩包装等)		
	• 热收缩软管		
	• 扁型软电线(FFC) • 木制扬声器外装部分采用的片材、层压板 • 绝缘板、装饰板、标签、片材、层压板		
	• 安装车用机器的吸盘		

物质名称：聚氯乙烯(PVC)以及聚氯乙烯混合物		
对象		禁止收货时期
3 级	• 便携型机器用电缆(例如：入耳式耳机、头戴式耳机、耳戴式麦克风用的电缆等) • 机器内外部使用的绝缘和保护用的涂层、绝缘软管、携带用挂带(carrying belt)、垫片(spacer)、 holder(是指固定用的零部件)、保护盖(cover)、配线槽(duct)等 • 出口日本、美国、加拿大的电源线(包括插头、连接器、电线套筒)：「2P 与 3P」 • 使用线材(带电缆的连接器等)的零部件以及机体内布线用线材(马达引线等) • 连接电缆（USB 用电缆、i.LINK 用电缆、录像机电缆、天线用电缆、有 AC 适配器的 DC 插座电线、平形电线、多芯绞合型电缆、扬声器电缆等） • 束线、加工线材(同轴电缆、平形电线、双重屏蔽电线、屏蔽线等) • 业务用电子产品用配件背包、专用携带配件盒、配件腰包的材料及涂装剂 • 电容器/电源开关/保险丝用途的绝缘盖 • 设备、半导体及其他零部件所用的包装零部件・材料 （托盘、料条(装运管)、制动机、带盘、压纹承载带等） • 用于机器内部的配线用夹(用聚氯乙烯涂装过的金属物品) 1 级以外的用途	
适用对象外	• 树脂用粘料 • 高压塑料电线 • 绝缘带 • 扬声器的格栅 • 电源线（3 级以外的地区出口） • 含有氯乙烯共聚物，以及聚氯乙烯与其他聚合物的混合物之零部件。但是上述「1 级」与「3 级」所指定的零部件除外 • 变压器的引线部分(清漆浸渍的部分) • 卷线 • AWG36（American Wire Gauge）以上的极细电线 • 不能使用通用电缆的业务用机器所采用的电缆(例如：广播电视台用摄像机电缆、麦克风电缆等)	

物质名称：三(2-氯乙基)磷酸酯(TCEP)			
CAS No. 115-96-8 的物质是对象			
对象		标准/界限值水准	禁止收货时期
2 级	• 用于塑料、树脂、纤维、布料的难燃剂用途	• 零部件中，含有超过 1000 ppm (0.1wt%)	从 2014 年 7 月 1 日开始执行

物质名称：其他有机氯化合物		
对象		禁止收货时期
3 级	• 用于塑料的阻燃剂和增塑剂，以及印刷线路板等的阻燃剂用途时	

物质名称：多溴联苯(PBB)			
对象		标准/界限值水准(*)	禁止收货时期
1 级	• 所有的用途	• 意图添加 • 均质材料中，含有超过 1000 ppm (0.1wt%)	立即执行

*标准/界限值水准，「意图添加」和数值两方同时要求时，都要满足。

物质名称：包含十溴联苯醚(DecaBDE)的多溴联苯醚(PBDE)			
对象		标准/界限值水准(*)	禁止收货时期
1 级	• 所有的用途	• 意图添加 • 均等材料中，含有超过 1000 ppm (0.1wt%)	立即执行

*标准/界限值水准，「意图添加」和数值两方同时要求时，都要满足。

物质名称：六溴环十二烷(HBCDD)			
CAS No. 25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7, 134237-52-8 的物质是对象			
对象		标准/界限值水准	禁止收货时期
2 级	• 用于塑料、树脂的难燃剂用途	• 零部件中，含有超过 1000 ppm (0.1wt%)	从 2015 年 1 月 1 日开始执行

物质名称：其他有机溴化合物		
对象		禁止收货时期
3 级	• 用于塑料的阻燃剂和印刷线路板等的阻燃剂之用途	

物质名称：三取代基有机锡化合物 （包括三丁基锡化合物(TBT)、三苯基锡化合物(TPT)）			
对象中不包括金属锡、锡合金、锡电镀、锡无机化合物。			
对象		标准/界限值水准(*)	禁止收货时期
1 级	• 所有的用途	• 意图添加 • 材料中，锡含有超过 1000 ppm (0.1wt%)	立即执行

*标准/界限值水准，「意图添加」和数值两方同时要求时，都要满足。

物质名称：二丁基锡化合物(DBT)			
对象中不包括金属锡、锡合金、锡电镀、锡无机化合物。			
对象		标准/界限值水准	禁止收货时期
2 级	• 塑料橡胶添加剂等的所有用途（下列的 2 级除外）	• 材料中，锡含量超过 1000 ppm（0.1wt%）	从 2011 年 7 月 1 日开始执行
2 级	• 一液型及二液型室温硬化型（RTV-1 及 RTV-2）密封剂 • 一液型及二液型室温硬化型（RTV-1 及 RTV-2）接着剂 • 涂料及涂抹剂的触媒 • 面向用 PVC 涂抹的室外用途屋外用织物、纤维的安定剂 • 软质 PVC 其本身，或者，硬质 PVC 和同時被成形按出的软质 PVC 异型材中的添加剂	• 材料中，锡含量超过 1000 ppm（0.1wt%）	从 2014 年 7 月 1 日开始执行
适用对象外	• 零部件和设备中所用再利用的包装零部件和材料中的添加剂 • 设备、半导体及其他零部件所用的包装零部件和材料（托盘、料条(装运管)、制动机、带盘、压纹承载带等）中的添加剂		

物质名称：二辛基锡化合物(DOT)			
不包括金属锡、锡合金、锡电镀、锡无机化合物。			
对象		标准/界限值水准	禁止收货时期
2 级	• 纤维、布料中的添加剂	• 材料中，锡含量超过 1000 ppm（0.1wt%）	从 2011 年 7 月 1 日开始执行

物质名称：石棉			
对象		标准/界限值水准	禁止收货时期
1 级	• 所有的用途	• 意图添加	立即执行

物质名称：特定偶氮化合物			
对象为：REACH 法规(1907/2006/EC)- 附件 XVII 中引用的试验法进行分解，生成表 4.2a 特定胺化合物的偶氮化合物，以及 4.2a 的特定胺化合物			
对象		标准/界限值水准	禁止收货时期
1 级	• 纤维、布料、皮革材料中的添加剂	• 纤维、布料、皮革材料中，含有超过 30 ppm (0.003wt%)	立即执行
试验法(参考) 分解偶氮化合物，生成胺的方法如下所述： (1) EN 14362-1：2003 (2) CEN ISO/TS 17234：2003 (3) EN 14362-2：2003			

表 4.2a　特定胺化合物一览表

CAS No.	特定胺名称
92-67-1	4-氨基联苯
92-87-5	联苯胺
95-69-2	4-氯邻甲苯胺；4-氯-2-甲基苯胺
91-59-8	2-萘胺
97-56-3	邻氨基偶氮甲苯
99-55-8	2-氨基-4-硝基甲苯；5-硝基邻甲苯胺
106-47-8	4-氯苯胺
615-05-4	2,4-二氨基苯甲醚
101-77-9	4,4'-亚甲基二苯胺；4,4'-二氨基二苯甲烷
91-94-1	3,3'-二氯联苯胺
119-90-4	3,3'-二甲氧基联苯胺
119-93-7	3,3'-二甲基联苯胺
838-88-0	3,3'-二甲基-4,4'-二氨基二苯甲烷；4,4'-二氨基-3,3'-二甲基二苯基甲烷
120-71-8	5-甲基邻茴香甲胺；2-甲氧基-5-甲基苯氨
101-14-4	4,4'-二氨基-3,3'-二氯二苯甲烷
101-80-4	4,4'-二氨基联苯醚
139-65-1	4,4'-二氨基二苯硫醚
95-53-4	邻甲苯胺
95-80-7	2,4-二氨基甲苯；4-甲基-间-苯二胺
137-17-7	2,4,5-三甲基苯胺
90-04-0	邻甲氧基苯胺
60-09-3	4-氨基偶氮苯

物质名称：甲醛			
对象		标准/界限值水准	禁止收货时期
1 级	• 产品中使用的纤维板(Fiberboard)、刨花板(particleboard)，以及使用胶合板的木制品(例如，扬声器、机架等)	• 具体如下所述	立即执行
甲醛的界限值(排放浓度)：采用如下方法中的其中一种方法。 (1)测试室法 12 m^3、1 m^3或 0.0225 m^3的气密试验槽中，其浓度在 0.1 ppm 以下(小于或等于 0.124 mg/m^3) (2)穿孔法 •未经表面处理的 100g 刨花板中的标准值应为小于或等于 6.5 mg(6 个月的平均值) •未经表面处理的 100g 纤维板中的标准值应为小于或等于 7.0 mg(6 个月的平均值)或者 •未经表面处理的 100g 刨花板及纤维板中的标准值应为小于或等于 8.0 mg(这里是指遵照如下(2)中的 EN 120 规定之 1 次的测定值) (3)干燥器法 平均标准值应为小于或等于 0.5 mg/l，最大的标准值应为小于或等于 0.7 mg/l(用 N ＝2 来确认平均值、最大值)			
测定法：(1)测试室法依照 EN 717-1：2004 (2)穿孔法依照 EN 120：1992 (3)干燥器法依照 JIS A 5905 (Fiberboards)、JIS A 5908(Particleboards)规定			

物质名称：特定苯并三氮唑			
对象为「2-(2H-1,2,3'-二叔丁基-2'-羟基苯基)苯并三唑(CAS No. 3846-71-7)」			
对象		标准/界限值水准	禁止收货时期
1 级	用于以下产品中作为紫外线防护剂、紫外线吸收剂的用途 • 装饰性层压板 • 印相纸(照相纸) • 成型塑料产品 • 眼镜镜片、镜框	•意图添加	立即执行

物质名称：富马酸二甲酯(DMF)			
对象为 CAS No. 624-49-7。			
对象		标准/界限值水准	禁止收货时期
1 级	•所有的用途	•材料中，含有超过 0.1 ppm	立即执行

物质名称：氧化铍			
对象		标准/界限值水准	禁止收货时期
1 级	• 所有的用途	• 意图添加	立即执行

物质名称：铍青铜		
对象		禁止收货时期
3 级	• 所有的用途	

物质名称：二氯化钴			
对象		标准/界限值水准	禁止收货时期
1 级	• 用于干燥剂(硅胶等)中的湿度指示剂 • 湿度指示剂(湿度显示卡) (注)所指的湿度指示剂，是将二氯化钴浸渍到纸等里面的吸湿类型	• 意图添加	立即执行

物质名称：三氧化二砷、五氧化二砷			
对象为 CAS No. 1303-28-2, 1327-53-3 的物质，各物质的界限值被适用			
对象		标准/界限值水准	禁止收货时期
2 级	• 液晶屏（包含玻璃罩、手触屏、后照灯）的玻璃的消泡剂、澄清剂的用途	• 零部件中，含有量超过 1000 ppm (0.1wt%)	从 2014 年 7 月 1 日开始执行

物质名称：邻苯二甲酸(2-乙基己基酯)、邻苯二甲酸二丁酯、 邻苯二甲酸丁苄酯、邻苯二甲酸二异丁酯			
对象为 CAS No. 117-81-7, 84-74-2, 85-68-7, 84-69-5 的物质（参照表 4.2b），界限值适用于各物质			
对象		标准/界限值水准	禁止收货时期
2 级	• 电缆和电线（包括插头、接插件部)的可塑剂用途	•零部件中，含有超过 1000 ppm（0.1wt%）	从 2014 年 7 月 1 日开始执行
3 级	• 上述以外的所有用途		

物质名称：邻苯二甲酸二异壬酯、邻苯二甲酸二异癸酯、邻苯二甲酸二正辛酯、邻苯二甲酸二己酯		
对象为 CAS No. 28553-12-0, 68515-48-0, 26761-40-0, 68515-49-1, 117-84-0, 84-75-3 的物质（参照表 4.2b）		
对象		禁止收货时期
3 级	• 电缆和电线（包括插头、接插件部)的可塑剂用途	

表 4.2b　特定邻苯二甲酸盐(邻苯二甲酸盐)一览表

略称	CAS No.	名称
DEHP	117-81-7	邻苯二甲酸(2-乙基己基酯)
DBP	84-74-2	邻苯二甲酸二丁酯
BBP	85-68-7	邻苯二甲酸丁苄酯
DIBP	84-69-5	邻苯二甲酸二异丁酯
DINP	28553-12-0 68515-48-0	邻苯二甲酸二异壬酯
DIDP	26761-40-0 68515-49-1	邻苯二甲酸二异癸酯
DNOP	117-84-0	邻苯二甲酸二正辛酯
DNHP	84-75-3	邻苯二甲酸二己酯

物质名称：氢氟碳化合物(HFC)、全氟化碳(PFC)			
对象		标准/界限值水准	禁止收货时期
1 级	• 用于制冷剂和隔热材料等的产品中所有用途	• 意图添加	立即执行

物质名称：臭氧层破坏物质(ODS)			
对象为表 4.2c 的物质			
对象		标准/界限值水准	禁止收货时期
1 级	• 用于制冷剂和隔热材料等的产品中所有用途	• 意图添加	立即执行
	• 所有的用途	• 使用 ODS 实施清洗加工、发泡加工等的处理	

表 4.2c　臭氧层破坏物质 (ODS) 一览表

CAS No.	名称
75-69-4	CFC-11; 三氯氟甲烷
75-71-8	CFC-12; 二氯氟甲烷
76-13-1	CFC-113; 三氯氟乙烷
76-14-2	CFC-114; 二氯四氟乙烷
76-15-3	CFC-115; 氯五氟乙烷
353-59-3	Halon-1211; 溴氯二氟甲烷
75-63-8	Halon-1301; 一溴三氟甲烷
124-73-2	Halon-2402; 四氟二溴乙烷
75-72-9	CFC-13; 氯三氟甲烷
354-56-3	CFC-111; 五氯氟乙烷
76-12-0	CFC-112; 四氯二氟乙烷
422-78-6	CFC-211; 七氯氟丙烷
3182-26-1	CFC-212; 六氯二氟丙烷
2354-06-5	CFC-213; 五氯三氟丙烷
29255-31-0	CFC-214; 四氯四氟丙烷
4259-43-2	CFC-215; 三氯五氟丙烷
661-97-2	CFC-216; 二氯六氟丙烷
422-86-6	CFC-217; 氯七氟丙烷
56-23-5	四氯化碳;四氯甲烷
71-55-6	1,1,1-三氯乙烷; 甲基氯仿

物质名称：全氟辛烷磺酸(及其盐)(PFOS)			
对象		标准/界限值水准	禁止收货时期
1 级 •	• 所有的用途	• 意图添加	立即执行
适用对象外	• 商业用的光学胶片 • 半导体制程工艺用的光阻剂		

物质名称：硼酸、特定硼酸钠		
对象为表 4.2d 的物质		
对象		禁止收货时期
3 级	• 所有的用途	

表 4.2d　硼酸、特定硼酸钠一览表

CAS No.	名称
10043-35-3	硼酸
11113-50-1	硼酸
12179-04-3	五水四硼酸钠
1330-43-4	无水四硼酸钠
1303-96-4	十水四硼酸钠（硼砂）
12267-73-1	七水合四硼酸钠

4.2 有关包装零部件和材料的追加事项

4.2.1 包装零部件和材料的定义

包装零部件和材料是指：生产者为了将产品(包括原材料到加工品)以「装入」、「保护」、「处理」、「运送」、「交付」等方式送到使用者或消费者手中，使用各类材料及零部件制成的产品。

(注) 但是，在运输公司或零部件交货厂商的管理下回收且再次使用的物流箱等的包装除外。在此所指的物流箱等不包含在由索尼集团内部或终端用户废弃的包装材料中。

表 4.3　有关包装零部件和材料的追加事项

<table>
<tr><td colspan="3">物质名称：重金属
(镉、铅、六价铬、汞)</td></tr>
<tr><td colspan="3">除 4.1 项(表 4.2)的规定外，还需遵守法律规定，同时符合以下条件</td></tr>
<tr><td colspan="2">对象</td><td>禁止供货时期</td></tr>
<tr><td>1 级</td><td>• 对象为表 4.3a 中记载的包装零部件和材料</td><td>立即执行</td></tr>
<tr><td>适用对象外</td><td>• 运输公司或零部件交货厂商所使用的物流箱除外</td><td></td></tr>
<tr><td colspan="3">重金属的界限值：
汞、镉、六价铬、铅的重金属界限值水准，依照组成包装时的各零部件材料、油墨、涂料的类别，规定为重金属的合计应小于 100 ppm。但是，在塑料(包括橡胶)、涂料、油墨各相应部位中的含镉或铅的界限值水准，应符合「镉和镉化合物」及「铅和铅化合物」的规定。
【主要的塑料部位：提手、塑料袋、缓冲材料、薄膜、托盘、带盘、胶带(adhesive tape)、料条(装運管(包括止动器))、打包带等】</td></tr>
<tr><td colspan="3">(1)对于六价铬的分析，首先分析总铬的量，确认 4 种元素合计小于 100 ppm。此时，可以与镉和铅同时进行预处理。
(2)如果 4 种元素合计为 100 ppm 以上时，必需确认镉、铅、汞 3 种元素的合计含量小于 100 ppm。
当镉、铅、汞的合计含量小于 100 ppm 时，再进一步实施六价铬的检测判定。最后应确认没有检测到六价铬。

测定标准：
(1)预处理
在此规定镉和铅的预处理方法，应依照塑料中的镉(*3)和铅(*4)的规定处理。
另外，总铬的预处理方法也是依照塑料中的镉(*3)的规定处理。

汞的预处理方法主要有以下几种方法：
- 在密闭容器内进行的加压酸分解法(例如：微波分解法) (例如：IEC62321：2008，EPA 3052：1996)
- 加热气化-冷原子吸光法(例如：IEC62321：2008)
- 将硫酸、硝酸放入附带回流冷凝器的分解烧瓶(基耶达尔法)中进行的湿式分解法
等
(注) 必须注意无论采用何种方法都不能让汞挥发。另外，产生沉淀物时，必须采取某种方法完全溶解该沉淀物。

(2)测定法
在此规定镉、铅、总铬的测定法，应依照塑料中的镉(*3)和铅(*4)的规定进行。
另外，汞的测定方法也是依照塑料中的镉(*3)和铅(*4)的规定进行。但是，预估包装零部件和材料中可能混入低浓度的汞时，如下分析方法较为适合：还原气化原子吸光法、附带氢气发生器的 ICP-OES (ICP-AES)与附带氢气发生器的 ICP-MS。</td></tr>
</table>

六价铬的检测判定

这是为了确认包装零部件和材料中的镉、铅、汞、总铬 4 种元素合计是否是 100 ppm 以上的方法。

检测方法：

(1) 预处理

萃取法[沸水萃取法、碱萃取法(例如：IEC62321：2008 Annex C, EPA 3060A)

(2) 测定法

紫外-可见光分光光度法(例如：IEC62321：2008 Annex C, EPA 7196A)

本测定标准，根据预处理和测定法的组合，如果其结果可以保证各自所对应的最小测试极限为：汞小于 5ppm、镉小于 5ppm、总铬小于 5ppm、铅小于 30ppm 的话，则规定为该组合所得到的测定结果合格。

(*3) 参照「表 4.2 关于环境管理物质的主要对象和禁止供货时期」中的物质名称：镉以及镉化合物、测定对象：塑料(包括橡胶)、涂料、油墨。

(*4) 参照「表 4.2 关于环境管理物质的主要对象和禁止供货时期」中的物质名称：铅以及铅化合物、测定对象：塑料(包括橡胶)、涂料、油墨。

表 4.3a　　识别包装零部件和材料的具体例子

(注) 本表并没有网罗所有的包装零部件和材料。

用于包装消费者用产品以及业务用产品的包装零部件和材料(用于运输索尼电子产品的包装零部件和材料)		
包装零部件和材料（PACKAGING）		
1.	纸箱(箱子)	由各种材料制成的个装箱、辅助纸箱、主纸箱
2.	缓冲材料	
3.	防护带(片材(sheet))	泡沫塑料或不织布等
4.	塑料袋	
5.	信封	装保证书的信封等
6.	泡罩包装	
7.	薄膜	包含粘贴液晶显示器表面等的防护膜
8.	对折泡壳	
9.	隔离板/间隔物(spacer)	
10.	印刷油墨	用于印刷包装零部件的油墨
11.	胶带(adhesive tape)	用于封缄纸箱、塑料袋，以及保护和固定可动部分的胶带
12.	U 形钉	
13.	标签	在索尼的监督管理下粘贴于包装零部件上的标签，例如条形码标签
14.	接头(joint)	粘接纸箱等
15.	打包带	PP 打包带等
16.	挂钩(hang tab)	
17.	提手	提手及其构成零部件
18.	外框	木框等
19.	热收缩薄膜	
20.	瓶	
21.	套筒	
22.	装饰箱	例如装钢笔或化妆品的装饰箱
23.	防滑垫	

非包装零部件和材料（NOT PACKAGING）		
1.	CD 盒子/袋	属于产品的一部分，用于录像带、CD、MO、MD、DVD 等的盒子、袋、芯轴等
2.	检索卡片/标签	属于产品的一部分，附属于 CD 或其他记录媒体的检索卡片或标签等
3.	专用携带配件盒/配件腰包	属于产品的一部分，耳机、照相机、WALKMAN®随身听等的附属品
4.	标签	粘贴在产品上等的标签，但包装零部件和材料上的标签除外
5.	标签	由第 3 者粘贴的货物标签或发票等

器件、半导体以及其他零部件使用的包装零部件和材料		
包装零部件和材料（PACKAGING）		
1.	料条(装运管)	用于运输 IC 等的包装零部件
2.	止动器	
3.	托盘	
4.	带盘	

物流采用的包装零部件和材料		
包装零部件和材料（PACKAGING）		
1.	板条托盘	包括滑托板之木制、塑料制、纸制等 One-Way 规格的托盘
2.	板条箱	
3.	缠绕膜(拉伸膜)	防止货物变形等用
4.	木制集装箱	
5.	辅助包装采用的包装材料	运输零部件时的辅助包装所采用的纸箱、缓冲材料、胶带(adhesive tape)等
6.	打包带/绳	PP 打包带等
非包装零部件和材料（NOT PACKAGING）		
1.	轮船和空运集装箱	轮船输送用 40 英尺集装箱、空运集装箱等

4.3 有关电池的追加事项(适用于：与产品同时包装或另外出售等所有商品的流通形式)

4.3.1 关于本技术标准中的「电池」、「电池组」以及「钮扣电池」的定义

「电池」是指：通过直接变换化学能源，使其产生电气能源。它是由单一或复数个一次电池(即原电池 primary battery：不能再充电)，或是单一或复数个二次电池(即蓄电池 secondary battery：可再充电)所组成的。
「电池组」是指：由复数的电池相互连接，且终端用户(end-user)无企图分解，即以全套装置(complete unit)的形式安装于外壳(outer casing)中的电池套组。
「钮扣电池」是指：其直径比高度长，外形小并且为圆形的携带型「电池」。因特别的目的用于助听器、腕表、小型可携带式机器产品、备用电源等中的电池。
「电池」以及「电池组」中的电池，均应按照表 4.4 记载的规定。
另外，构成「电池组」的元件中，对电池以外的其他零部件，应依照本技术标准的 4.1 及 4.2 项的规定。

表 4.4　有关电池的事项

<table>
<tr><td colspan="4">物质名称：重金属(镉、铅、汞)</td></tr>
<tr><td colspan="3">对象</td><td>禁止供货时期</td></tr>
<tr><td rowspan="7">1
级</td><td rowspan="4">镉(Cd)</td><td>• 镍/镉电池。</td><td rowspan="7">立即执行</td></tr>
<tr><td>• 「电池」:　含有电池总重 0.002%以上的镉的电池。
• 「电池组」:含有电池总重 0.002%以上的镉的电池组。</td></tr>
<tr><td>• 碳性电池、碱锰电池以及镍氢电池(Ni-MH)的蓄电池中含有电池总重 0.001%以上的镉电池。</td></tr>
<tr><td>• 组装设置在机器中的「电池」及「电池组」中含有电池总重 0.0005%以上的镉电池。</td></tr>
<tr><td rowspan="3">铅(Pb)</td><td>• 「电池」:　含有电池总重 0.4%以上的铅的电池。
• 「电池组」:含有电池总重量 0.4%以上铅的电池组。</td></tr>
<tr><td>• 锰干电池及碱性的锰干电池，对电池的重量比为 0.1%以上。</td></tr>
<tr><td>• 组装设置在机器中的「电池」及「电池组」中含有电池总重 0.1%以上的铅的电池。</td></tr>
<tr><td rowspan="2">汞(Hg)</td><td>• 「钮扣电池」:含有电池总重 2%以上的汞的钮扣电池。
• 「钮扣电池」以外的有，
「电池」:　含有电池总重量 0.0005%以上的汞的电池。
「电池组」:含有电池总重量 0.0005%以上的汞的电池组。</td></tr>
<tr><td>• 碳性电池和碱锰电池中含有电池总重 0.0001%以上的汞的电池。</td></tr>
</table>

5. 特定产品零部件中的化学物质替代化

索尼根据化学物质的有害性和暴露量的风险性为考量，从收集的用途信息和含有信息中，特定了风险性高的用途，并将其用途的逐步全废列入环境中期计划中。

聚氯乙烯（PVC）：

由于不适合的处分而产生有害物质的危险性已显示，作为 PVC 的可塑剂、安定剂所使用的物质的一部分来说，对环境面及人体影响有令人担忧的部分。在发展中国家有价物品的回收过中，小型电子器材被收集后，考虑到不适当的烧毁和填埋对环境影响，对下列产品和机种进行 PVC 替代化。

溴素阻燃剂(BFR)：

BFR 中存在对人体的有影响以及会残留在环境中的物质，甚至在体内产生具有积蓄性的物质。与 PVC 一样，考虑到由于不适当的烧毁而产生的有害物质的风险性，将下列产品和机种为对象进行 BFR 的替代化。

替代化对象零部件；2011 年 4 月 1 日以后贩卖的新机种里，索尼 CSR/环境/社会贡献的网页(http://www.sony.co.jp/SonyInfo/csr/environment/chemical/products/index.html#hyo)（仅有日语版）中所指定的产品种类和机种中，下列零部件作为对象。(附属品、配件、以业务用途为前提所涉及的产品除外)

- PVC 替代化对象零部件；框体和机内的配线。
- BFR 替代化对象零部件；框体树脂 (BFR 的含有浓度超过 1000ppm)和主要的线路板(溴素的含有浓度超过 900ppm)。

注： 质量、技术上的问题没被解决时，在「聚氯乙烯（PVC）及 PVC 混合物」里的「适用对象外」不在该对象中。

关于对供应商的具体指示，对各对象产品中零部件的规格书等做另外的指示。

附属资料

1. 世界各国和地区就物质使用所实施的法律法规(主要法规)

2. 所属物质的详细信息(主要的例子)和主要的用途

・镉以及镉化合物
・铅以及铅化合物
・汞以及汞化合物
・六价铬化合物
・多氯联苯(PCB)、多氯化萘(PCN)、多氯三联苯(PCT)
・短链型氯化萘(SCCP)
・多溴联苯(PBB)
・多溴联苯醚(PBDE)
・三取代基有机锡化合物(包括三丁基锡化合物(TBT)、三苯基锡化合物(TPT))
・二丁基锡化合物(DBT)
・二辛基锡化合物(DOT)
・石棉
・特定偶氮化合物
・甲醛
・聚氯乙烯(PVC)以及聚氯乙烯混合物
・氧化铍
・氢氟碳化合物(HFC)、全氟化碳(PFC)
・全氟辛烷磺酸(及其盐) (PFOS)
・特定苯并三氮唑
・二氯化钴
・富马酸二甲酯(DMF)

注意事项: 本附属资料 1 和 2 中所列举的法令及化学物质，仅为代表性的例子，并不是汇总全部的内容，所以也会有其他表述名称等的情况。

3. 各物质禁止收货时期的变更履历

1. 世界各国和地区就物质的使用所实施的法律法规(主要法规)

(注) 以下登载的是截止至目前 2011 年 2 月已确认的内容。如果有改定版及附属资料，也应同时参考。另外，由于法律法规的内容会有变动，因此请参照各国的法律法规的最新版的详细内容。

物质名称	法律法规(主要法规)
镉以及镉化合物	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
	欧盟・RoHS 指令(2002/95/EC)及其修订版
	欧盟・电池指令(2006/66/EC)
	韩国・质量经营及工产品安全管理法
铅以及铅化合物	欧盟・RoHS 指令(2002/95/EC)及其修订版
	欧盟・电池指令(2006/66/EC)
	阿根廷・便携式电气能源法律 26,184 号及决议 14/2007
	巴西・电池规则 Resolution No.401
	韩国・质量经营及工产品安全管理法
汞以及汞化合物	欧盟・RoHS 指令(2002/95/EC)及其修订版
	欧盟・电池指令(2006/66/EC)
	中国・关于限制电池产品汞含量的规定
	中国・进出口电池产品汞含量检验监督管理规则
六价铬化合物	欧盟・RoHS 指令(2002/95/EC)及其修订版
多氯联苯(PCB)、 多氯化萘(PCN)、 多氯三联苯(PCT)	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
	日本・化学物质审查规制法(※简称化审法) 第 1 种特定化学物质
短链型氯代烷烃(SCCP)	挪威・对特定有害化学物质使用等相关限制 等
三(2-氯乙基)磷酸酯(TCEP)	欧盟・REACH 法规(EC) No.1907/2006
多溴联苯(PBB)	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
	欧盟・RoHS 指令(2002/95/EC)
多溴联苯醚(PBDE)	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
	欧盟・RoHS 指令(2002/95/EC)
六溴环十二烷(HBCDD)	欧盟・REACH 法规(EC) No.1907/2006
三取代基有机锡化合物(包括三丁基锡化合物(TBT)、三苯基锡化合物(TPT))	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
	日本现行的《化学物质审查规制法》规定的第 1 种 / 第 2 种特定化学物质
二丁基锡化合物(DBT)	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
二辛基锡化合物(DOT)	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
石棉	日本・劳动安全卫生法
	德国・化学品禁止规则(简称 ChemVerbotsV)
特定偶氮化合物	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII

物质名称	法律法规
甲醛	德国・化学品禁止规则(简称 ChemVerbotsV)
	丹麦・指令 No.289
氧化铍	欧盟・WEEE 指令(2002/96/EC)及欧盟・ 欧盟指令(1999/45/EC)
邻苯二甲酸(2-乙基己基酯)、邻苯二甲酸二丁酯、邻苯二甲酸丁苄酯、邻苯二甲酸二异丁酯	欧盟・REACH 法规(EC) No.1907/2006
氢氟碳化合物(HFC)、全氟化碳(PFC)	欧盟・欧盟法规(EC) No 842/2006
	丹麦・指令 No.552
	瑞士・减少化学品风险条令(※简称 ORRChem)
全氟辛烷磺酸(及其盐)(PFOS)	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
特定苯并三氮唑	日本・化学物质审查规制法(简称化审法) 第 1 种特定化学物质
二氯化钴	欧盟・REACH 法规(EC) No.1907/2006 Annex XVII
臭氧层破坏物质(ODS)	欧盟・欧盟法规(EC)No.2037/2000
	日本・关于通过对特定物质的控制等措施保护臭氧层的法律
	美国・1990 年的清洁空气法案修订案
	印度尼西亚・Regulation of the Minister of Industry of the Republic of Indonesia No.33/M-IND/PER/4/2007 dated April 17, 2007
富马酸二甲酯(DMF)	欧盟・欧盟委员会决议(2009/251/EC)
三氧化二砷、五氧化二砷	欧盟・REACH 法规(EC) No.1907/2006
重金属(鉛、镉、汞、六价铬)	欧盟・包装和包装废弃物的指令 (94/62/EC)
	美国・纽约州等 16 个州的包装材料重金属规定

2. 所属物质的详细信息(主要的例子)

●镉以及镉化合物

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
镉	Cadmium	7440-43-9	Cd
镉合金	Cadmium alloys		
氧化镉	Cadmium oxide	1306-19-0	CdO
氯化镉	Cadmium chloride	10108-64-2	$CdCl_2$
硫化镉；镉黄	Cadmium sulfide	1306-23-6; 8048-07-5	CdS
硝酸镉	Cadmium nitrate	10325-94-7	$Cd(NO_3)_2$
四水合硝酸镉	Cadmium nitrate tetrahydrate	10022-68-1	$Cd(NO_3)_2 \cdot 4H_2O$
硫酸镉	Cadmium sulfate	10124-36-4	$CdSO_4$
硬脂酸镉	Cadmium stearate	2223-93-0	$Cd(C_{18}H_{35}O_2)_2$
其他镉化合物及合金	Other cadmium compounds and alloys		

2. 主要用途等

- 接点材料、DC 马达、开关、继电器、断路器等的电气接点用添加剂
- 表面处理（电气镀、无电解镀等）
- 镍・镉电池、镉电池、碱性电池等的电池材料
- 焊锡、低熔点焊锡
- 试药、化学合成材料
- 电镀浴（液）、电镀光泽剂
- 聚氯乙烯的安定剂
- 颜料、半导体受光元件、涂料、油漆、涂层、油墨、着色剂
- 塑料（包括橡皮）材料中所使用的安定剂
- 颜料、染料（电气配线的绝缘体、遥控器、束线带、電子部品の外装樹脂、外筐、标签、记录盘用等的颜料、染料）
- 相片、相片胶卷
- 萤光灯（小型萤光灯、直管萤光灯）
- 保险丝（温度保险丝的可溶体）
- 玻璃及玻璃涂料的颜料、染料（玻璃用颜料、染料及玻璃用涂料）
- 萤光表示装置中含有的萤光体、CdS 光导电管
- 抵抗体（玻璃粉）
- 包含亚铅的金属（黄铜、溶融亚铅焊锡等）里的不纯物
- 光学玻璃添加剂

●铅以及铅化合物

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
铅；金属铅	Lead metal	7439-92-1	Pb
铅-锡合金	Lead-tin alloy		Pb-Sn
氧化铅；一氧化铅；氧化亚铅；氧化铅(II)；密陀僧(黄铅)；黄丹	Lead (II) oxide	1317-36-8	PbO
二氧化铅；氧化第二铅；氧化铅（IV)；过氧化铅	Lead (IV) oxide	1309-60-0	PbO_2
三氧化二铅；三二氧化铅	Dilead trioxide	1314-27-8	Pb_2O_3
四氧化三铅；四三氧化铅；铅丹；红丹；氧化铅(II,IV)	Lead (II,IV) oxide	1314-41-6	Pb_3O_4
叠氮化铅；铅叠氮化物	Lead azide	13424-46-9	PbN_6
二氟化铅；氟化亚铅；氟化铅(II)	Lead (II) fluoride	7783-46-2	PbF_2
二氯化铅；氯化铅(II)；氯化铅	Lead (II) chloride	7758-95-4	$PbCl_2$
四氯化铅；氯化铅(IV)	Lead (IV) chloride	13463-30-4	$PbCl_4$
碘化亚铅；碘化铅(II)	Lead (II) iodide	10101-63-0	PbI_2
硫化铅(II)	Lead (II) sulfide	1314-87-0	PbS
氰化铅(II)	Lead (II) cyanide	592-05-2	$Pb(CN)_2$
氟硼酸铅	Lead tetra fluoroborate	13814-96-5	$Pb(BF_4)_2$
六氟硅酸铅	Lead hexafluorosilicate	25808-74-6	$PbSiF_6$
硝酸铅	Lead nitrate	10099-74-8	$Pb(NO_3)_2$
碳酸铅	Lead carbonate	598-63-0	$PbCO_3$
碱式碳酸铅；盐基碳酸铅；铅白；氢氧碳化铅	Lead hydroxycarbonate	1344-36-1	$(PbCO_3)_2$ $Pb(OH)_2$
过氯酸铅	Lead perchlorate	13637-76-8	$Pb(ClO_4)_2$
硫酸亚铅；硫酸铅(II)	Lead (II) sulfate	7446-14-2; 15739-80-7	$PbSO_4$
三盐基硫酸铅	Lead oxide sulfate	12202-17-4	Pb_4SO_7
磷酸铅	Lead (II) phosphate	7446-27-7	$Pb_3(PO_4)_2$
硫氰酸铅	Lead thiocyanate	592-87-0	$Pb(SCN)_2$
三水合乙酸铅；三水醋酸铅(II)	Lead(II) acetate, trihydrate	6080-56-4	$Pb(CH_3COO)_2 \cdot 3H_2O$
乙酸铅；醋酸铅(II)；铅糖	Lead(II) acetate	301-04-2	$Pb(CH_3COO)_2$
乙酸高铅盐；四乙酸铅（IV）	Lead(IV) acetate	546-67-8	$Pb(CH_3COO)_4$

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
油酸铅	Lead oleate	1120-46-3	$Pb[CH_3(CH_2)_7CH=CH(CH_2)_7COO]_2$
硬脂酸铅	Lead stearate	7428-48-0	$(C_{17}H_{36}COO).xPb$ $(x\geqq 1)$
硼酸铅	Lead(II) metaborate	10214-39-8	$Pb(BO_2)_2\cdot H_2O$
硅酸铅	Lead metasilicate	11120-22-2; 10099-76-0	$PbSiO_3$
锑酸铅	Lead antimonate	13510-89-9	$Pb_3(SbO_4)_2$
砷酸铅；砷酸氢铅；酸性砷酸铅	Lead arsenate(1:1)	7784-40-9	$PbHAsO_4$
亚砷酸铅	Lead(II)arsenite	10031-13-7	$Pb(AsO_2)_2$
铬酸铅； 铬黄； C.I.颜料黄34	Lead chromate; chrome yellow; Lead sulfochromate yellow	1344-37-2	$PbCrO_4$
钼酸铅	Lead molybdate	10190-55-3	$PbMoO_4$
铅酸钙	Calcium plumbate	12013-69-3	Ca_2PbO_4
四甲基铅；四甲铅；TML	Tetramethyllead	75-74-1	$Pb(CH_3)_4$
四乙基铅；四乙铅；TEL	Tetraethyllead	78-00-2	$Pb(C_2H_5)_4$
铬酸铅(II)	Lead chromate	7758-97-6	$PbCrO_4$
硫酸铅铬钼红（C.I.颜料红104）	Lead chromate molybdate sulfate red	12656-85-8	
其他铅化合物以及合金	Other lead compounds and alloys		

2. 主要用途等

- 焊锡、着蜡材料
- 电气接点用添加剂
- 橡胶加硫促进剂、橡胶硬化剂、橡胶配合剂、固体润滑剂
- 铅蓄电池、电池的材料
- 颜料、颜料的原料、防锈颜料
- 涂料、油墨（印刷配线版、电子机器外部和内部所用的涂料、油墨）
- 玻璃、光学玻璃、特殊光学玻璃用添加剂
- 印刷・相片用试药、原料
- 半导体红外线检出器
- 电镀浴（液）、耐腐蚀表面处理
- 无电解镍电镀・无电解金电镀等的无电解电镀皮膜中的残留
- 铅精炼
- AC 适配器、电源线、接续线、遥控器、鼠标、机器中所用的塑料（包括橡胶）材料中的安定剂、聚氯乙烯的安定剂
- 染色
- 润滑剂、硬化剂、氧化剂、涂抹的干燥剂
- 陶瓷、玻璃的着色
- 杀虫剂、火柴
- AC 适配器、遥控器、半导体设备等里内藏零部件的外部电极、导线终端的表面处理（电气零部件 / 半导体设备 / 散热片等）
- 各种合金（青铜等)中的添加剂、杂质

●汞以及汞化合物

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
汞；金属汞	Mercury	7439-97-6	Hg
汞合金；汞齐	Mercury alloys ; amalgam		
氧化亚汞；氧化汞(I)	Mercury(I)oxide	15829-53-5	Hg_2O
一氧化汞；氧化汞(II)	Mercury(II)oxide	21908-53-2	HgO
氯化亚汞；氯化汞(I)；甘汞	Mercury(I)chloride	10112-91-1	Hg_2Cl_2
二氯化汞；氯化汞(II)；升汞	Mercury(II)chloride	7487-94-7	$HgCl_2$
硝酸汞；硝酸汞(II)	Mercury(II)nitrate	10045-94-0	$Hg(NO_3)_2$
硫酸亚汞；硫酸汞(I)	Mercury(I)sulfate	7783-36-0	Hg_2SO_4
雷汞；雷酸汞(II)	Mercury(II) fulminate	628-86-4	$Hg(ONC)_2$
乙酸汞；醋酸汞(II)	Mercury(II)acetate	1600-27-7	$Hg(CH_3COO)_2$
甲基汞盐	Methylmercury salts	e.g. 22967-92-6	CH_3HgX ; X=Cl,Br,I,OH, etc.
乙基汞盐	Ethylmercury salts		C_2H_5HgX ; X=Cl,Br,I,OH, etc.
丙基汞盐	Propylmercury salts		C_3H_7HgX ; X=Cl,Br,I,OH, etc.
苯基汞盐	Phenylmercury salts		C_6H_5HgX ; X=Cl,Br,I,OH, etc.
甲氧基乙基汞盐	Methoxyethylmercury salts		$CH_3OC_2H_4HgX$; X=Cl,Br,I,OH, etc.
二烃基汞	Dialkylmercury		R_2Hg ; R=alkyl group (C_nH_{2n+1})
二苯汞	Diphenylmercury	587-85-9	$(C_6H_5)_2Hg$
其他汞化合物	Other mercury compounds		

2. 主要用途等

- 涂料、油墨、颜料
- 时间器
- 汞接点用继电器、开关、探测器
- 塑料里的添加剂
- 电极
- 萤光管、汞灯
- 汞电池、干电池等电池材料
- 金属蚀刻、
- 毛毡、触媒
- 时间器
- 防霉剂、防腐剂、杀菌剂

●六价铬化合物

1．所属物质的例子

仅含有六价的铬元素的物质才属于此类。

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
三氧化铬；氧化铬(VI)；无水铬酸；铬酸	Chromium(VI) oxide; chromium trioxide	1333-82-0	CrO_3
铬酸锂	Lithium chromate	14307-35-8	Li_2CrO_4
铬酸钠	Sodium chromate	7775-11-3	Na_2CrO_4
铬酸钾	Potassium chromate	7789-00-6	K_2CrO_4
氯铬酸钾	Potassium chlorochromate	16037-50-6	$K[CrO_3Cl]$
铬酸铵	Ammonium chromate	7788-98-9	$(NH_4)_2CrO_4$
铬酸铜	Copper chromate	13548-42-0	$CuCrO_4$
铬酸镁	Magnesium chromate	13423-61-5	$MgCrO_4$
铬酸钙；钙铬黄	Calcium chromate	13765-19-0	$CaCrO_4$
铬酸锶	Strontium chromate	7789-06-2	$SrCrO_4$
铬酸钡	Barium chromate	10294-40-3	$BaCrO_4$
铬酸铅； 铬黄； C.I.颜料黄34	Lead chromate; chrome yellow; Lead sulfochromate yellow	1344-37-2	$PbCrO_4$
铬酸锌；黄锌；锌黄	Zinc chromate	12018-19-8; 13530-65-9; 14018-95-2	$ZnCrO_4$
重铬酸钠	Sodium dichromate; sodium bichromate	10588-01-9	$Na_2Cr_2O_7$

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
重铬酸钾	Potassium dichromate; potassium bichromate	7778-50-9	$K_2Cr_2O_7$
重铬酸铵	Ammonium dichromate; ammonium bichromate	7789-09-5	$(NH_4)_2Cr_2O_7$
重铬酸钙	Calcium dichromate; calcium bichromate	14307-33-6	$CaCr_2O_7$
重铬酸锌	Zinc dichromate; zinc bichromate		$ZnCr_2O_7$
铬酸铅(II)	Lead chromate	7758-97-6	$PbCrO_4$
硫酸铅铬钼红（C.I.颜料红 104）	Lead chromate molybdate sulfate red	12656-85-8	
其他六价铬化合物	Other hexavalent chromium compounds		

2. 主要用途等

- 颜料、涂料、油墨、陶瓷用着色剂、媒染剂、其他添加剂
- 触媒
- 电镀、鞣革、化成处理等的表面处理
- 防锈剂、耐腐蚀剂
- 相片用添加剂、原料
- 电池用材料、添加剂

●多氯联苯(PCB)、多氯化萘(PCN)、多氯三联苯(PCT)

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
PCB；多氯联苯；氯化联苯	PCB; polychlorinated biphenyls	1336-36-3	$C_{12}H_{10-x}Cl_x$ (x=1-10)
PCN；多氯化萘；氯化萘	PCN; polychlorinated naphthalenes	70776-03-3	$C_{10}H_{8-x}Cl_x$ (x=1-8)
三氯化萘	Trichloronaphthalene	1321-65-9	$C_{10}H_5Cl_3$
四氯化萘	Tetrachloronaphthalene	1335-88-2	$C_{10}H_4Cl_4$
五氯化萘	Pentachloronaphthalene	1321-64-8	$C_{10}H_3Cl_5$
八氯化萘	Octachloronaphthalene	2234-13-1	$C_{10}Cl_8$
PCT；多氯三联苯	PCT; polychlorinated terphenyls	61788-33-8	$C_{18}H_{14-x}Cl_x$ (x=1-14)

2. 主要用途等

- 变压器油、电容器油、绝缘油、润滑油、热媒体
- 塑料阻燃剂
- 涂料
- 防腐剂

●短链型氯代烷烃 (SCCP)

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
氯化烷烃；短链氯化石蜡；碳原子数 C10-13 氯代烃	Short-chain Chlorinated paraffins C10-13	e.g. 85535-84-8	

2. 主要用途等

- 产品的外框（机壳）• 印刷配线板用阻燃剂
- 增塑剂

●多溴联苯 (PBB)

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
PBB；多溴联苯	PBB; Polybrominated biphenyls Polybrobiphenyl	e.g. 67774-32-7	$C_{12}H_{10-x}Br_x$ (x=1-10)
PBB；多溴联苯	PBB; Polybrominated biphenyls Polybrobiphenyl	59536-65-1	$C_{12}H_{10-x}Br_x$ (x=1-10)
二溴联苯	Dibromobiphenyl	92-86-4	$C_{12}H_8Br_2$
2-溴代联苯	2-Bromobiphenyl	2052-07-5	$C_{12}H_9Br$
3-溴代联苯	3-Bromobiphenyl	2113-57-7	$C_{12}H_9Br$
4-溴代联苯	4-Bromobiphenyl	92-66-0	$C_{12}H_9Br$
三溴联苯	Tribromobiphenyl	59080-34-1	$C_{12}H_7Br_3$
四溴联苯	Tetrabromobiphenyl	40088-45-7	$C_{12}H_6Br_4$
五溴联苯	Pentabromobiphenyl	56307-79-0	$C_{12}H_5Br_5$
六溴联苯	Hexabromobiphenyl	59080-40-9	$C_{12}H_4Br_6$
六溴；2,2',4,4',5,6'-联苯	2,2',4,4',5,6'-Hexabromobiphenyl	36402-15-0	$C_{12}H_4Br_6$
六溴；2,2',3,3',5,5'-联苯	2,2',3,3',5,5'-Hexabromobiphenyl	55066-76-7	$C_{12}H_4Br_6$
六溴；2,2',4,4',5,5'-联苯	2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	$C_{12}H_4Br_6$
六溴；2,2',4,4',6,6'-联苯	2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	$C_{12}H_4Br_6$
六溴；3,3',4,4',5,5'-联苯	3,3',4,4',5,5'-Hexabromobiphenyl	60044-26-0	$C_{12}H_4Br_6$
六溴；2,2',3,4,4',5'-联苯	2,2',3,4,4',5'-Hexabromobiphenyl	67888-98-6	$C_{12}H_4Br_6$
六溴；2,3',4,4',5,5'-联苯	2,3',4,4',5,5'-Hexabromobiphenyl	67888-99-7	$C_{12}H_4Br_6$
六溴；2,2',3,4',5',6-联苯	2,2',3,4',5',6-Hexabromobiphenyl	69278-59-7	$C_{12}H_4Br_6$
六溴；2,3,3',4,4',5-联苯	2,3,3',4,4',5-Hexabromobiphenyl	77607-09-1	$C_{12}H_4Br_6$
六溴；2,2',3,4,4',5-联苯	2,2',3,4,4',5-Hexabromobiphenyl	81381-52-4	$C_{12}H_4Br_6$

六溴；2,2',3,3',4,4'-联苯	2,2',3,3',4,4'-Hexabromobiphenyl	82865-89-2	$C_{12}H_4Br_6$
六溴；2,2',3,3',4,5'-联苯	2,2',3,3',4,5'-Hexabromobiphenyl	82865-90-5	$C_{12}H_4Br_6$
六溴；2,3,3',4',5',6-联苯	2,3,3',4',5',6-Hexabromobiphenyl	82865-91-6	$C_{12}H_4Br_6$
六溴；2,3,3',4,4',5'-联苯	2,3,3',4,4',5'-Hexabromobiphenyl	84303-47-9	$C_{12}H_4Br_6$
六溴；2,3',4,4',5',6-联苯	2,3',4,4',5',6-Hexabromobiphenyl	84303-48-0	$C_{12}H_4Br_6$
六溴；2,2',3,4',6,6'-联苯	2,2',3,4',6,6'-Hexabromobiphenyl	93261-83-7	$C_{12}H_4Br_6$
六溴；2,2',3,3',4,6'-联苯	2,2',3,3',4,6'-Hexabromobiphenyl	119264-50-5	$C_{12}H_4Br_6$
六溴；2,2',3,3',5,6'-联苯	2,2',3,3',5,6'-Hexabromobiphenyl	119264-51-6	$C_{12}H_4Br_6$
六溴；2,2',3,4,5',6-联苯	2,2',3,4,5',6-Hexabromobiphenyl	119264-52-7	$C_{12}H_4Br_6$
六溴；2,2',3,5,5',6-联苯	2,2',3,5,5',6-Hexabromobiphenyl	119264-53-8	$C_{12}H_4Br_6$
六溴；2,2',3,4,5,5'-联苯	2,2',3,4,5,5'-Hexabromobiphenyl	120991-47-1	$C_{12}H_4Br_6$
六溴；2,3,3',4,5,5'-联苯	2,3,3',4,5,5'-Hexabromobiphenyl	120991-48-2	$C_{12}H_4Br_6$
七溴联苯	Heptabromobiphenyl	35194-78-6	$C_{12}H_3Br_7$
八溴联苯	Octabromobiphenyl	61288-13-9	$C_{12}H_2Br_8$
九溴-1，1'-联苯	Nonabromo-1,1'-biphenyl	27753-52-2	$C_{12}HBr_9$
十溴二苯	Decabromobiphenyl	13654-09-6	$C_{12}Br_{10}$

2. 主要用途等

• 塑料阻燃剂

●多溴联苯醚(PBDE)

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式	主要用途
多溴二苯醚; 聚溴二苯醚; PBDE; PBDO; PBBE	Polybromodiphenyl ethers; polybromodiphenyloxides; polybrominated biphenyl ethers; PBDE; PBDO; PBBE		$C_{12}H_{10-x}Br_xO$ (x=1-10)	阻燃剂
十溴二苯醚; DBDE; DecaBDE; DBDPE; DBDPO	Decabromodiphenyl ether; decabromodiphenyloxide; DBDE; DecaBDE; DBDPE; DBDPO	1163-19-5	$C_{12}Br_{10}O$	阻燃剂(PE、ABS、聚酯用)
八溴二苯醚; OBDE; OctaBDE	Octabromodiphenyl ether; octabromodiphenyloxide; OBDE; OctaBDE	32536-52-0	$C_{12}H_2Br_8O$	阻燃剂 (ABS、HIPS、LDPE用)
六溴二苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxide	36483-60-0	$C_{12}H_4Br_6O$	阻燃剂
六溴二苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxide	31153-30-7	$C_{12}H_4Br_6O$	
2,2',4,4',6,6'-六溴联苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxide	35854-94-5	$C_{12}H_4Br_6O$	
2,2',4,4',5,5'-六溴联苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxide	68631-49-2	$C_{12}H_4Br_6O$	
六溴二苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxide	116995-33-6	$C_{12}H_4Br_6O$	
2,2',4,4',5,6'-六溴联苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxide	207122-15-4	$C_{12}H_4Br_6O$	
五溴二苯醚; PentaBDE	Pentabromodiphenyl ether; pentabromodiphenyloxide; PentaBDE	32534-81-9	$C_{12}H_5Br_5O$	阻燃剂
2,2',4,4',5-五溴联苯醚	Pentabromodiphenyl ether; pentabromodiphenyloxide; PentaBDE	60348-60-9	$C_{12}H_5Br_5O$	
2,3,4,5,6-五溴联苯醚	Pentabromodiphenyl ether; pentabromodiphenyloxide; PentaBDE	189084-65-9	$C_{12}H_5Br_5O$	
一溴二苯醚	Bromodiphenyl ether	101-55-3	$C_{12}H_9BrO$	阻燃剂
二溴二苯醚	Dibromodiphenyl ether	2050-47-7	$C_{12}H_8Br_2O$	阻燃剂
三溴二苯醚	Tribromodiphenyl ether	49690-94-0	$C_{12}H_7Br_3O$	阻燃剂
四溴联苯醚	Tetrabromodiphenyl ether	40088-47-9	$C_{12}H_6Br_4O$	阻燃剂
2,2',4,4'-四溴联苯醚	Tetrabromodiphenyl ether	5436-43-1	$C_{12}H_6Br_4O$	
3,3',4,4'-四溴联苯醚	Tetrabromodiphenyl ether	93703-48-1	$C_{12}H_6Br_4O$	
3,3',5,5'-四溴联苯醚	Tetrabromodiphenyl ether	103173-66-6	$C_{12}H_6Br_4O$	

七溴二苯醚	Heptabromodiphenyl ether	68928-80-3	$C_{12}H_3Br_7O$	阻燃剂
七溴二苯醚	Heptabromodiphenyl ether	116995-32-5	$C_{12}H_3Br_7O$	
2,2',3,4,4',6,6'-七溴联苯醚	Heptabromodiphenyl ether	117948-63-7	$C_{12}H_3Br_7O$	
2,2',3,4,4',5,6-七溴联苯醚	Heptabromodiphenyl ether	207122-16-5	$C_{12}H_3Br_7O$	
2,2',3,3',4,5',6-七溴二苯醚	Heptabromodiphenyl ether	446255-22-7	$C_{12}H_3Br_7O$	
九溴二苯醚	Nonabromodiphenyl ether	63936-56-1	$C_{12}HBr_9O$	阻燃剂

2. 主要用途等

• 塑料、涂料、接着剂等的阻燃剂

●三取代基有机锡化合物(包括三丁基锡化合物(TBT)、三苯基锡化合物(TPT))

1．所属物质的例子

金属锡、锡合金、电镀锡、锡的无机化合物也不属于此类。

所属物质的例子如下所示。

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
三正丁基溴化锡	Tributyltin bromide	1461-23-0	$(C_4H_9)_3SnBr$
三丁基氧化锡(TBTO)； 双三丁基氧化锡	Tributyltin oxide; Bis(tributyltin)oxide; Distannoxane,hexabutyl-	56-35-9	$C_{24}H_{54}OSn_2$
三苯基锡	Triphenyltin	668-34-8	$(C_6H_5)_3Sn$
三苯基氯化锡；氯化三苯基锡	Triphenyltin chloride; Fentin chloride; Stannane,chlorotriphenyl-	639-58-7	$(C_6H_5)_3SnCl$
三苯基羟基锡;三苯基氢氧化锡	Triphenyltin Hydroxide; Fentin hydroxide; Stannane,Bydroxytriphenyl-	76-87-9	$(C_6H_5)_3SnOH$
三苯基锡=N,N’-二甲基二硫代氨基甲酸酯;二甲基二硫代氨基甲酸三苯基锡	Triphenyltin N,N’-dimethyldithiocarbamate; Stannane,[[(dimethylamino)thiomethyl]thio]triphenyl-	1803-12-9	$(C_6H_5)_3Sn(CH_3)_2NCS_2$
三苯基氟化锡	Triphenyltin fluoride; Fentin fluoride	379-52-2	$(C_6H_5)_3SnF$
三苯基锡醋酸盐；醋酸三苯基锡；三苯基乙酸锡	Triphenyltin acetate; Fentin acetate; Stannane,(acetyloxy)triphenyl-	900-95-8	$(C_6H_5)_3SnOCOCH_3$
三苯基锡脂肪酸盐(仅限于脂肪酸的碳原子数为 9、10 或 11 之物)	Triphenyltin fatty acid salts	18380-71-7; 18380-72-8; 47672-31-1; 94850-90-5	

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
三苯基锡氯代乙酸盐;三苯基锡氯代醋酸盐	Triphenyltin chloroacetate; (chloroacetoxy)triphenylstannane	7094-94-2	$(C_6H_5)_3SnOCOCH_2Cl$
三丁基甲基丙烯酸锡(TBTM)	Tributyltin methacrylate; Tributyl(methacryloyloxy)stannane; Stannane,Tributyl[(2-methyl-1-oxo-2-propeny)oxy]-	2155-70-6	$(C_4H_9)_3SnC_4H_5O_2$
双(三丁基锡)富马酸盐	Bis(tributyltin) fumarate	6454-35-9; 24291-45-0	$C_2H_2(COO)_2([C_4H_9]_3Sn)_2$
三丁基氟化锡	Tributyltin fluoride	1983-10-4; 7304-48-5	$(C_4H_9)_3SnF$
双(三丁基锡)2,3一二溴丁二酸盐	Bis(tributyltin)2,3-dibromosuccinate	31732-71-5; 56323-17-2	$([C_4H_9]_3Sn)_2C_2H_2(BR)_2(COO)_2$
乙酸三丁基锡; 醋酸三丁基锡	Tributyltin acetate	56-36-0	$(C_4H_9)_3SnOCOCH_3$
月桂酸三丁基锡; 三丁基((1-氧代十二烷基)氧)锡	Tributyltin laurate; Tributyl(lauroyloxy)stannane	3090-36-6	$(C_4H_9)_3SnC_{12}H_{23}O_2$
双(三丁基锡)苯二甲酸盐; 三丁基锡苯二甲酸盐	Bis(tributyltin)phthalate; [(Phthaloylbis(oxy)]bis(tributylstannane)	4782-29-0	$(C_6H_4)(COO)_2([C_4H_9]_3Sn)_2$
三丁基锡磺酸盐	Tributyltin sulfamate; Stannane,[(aminosulfonyl)oxy]tributyl-	6517-25-5	$(C_4H_9)_3SnSO_3NH_2$
双(三丁基锡)马来酸盐	Bis(tributyltin) maleate	14275-57-1; 24291-45-0	$C_{28}H_{56}O_4Sn_2$
三丁基氯化锡	Tributyltin chloride; Tributylchlorostannane; Stannane, tributylchloro-	1461-22-9; 7342-38-3	$(C_4H_9)_3SnCl$

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
三丁基锡环烷酸锡和其异构体的混合物；萘酸三丁基锡；三丁基环烷酸锡(TBTN)	Mixture of tributyltin cyclopentanecarboxylate and its analogs; Stannane,tributyl-, mono (naphthenoyloxy)Derives.; Tributyltin naphthenate	85409-17-2	
1,2,3,4,4a,4b,5,6,10,10a-十氢-7-异丙基-1,4a-二甲基-1-菲甲酸甲酯三丁基锡和其异构体的混合物 ； 三丁基锡松香盐	Mixture of tributyltin 1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthlene carboxylate and its analogs; Tributyltin rosin salt	26239-64-5	$C_{32}H_{56}O_2Sn$
丙烯酸辛酯,甲基丙烯酸甲酯和甲基丙烯酸三丁基锡酯的共聚物(烷基=丙烯酸盐的碳原子数限定为 8 个)；	Octyl acrylate-Methyl methacrylate-Tributyltin methacrylate copolymer (alkyl; C=8)	67772-01-4	

2. 主要用途等

- 涂料、油墨
- 防腐剂、防霉剂、杀菌剂

●二丁基锡化合物(DBT)

1．所属物质的例子

金属锡、锡合金、电镀锡、锡的无机化合物也不属于此类。

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
氧化二丁基锡; 二丁基氧化锡	Dibutyltin oxide; Stannane, dibutyloxo-	818-08-6	$C_8H_{18}OSn$
二丁基二氯化锡; 二氯二丁基锡	Dibutyltin dichloride; Stannane, dibutyldichloro-	683-18-1	$C_8H_{18}Cl_2Sn$
二月桂酸二丁基锡; 二丁基二月桂酸锡	Dibutyltin dilaurate; Stannane, dibutylbis[(1-oxododecyl)oxy]-	77-58-7	$C_{32}H_{64}O_4Sn$
二丁基二异辛酸锡; (Z,Z)-8,8-二丁基-3,6,10-三氧代-1-苯基-2,7,9-三氧杂-8-锡杂十三烷-4,11-二烯-13-酸苯基甲酯	Dibutyltin bis(benzyl maleate); Benzyl (Z,Z)-8,8-dibutyl-3,6,10-trioxo-1-phenyl-2,7,9-trioxa-8-stannatrideca-4,11-dien-13-oate;	7324-74-5	$C_{30}H_{36}O_8Sn$
马来酸二丁基锡马来酸二丁基锡; 2,2-二丁基-1,3,2-二氧杂锡卓-4,7-二酮	Dibutyltin maleate; 2,2-Dibutyl-1,3,2-dioxastannepin-4,7-dione	78-04-6	$C_{12}H_{20}O_4Sn$
二乙酸二丁基锡; 二醋酸二丁基锡	Dibutuyltin diacetate; Diacetic acid dibutyltin salt	1067-33-0	$C_{12}H_{24}O_4Sn$

2. 主要用途等

- 安定剂・氧化防止剂等的塑料添加剂
- 触媒

●二辛基锡有机锡化合物(DOT)

1．所属物质的例子

金属锡、锡合金、电镀锡、锡的无机化合物也不属于此类。

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
氧化二辛基锡	Dioctyltin oxide	870-08-6	$C_{16}H_{34}OSn$
二辛基二氯化锡; 氢化锡，二氯二辛基	Dioctyltin dichloride; Stannane, dichlorodioctyl-	3542-36-7	$C_{16}H_{34}Cl_2Sn$
马来酸酯辛基锡; 2,2-辛基 1,3,2-二氧锡杂卓-4,7-二酮;	Dioctyltin maleate; 2,2-Dioctyl-1,3,2-dioxastannepin-4,7-dione	16091-18-2	$C_{20}H_{36}O_4Sn$
巯基乙酸异辛酯二正辛基锡; 2,2'-[(二辛基亚锡)双(硫代)]双乙酸二异辛酯	Di(n-octyl)tin bis(isooctylthioglycolate) ; Diisooctyl 2,2'-[(dioctylstannylene)bis(thio)]diacetate	26401-97-8	$C_{36}H_{72}O_4S_2Sn$
二月桂酸二正辛基锡; 二月桂酸二辛基锡; 二辛基双[(1-氧代十二烷基)氧]锡	Dioctyltin dilaurates (DOTL); Dioctylbis[(1-oxododecyl)oxy]stannane	3648-18-8	$C_{40}H_{80}O_4Sn$

2. 主要用途等

- 安定剂原料
- 安定剂・氧化防止剂等的塑料添加剂
- 触媒

●石棉

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
石棉（总称）	Asbestos	1332-21-4; 132207-32-0; 132207-33-1	
蓝石棉	Crocidolite	12001-28-4	$Na_2Fe_5(Si_8O_{22})(OH)_2$
温石棉	Chrysotile	12001-29-5	$Mg_3Si_2O_5(OH)_4$
铁石棉	Amosite	12172-73-5	$(Mg,Fe)_7Si_8O_{22}(OH)_2$
直闪石	Anthophyllite	77536-67-5	$(Mg,Fe)_7Si_8O_{22}(OH)_2$
透闪石	Tremolite	77536-68-6	$Ca_2Mg_5Si_8O_{22}(OH)_2$
阳起石	Actinolite	77536-66-4	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$

2. 主要用途等

• 绝缘材料、填充材料

●甲醛

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
甲醛(单体)；福尔马林	Formaldehyde; formalin; formic aldehyde; formol	50-00-0	CH_2O

2. 主要用途等

• 防腐剂 • 单体(如，酚醛树脂、三聚氰胺树脂和聚甲醛（POM）等)

●聚氯乙烯（PVC）以及 PVC 混合物

1．所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS号码	化学分子式
PVC 和 PVC 混合物；聚氯乙烯和聚氯乙烯混合物	PVC and PVC blends; polyvinyl chloride and polyvinyl chloride blends	e.g. 9002-86-2	

●氧化铍

1. 所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
氧化铍	Beryllium oxide	e.g. 1304-56-9	BeO

2. 主要用途等

• 散热片

●氢氟碳化合物(HFC)、全氟化碳(PFC)

1. 所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
HFC-23；三氟甲烷	HFC-23; Trifluoromethane	75-46-7	CHF_3
HFC-32；二氟甲烷	HFC-32; Difluoromethane	75-10-5	CH_2F_2
HFC-41；氟代甲烷；甲基氟	HFC-41; Fluoromethane; Methyl fluoride	593-53-3	CH_3F
HFC-125；五氟乙烷	HFC-125; Pentafluoroethane	354-33-6	C_2HF_5
HFC-134；1,1,2,2-四氟乙烷	HFC-134; 1,1,2,2-tetrafluoroethane	359-35-3	CHF_2CHF_2
HFC-134a；1,1,1,2-四氟乙烷	HFC-134a; 1,1,1,2-tetrafluoroethane	811-97-2	CH_2FCF_3
HFC-143；1,1,2-三氟乙烷	HFC-143; 1,1,2-trifluoroethane	430-66-0	CHF_2CH_2F
HFC-143a；1,1,1-三氟乙烷	HFC-143a; 1,1,1-trifluoroethane	420-46-2	CH_3CF_3
HFC-152a；1,1-二氟乙烷	HFC-152a; 1,1-difluoroethane	75-37-6	CH_3CHF_2
HFC-227ea; 1,1,1,2,3,3,3-七氟丙烷;	HFC-227ea; 1,1,1,2,3,3,3-heptafluoropropane	431-89-0	C_3HF_7
HFC-236fa；1,1,1,3,3,3-六氟丙烷	HFC-236fa; 1,1,1,3,3,3-hexafluoropropane	690-39-1	$C_3H_2F_6$
HFC-245ca；1,1,2,2,3-五氟丙烷	HFC-245ca; 1,1,2,2,3-pentafluoropropane	679-86-7	$C_3H_3F_5$
HFC-43-10mee; 1,1,1,2,3,4,4,5,5,5-十氟戊烷; 2H,3H-全氟戊烷	HFC-43-10mee; 1,1,1,2,3,4,4,5,5,5-decafluoropentane; 2H,3H-decafluoropentane	138495-42-8	$C_5H_2F_{10}$
六氟丙烷；HFC-236cb；1,1,1,3,3,3-六氟丙烷	HFC-236cb; 1,1,1,2,2,3-hexafluoropropane	677-56-5	$C_3H_2F_6$
HFC-236ea；1,1,1,2,3,3-六氟丙烷	HFC-236ea; 1,1,1,2,3,3-hexafluoropropane	431-63-0	$C_3H_2F_6$
HFC-245fa；1,1,1,3,3-五氟丙烷	HFC-245fa; 1,1,1,3,3-pentafluoropropane	460-73-1	$C_3H_3F_5$

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
HFC-365mfc; 1,1,1,3,3-五氟丁烷	HFC-365mfc; 1,1,1,3,3-pentafluorobutane	406-58-6	$C_4H_5F_5$
PFC-14; 四氟甲烷; 全氟甲烷; 四氟化炭	PFC-14; Perfluoromethane; Tetrafluoromethane; Carbon tetrafluoride	75-73-0	CF_4
PFC-116; 六氟乙烷; 全氟乙烷;	PFC-116; Perfluoroethane; Hexafluoroethane	76-16-4	C_2F_6
PFC-218; 八氟丙烷; 全氟丙烷;	PFC-218; Perfluoropropane; Octafluoropropane	76-19-7	C_3F_8
PFC-31-10; 十氟丁烷; 全氟丁烷;	PFC-31-10; Perfluorobutane; Decafluorobutane	355-25-9	C_4F_{10}
PFC-c318; 八氟环丁烷	PFC-c318; Perfluorocyclobutane; Octafluorocyclobutane	115-25-3	c-C_4F_8
PFC-41-12; 十二氟戊烷; 全氟戊烷; 八氟环丁烷	PFC-41-12; Perfluoropentane; Dodecafluoropenthane	678-26-2	C_5F_{12}
PFC-51-14; 十四氟己烷; 全氟己烷;	PFC-51-14; Perfluorohexane; Tetradecafluorohexane	355-42-0	C_6F_{14}

2. 主要用途等

- 制冷剂
- 隔热材料、发泡剂
- 溶剂、清洗剂、干法蚀刻
- 灭火剂

●全氟辛烷磺酸(及其盐)(PFOS)

1. 所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
PFOS；全氟辛烷磺酸；全氟辛基磺酸钾	PFOS; Perfluorooctane sulfonates	e.g. 2795-39-3	$C_8F_{17}SO_2X$ (X=羟基，金属盐，卤化物，氨基,及包括聚合物在内的其他衍生物。)

2. 主要用途等

- 防水剂、防油剂
- 业务用相片胶卷
- 半导体用保护剂
- 蚀刻剂
- 电镀用的表面处理剂、其调制添加剂
- 半导体制造用反射防止剂
- 研磨剂
- 灭火器、灭火器用灭火药剂及泡灭火药剂
- 防虫剂
- 印画纸

●特定苯并三氮唑

1. 所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
紫外线吸收剂 UV-320； 2-(3',5'-二叔丁基-2'-羟基苯基)苯并三唑； 2-(2'-羟基-3',5'-二叔丁基苯基)-苯并三唑； 2-(2H)- 苯并三氮唑 -2-基)-4,6-双(1,1-二甲基乙基)苯酚	2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole； 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole； Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-	3846-71-7	$C_{20}H_{25}N_3O$

2. 主要用途等

・紫外线防护剂、紫外线吸收剂

●二氯化钴

1. 所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式
二氯化钴	Cobalt dichloride	7646-79-9	$CoCl_2$

2. 主要用途等

・干燥剂(硅胶等)的湿度指示剂

● 富马酸二甲酯(DMF)

1. 所属物质的例子

中文名称 (通称、简称、化学名称等)	英文名称	CAS 号码	化学分子式	主要用途
富马酸二甲酯	Dimethyl fumarate	624-49-7	$C_6H_8O_4$	防菌剂、干燥剂等

2. 主要用途等

・防菌剂、干燥剂

3. 各物质收货禁止时期的变更履历

物质名称：镉以及镉化合物	
对象	禁止收货时期
• 包装零部件和材料(参照 4.2.1 的内容) • 塑料(包括橡胶)材料中含有的稳定剂、颜料、染料(电器配线的绝缘体、遥控指挥器- 键、扎线带(cable tie)、电子元器件的外装树脂、外框(机壳)、标签、记录盘等) • 涂料、油墨 • 表面处理(电镀、无电解电镀等)、涂层 • 照片胶卷 • 日光灯(小型日光灯、直管日光灯)	从第 1 版发行时开始
「2 级」和「适用对象外」以外的所有用途。 例如， • 直流电动机、开关、继电器、断路器等电气接点 • 温度保险丝的可熔体 • 玻璃以及玻璃涂料的颜料、染料(用于玻璃的颜料、染料以及玻璃用涂料) • 焊料(镉含量大于 20 ppm 的焊料) • 荧光显示装置中含有的荧光体、CdS(硫化镉)光敏传感器 • 电阻(玻璃粉) 等	从 2005 年 1 月 1 日开始
• 含锌金属(黄铜、熔融镀锌等)，其镉含量超过 100 ppm 的部件	从 2005 年 10 月 1 日开始
• 光学玻璃	从 2010 年 6 月 1 日开始

物质名称：铅以及铅化合物	
对象	禁止收货时期
• 包装零部件和材料(参照 4.2.1 的内容) • 用于印刷线路板中的含铅涂料与油墨	从第 1 版发行时开始
• 零部件的外部电极、引线端子等的表面处理(例如，电气零部件、半导体器件、散热片等) • AC 适配器、电源线、连接电缆、遥控指挥器、鼠标、机器的外露部位所使用的塑料(包括橡胶)材料中含有的稳定剂、颜料、染料 • 用于机器的外露部位的涂料、油墨	从 2004 年 4 月 1 日开始
「2、3 级」和「适用对象外」以外的所有用途 例如， • 零部件的外部电极、表面处理，内藏在 AC 适配器、遥控器、半导体器件等中的零部件 • 对于铅的重量百分比小于 85wt%的含铅焊锡，其铅的含有量超过 1000 ppm 的焊料。 • 超过允许浓度(*1)的各种合金(包括焊锡材料)。 • AC 适配器、电源线、连接电缆、遥控器、鼠标、机器的外露部位以外使用的塑料(包括橡胶)材料中含有的稳定剂、颜料、染料。 • 用于机器的外露部位以外的涂料、油墨。 等	从 2005 年 1 月 1 日开始
• 在无电解镀镍、无电解镀金等的无电解电镀皮膜中的铅含量超过 1000 ppm 的皮膜。	从 2006 年 2 月 1 日开始
•「适用对象外」以外的所有用途的玻璃。 • 用于焊接微处理器端子和器件封装的焊料，该焊料是由 2 种以上的元素所组成，其铅元素的含量大于 80 wt%而小于 85 wt%。	从 2010 年 6 月 1 日开始

(*1)各种合金的含铅允许浓度

合金的种类	含铅允许浓度
钢材	≤ 0.35 wt%
铝合金	≤ 0.4 wt%
铜合金(也包括铸铜、磷青铜)	≤ 4 wt%
焊料(*2)	≤ 1000 ppm

物质名称：汞以及汞化合物	
对象	禁止收货时期
• 包装零部件和材料(参照 4.2.1 的内容) • 涂料、油墨 • 计时器 • 接点中使用汞的继电器、开关、传感器 • 塑料中的调和剂	从第 1 版发行时开始
• 「2 级」和「适用对象外」以外的所有用途。	从 2005 年 1 月 1 日开始
• 冷阴极荧光灯管(CCFL)及外置电极荧光灯(EEFL): 长度在 500㎜ 以下的:且每支汞的含量大于 3.5mg 而小于 5mg 的产品。	从 2011 年 1 月 1 日开始

物质名称：六价铬化合物	
对象	禁止收货时期
• 包装零部件和材料(参照 4.2.1 的内容)	从第 1 版发行时开始
• 包含在零部件和材料成分中的涂料、油墨以及其他添加剂等 • 在电镀、化学转化处理等的表面处理(螺丝、钢板等)过程中，残留在被处理部位的本物质	从 2005 年 1 月 1 日开始

物质名称：多氯联苯(PCB)、多氯化萘(PCN)、多氯三联苯(PCT)	
对象	禁止收货时期
• 油浸变压器、电容器、绝缘油、润滑油、塑料用的阻燃剂等的所有用途	从第 1 版发行时开始

物质名称：短链型氯代烷烃(SCCP)	
对象为「碳链长为 10－13 的短链型氯代烷烃」	
对象	禁止收货时期
• 用于包括附件在内的产品外框(机壳)、印刷线路板的用途时	从第 1 版发行时开始
• 上述以外的所有用途	从 2006 年 2 月 1 日开始

物质名称：多溴联苯(PBB)	
对象	禁止收货时期
• 用于塑料的阻燃剂等的所有用途	从第 1 版发行时开始

物质名称：包含十溴联苯醚(DecaBDE)的多溴联苯醚(PBDE)	
对象	禁止收货时期
• 用于塑料的阻燃剂等的所有用途	从第 1 版发行时开始
• 使用 2002 年 12 月以前启用的模具所制造的零部件(限定为：出口欧洲以外国家的电视、显示器的框体) 但是，2003 年 1 月以后启用的模具零部件中禁止使用本项物质	从 2005 年 1 月 1 日开始

物质名称：三取代基有机锡化合物 (包括三丁基锡化合物(TBT)、三苯基锡化合物(TPT))	
对象中不包括金属锡、锡合金、锡电镀、锡无机化合物。	
对象	禁止收货时期
• 用于涂料、油墨、防腐剂、防霉剂等的所有用途	从第 1 版发行时开始

物质名称：石棉	
对象	禁止收货时期
• 用于绝缘材、填料等的所有用途	从第 1 版发行时开始

物质名称：特定偶氮化合物	
对象为：REACH 法规(1907/2006/EC)- 附件 XVII 中引用的试验法进行分解，生成表 4.2a 特定胺化合物的偶氮化合物，以及 4.2a 的特定胺化合物	
对象	禁止收货时期
• 与人体持续接触的产品，其接触人体部位(入耳式耳机、头戴式耳机、肩包的肩垫、皮带、绳索等)所使用的颜料	从第 1 版发行时开始

物质名称：甲醛	
对象	禁止收货时期
• 出口欧州的产品中使用的纤维板(Fiberboard)、刨花板(particleboard)，以及使用胶合板的木制品(例如，扬声器、机架等)	从第 1 版发行时开始
• 非出口欧州的产品中使用的纤维板(Fiberboard)、刨花板(particleboard)，以及使用胶合板的木制品(例如，扬声器、机架等)	从 2005 年 1 月 1 日开始

物质名称：聚氯乙烯(PVC)以及聚氯乙烯混合物	
对象	禁止收货时期
• 非接触 IC 卡(FeliCa)用基材	开始生产时就未使用
• 电脑、数码相机、摄像机、便携式多媒体播放器等所使用的配件背包、专用携带配件盒、配件腰包的材料和涂装剂(但是，业务用除外)	从第 1 版发行时开始
• 捆绑附件、连接电源线的扎线带(cable tie)	从 2002 年 7 月 1 日开始
• 产品以及与产品一同包装的附件等使用的包装零部件和材料(袋、胶带(adhesive tape)、纸箱、泡罩包装等)	从 2005 年 1 月 1 日开始
• 热收缩软管	从 2005 年 4 月 1 日开始
• 扁型软电线(FFC) • 木制扬声器外装部分采用的片材(Sheet)、层压板 • 绝缘板、装饰板、标签、片材(例如，绝缘 Sheet、保护膜等)、层压板	从 2007 年 4 月 1 日开始
• 安装车用机器(In-vehicle product)的吸盘	从 2010 年 4 月 1 日开始

物质名称：氧化铍	
对象	禁止收货时期
• 所有用途	从 2008 年 4 月 1 日开始

物质名称：氢氟碳化合物(HFC)、全氟化碳(PFC)	
对象	禁止收货时期
• 用于制冷剂、隔热材料等的所有用途	从 2008 年 4 月 1 日开始

物质名称：全氟辛烷磺酸(及其盐)(PFOS)	
对象	禁止收货时期
• 针对零部件中所使用的材料， PFOS 浓度要在 0.1 wt%以上的材料 • 针对纤维或其他被覆盖的材料，各个被覆盖材料的 PFOS 的量要为 1μg/m^2 以上的	从 2008 年 4 月 1 日开始
• 适用对象外（商业用的相片胶卷、半导体用的记录器）以外的所有用途	从 2010 年 4 月 1 日开始

物质名称：特定苯并三氮唑	
对象为「2-(3',5'-二叔丁基-2'-羟基苯基)苯并三唑(CAS No. 3846-71-7)」	
对象	禁止收货时期
用于以下产品中作为紫外线防护剂、紫外线吸收剂用途 • 装饰性层压板 • 印相纸(照相纸) • 成型塑料产品	从 2008 年 4 月 1 日开始
• 眼镜的镜片、镜框	从 2011 年 4 月 1 日开始

物质名称：二氯化钴	
对象	禁止收货时期
• 用于干燥剂(硅胶等)中的湿度指示剂	从 2009 年 4 月 1 日开始
• 湿度指示剂(湿度显示卡) (注)所指的湿度指示剂，是将二氯化钴浸渍到纸等里面的吸湿类型	从 2011 年 4 月 1 日开始

物质名称：臭氧层破坏物质(ODS)	
表 4.2c 的物质	
对象	禁止收货时期
• 用于制冷剂、隔热材料等产品的所有用途 • 使用 ODS 实施清洗加工、发泡加工等的零部件和材料	从第 1 版发行时开始

物质名称：富马酸二甲酯(DMF)	
对象为 CAS No. 624-49-7。	
对象	禁止收货时期
• 防霉剂、干燥剂等的所有用途	从 2010 年 4 月 1 日开始

（注意事项）
有时可能在未公告的情况下，对索尼技术标准 SS-00259 零部件和材料中的环境管理物质 管理规定进行内容的修订或修改。

零部件和材料中的环境管理物质　管理规定
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