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

部品・材料における環境管理物質 管理規定

SS-00259

SEVENTH EDITION

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Security Grade: Class C

The standards under this security grade shall be applied by and be in the custody of the following parties only:

- (1) Sony Corporation (hereafter called Sony)
- (2) Sony and the associated companies taking responsibility of the whole operations related to Sony brand products.
- (3) The third parties specifically designated by any of the division of Sony or the associated companies.

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秘密区分：C級

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- (2) ソニーおよびソニーブランドの商品に関わる業務全般を行う関連会社
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SECURITY GRADE
CLASS C

SONY TECHNICAL STANDARDS

SS-00259-00

PART 0

GENERAL RULES OF MANAGEMENT REGULATIONS FOR THE
ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED WHICH
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1. POSITION OF THIS TECHNICAL STANDARD

The purpose of regulating and issuing this Technical Standard is to satisfy the following conditions by conforming to the rules specified in “Rules for Non-Use of Controlled Environmental Substances in Products”:

- 1) To clarify “The Environment-related Substances to be Controlled which are Contained in Parts and Materials (i.e. ‘Environment-related Substances to be Controlled’ or ‘The Controlled Substances’)” defined in the Standards; and
- 2) To thoroughly notify the above-mentioned matter to the whole of Sony and to its suppliers.

2. OPERATIONAL PROCEDURE

- 1) Deliberations and decisions on matters regarding this Technical Standard shall be made by the “Green Parts and Materials Engineering Committee” composed of the representatives of both the divisions in charge of each product and each division. The head of the division promoting the company-wide standardization of technology shall approve the matters thus deliberated and decided.
- 2) When this Technical Standard requires revising or abolishing, apply to the “Green Parts and Materials Engineering Committee” for the revisions or abolishment. The Committee shall deliberate the applied contents and decide the revisions or abolishment.

3. BASIC POLICY

The “Target” (a combination of a substance and its purposes [or parts]) classified at Level 1 in each table must not be used for Sony products at all.

- 1) With regard to the quantitatively-measurable substances, their standard values must be set in light of (a) both the detection limits and the uncertainty of measurement equipment, and (b) the inclusion of natural impurities.
In this case, measurement methods and judgment standards shall be decided separately as detailed regulations for operation.
- 2) With regard to the substances for which the quantitative measurement is difficult and the limit values cannot be set, the fact that the substances are not used must be proved by the exchange of necessary documents or by other means.

SECURITY GRADE
CLASS C

SONY TECHNICAL STANDARDS

SS-00259-01

PART 1
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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 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
No effective date of the ban on the delivery is currently set for the substances and their applications classified into this Level. The ones under Level 3 shall be reclassified into Level 2 for banning the use of them in phases, depending on the availability of alternative parts or materials that satisfy the intended uses.
 - d) Exemption
The substances and their applications classified as Exemption are those not regulated by or exempted from laws, or excepted from the 'Controlled Substances' because of the unavailability of adequate alternative parts and materials that satisfy the intended uses.
- 3) Contained
"Contained" is a situation in which a substance is added to, is blended with, fills up, or adheres to:
 - a) The parts or devices employed in products, or
 - b) The materials used for the parts or devices, regardless if the situation is intentionally created 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) 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 technical means (i.e. natural impurities); and
 - b) One generated in a synthesis process, which cannot be completely removed by 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 "Contained."

Note: The 'Controlled Substance,' which mingles with or adheres to parts or devices as an "Impurity," must not exceed its allowable concentration specified in this Standard.
- 5) 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.
- 6) 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	
Heavy metals	Cadmium and cadmium compounds
	Lead and lead compounds
	Mercury and mercury compounds
	Hexavalent chromium compounds
Chlorinated organic compounds	Polychlorinated biphenyls (PCB)
	Polychlorinated naphthalenes (PCN)
	Polychlorinated terphenyls (PCT)
	Short-chain chlorinated paraffins (SCCP)
	Other chlorinated organic compounds
Brominated organic compounds	Polybrominated biphenyls (PBB)
	Polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])
	Other brominated organic compounds
Tributyltin compounds (TBT)	
Triphenyltin compounds (TPT)	
Asbestos	
Specific azo compounds	
Formaldehyde	
Polyvinyl chloride (PVC) and PVC blends	
Beryllium oxide	
Beryllium copper	
Specific phthalates (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)	
Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)	
Perfluorooctane sulfonates (PFOS)	
Specific benzotriazole	

Table 4.2 Main “Targets” and “Effective date of the ban on the delivery” regarding ‘Controlled Substances’

Substances: Cadmium and cadmium compounds		
All metals, alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances that contain cadmium		
Targets		Effective date of the ban on the delivery
Level 1	<ul style="list-style-type: none"> - 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
	<p>All uses except those specified in Exemption</p> <p>Typical examples are given below:</p> <ul style="list-style-type: none"> - 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
	<ul style="list-style-type: none"> - 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
Exemption	<ul style="list-style-type: none"> - Cadmium plating of electrical contacts, for which high reliability is required and which has no alternative materials - Cadmium in optical glass, filter glass 	N/A

Test objects: plastics (including rubber), paints, and inks Allowable concentration: Less than 5 ppm	
Standards for measurement 1) Sample preparation Typical sample preparation methods are as follows. (1) Incineration under the existence of sulfuric acid (2) A pressurized acid decomposition method done in a sealed container (a microwave decomposition method [e.g. EPA 3052:1996, EN 13346:2000]) (3) An acid decomposition method under the existence of nitric acid, hydrogen-peroxide water and hydrochloric acid (e.g. EPA3050B Rev.2:1996) (4) A wet decomposition method under the existence of sulfuric acid, nitric acid, and hydrogen-peroxide water (e.g. BS EN 1122:2001) Note: In the process of sample preparation, precipitates must be completely dissolved by some technical means (e.g. alkali fusion). 2) Measurement methods Typical measurement methods are as follows. (1) Inductively Coupled Plasma-Atomic (Optical) Emission Spectroscopy (ICP-AES [ICP-OES]) (e.g. EN ISO 11885:1998) (2) Atomic Absorption Spectroscopy (AAS) (e.g. EN ISO 5961:1995) (3) Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) - If a combination of a sample preparation method and a measurement method can guarantee that the limit of quantification for cadmium is less than 5 ppm, the combination is also applicable. - Both cadmium and lead can be simultaneously analyzed by each of the measurement methods (except for AAS) mentioned above. Note: The extraction methods (including EN71-3:1994, ASTM F963-96a, ASTM F963-03, ASTM D 5517, and ISO 8124-3) must not be applied to the sample preparation methods specified in this Standard. When performing measurements based on JIS K 0102, "Testing methods for industrial wastewater," which refers only to measurement methods in section 55, sample preparation methods that are actually applied must be specified along with that JIS standard.	

Substances: Lead and lead compounds		
All metals, alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances that contain lead		
Targets		Effective date of the ban on the delivery
Level 1	<ul style="list-style-type: none"> - 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
	<ul style="list-style-type: none"> - 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

Level 1	All uses except those specified in Level 3 and Exemption Typical examples are given below: <ul style="list-style-type: none">- 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										
	<ul style="list-style-type: none">- 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										
Level 3	<ul style="list-style-type: none">- Electroless plating films such as electroless nickel plating and electroless gold plating whose lead content is 1000 ppm or less	N/A										
Exemption	<ul style="list-style-type: none">- High melting temperature type solder (i.e. lead based alloys containing 85 wt% or more)- Electronic ceramic parts (e.g. piezoelectric devices, dielectric ones, and magnetic ones [ferrites])- Optical glass, filter glass- Glass of cathode ray tubes, glass of electronic components, and glass of fluorescent tubes <p>The above glass materials include adhesives, resistor elements, glass frit, conductive pastes (silver or copper ones), and sealing materials.</p> <ul style="list-style-type: none">- 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%- Solder to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages <p style="text-align: center;">(*1) Allowable lead concentrations</p> <table><tr><th>Type of alloy</th><th>Allowable lead concentration</th></tr><tr><td>Steel</td><td>up to 0.35 wt%</td></tr><tr><td>Aluminum alloy</td><td>up to 0.4 wt%</td></tr><tr><td>Copper alloys (including brass and phosphor bronze)</td><td>up to 4 wt%</td></tr><tr><td>Solder (*2)</td><td>up to 1000 ppm</td></tr></table> <p>(*2) Allowable concentration of lead contained in conductive materials of solder for anisotropic conductive film (ACF) and anisotropic conductive paste (ACP) should be less than 1000 ppm.</p>	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	N/A
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											

Test objects: plastics (including rubber), paints, and inks Allowable concentration: Less than 100 ppm	
Standards for measurement	
1) Sample preparation Typical sample preparation methods are as follows.	
(1) Incineration under the existence of sulfuric acid	
(2) A pressurized acid decomposition method done in a sealed container (a microwave decomposition method [e.g. EPA 3052:1996, EN 13346:2000])	
(3) An acid decomposition method under the existence of nitric acid, hydrogen-peroxide water, and hydrochloric acid (e.g. EPA 3050B Rev.2:1996)	
(4) A wet decomposition method under the existence of nitric acid and hydrogen-peroxide water	
Note: In the process of sample preparation, precipitates must be completely dissolved by some technical means (e.g. alkali fusion).	
2) Measurement methods Typical measurement methods are as follows.	
(1) Inductively Coupled Plasma-Atomic (Optical) Emission Spectroscopy (ICP-AES [ICP-OES]) (e.g. EN ISO 11885:1998)	
(2) Atomic Absorption Spectroscopy (AAS) (e.g. EN ISO 5961:1995)	
(3) Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	
- If a combination of a sample preparation method and a measurement method can guarantee that the limit of quantification for lead is less than 30 ppm, the combination is also applicable.	
- Both cadmium and lead can be simultaneously analyzed by each of the measurement methods (except for AAS) mentioned above.	
Note: The extraction methods (including EN71-3:1994, ASTM F963-96a, ASTM F963-03, ASTM D 5517, and ISO 8124-3) must not be applied to the sample preparation methods specified in this Standard.	
EN 1122 is not applicable to the sample preparation methods for lead.	
When performing measurements based on JIS K 0102, "Testing methods for industrial wastewater," which refers only to measurement methods in section 54, sample preparation methods that are actually applied must be specified along with that JIS standard.	

Substances: Mercury and mercury compounds		
All metals, alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances that contain mercury		
Targets		Effective date of the ban on the delivery
Level 1	<ul style="list-style-type: none"> - Packaging components and materials (See 4.2.1.) - Paints, and inks - Hour meters - The relays, switches, or sensors whose contacts contain mercury - Mercury or its compounds mixed in plastics 	Banned since the establishment of this Standard
	<ul style="list-style-type: none"> - Small-sized fluorescent lamps whose mercury content (per lamp) is 5 mg or more - Straight-tube fluorescent lamps whose mercury content (per lamp) is 5 mg or more - All uses except those specified in Exemption 	Banned since January 1, 2005
Exemption	<ul style="list-style-type: none"> - Lamps other than small-sized fluorescent ones and straight-tube fluorescent ones (e.g. high-pressure mercury lamps) - Small-sized fluorescent lamps whose mercury content (per lamp) is less than 5 mg - Straight-tube fluorescent lamps whose mercury content (per lamp) is less than 5 mg 	N/A

Substances: Hexavalent chromium compounds		
All inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances that contain hexavalent chromium		
Targets		Effective date of the ban on the delivery
Level 1	- 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
Level 1	- 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
Level 1	- 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: Other chlorinated organic compounds		
Targets		Effective date of the ban on the delivery
Level 3	- The plasticizers or flame retardants contained in plastics, and the flame retardants used for PWBs	N/A

Substances: Polybrominated biphenyls (PBB)		
Targets		Effective date of the ban on the delivery
Level 1	- 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
Level 1	- 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: Other brominated organic compounds		
Targets		Effective date of the ban on the delivery
Level 3	- The flame retardants contained in plastics, or used for PWBs	N/A

Substances: Tributyltin compounds (TBT) and triphenyltin compounds (TPT)		
Targets		Effective date of the ban on the delivery
Level 1	- 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
Level 1	- 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 the EU Directive 76/769/EEC and amine compounds in Table 4.2a		
Targets		Effective date of the ban on the delivery
Level 1	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
Level 3	The parts or articles that do not come into continuous contact with the human skin (e.g. cushions, mice, remote commanders, and carrying bags)	N/A
Test methods (for reference) The methods for decomposing azo compounds and then extracting amines are as follows. 1) EN 14362-1:2003, "Textiles-Methods for the determination of certain aromatic amines derived from azo colorants - Part 1: Detection of the use of certain azo colorants accessible without extraction" 2) CEN ISO/TS 17234:2003, "Leather-Chemical tests - Determination of certain azo colorants in dyed leathers" 3) EN 14362-2:2003, "Textiles-Methods for the determination of certain aromatic amines derived from azo colorants - Part 2: Detection of the use of certain azo colorants accessible by extracting the fibres"		

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
91-59-8	2-naphthylamine
97-56-3	o-aminoazotoluene
99-55-8	2-amino-4-nitrotoluene
106-47-8	p-chloroaniline
615-05-4	2,4-diaminoanisole
101-77-9	4,4'-diaminodiphenylmethane
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
120-71-8	p-cresidine
101-14-4	4,4'-methylene-bis-(2-chloroaniline)
101-80-4	4,4'-oxideaniline
139-65-1	4,4'-thiodianiline
95-53-4	o-toluidine
95-80-7	2,4-toluylenediamine
137-17-7	2,4,5-trimethylaniline
90-04-0	o-anisidine
60-09-3	4-aminoazobenzene

Substance: Formaldehyde		
Targets		Effective date of the ban on the delivery
Level 1	- 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
<p>Reference value (emission content): Obtain the value by any one of the following methods.</p> <p>1) [With a chamber method] Concentration in the air: Equal to or less than 0.1 ppm (or 0.124 mg/m³) in an air-tight test chamber whose volume is 12 m³, 1 m³, or 0.0225 m³</p> <p>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)</p> <p>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.)</p>		
<p>Measurement methods:</p> <ul style="list-style-type: none"> - A chamber method specified in EN 717-1:2004 (Wood based panels; determination of formaldehyde release; formaldehyde emission by the chamber method) - A perforator method specified in EN 120 (Wood based panels; determination of formaldehyde content; extraction method called perforator method; EN 120:1992) - A desiccator method specified in JIS A 5905 (Fibreboards) and JIS A 5908 (Particleboards) 		

Substances: Polyvinyl chloride (PVC) and PVC blends		
Targets		Effective date of the ban on the delivery
Level 1	- 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

Substances: Polyvinyl chloride (PVC) and PVC blends		
Targets		Effective date of the ban on the delivery
Level 3	<ul style="list-style-type: none"> - Connection cords for wearable equipment (e.g. cables 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. connection cords for USB or i.LINK, and video cords, AC adaptors secondary leads, flat wires, multi core cables, speaker cords, etc.) - Harnesses and processing wires (e.g. coaxial cables, flat wires, double insulation wires, and shielded wires) - Coating agents and fabrics for the carrying bags, carrying cases, and carrying pouches, which are designed for exclusive use with professional-electronics products - Developing papers - Insulation caps for capacitors, power supply switches, and fuses - Trays, magazine sticks, reels, embossed carrier tapes used by parts suppliers for parts packaging - Suction cups for mounting in-vehicle products - Wiring clip used for the inside of devices (made of polyvinyl chloride-coated metal) - Other parts except those classified into Levels 1 and Exemption 	N/A
Exemption	<ul style="list-style-type: none"> - 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: Beryllium oxide		
Targets		Effective date of the ban on the delivery
Level 1	- All uses except those specified in Level 3	April 1, 2008
Level 3	- Specific uses which have no alternative materials	

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

Substances: Specific phthalates (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)		
All Specific phthalates in Table 4.2b		
Targets		Effective date of the ban on the delivery
Level 3	- Plasticizer in polyvinyl chloride resin used for cable coating, cord coating, plugs and connectors	N/A

Table 4.2b List of specific phthalates (phthalic esters)

Abbreviation	CAS No.	Specific phthalates
DEHP	117-81-7	Di (2-ethylhexyl) phthalate
DBP	84-74-2	Di-n-butyl phthalate
BBP	85-68-7	Butyl benzyl phthalate
DINP	28553-12-0 68515-48-0	Diisononyl phthalate (technical mixture)
DIDP	26761-40-0 68515-49-1	Diisodecyl phthalate (technical mixture)
DNOP	117-84-0	Di-n-octyl phthalate
DNHP	84-75-3	Di-n-hexyl phthalate

Substances: Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)		
Targets		Effective date of the ban on the delivery
Level 1	- 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
Level 1	<ul style="list-style-type: none"> - Materials whose PFOS concentration is 0.1 wt% or more - Textiles or other coated materials whose amount of PFOS is 1 µg/m² or more of the coated material <p>Typical examples are given below:</p> <ul style="list-style-type: none"> - Electroplating, paint, colorant, dye, materials coated with water repellant agent, oil repellant agent, antifouling agent (e.g. textile, film, paper, leather), fluoropolymer coating, adhesive, and sealant 	Banned since April 1, 2008
Exemption	<ul style="list-style-type: none"> - Photographic coatings applied to films, papers, or printing plates - Photoresists or anti reflective coatings for photolithography processes 	

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
Level 1	Ultraviolet protectants and ultraviolet absorbers applied to decorative laminate, developing papers, molded plastic parts	Banned since April 1, 2008

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

Substances: Heavy metals (cadmium, lead, mercury, and hexavalent chromium)		
Articles that satisfy not only the rules specified in Table 4.2, but also the following conditions determined by the regulations of relevant laws		
Targets		Effective date of the ban on the delivery
Level 1	- All packaging components and materials Some examples are given in PACKAGING of Table 4.3a.	Banned since the establishment of this Standard
Exemption	- Cartons for returnable boxes owned by carriers or parts suppliers	N/A
<p>Allowable concentrations</p> <p>- “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 allowable concentrations 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)</p>		
<p>For hexavalent chromium:</p> <ol style="list-style-type: none"> 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 Table 4.3. 		
<p>Standards for four heavy metals measurement</p> <ol style="list-style-type: none"> 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. <ol style="list-style-type: none"> (1) A pressurized acid decomposition method done in a sealed container (a microwave decomposition method [e.g. EPA 3052:1996]) (2) A heating evaporation-cold-vapor mercury-atomic-absorption method (Full-automatic test equipment is marketed.) (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 <p>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.</p> 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. <ol style="list-style-type: none"> (1) A reduction-evaporation atom-absorption method (2) ICP-AES (ICP-OES) method with a hydride-generation apparatus (3) ICP-MS method with a hydride-generation apparatus 		

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. EPA 3060A)
- 2) Measurement method
 - Ultraviolet-Visible (UV/VIS) Spectroscopy (e.g. EPA 7196A)
- If a combination of a sample preparation method and a measurement method can guarantee 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
- Cadmium, lead, and total chromium can be simultaneously analyzed by each of the measurement methods (except for AAS).

- (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 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 “Batteries” and “Battery packs” follow the standards specified in Section 4.1 and 4.2 also.

Table 4.4 Rules for batteries

Substances: Heavy metals (cadmium, lead, and mercury)			
All metals, alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances that contain cadmium, lead, and mercury			
Targets			Effective date of the ban on the delivery
Level 1	Cd	- NiCd batteries	Banned since January 1, 2007
		- “Batteries” whose cadmium content, in proportion to the total weight of each one, is 20 ppm or more - “Battery packs” whose cadmium content, in proportion to the total weight of each one, is 20 ppm or more	Banned since January 1, 2008
	Pb	- “Batteries” whose lead content, in proportion to the total weight of each one, is 0.4% or more - “Battery packs” whose lead content, in proportion to the total weight of each one, is 0.4% or more	Banned since January 1, 2005
		- Carbon zinc batteries and alkaline batteries whose lead content, in proportion to the total weight of each one, is 0.2% or more	Banned since April 1, 2008 (*5)
	Hg	- Button cell batteries whose mercury content, in proportion to the total weight of each one, is 2% or more - The following batteries and battery packs except button cell batteries “Batteries” whose mercury content, in proportion to the total weight of each one, is 0.0005% or more “Battery packs” whose mercury content, in proportion to the total weight of each one, is 0.0005% or more	Banned since the establishment of this Standard
		- Carbon zinc batteries and alkaline batteries whose mercury content, in proportion to the total weight of each one, is 0.0001% or more	Banned since April 1, 2008 (*6)

(*5) The use of those batteries in Argentina has banned since January 29, 2007 in accordance with Argentina regulations on batteries.

(*6) The use of those batteries in China has banned since January 1, 2005 in accordance with the Chinese regulation “1997 Regulation on Mercury Content Limitation for Batteries.”

5. EXCHANGE OF SPECIFICATIONS REGARDING THE ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED WITH BUSINESS PARTNERS

Either the sentence, “This part should not contain any substances which are specified in SS-00259-1,” or one that conveys the same meaning must clearly be written on the drawings or specifications for parts and materials that are lent out to suppliers by Sony.

Regarding the allowable concentrations regulated in this Standard, suppliers must comprehend and control them with adequate methods. For the targets classified into Level 1 for which strict controls are needed to follow relevant laws and regulations, suppliers must prove that the allowable concentrations of the Level 1 substances meet those required in this Standard by applying the measurement methods where specified. **Suppliers must have control over concrete methods for the proof by following the detailed regulations for operation that are separately regulated by the procurement divisions of Sony.**

APPENDIXES

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

2. DETAILS OF MAJOR CONTROLLED SUBSTANCES (TYPICAL EXAMPLES)

- 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)
- Tributyltin compounds (TBT) and triphenyltin compounds (TPT)
- Asbestos
- Formaldehyde
- Polyvinyl chloride (PVC) and PVC blends
- Beryllium oxide
- Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)
- Perfluorooctane sulfonates (PFOS)
- Specific benzotriazole

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.

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

Note: This information is confirmed as of March 2008. 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
Cadmium and cadmium compounds	European Union. EU Directive 76/769/EEC and its amendments.
	European Union. EU Directive 91/338/EEC and its amendments.
	European Union. RoHS Directive 2002/95/EC and its amendments.
	European Union. Batteries Directive 2006/66/EC.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
Lead and lead compounds	European Union. RoHS Directive 2002/95/EC and its amendments.
	European Union. Batteries Directive 2006/66/EC.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
	Denmark: Statutory Order No. 1012 and its amendments.
	Argentina. The Law No.26.184 Portable Power and Resolution 14/2007.
Mercury and mercury compounds	European Union. RoHS Directive 2002/95/EC and its amendments.
	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 and its amendments.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
Polychlorinated biphenyls (PCB) Polychlorinated naphthalenes (PCN) Polychlorinated terphenyls (PCT)	European Union. EU Directive 76/769/EEC and its amendments.
	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.
Polybrominated biphenyls (PBB)	European Union. EU Directive 76/769/EEC and its amendments.
	European Union. RoHS Directive 2002/95/EC and its amendments.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
Polybrominated diphenylethers (PBDE)	European Union. EU Directive 76/769/EEC and its amendments.
	European Union. RoHS Directive 2002/95/EC and its amendments.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
Tributyltin compounds (TBT) Triphenyltin compounds (TPT)	Japan. Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances, Class I and Class II.
Asbestos	Japan. Industrial Safety and Health Law.
	Germany. Chemicals Prohibition Ordinance. (German abbreviation: ChemVerbotsV)
Specific azo compounds	European Union. EU Directive 76/769/EEC and its amendments.
Formaldehyde	Germany. Chemicals Prohibition Ordinance. (German abbreviation: ChemVerbotsV)
	Denmark: Statutory Order No. 289.

Substances	Laws and regulations
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.
Beryllium oxide	European Union. WEEE Directive 2002/96/EC and EU Directive 1999/45/EC
Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)	European Union. REGULATION 2006/842/EC.
	Denmark: Statutory Order No. 552.
	Switzerland. Ordinance on Risk Reduction related to Chemical Products (ORRChem).
Perfluorooctane sulfonates (PFOS)	European Union. EU Directive 76/769/EEC and its amendments.
Specific benzotriazole	Japan. Law Concerning the Examination and Regulation of Manufacture of Chemical Substances, Class I.

2. DETAILS OF MAJOR CONTROLLED SUBSTANCES (TYPICAL EXAMPLES)

• Cadmium and cadmium compounds

1. Examples

Name	CAS No.	Chemical formula	Applications
Cadmium	7440-43-9	Cd	Connection materials, surface treatment NiCd batteries
Cadmium alloys			Low melting point solder, fuses, etc.
Cadmium oxide	1306-19-0	CdO	Pigments, alkaline batteries, and materials for chemical synthesis
Cadmium chloride	10108-64-2	CdCl ₂	Plating bath, polyvinyl chloride stabilizers
Cadmium sulfide	1306-23-6; 8048-07-5	CdS	Pigments, paints, inks, and light receiving elements for semiconductors
Cadmium nitrate	10325-94-7	Cd(NO ₃) ₂	Coloring agents, batteries, and photographs
Cadmium nitrate tetrahydrate	10022-68-1	Cd(NO ₃) ₂ · 4H ₂ O	
Cadmium sulfate	10124-36-4	CdSO ₄	Cadmium standard cells, reagent
Cadmium stearate	2223-93-0	Cd(C ₁₈ H ₃₅ O ₂) ₂	Polyvinyl chloride stabilizers
Other cadmium compounds			

• Lead and lead compounds

1. Examples

Name	CAS No.	Chemical formula	Applications
Lead; metal	7439-92-1	Pb	
Lead -tin alloy		Pb-Sn	Solder, brazing materials, and electric contact
Lead (II) oxide	1317-36-8	PbO	Pigments, rubber vulcanization accelerators, and solid lubricants
Lead (IV) oxide	1309-60-0	PbO ₂	Lead-acid batteries, rubber curing agents, and materials for pigments
Dilead trioxide	1314-27-8	Pb ₂ O ₃	
Lead (II, IV) oxide	1314-41-6	Pb ₃ O ₄	Pigments, lead-acid batteries, glass, and paints
Lead azide	13424-46-9	PbN ₆	
Lead (II) fluoride	7783-46-2	PbF ₂	Special optical glass, pigments
Lead (II) chloride	7758-95-4	PbCl ₂	
Lead (IV) chloride	13463-30-4	PbCl ₄	
Lead (II) iodide	10101-63-0	PbI ₂	Bronze, printing, and photographs
Lead (II) sulfide	1314-87-0	PbS	Infrared ray detectors in which semiconductor elements are utilized
Lead (II) cyanide	592-05-2	Pb(CN) ₂	Antirust pigments
Lead tetrafluoro borate	13814-96-5	Pb(BF ₄) ₂	Plating bath, anticorrosive surface treatment
Lead hexa fluorosilicate	25808-74-6	PbSiF ₆	Plating bath, lead refinement
Lead nitrate	10099-74-8	Pb(NO ₃) ₂	Optical glass
Lead carbonate	598-63-0	PbCO ₃	
Lead hydroxycarbonate	1344-36-1	(PbCO ₃) ₂ Pb(OH) ₂	Pigments, polyvinyl chloride stabilizers
Lead perchlorate	13637-76-8	Pb(ClO ₄) ₂	
Lead (II) sulfate	7446-14-2; 15739-80-7	PbSO ₄	Pigments, rubber compounding ingredients, polyvinyl chloride stabilizers, and batteries
Lead oxide sulfate	12202-17-4	Pb ₄ SO ₇	Pigments
Lead (II) phosphate	7446-27-7	Pb ₃ (PO ₄) ₂	Stabilizers for plastics
Lead thiocyanate	592-87-0	Pb(SCN) ₂	Stain, matches
Lead (II) acetate, trihydrate	6080-56-4	Pb(CH ₃ COO) ₂ · 3H ₂ O	
Lead (II) acetate	301-04-2	Pb(CH ₃ COO) ₂	
Lead (IV) acetate	546-67-8	Pb(CH ₃ COO) ₄	

Name	CAS No.	Chemical formula	Applications
Lead oleate	1120-46-3	$\text{Pb}[\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COO}]_2$	Lubricants, curing agents, etc.
Lead stearate	7428-48-0	$\text{Pb}(\text{C}_{17}\text{H}_{35}\text{COO})_2$	Lubricants, polyvinyl chloride stabilizers
Lead (II) metaborate	10214-39-8	$\text{Pb}(\text{BO}_2)_2 \cdot \text{H}_2\text{O}$	Desiccants for paints
Lead metasilicate	11120-22-2; 10099-76-0	PbSiO_3	Ceramics
Lead antimonite	13510-89-9	$\text{Pb}_3(\text{SbO}_4)_2$	Pigments, coloring agents for glass
Lead arsenate (1:1)	7784-40-9	PbHAsO_4	
Lead (II) arsenite	10031-13-7	$\text{Pb}(\text{AsO}_2)_2$	Pesticides
Lead chromate; chrome yellow	1344-37-2	PbCrO_4	Pigments, paints, and inks
Lead molybdate	10190-55-3	PbMoO_4	Pigments
Calcium plumbate	12013-69-3	Ca_2PbO_4	Oxidizers
Tetramethyl lead	75-74-1	$\text{Pb}(\text{CH}_3)_4$	
Tetraethyl lead	78-00-2	$\text{Pb}(\text{C}_2\text{H}_5)_4$	
Other lead compounds and alloys			

• Mercury and mercury compounds

1. Examples

Name	CAS No.	Chemical formula	Applications
Mercury	7439-97-6	Hg	Electrodes, mercury lamps
Mercury alloys; amalgam			
Mercury (I) oxide	15829-53-5	Hg ₂ O	
Mercury (II) oxide	21908-53-2	HgO	Mercury cells, preservatives
Mercury (I) chloride	10112-91-1	Hg ₂ Cl ₂	Electrodes, pigments
Mercury (II) chloride	7487-94-7	HgCl ₂	Metal etching, batteries, and preservatives
Mercury (II) nitrate	10045-94-0	Hg(NO ₃) ₂	Felt, catalysts
Mercury (I) sulfate	7783-36-0	Hg ₂ SO ₄	Batteries
Mercury (II) fulminate	628-86-4	Hg(ONC) ₂	
Mercury (II) acetate	1600-27-7	Hg(CH ₃ COO) ₂	
Methylmercury salts	e.g. 22967-92-6	CH ₃ HgX; X=Cl, Br, I, OH, etc.	Fungicides
Ethylmercury salts		C ₂ H ₅ HgX; X=Cl, Br, I, OH, etc.	Preservatives, disinfectants
Propylmercury salts		C ₃ H ₇ HgX; X=Cl, Br, I, OH, etc.	
Phenylmercury salts		C ₆ H ₅ HgX; X=Cl, Br, I, OH, etc.	Preservatives, disinfectants
Methoxyethyl-mercury salts		CH ₃ OC ₂ H ₄ HgX; X=Cl, Br, I, OH, etc.	Disinfectants, fungicides
Dialkylmercury		R ₂ Hg; R=alkyl group (C _n H _{2n+1})	
Diphenylmercury	587-85-9	(C ₆ H ₅) ₂ Hg	
Other mercury compounds			

• Hexavalent chromium compounds

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

1. Examples

Name	CAS No.	Chemical formula	Applications
Chromium (VI) oxide; Chromium trioxide	1333-82-0	CrO_3	Pigments, catalysts, plating, and tanning
Lithium chromate	14307-35-8	Li_2CrO_4	Antirust
Sodium chromate	7775-11-3	Na_2CrO_4	Antirust, tanning
Potassium chromate	7789-00-6	K_2CrO_4	Pigments, inks, and tanning
Potassium chlorochromate	16037-50-6	$\text{K}[\text{CrO}_3\text{Cl}]$	
Ammonium chromate	7788-98-9	$(\text{NH}_4)_2\text{CrO}_4$	Photographs, catalysts
Copper chromate	13548-42-0	CuCrO_4	Mordants
Magnesium chromate	13423-61-5	MgCrO_4	Antirust, surface treatment
Calcium chromate	13765-19-0	CaCrO_4	Pigments, inks, and tanning
Strontium chromate	7789-06-2	SrCrO_4	Pigments, antirust
Barium chromate	10294-40-3	BaCrO_4	Pigments, antirust, and coloring agents for ceramics
Lead chromate; Chrome yellow	1344-37-2	PbCrO_4	Pigments, paints, and inks
Zinc chromate	12018-19-8; 13530-65-9; 14018-95-2	ZnCrO_4	Pigments, anticorrosives
Sodium dichromate; Sodium bichromate	10588-01-9	$\text{Na}_2\text{Cr}_2\text{O}_7$	Pigments, photographs, tanning, and antirust
Potassium dichromate; Potassium bichromate	7778-50-9	$\text{K}_2\text{Cr}_2\text{O}_7$	Pigments, photographs, batteries, plating, and tanning
Ammonium dichromate; Ammonium bichromate	7789-09-5	$(\text{NH}_4)_2\text{Cr}_2\text{O}_7$	Pigments, photographs, and catalysts
Calcium dichromate; Calcium bichromate	14307-33-6	CaCr_2O_7	Catalysts, antirust
Zinc dichromate; Zinc bichromate		ZnCr_2O_7	Pigments
Other hexavalent chromium compounds			

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

1. Examples

Name	CAS No.	Chemical formula	Applications
PCB; Polychlorinated biphenyls	1336-36-3	$C_{12}H_{10-x}Cl_x$ ($x = 1 - 10$)	Lubricants, heating mediums, and oils for capacitors
PCN; Polychlorinated naphthalenes		$C_{10}H_{8-x}Cl_x$ ($x \geq 3$)	Lubricants, preservatives, and paints
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	$C_{18}H_{14-x}Cl_x$ ($x = 1 - 14$)	Lubricants, preservatives, and paints

• **Short-chain chlorinated paraffins (SCCP)**

1. Examples

Name	CAS No.	Chemical formula	Applications
Short-chain Chlorinated paraffins C10-13	e.g. 85535-84-8		Plasticizers, flame retardants

• **Polybrominated biphenyls (PBB)**

1. Examples

Name	CAS No.	Chemical formula	Applications
Polybrominated biphenyls; PBB	e.g. 67774-32-7	$C_{12}H_{10-x}Br_x$ ($x = 1 - 10$)	Flame retardants

• **Polybrominated diphenylethers (PBDE)**

1. Examples

Name	CAS No.	Chemical formula	Applications
Polybromodiphenyl ether; Polybromodiphenyloxyde; Polybrominated biphenyl ethers; PBDE; PBDO; PBBE		$C_{12}H_{10-x}Br_xO$ ($x = 1 - 10$)	Flame retardants
Decabromodiphenyl ether; Decabromodiphenyloxyde; DBDE; DecaBDE; DBDPE; DBDPO	1163-19-5	$C_{12}Br_{10}O$	Flame retardants (for PE, ABS, and polyester)
Octabromodiphenyl ether; Octabromodiphenyloxyde; OBDE; OctaBDE	32536-52-0	$C_{12}H_2Br_8O$	Flame retardants (for ABS, HIPS, and LDPE)
Hexabromodiphenyl ether; Hexabromodiphenyloxyde	36483-60-0	$C_{12}H_4Br_6O$	Flame retardants
Pentabromodiphenyl ether; Pentabromodiphenyloxyde; PentaBDE	32534-81-9	$C_{12}H_5Br_5O$	Flame retardants

• **Tributyltin compounds (TBT) and triphenyltin compounds (TPT)**

Note: Only tributyltin compounds and triphenyltin compounds belong to this category.

Dibutyltin compounds (DBT), diphenyltin compounds (DPT), metal tin, tin alloys, tin plating, and tin inorganic compounds do not fall under this category.

1. Examples

Name	CAS No.	Chemical formula	Applications
Tributyltin bromide	1461-23-0	$(C_4H_9)_3SnBr$	Disinfectants
Tributyltin oxide; Bis (tributyltin) oxide; Distannoxane, hexabutyl-	56-35-9	$C_{24}H_{54}OSn_2$	Disinfectants
Triphenyl tin	668-34-8	$(C_6H_5)_3Sn$	Disinfectants
Triphenyltin chloride; Fentin chloride; Stannane, chlorotriphenyl-	639-58-7	$(C_6H_5)_3SnCl$	Disinfectants
Triphenyltin hydroxide; Fentin hydroxide; Stannane, hydroxytriphenyl-	76-87-9	$(C_6H_5)_3SnOH$	Disinfectants
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		

Name	CAS No.	Chemical formula	Applications
Triphenyltin chloroacetate; (chloroacetoxo) 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	$(C_4H_9)_3SnCl$	

Name	CAS No.	Chemical formula	Applications
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	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		

• Asbestos

1. Examples

Name	CAS No.	Chemical formula	Applications
Asbestos	1332-21-4; 132207-32-0; 132207-33-1		Insulators, fillers
Crocidolite	12001-28-4	$\text{Na}_2\text{Fe}_5(\text{Si}_8\text{O}_{22})(\text{OH})_2$	Insulators, fillers
Chrysotile	12001-29-5	$\text{Mg}_3\text{Si}_2\text{O}_5(\text{OH})_4$	Insulators, fillers
Amosite	12172-73-5	$(\text{Mg}, \text{Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$	Insulators, fillers
Anthophyllite	77536-67-5	$(\text{Mg}, \text{Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$	Insulators, fillers
Tremolite	77536-68-6	$\text{Ca}_2\text{Mg}_5\text{Si}_8\text{O}_{22}(\text{OH})_2$	Insulators, fillers
Actinolite	77536-66-4	$\text{Ca}_2(\text{Mg}, \text{Fe})_5\text{Si}_8\text{O}_{22}(\text{OH})_2$	Insulators, fillers

• Formaldehyde

1. Examples

Name	CAS No.	Chemical formula	Applications
Formaldehyde; formalin; formic aldehyde; formol	50-00-0	CH_2O	Preservatives, monomer (e.g. phenol resin and melamine resin)

• PVC and PVC blends

1. Examples

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

• Beryllium oxide

1. Examples

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

• **Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)**

1. Examples

Name	CAS No.	Chemical formula	Applications
HFC-23; Trifluoromethane	75-46-7	CHF_3	Refrigerant
HFC-32; Difluoromethane	75-10-5	CH_2F_2	Refrigerant
HFC-41; Fluoromethane	593-53-3	CH_3F	Refrigerant
HFC-125; Pentafluoroethane	354-33-6	C_2HF_5	Refrigerant
HFC-134; 1,1,2,2-tetrafluoroethane	359-35-3	CHF_2CHF_2	Refrigerant
HFC-134a; 1,1,1,2-tetrafluoroethane	811-97-2	CH_2FCF_3	Refrigerant
HFC-143; 1,1,2-trifluoroethane	430-66-0	$\text{CHF}_2\text{CH}_2\text{F}$	Refrigerant
HFC-143a; 1,1,1-trifluoroethane	420-46-2	CH_3CF_3	Refrigerant
HFC-152a; 1,1-difluoroethane	75-37-6	CH_3CHF_2	Refrigerant
HFC-227ea; 1,1,1,2,3,3,3-heptafluoropropane	431-89-0	C_3HF_7	Extinguishing agent
HFC-236fa; 1,1,1,3,3,3-hexafluoropropane	690-39-1	$\text{C}_3\text{H}_2\text{F}_6$	Extinguishing agent
HFC-245ca; 1,1,2,2,3-pentafluoropropane	679-86-7	$\text{C}_3\text{H}_3\text{F}_5$	Refrigerant
HFC-43-10mee; 1,1,1,2,3,4,4,5,5,5-decafluoropentane	138495-42-8	$\text{C}_5\text{H}_2\text{F}_{10}$	Solvent
PFC-14; Perfluoromethane	75-73-0	CF_4	Dry etching
PFC-116; Perfluoroethane	76-16-4	C_2F_6	Refrigerant
PFC-218; Perfluoropropane	76-19-7	C_3F_8	Refrigerant
PFC-31-10; Perfluorobutane	355-25-9	C_4F_{10}	Extinguishing agent
PFC-c318; Perfluorocyclobutane	115-25-3	c- C_4F_8	Dry etching
PFC-41-12; Perfluoropentane	678-26-2	C_5F_{12}	Solvent
PFC-51-14; Perfluorohexane	355-42-0	C_6F_{14}	Refrigerant

• **Perfluorooctane sulfonates (PFOS)**

1. Examples

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

• **Specific benzotriazole**

1. Examples

Name	CAS No.	Chemical formula	Applications
2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole; 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole	3846-71-7	$C_{20}H_{25}N_3O$	Ultraviolet protectants, ultraviolet absorbers

EXPLANATORY NOTES

解 説

SS-00259

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

部品・材料における環境管理物質 管理規定

EXPLANATORY NOTES

SS-00259

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

In the past year since the issue of the SS-00259 6th edition, laws and regulations pertaining to the practice of environmental production have been changed worldwide. This edition is issued to satisfy the requirements of changed statutes, as well as to address the most frequently asked questions about the 6th edition.

Part 1

1. SCOPE

To clarify the target parts and materials in Section 2.1 "Scope applicable to parts and materials," the sentences are changed.

2. ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED

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

The following substances are newly added to the list:

- Perfluorooctane sulfonates (PFOS)
- Specific benzotriazole

2.2 Lead and lead compounds

The following note sentence is included in the list of exemption items. "Allowable concentration of lead contained in conductive materials of solder for anisotropic conductive film (ACF) and anisotropic conductive paste (ACP) should be less than 1000 ppm."

2.3 Beryllium oxide

"All uses of beryllium oxide" which was classified into Level 2 becomes the target of the Level 1 as "All uses except those specified in Level 3." "Specific uses which have no alternative materials" is newly categorized as Level 3.

2.4 Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)

"All uses (e.g. refrigerant and insulation)" which was classified into Level 3 becomes the target of the Level 1 as "All uses installed into product (e.g. refrigerant and insulation)."

2.5 Perfluorooctane sulfonates (PFOS)

PFOS that meets the following criteria is included and classified into Level 1.

- Materials whose PFOS concentration is 0.1 wt% or more
 - Textiles or other coated materials whose amount of PFOS is 1 µg/m² or more of the coated material
- PFOS used for "photographic coatings applied to films, papers, or printing plates" and "photoresists or anti reflective coatings for photolithography processes" is included and classified into Exemption.

2.6 Specific benzotriazole

Specific benzotriazole used for "ultraviolet protectants and ultraviolet absorbers applied to decorative laminate, developing papers, molded plastic parts" is included and classified into Level 1.

2.7 Additional rules for packaging components and materials

To clarify the target parts in the list of "Not Packaging," the sentence "Such as index-card or label for CD and other recording media" is replaced with "Such as index-card or label for CD and other recording media which are defined as part of product."

To ensure consistency of word, terms "Packaging," "Packaging materials," and "Packaging components" that have similar meanings are replaced by one term "packaging components and materials."

2.8 Rules for batteries

Definitions of "Battery," "Battery pack," and "Button Cell" are clearly specified.

The following batteries and battery packs are included in the list of Cd as Level 1.

- "Batteries" whose cadmium content, in proportion to the total weight of each one, is 20 ppm or more
- "Battery packs" whose cadmium content, in proportion to the total weight of each one, is 20 ppm or more

A new target "Carbon zinc batteries and alkaline batteries whose lead content, in proportion to the total weight of each one, is 0.2% or more" is included in the list of Pb as Level 1.

The sentence "Carbon zinc batteries and alkaline batteries designed for China whose mercury content, in proportion to the total weight of each one, is 0.0001% or more" is replaced with the sentence "Carbon zinc batteries and alkaline batteries whose mercury content, in proportion to the total weight of each one, is 0.0001% or more" in the list of Hg as Level 1.

EXPLANATORY NOTES

SS-00259

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

In the past year since the issue of the SS-00259 5th edition, laws and regulations pertaining to the practice of environmental production have been changed worldwide. This edition is issued to satisfy the requirements of changed statutes, as well as to address the most frequently asked questions about the 5th edition.

Part 0

1. POSITION OF THIS TECHNICAL STANDARD

The term "Management Standards regarding the Environment-related Substances Requiring Control and Included in Products" is corrected to the term "Rules for Non-Use of Controlled Environmental Substances in Products."

2. OPERATIONAL PROCEDURE AND BASIC POLICY

In the fifth edition, the words "Standards" and "Technical Standards" were both used, therefore the wording of "Technical Standard" comes to be used for consistent description in this edition.

Part 1

1. TERMS AND DEFINITIONS

1.1 Management standards: Level 1

To clarify the definition of Level 1, the explanation is changed from "The substances and their uses classified into this Level are those that must be banned immediately." to "The substances and their applications classified into this Level are those that are banned for the use in parts and materials."

1.2 Management standards: Level 2

To clarify the definition of Level 2, the explanation is changed from "On or after the date set in each table, the substances in the respective tables shall be reclassified into Level 1 for an immediate ban on their use in parts and materials." to "On the date set in each table, the substances and their applications in the respective tables shall be reclassified into Level 1."

2. ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED

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

The following substances are newly added to the list:

- Beryllium oxide
- Beryllium copper
- Specific phthalates (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)
- Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)

To clarify the subject of "Controlled Substances," the chemical name "Chlorinated paraffins" is modified by the term "Short-chain chlorinated paraffins."

2.2 Lead and lead compounds

The explanation in the Level 1 column is changed from "Electroless nickel plating film and electroless gold plating film whose lead content is more than 1000 ppm" to "Electroless plating films such as electroless nickel plating and electroless gold plating whose lead content is more than 1000 ppm."

The explanation in the Level 3 column is changed from "Electroless nickel plating film and electroless gold plating film whose lead content is 1000 ppm or less" to "Electroless plating films such as electroless nickel plating and electroless gold plating whose lead content is 1000 ppm or less."

2.3 Hexavalent chromium compounds

The following explanation is deleted: "Metal chromium and chromium contained in alloys are excluded from the targets."

2.4 Short-chain chlorinated paraffins (SCCP)

The term "Cl = 48 wt% or more" is deleted.

2.5 Specific azo compounds

The sentences, "Azodyes that form any of the amine compounds listed in Table 4.2a through the decomposition methods cited in the EU Directive 76/769/EEC" and "Amine compounds in Table 4.2a" are deleted from the Level 1 and Level 2 columns. These are the description of specific azo compounds, and provided in the top column.

2.6 Polyvinyl chloride (PVC) and PVC blends

The parts and materials made of PVC and PVC blends are reviewed and reclassified as shown in the table "Substances: Polyvinyl chloride (PVC) and PVC blends," taking into consideration the progress in developing alternative materials and in solving associated technical problems.

The following substances which were classified into Level 2 become the targets of the Level 1.

- Sheets and laminates used for the exterior of wooden speakers
- Insulating plates, decorative panels, labels, sheets, and laminates
- Flexible flat cables (FFC)

"Wiring clip used for the inside of devices (made of polyvinyl chloride-coated metal)" is added as new Level 3 parts.

2.7 Beryllium oxide

All uses of beryllium oxide are added as new Level 2 compound in order for their deliveries to be banned on and after April 1, 2008.

2.8 Beryllium copper

All uses of beryllium copper are added as new Level 3 compound.

2.9 Specific phthalates (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)

Specific phthalates used as plasticizer in polyvinyl chloride resin for cable coating, cord coating, plugs and connectors are added as new Level 3 compounds.

2.10 Hydrofluorocarbon (HFC) and perfluorocarbon (PFC)

All uses of hydrofluorocarbon and perfluorocarbon are added as new Level 3 compounds.

2.11 Additional Rules for Packaging Materials

To clarify the measurement procedure for packaging materials (hexavalent chromium) in table 4.3, the sentences are changed as follows:

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 on page 15.

2.12 Rules for Batteries

Definitions of "Battery" and "Battery pack" are clearly specified.

The following sentence is newly provided for clarification of the rules regarding "Batteries" and "Battery packs": "For "Batteries" and "Battery packs," follow the standards specified in Section 4.1 and 4.2 also." NiCd batteries which were classified into Level 2 become the targets of the Level 1.

EXPLANATORY NOTES

SS-00259

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

In the past year since the issue of the SS-00259 4th edition, laws and regulations pertaining to the practice of environmental production have been changed worldwide. The Part 1 of the SS-00259 5th edition is issued to satisfy the requirements of changed statutes, as well as to address the most frequently asked questions about the 4th edition. The Part 0 of the SS-00259 5th edition remains the same as that of the 4th edition.

1. PURPOSE

To explicitly state the applicable scope of the SS-00259, the term “Sony products” is modified by the term “Sony electronics products.”

2. SCOPE

2.1 Scope applicable to parts and materials, and scope applicable to products

To explicitly state the applicable scope of the SS-00259, the term “Sony products” is modified by the term “Sony electronics products,” and the phrase “third parties’ products” is modified by the phrase “third parties’ electronics products.” The term “remote controllers” is corrected to the term “remote commanders.”

2.2 Scope applicable to products

This applicable scope includes the products that are not only sold or distributed but also loaned to the parties involved. This section is modified accordingly.

3. TERMS AND DEFINITIONS

The phrase “the date on or after which Sony won’t accept the targets” is replaced with the phrase “effective date of the ban on the delivery” in the 5th edition in English. The definition remains the same as that of the earlier editions.

The following definition, which was placed under the heading of “Impurity,” is written under the “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.

The instruction for the allowable concentration is partly modified and added as a note, as follows: The ‘Controlled Substance,’ which mingles with or adheres to parts or devices as an “Impurity,” must not exceed its allowable concentration specified in this Standard.

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

4.1 Table 4.1 List of “Environment-related Substances to be Controlled (‘Controlled Substances’)”

The chemical name “polybrominated diphenylethers (PBDE)” is modified by the phrase “polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])” to clarify the scope of the substances.

4.2 Cadmium and cadmium compounds

To clearly define the surface treatment for the cadmium and cadmium compounds, which are subject to the Level 1 control, the “surface treatment (e.g. plating), coating” is replaced with “surface treatment (e.g. electroplating, electroless plating, etc.) and coating.”

The “parts composed of metals containing zinc (e.g. brass, zinc for die casting) whose cadmium concentration is more than 100 ppm,” which were categorized as Level 2, are classified into Level 1 in order for their deliveries to be immediately banned. The “zinc for die casting” is replaced with “hot dip galvanizing.”

The “ASTM F963-03” and “ASTM D 5517” are included as examples of the extraction methods to which the preconditioning methods specified in this Standard are not applicable.

4.3 Lead and lead compounds

In the 4th edition, “stabilizers used for electroless gold plating as well as electroless nickel plating and lead contained in additives” were categorized as Level 3. It is, however, found that the lead content in the electroless nickel plating film or electroless gold plating film may be more than 1000 ppm depending on the control method. The “electroless nickel plating film and electroless gold plating film whose lead content is more than 1000 ppm” are classified into Level 1 in order for their deliveries to be immediately banned.

The “ASTM F963-03” and “ASTM D 5517” are included as examples of the extraction methods to which the preconditioning methods specified in this Standard are not applicable.

4.4 Hexavalent chromium compounds

The subject to the Level 1 control, “all purposes (e.g. those [1] contained in inks and paints as components of their pigments, and [2] applied for preventing rust on surfaces of plating [on screws, steel plates, etc.]), ” are modified in a manner which is consistent with the current practice on the ground, as follows: “constituents of parts or materials (e.g. inks, paints, additives, etc.) ” and “residues in the surfaces of screws, steel sheets, etc. that are processed with plating or conversion coating. ”

4.5 Chlorinated paraffins (CP)

All uses of chlorinated paraffins are classified into Level 1 in compliance with the Norwegian regulations etc.

4.6 Polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])

The chemical name “polybrominated diphenylethers (PBDE),” which is classified into Level 1 for the immediate ban on its delivery, is modified by the phrase “polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])” to provide readers with a better understanding of the scope of the substances.

4.7 Specific azo compounds

Descriptions of the “specific azo compounds,” which form one or more certain amine compounds through designated decomposition methods, and those of the “specific amine compounds,” listed in Table 4.2a, are modified to make them easier to understand and to clarify that both substances are subject to the Level 1 control.

The normative reference “Germany Law for Foods and Consumer Products” is replaced with “EU Directive 76/769/EEC.”

4.8 Polyvinyl chloride (PVC) and PVC blends

The parts and materials made of PVC and PVC blends are reviewed and reclassified, taking into consideration the progress in developing alternative materials and in solving associated technical problems, as shown in the table “Substances: Polyvinyl chloride (PVC) and PVC blends.”

In the 4th edition, the parts and materials under Level 2 were to be reclassified into Level 1 according to their respective dates on which they become components of new mass-produced products. In this 5th edition, those shall be reclassified into Level 1 in the same way as other parts and materials.

The “substrates for FeliCa contactless IC cards” have never contained PVC or PVC blends. The “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)” have been made from alternative materials to PVC or PVC blends since the establishment of this Standard. This 5th edition classifies the above products and materials into Level 1 for a continued ban on the use of the Controlled Substances.

The effective date of the ban on the delivery for Level 2 is extended from January 1, 2007 to April 1, 2007. The “flexible flat cables (FFC)” are added to the 5th edition as new Level 2 parts.

The “suction cups for mounting in-vehicle products” and “coating agents and fabrics for the carrying bags, carrying cases, and carrying pouches, which are designed for exclusive use with professional-electronics products” are added as new Level 3 parts.

4.9 Table 4.3 Additional rules for packaging materials

The instructions for measurement methods for hexavalent chromium are modified in an easy-to-understand manner as follows: 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 preconditioning 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. 3) Analyze and confirm that no hexavalent chromium is present, using the standard methods for detecting hexavalent chromium provided on page 14.

The “warm water sampling process,” which is a preconditioning method for hexavalent chromium detection, is replaced with “boiling water extraction.”

To clarify that Table 4.3a illustrates some typical packaging materials, the table caption is changed from “Descriptions of packaging materials” to “Illustrative examples of PACKAGING materials and NOT PACKAGING materials.”

4.10 Table 4.4 Rules for batteries

The “carbon zinc batteries and alkaline batteries designed for use in China whose mercury content, in proportion to the total weight of each one, is 0.0001% or more” are added and classified into Level 1, in compliance with the applicable Chinese regulations.

The above batteries “whose mercury content, in proportion to the total weight of each one, is less than 0.0001%” are added and categorized as Exemption.

The “all NiCd batteries,” which were classified into Level 1, become targets of Level 2 in order for their deliveries to be banned on and after January 1, 2007.

The “coin cell batteries,” which were incorrectly specified in the earlier editions in English, are corrected to “button cell batteries.”

EXPLANATORY NOTES

SS-00259-1

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

In the past year since the issue of the third edition of SS-00259-1, statutes pertaining to the practice of environmental production have been changed worldwide. This fourth edition of SS-00259-1 is issued to satisfy the requirements of changed statutes and to clarify the contents, which might have been unclear for readers.

1. “PURPOSE”

In accordance with current requirements on the market worldwide, the “substances to be reduced” become the “excluded substances,” which means those are excluded from the substances to be banned (‘Controlled Substances’) defined in the third edition of SS-00259-1.

2. “SCOPE”

2.1 Scope applicable to products, and Scope applicable to parts and materials

In order of the level of importance, the sub-clauses of “2.1 Scope applicable to products” and “2.2 Scope applicable to parts and materials” are reversed with “2.1 Scope applicable to parts and materials” and “2.2 Scope applicable to products.”

2.2 Scope applicable to parts and materials: “repair parts”

The “repair parts” is defined as the “repair parts for products on the market” in accordance with the definition in other documents related to this Standard.

3. “TERMS AND DEFINITIONS”

3.1 Management standards: “Level 3”

Management criteria for the Level 3 substances are updated in an attempt to further reinforce controls as follows:

“No deadline for banning the use is currently set for the substances classified into this level. They shall be classified into Level 2 to be banned in phases, depending on the availability of alternative parts and materials that satisfy the intended application.”

3.2 Management standards: “Exemption”

The Levels 1 to 3 are used to specify the ‘Controlled Substances,’ and some of them that were classified into one of those in the third edition of SS-00259-1 are classified as “Exemption” as explained in the following:

“The substances classified into this level are those not regulated by the law or excluded from the ‘Controlled Substances’ due to insufficient supply of adequate alternative parts and materials that satisfy the intended application.”

4. “ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED (‘CONTROLLED SUBSTANCES’)”

4.1 Table 4.1 List of “Environment-related Substances to be Controlled (‘Controlled Substances’)”

The polychlorinated naphthalenes (PCN) is classified into the chlorinated organic compounds, and the polychlorinated terphenyls (PCT) is added to it as a new substance.

In the organic tin compounds, the ‘Controlled Substances’ are no other than tributyl tin compounds and triphenyl tin compounds, and therefore the wording of “organic tin compounds” is deleted.

As not all of the azo compounds are subject of the ‘Controlled Substances,’ the wording of “azo compounds” is replaced with the “specific azo compounds.” Details are provided in Table 4.2.

4.2 Cadmium and cadmium compounds

With the aim of making the reference tables clearer, descriptions of batteries by substance are consolidated into Table 4.4.

The following substances, which were classified into Level 2, become Level 1 to be immediately banned:

- “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)”
- Note: The glass includes adhesives, resistor elements, glass frit, conductive pastes (silver or copper ones), and sealing materials.
- “Solder (whose cadmium concentration is more than 20 ppm)”
 - “CdS-photocells and the phosphors contained in fluorescent display devices”
 - “Resistor elements (glass frit)”

The following substances are newly classified into Level 2:

- “Parts composed of metals containing zinc (e.g. brass, zinc for die casting) whose cadmium concentration is more than 100 ppm”

Note: The allowable concentrations of impurities in metal parts containing a large amount of zinc (e.g. brass and zinc for die casting) is up to 100 ppm regardless of how they are included in the metal parts because the use of recycled materials is increasing on the market and management of the allowable concentrations of less than 100 ppm is not practical at the moment.

The following substances, which were classified into Level 3, are excluded from the ‘Controlled Substances’:

- “Cadmium and cadmium compounds in electrical contacts and cadmium plating of electrical contacts, for which high reliability is required and which has no alternative materials, for which high reliability is required and which has no alternative materials”
- “Optical glass, filter glass”

The note on the pre-conditioning is partly revised to stress the importance of implementing the pre-conditioning methods in line with the note as in the following:

“In the process of preconditioning, precipitates (insoluble matter) must be totally dissolved by some means (e.g. alkali fusion).”

As the elution methods, which are inapplicable to the pre-conditioning methods prescribed in this Standard, ASTM F963-96a and ISO 8124-3 are added to the notes on the measurement methods.

4.3 Lead and lead compounds

With the aim of making the reference tables clearer, descriptions of batteries by substance are consolidated into Table 4.4.

The following substances, which were classified into Level 2, become Level 1 to be immediately banned:

- "Surface coatings for the external electrodes, lead wires, etc. of the parts contained in AC adaptors, remote commanders, semiconductor devices, etc."
- "Of the types of leaded solder, those that satisfy both of the following conditions: (1) leaded solder that contains less than 85 wt% of lead; and (2) leaded solder whose lead concentration is more than 1000 ppm"
- "All kinds of alloys (including solder materials) whose individual lead/lead compound concentration exceeds the regulated allowable concentration"
- "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"
- "Paints and inks used for areas other than the outer and exposed ones of devices"

The following substances, which were classified into Level 3, are excluded from the 'Controlled Substances':

- "High-melting point solder for internal connections used for parts and devices (the leaded solder whose lead content is 85 wt% or more)"
- "Electronic ceramic parts (e.g. piezoelectric materials, dielectric ones, and magnetic ones [ferrites])"
- "Optical glass, filter glass"
- "Glass materials used for electrical parts, cathode-ray tubes, or vacuum fluorescent displays (The Glass materials include adhesives, resistor elements, glass frit, conductive pastes [silver or copper ones], and sealing materials)"
- "Allowable concentration of lead as an additive in the following alloys^(*)"

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

The wording of "less than" used to specify the allowable content of lead and lead compounds is changed to "up to" in compliance with relevant statutes.

The "solder pastes used under C4 (Controlled Collapse Chip Connection) bumps," specified in the third edition, is amended to "solder to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages," according to relevant statutes, and "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% and less than 85% by weight", is added.

The note on the pre-conditioning is partly revised to stress the importance of implementing the pre-conditioning methods in line with the note as in the following:

"In the process of preconditioning, precipitates (insoluble matter) must be totally dissolved by some means (e.g. alkali fusion)."

As the elution methods, which are inapplicable to the pre-conditioning methods prescribed in this Standard, ASTM F963-96a and ISO 8124-3 are added to the notes on the measurement methods. EN 1122, which must not be used in the pre-conditioning methods for lead, is also added to the notes since it may result in inaccurate measured values due to lead sulfate precipitates.

4.4 Mercury and mercury compounds

With the aim of making the reference tables clearer, descriptions of batteries by substance are consolidated into Table 4.4.

The following substances, which were classified into Level 2, become Level 1 to be immediately banned:

- "Small-sized fluorescent lamps whose mercury content (per lamp) is 5 mg or more"
- "Straight-tube fluorescent lamps whose mercury content (per lamp) is 5 mg or more"
- "Mercury and mercury compounds except those classified as Exemption"

The following substances, which were classified into Level 3, are excluded from the 'Controlled Substances':

- "Lamps other than small-sized fluorescent ones and straight-tube ones (e.g. high-pressure mercury lamps)"
- "Small-sized fluorescent lamps whose mercury content (per lamp) is less than 5 mg"
- "Straight-tube fluorescent lamps whose mercury content (per lamp) is less than 5 mg"

4.5 Hexavalent chromium compounds

The "tanning" is deleted from the targets of the 'Controlled Substances' because leather end products were evaluated by the elution methods of hexavalent chromium, specified in this Standard, and the results showed no elution.

The following substances, which were classified into Level 2, become Level 1 to be immediately banned:

- Hexavalent chromium compounds used for "all purposes (e.g. those [1] contained in inks and paints as components of their pigments, and [2] applied for preventing rust on surfaces of plating [on screws, steel plates, etc.])"

4.6 Chlorinated organic compounds

The polychlorinated naphthalenes (PCN) is classified into the chlorinated organic compounds, and the polychlorinated terphenyls (PCT) is added to it as a new substance.

In compliance with the regulation enforced in the Netherlands, the CI of the chlorinated paraffins (CP) is reduced from "50 wt% or more" to "48 wt% or more."

4.7 Brominated organic compounds

The following polybrominated diphenylethers (PBDE), which were classified into Level 2, become Level 1 to be immediately banned:

- "Parts made by the dies that were made in December 2002 or earlier (Applicable only to the bodies of the displays and TV sets shipped to countries other than European ones)"
- "Parts whose molding dies have been made since January 2003 must not contain PBDE"

4.8 Tributyl tin compounds and triphenyl tin compounds

In the organic tin compounds, the 'Controlled Substances' are no other than tributyl tin compounds and triphenyl tin compounds, and therefore the wording of "organic tin compounds" is deleted.

4.9 Azo compounds

As not all of the azo compounds are subject to the 'Controlled Substances,' the wording of "azo compounds" is replaced with the "specific azo compounds." To further clarify the azo compounds classified into Level 3, the following note is added:

"The specific azo compounds may produce amines specified in Table 4.2a when they are decomposed on the basis of a test method specified in Germany Law for Foods and Consumer Products."

4.10 Polyvinyl chloride (PVC) and PVC blends

Because of insufficient supply of adequate alternative parts and materials to the polyvinyl chloride (PVC) and PVC blends on the market, PVC and PVC blends categorized as the 'Controlled Substances' in the third edition have been reviewed and updated on a product basis. The products comprised of PVC and PVC blends are to be banned according to the availability of alternatives as specified in the letter with document number of QAR-04-006, as follows:

The following substances are classified into Level 1 to be immediately banned:

- "Sheets used as packaging materials (e.g. air cushions, blister packs, and protective bags)"
- "Packaging materials to be packaged together with the product, such as remote commanders and cables (e.g. bags, tapes, cartons, blister packs)"
- "Vinyl ties made of PVC and PVC blends"

The following substances are classified into Level 2 with target dates for banning the use:

Note: Sony will not accept any of the following substances, which will become a component of an existing or new Sony product on and after the designated target dates.

- "Heat shrink tubes"
- "Sheets and laminates used for the exterior of wooden products (e.g. laminates for wooden cabinets and wooden speakers)"

The following substances are classified into Level 2 with target dates for banning the use:

Note: Sony will not accept any of the following substances, which will become a component of a new Sony product that is to be in commercial mass production on and after the designated target dates.

- "Parts consisting of wires (e.g. connectors with cords) and wires used for internal wiring (e.g. motor leads)"
- "Power supply cords, including plugs, connectors, or cord bushes (2P/3P [Electrical Appliances and Material Safety Law])"
- "Coating for insulation and protection used for the inside and outside of devices, insulated tubes, insulated boards, decorative panels, labels, carrying belts, spacers, holders, covers, ducts, etc."
- "Connection cords (1): those for wearable equipment (e.g. cables for ear phones, head phones, ear microphones)"
- "Connection cords (2): those for USB, i.LINK, video cords, AC adaptors secondary leads, multi cables, speaker cords"
- "Harnesses and processing wires designed by Sony (e.g. coaxial cables, flat wires, double insulation wires, shielded wires)"

The following substances are classified into Level 3:

- "Power supply cords, including plugs, connectors, or cord bushes (2P/3P [U/C])"
- "Developing papers"
- "Insulation caps for capacitors, power supply switches, and fuses"
- "Trays, magazine sticks, reels, embossed carrier tapes used by parts suppliers for parts packaging"

The following substances, which were classified into Level 3, are excluded from the 'Controlled Substances':

- "Binders made of resin"
- "Polyvinyl electrical wires for high voltage"
- "Insulating tapes"
- "Speaker grilles"
- "Power supply cords for import into EU countries"
- "Parts, which are not classified into Level 1, 2, or 3, and use the blends made from vinyl chloride copolymers or polyvinyl chloride and from other polymers"

The following substances are particularly classified as Exemption due to the unavailability of appropriate alternative technology:

- "Transformer leads of which the joint is fixed by varnish impregnation"
- "Curl cords"
- "Extra fine electrical wires that are AWG (American Wire Gauge) 36 or more"
- "Use of PVC and PVC blends in the professional-use cables, to which general-purpose ones cannot be applied (e.g. cables for broadcast cameras and microphones)"

4.11 Additional rules for packaging materials containing heavy metals

The measurement methods are further clarified.

Packaging materials are defined based on specific products to clarify them in an easy-to-understand manner.

4.12 Additional rules for batteries

With the aim of making the reference tables clearer, descriptions of batteries by substance (cadmium, lead, and mercury) are consolidated into Table 4.4.

The following substances, which were classified into Level 3, are excluded from the 'Controlled Substances':

- Lead used in the "batteries (excluding small-size sealed lead-acid ones) and battery packs whose lead content, in proportion to the total weight of each one, is less than 0.4%. However, the leaded solder and lead used for plastics (including rubber), paints, and inks for battery packs, which are classified into Level 1, are subject to the corresponding regulations"
- Mercury used in the "coin cell batteries whose mercury content, in proportion to the total weight of each one, is less than 2%" and "batteries (excluding coin cell ones) and battery packs whose mercury content, in proportion to the total weight of each one, is less than 0.0005%"

4.13 Update on 'Controlled Substances'

In the fourth edition of SS-00259-1, no substance other than the polychlorinated terphenyls (PCT) is added to the 'Controlled Substance.' Other substances, which were studied to evaluate whether to be newly classified as the 'Controlled Substances,' are not included in this fourth edition, because they have no possibility to be used in Sony products in the future.

EXPLANATORY NOTES

SS-00259

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

One year has passed since the issue of the 2nd edition. This edition, the 3rd one, contains descriptions derived from the following matters that have changed during this one-year: Environment-related laws in various countries and environmental activities in various areas/organizations. The 3rd edition also specifies the contents to which requests/comments have been made during the same period.

Besides, we have checked if contents of PART 0 require revisions.

Our conclusion is that no revisions are necessary; therefore the contents of PART 0 in the 2nd edition will continuously be valid.

1. SCOPE APPLICABLE TO PARTS AND MATERIALS

A description, "Repair parts (Sony will later issue a notice describing how to handle some of them)," is newly written because special rules are provided for some repair parts that fulfill the following conditions: Those which Sony has already received and for which materials and dyes cannot be changed.

2. "TERMS AND DEFINITIONS"

2.1 Level 3--A management standard

To clarify the definition of Level 3, the following explanation is newly provided: "After Sony judges that alternative parts or materials are available for them (= the substances and purposes classified at Level 3), or that they can be used thanks to alternative technologies, Sony will actively introduce and use the substances and the purposes."

2.2 Plastics defined in SS-00259

The 2nd edition did not clearly define the range of plastics. The 3rd edition defines it as "Materials and raw materials composed of synthetic high-molecular polymers" and describes examples such as resins, films, adhesives, adhesive tapes, molded products, products made of synthetic rubber, and plastics made from raw materials of plant origin.

3. "ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED ('THE CONTROLLED SUBSTANCES')"

3.1 Cadmium and cadmium compounds

To clearly define the range of cadmium and cadmium compounds, the explanation below is newly provided for "Surface treatment (e.g. plating), coating" in the Level 1 column.

"However, the plating of electrical contacts, for which high reliability is required and which has no alternative materials, does not fall under the above categories."

The Level 1 column now contains "The Nickel and NiCd batteries that are received as new parts," which used to be classified at Level 2, because of EU Battery Directive and because "April 1, 2003," the date which was specified in the 2nd edition and on or after which Sony wouldn't receive the targets, has already passed.

In this regard, "The month in or after which Sony won't receive the targets" for "All Nickel and NiCd batteries" is changed from "in or after January 2005" to "in or after January 2007."

The Level 3 column now contains new targets--optical glass and filter glass--because it is difficult to establish technologies for developing materials that will replace them.

To clarify the targets whose cadmium content must be measured, the following description is provided: "Allowable concentration: Less than 5 ppm for plastics [including rubber], paints, and inks."

3.2 Lead and lead compounds

To comply with EU Battery Directive, we now, in the Level 1 column, specify new targets: “The batteries (excluding small-size sealed acid-ones) and battery packs whose lead content, in proportion to the total weight of each one, is 0.4% or more.”

To clarify the target areas classified at Level 2, the following descriptions are provided:

- 1) The paints and inks used for outer and exposed areas of devices (effective on or after April 1, 2004); and
- 2) The paints and inks used for areas other than the outer and exposed ones of devices (effective on or after January 1, 2005).

The descriptions below that are provided in the Level 3 column explain the materials, parts, and products for which technologies for developing substitutes are not readily available.

- 1) Electronic ceramic parts (e.g. piezoelectric materials, dielectric ones, and magnetic ones [ferrites])
- 2) Optical glass, filter glass
- 3) Stabilizers used for electroless gold plating as well as electroless Nickel plating and lead contained in additives
- 4) Solder paste used under C4 (Controlled Collapse Chip Connection) bumps
- 5) The batteries (excluding small-size sealed lead-acid ones) and battery packs whose lead content, in proportion to the total weight of each one, is less than 0.4%

However, both leaded solder and the lead used for plastics (including rubber), paints, and inks which are classified at Level 1 or 2 are subject to the corresponding regulations.

A supplementary explanation, “including brass and phosphor bronze,” is provided in the column for copper alloys.

To clarify the targets whose lead content must be measured, the following description is provided: “Allowable concentration: Less than 100 ppm for plastics (including rubber), paints, and inks.”

The “Standard for measurement” column now contains new examples of pre-conditioning methods.

3.3 Mercury and mercury compounds

To comply with China regulations on batteries, we now, in the Level 1 column, specify the following new targets:

- 1) Coin cell batteries whose mercury content, in proportion to the total weight of each one, is 2% or more; and
- 2) The batteries (excluding coin cell ones) and battery packs whose lead content, in proportion to the total weight of each one, is 0.0005% or more.

The mercury contents of batteries must be equal to or less than the above-mentioned ones, depending on battery types.

To comply with the latest regulations specified in EU RoHS, the mercury content of a straight-tube fluorescent lamp, in the Level 2 column, has been changed from “10 to 20 mg” to “5 mg or more.” Similarly, the mercury content of the same type of lamp, in the Level 3 column, has been changed from “less than 10 mg” to “less than 5 mg.”

Besides, the Level 3 column now contains the following targets:

- 1) Coin cell batteries whose mercury content, in proportion to the total weight of each one, is less than 2%; and
- 2) The batteries (excluding coin cell ones) and battery packs whose lead content, in proportion to the total weight of each one, is 0.0005% or more.

To comply with China regulations on batteries, “Silver oxide cells, alkaline-manganese cells, and air cells,” specified in the 2nd edition, are no longer described in the Level 2 column.

3.4 Hexavalent chromium compounds

To clarify the targets that must not contain hexavalent chromium compounds, the following explanation is newly provided: “Metal chromium and chromium contained in alloys are excluded from the targets.”

Batteries and catalysts that used to be classified at Level 1 are no longer described because they do not contain the compounds any more.

3.5 Chlorinated organic compounds

“Mirex (Perchlordecone)” is no longer described because it is difficult to obtain the substance in Japan and North America, and because the substance has not been used as a flame retardant.

3.6 Brominated organic compounds

Tetrabromobisphenol-A-bis-(2, 3-dibromopropylether) (Product name: FR-720, etc.) is now grouped as one of “Other brominated organic compounds” and classified at Level 3 because Dutch laws banning the manufacture and sales of FR-720, etc. no longer exist.

3.7 Formaldehyde

In the 2nd edition, “chipboard” was used for one of the targets. However, in the 3rd edition, general terms--fiberboard and particleboard--are used instead.

In the 2nd edition, two measurement methods--A chamber method specified in EN 717-1 and a perforator method specified in EN 120--were specified. This was based on investigations on laws and industry standards in various areas and countries.

The 3rd edition now describes a desiccator method specified in JIS and JAS standards in Japan. By considering the difference in value between formaldehyde-emission contents detected by the above desiccator method and those detected by chamber methods, we now specify F☆☆☆ as the standard formaldehyde-emission content derived from the desiccator method based on JIS A5905 and A5908.

3.8 Polyvinyl chloride (PVC) and PVC blends

To clarify the meaning of “sheets” described in the Level 2 column in the 2nd edition, the word is changed to “Sheets used as packaging materials (e.g. air cushions, blister packs, and Miramat [protective bags]).”

For the same purpose, two types of descriptions are provided in the Level 2 and 3 columns respectively:

- 1) The insulation plates, tubes, and caps used for the outside of devices; and
- 2) The insulation plates, tubes, and caps employed in devices.

3.9 Regulations on heavy metals contained in packaging materials

Regarding all raw materials used for packaging materials, standards for each Controlled Substance must be satisfied. Furthermore, it is a must to keep rules for the four heavy metals--mercury, cadmium, lead, and hexavalent chromium.

One of the rules specifies the total concentration of the four heavy metals. In connection with this matter, plastics (including rubber), paints, and inks are subject to the following rules:

- A) “Less than 5 ppm” is determined as the allowable cadmium-concentration in the above materials.
- B) “Less than 100 ppm” is determined as the allowable lead-concentration in the materials. (The rule will become effective on or after April 1, 2004.)
- C) “Less than 100 ppm” is determined as the allowable total-concentration of the four heavy metals in the materials.

The above rules, however, may lead to the following situations:

- A) When the cadmium concentration and the lead one are 4- and 98 ppm respectively, rules 1) and 2) are satisfied.
- B) The total concentration, 102 ppm, neither satisfies rule 3) nor fulfills the requirements of relevant laws.

Since the hexavalent-chromium concentration cannot be measured by the specified equipment, at first, measure the total chromium-concentration. If the derived value is 100 ppm or more, analyze the hexavalent chromium contained in the total chromium.

To clarify the targets whose four-heavy-metal contents must be measured, the following sentence is newly provided: “This rule does not apply to cartons for returnable boxes owned by part suppliers.”

EXPLANATORY NOTES

SS-00259

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

It was not easy to understand the 1st edition issued in April 2002, because its contents were complicated. In order to comprehend the information on each environment-related substance and the in-house management-situations for the substance, its structure has been changed to indicate management levels according to each environment-related substance. In this 2nd edition, the contents and structure are wholly revised in order that the information contained in it is understood surely and easily.

In the 1st edition, in order to manage environment-related substances, they were classified as “Banned substances” or “Totally-abolished substances.” In the 2nd edition, management levels are set by the combination of one of “The Controlled Substances” and its purposes or a part where it is used. The combination is defined as a “Target”; this is a distinguished point of the 2nd edition.

After the issue of the 1st edition, investigations and discussions were held again on how to interpret the 1st edition, the actual situations in the industry, and inquiries and comments on relevant laws, in order to re-establish “Scope,” “The time to ban on receiving the parts and materials,” and the identification of environment-related substances. The PART 0 (GENERAL RULES) of SS-00259 used to be classified at “CLASS B (distributed only in Sony).” However, this revised version, the 2nd edition, is classified at “CLASS C” so that our business partners can further understand Sony’s view and a basic policy of this Standard.

1. “SCOPE”

“Scope applicable to products” is newly added; how to treat OEM products is clarified.

Thus, it has become clear that the regulations specified in SS-00259 do not apply to the production facilities and OA equipment used in Sony or Sony’s plants. Accessories (the accessories of electronic products, or subsidiary products), packaging materials, subsidiary parts and materials, etc. are concretely written in “Scope applicable to parts and materials.”

2. “TERMS AND DEFINITIONS”

- 1) In the 1st edition, environment-related substances are called and defined as “Banned substances” or “Totally-abolished substances” as a way to manage them; however there was confusion because some exceptions were made, and “Target deadlines for the total abolishment” of some “Intended purposes” were set at the end of March 2004. In the 2nd edition, as a way to control environment-related substances, a management method, in which “Targets (combinations of substances and their purposes or where substances are used)” are specified, is adopted. Terms for substances such as “banned” and “totally-abolished” are no longer used.

In the 2nd edition, management standards are set for each substance to phase it out. In the later editions in the future, the same method is to be adopted.

- 2) The definitions of “Contained” and “Impurity” are newly added. Regarding the cadmium and lead contained in plastics, as written in this Standard, “less than 5 ppm” and “less than 100 ppm” are set respectively. When setting the values, the inclusions of the impurities are considered.
- 3) In the 1st edition, a term, “Target deadlines for the total abolishment,” was used to indicate the time to phase out the substances. In the 2nd edition, however, a term, “The time to ban on receiving the parts and materials,” is used because the conventional one is ambiguous.

3. “ENVIRONMENT-RELATED SUBSTANCES TO BE CONTROLLED (‘THE CONTROLLED SUBSTANCES’)”

3.1 Cadmium and cadmium compounds

The targets (where substances are used / their purposes) classified as “Immediately banned” are concretely written as much as possible. Regarding measurement standards, general “Pre-conditioning” and “Measurement method” are added.

“The time to ban on receiving the parts and materials” for the purposes classified at Level 2 (with the exception of NiCd batteries) is changed from “April 1, 2003” to “January 1, 2005.”

Cadmium contained in metal parts (e.g. the ones whose main material is zinc) is regarded as an impurity. Therefore, their cadmium concentrations shall currently be disregarded.

“Less than 20 ppm” is set for the allowable concentration of cadmium impurities contained in solder, regardless of solder types.

Regarding cadmium contained in plastics, the laws of the Netherlands or other countries regulate the cadmium contents or ban its use (without setting any allowable concentrations of cadmium). Therefore, Sony has adopted a principle that it must not be contained, and takes strict controls of cadmium by measuring (or analyzing) its contents.

In the actual measurement, what is considered is the existence of the impurities that cannot be removed, with the existing industrial levels, in a process in which natural ingredients are refined to make raw materials. With the values sought by precise analysis methods such as ICP-AES, a value that is less than 5 ppm is regarded and set as an allowable concentration.

3.2 Lead and lead compounds

Regarding an allowable concentration of the lead and its compounds contained in plastics, less than 100 ppm is set as a standard. This is a value in which the contents of other metals and the lower detection limit of a measurement device are included. Pre-conditioning for lead and its compounds is the same as that for cadmium. Regarding the lead impurities contained in solder, “less than 1 000 ppm” is set as a standard. This rule will be applied on and after January 1, 2005. The solder that satisfies this condition can be used as lead-free solder. Regarding actual application methods such as management by measuring (or analyzing) lead / lead compound contents, Environment Quality Control, which is specially regulated by Quality Assurance Dept., Procurement Center, must be kept.

3.3 Mercury and mercury compounds

Regarding mercury and its compounds, allowable contents of mercury are set for small-sized fluorescent lamps and straight-tube fluorescent lamps. What are classified at Level 1 (immediately banned) are a small-sized fluorescent lamp whose mercury content is 10 mg or more and a straight-tube fluorescent lamp whose mercury content is 20 mg or more.

From now on, mercury contents shall gradually be reduced.

3.4 Chlorinated organic compounds

Mirex is newly added to this category. It is classified at Class 1 in “Law Concerning the Examination and Regulation of Manufacture, etc., of Chemical Substances (Japanese law),” and whose manufacture, sales, or use is banned. Its purposes are presumed to be those for flame retardants.

Regarding chlorinated paraffins (CP) among chlorinated organic compounds, short-chain chlorinated paraffins (chlorine content: 50% or more) are known to have effects on the environment. Therefore, their purposes are limited; they are classified at Level 1 (immediately banned).

(Refer to SS-00259 AMMENDMENT issued in August of 2002.)

Other purposes are classified at Level 3.

Chlorinated organic compounds except short-chain types are treated as “Other chlorinated organic compounds.”

PCB (polychlorinated biphenyls) and PCN (polychlorinated naphthalenes) are classified at Level 1 because they are classified at Class 1 in “Law Concerning the Examination and Regulation of Manufacture, etc., of Chemical Substances (Japanese law).”

Among the chlorinated organic compounds that are not specified here, ones used for plasticizers or flame retardants are classified at Level 3 because their impacts on the environment are not clear.

3.5 Brominated organic compounds

Tetrabromobisphenol-A-bis-(2, 3-dibromopropylether) (Product name: FR-720, etc.) is newly added to this category because laws in the Netherlands ban its manufacture and sales.

By the way, it turned out that PBDE, which was classified as a banned substance in the 1st edition, was used for some products. After Sony investigated its effects on the environment and the relevant laws of each country, the following matters have been decided:

- 1) The purposes of PBDE shall be limited.
- 2) PBDE must not be used for new models.
- 3) The use of PBDE shall be phased out.

Thus, a management standard, Level 2, is newly set for brominated organic compounds.

The brominated organic compounds (flame retardants) that are not specified here are classified at Level 3 because their impacts on the environment are not clear.

3.6 Organic tin compounds

Tributyl tin compounds and triphenyl tin compounds are classified at Level 1 (Immediately banned) to comply with the revised Sony's Medium-term Environmental Action Program.

3.7 Azo compounds

A substance, 4-aminoazobenzene, is added as one of amines that must not be produced by the decomposition of azo compounds. LMBG 82.02.2 to 4, test methods to decompose azo compounds and then to extract amines, are added for reference (LMBG: German Law for Foods and Consumer Products). To carry out these tests is costly and takes time because amines are examined after they are generated by the decomposition of azo compounds. Accordingly, the following matters are recommended:

- 1) Make sure that which color base (C.I. Pigment) is used.
- 2) Obtain information from the manufacturers or organizations that deal in pigments or dyes.

(Information on relevant organizations)

- JAPAN Bulk Pharmaceutical Manufacturers Association
- ETAD: Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers

* According to the test results carried out by ETAD, it is said that the azo-organic pigments written in the table below do not interfere with the 5th Amendment of the German Consumer Goods Ordinance.

C.I. Name	C.I. No.	CAS No.	Regulatory status
Pigment Yellow 12	21090	6358-85-6	A
Pigment Yellow 13	21100	5102-83-0	A
Pigment Yellow 14	21095	5468-75-7	A
Pigment Yellow 14	-	7621-06-9	A
Pigment Yellow 17	21105	4531-49-1	A
Pigment Yellow 55	21096	6358-37-8	A
Pigment Yellow 83	21108	5567-15-7	A
Pigment Yellow 126	21101	90268-23-8	A
Pigment Yellow 127	21102	68610-86-6	A
Pigment Yellow 174	21098	78952-72-4	A
Pigment Yellow 176	21103	90268-24-9	A
Pigment Orange 13	21110	3520-72-7	A
Pigment Orange 16	21160	6505-28-8	A
Pigment Orange 34 Pigment Orange 35 Pigment Orange 37	21115	15793-73-4	A

(Note)

C. I.: Color Index

The color indexes for pigments and dyes, published in the U.K.

Regulatory status = A: Exempted under the 5th Amendment

3.8 Formaldehyde

In the 1st edition, only the emission concentration of formaldehyde was determined; accordingly there have been lots of inquiries about how to measure it. When setting regulations against formaldehyde, the relevant laws and industry standards in each country and region were examined again, and finally Chamber method specified in EN 717-1 and Perforator method in EN 120 are adopted as standard measurement methods. Thus, either one of them shall be applied.

In Japan, the desiccator method specified by JIS standards and JAS ones is adopted. However, it is difficult to clearly correlate Chamber method or Perforator one with the emission quantity of formaldehyde measured by the desiccator method.

E0 materials specified by JIS pass the standards written in this Standard, but confirmation is necessary for E1 materials.

3.9 Polyvinyl chloride (PVC) and PVC blends

The resin containing polyvinyl-chloride polymers are used for many parts and devices because of their features such as workability, non-flammability, and low costs. Because it is difficult to know actual conditions on blends with other kinds of resin and on the copolymer products blended with other kinds of polymers, the polyvinyl-chloride blends used in a large quantity (the compounds to which stabilizers, fillers, pigments, or flame retardants are added to commercialize polyvinyl chloride) are classified at Level 2, and then this revision is made.

In this section, homo-type polymers among types of vinyl chloride are regulated; copolymers and graft copolymers are classified at Level 3, because it is difficult to establish substitute technologies for them.

Although the binding ties made of polyvinyl chloride are not specified in Table 4.2, substitute materials have replaced them, and the replacement process is nearly finished, because the large quantity of cadmium has been detected in most of the binding ties.

This SS-00259 regulates neither the use of the unplasticized vinyl chloride materials used for plant facilities and equipment (e.g. a chemical plant) nor the vinyl chloride products (e.g. bolts, nuts, and gaskets) used for these purposes. In addition, because there are no substitute materials that are technically suitable for the above purposes, the above-mentioned vinyl chloride materials and products are not regulated in this Technical Standard.

3.10 Regulation over the heavy metals contained in packaging materials

Not only each raw material contained in a packaging material must satisfy each relevant "Management standards for 'The Controlled Substances,'" but also it is necessary to control the four heavy metals contained in each raw material.

A concentration standard of the total amount of four heavy metals is regulated. Regarding plastics, a determined cadmium concentration is less than 5 ppm. Less than 100 ppm is set as a standard value when other heavy metals are included. For example, when a cadmium concentration of a plastic is 4 ppm and the lead concentration is 98 ppm, standards for each metal are satisfied; however the plastic cannot satisfy law requirements because the total concentration of the two metals contained in the plastic is 102 ppm.

In addition, because it is not possible to measure a concentration of hexavalent chromium with the regulated devices, the total amount of chromium shall be measured once. Then, when more than 100 ppm is detected, hexavalent chromium shall be analyzed.

3.11 The substances that must not be used when manufacturing parts and devices

The substances that do not fit the purpose of this Standard are those regulated as "Substances that must not be used when parts and devices are manufactured" in the 1st edition. In addition, they have different characteristics from those of other substances. Therefore, they are excluded from this edition. Especially, the use of ozone depleting substances (CFC, HCFC, methyl bromide, carbon tetrachloride, and 1, 1, 1-trichloroethane) shall be left in suppliers' hands because the active observance of "Montreal Protocol on Substances that Deplete the Ozone layer" is encouraged, and because observing it reflects a supplier's attitude to society.

In light of "Water Pollution Control Law" and "Industrial Safety and Health Law," both of which are Japanese laws, the following chlorinated organic compounds were written in the 1st edition: 1, 1, 2-trichloroethane, 1, 2-dichloroethane, 1, 1-dichloroethane, 1, 2-dichloroethylene, methylene chloride, chloroform, trichloroethylene, and tetrachloroethylene. But these substances do not cover all the ones regulated in each country. Therefore, their use shall be left in suppliers' hands because it is a supplier's responsibility to observe regulations in its own country.

Regarding the above-mentioned two-types of substances, suppliers must follow guiding principles regarding environmental-quality control such as the Green Partner System specially regulated by Quality Assurance Dept., Procurement Center.

The use of these substances shall be referred to suppliers' voluntary control or reduction activities.



索尼技术标准



秘密等级

C 级

零部件和材料中的环境管理物质 管理规定

中文译文

Chinese Translation

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秘 密 等 级
C 级

索尼技术标准

SS-00259-00

PART 0

零部件和材料中的环境管理物质 管理规定 一般原则

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1. 本技术标准的定位

本技术标准是依照「关于产品中的环境管理物质的使用禁止规则」的内容，文中明确了该规则中所定义的环境管理物质。同时，为了落实本内容于索尼公司内部及交易厂商之间，制定并发行为本技术标准。

2. 运营标准

- (1) 有关本技术标准事项的审议和决定，由各产品的负责部门及各部门的代表所组成的「环境关联物质技术委员会」进行，关于审议和决定后的事项，由促进全公司环境技术的部门负责人裁决。
- (2) 当需要修订或废除本技术标准时，应向环境关联物质技术委员会提出申请。环境关联物质技术委员会就申请内容进行审议，决定修订或废除等的事项。

3. 基本方针

在本技术标准中指定为管理级别 1 级的对象(物质和用途)，禁止用于索尼产品中。

- (1) 对可定量测定的物质，应考虑到测定仪器的检测极限、误差及是否混入自然界中存在的杂质来设定其标准值。
另外，将另行制定发生上述情况时的测定方法以及判定标准相关的应用细则。
- (2) 对于难以用定量测定的方法设定其标准值的物质，必须通过签订文件等方式明确未使用限定使用的物质。

秘 密 等 级
C 级

索尼技术标准

SS-00259-01

PART 1

在零部件和组件等中含有的限制使用物质之管理标准

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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，以防止这些物质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的规定。

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使用「4.2.1 包装零部件和材料的定义」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

目前虽然没有规定全废的目标日期，但是指定了希望朝向完全废除使用的零部件和材料中所含有的物质及其用途。当判断可以引进代替的零部件、开发新材料和代替技术时，即可由 3 级提升至 2 级，同时逐步实现全废的目标。

(d) 适用对象外

不在法令的规定范围中，或者现阶段没有代替技术方案的物质和用途部位。

(3) 含有

含有是指：无论是否有意，在所有产品的零部件和组件或使用的材料中添加、填充、混入或粘附的物质(包括在加工过程中无意混入或粘附于产品中的物质)。

但是，制造半导体器件等使用的掺杂剂(Dopant)虽然是有意添加，但实质上在半导体器件中其残存量极少时，则不定义为「含有」，而定义为「杂质」。

(4) 杂质

杂质是指：包含在天然材料中，作为工业材料的精制过程中技术上不能完全去除的物质(natural impurity)，或者在合成反应的过程中产生但技术上不能完全去除的物质。

此外，为了与主原料加以区别而称为「杂质」的物质，如果其使用目的是为了改变材料的特性时，则作为「含有」处理。

(注) 本技术标准中指定了相关的允许浓度，如果在零部件和组件中混入或者粘附了作为杂质的相应环境管理物质时，其浓度不能大于本技术标准所规定的允许浓度。

(5) 禁止供货时期

禁止向索尼供应零部件和材料的时期。

(6) 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	
重金属	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
有机氯化物	多氯联苯 (PCB)
	多氯化萘 (PCN)
	多氯三联苯 (PCT)
	短链型氯代烷烃 (SCCP)
	其他有机氯化物
有机溴化合物	多溴联苯 (PBB)
	包含十溴联苯醚 (DecaBDE) 的多溴联苯醚 (PBDE)
	其他有机溴化合物
三丁基锡化合物 (TBT)	
三苯基锡化合物 (TPT)	
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	
铍青铜	
特定邻苯二甲酸盐 (DEHP、DBP、BBP、DINP、DIDP、DNOP、DNHP)	
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	

表 4.2 关于环境管理物质的主要对象和禁止供货时期

物质名称：镉以及镉化合物		
对象范围：金属、合金、无机化合物、有机化合物、无机盐、有机盐等含有镉元素的所有物质		
对象		禁止供货时期
1 级	<ul style="list-style-type: none"> · 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、唱片等) · 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) 	立即执行
	<p>「适用对象外」以外之所有用途。</p> <p>例如，</p> <ul style="list-style-type: none"> · 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(Cd > 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(玻璃料) <p>等</p>	立即执行 (从 2005 年 1 月 1 日开始)
	<ul style="list-style-type: none"> · 含锌金属(黄铜、熔融镀锌等)构成的零部件及相应部位中的镉含量大于 100 ppm 的零部件及相应部位(Cd > 100 ppm) 	立即执行 (从 2005 年 10 月 1 日开始)
适用对象外	<ul style="list-style-type: none"> · 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 · 光学玻璃、滤光玻璃 	

测定对象：塑料(包括橡胶)、涂料、油墨 含镉允许浓度应小于 5 ppm (Cd < 5 ppm)	
测定标准：	
(1) 预处理	
有关预处理方法主要有下列 4 种：	
1. 存在硫酸状态下进行的灰化法(硫酸灰化法)	
2. 在密闭容器内进行的加压酸分解法[包括微波分解法(例如，EN 13346: 2000 或 EPA 3052: 1996)]	
3. 采用硝酸、过氧化氢溶液、盐酸进行的酸分解法(例如，EPA 3050B Rev. 2: 1996)	
4. 采用硫酸、硝酸、过氧化氢溶液进行的湿式分解法(例如，BS EN 1122: 2001)	
等。	
(注) 如果在上述所有的预处理过程中，产生沉淀物(不溶解物质)时，必须采取某种方法(碱溶法等)完全溶解该沉淀物。	
(2) 测定法	
有关测定方法主要有下列 3 种：	
1. 电感耦合等离子体发射光谱法[ICP-AES (ICP-OES)]; (例如，EN ISO 11885: 1998)	
2. 原子吸收分光光度法(AAS); (例如，EN ISO 5961: 1995)	
3. 电感耦合等离子体质谱法(ICP-MS)	
除上述方法以外，通过组合预处理和测定方法的结果可以保证镉的定量下限值小于 5 ppm 时，则规定该组合方法所得到的测定结果合格。	
此外，镉和铅也可以同时采用上述(2)中的测定法进行分析，但是，「2. 原子吸收分光光度法(AAS)」的方法除外。	
(注) 在 EN 71-3: 1994、ASTM F963-96a、ASTM F963-03、ASTM D 5517、ISO 8124-3 中具代表性的萃取法不适合作为预处理的方法。	
因 JIS K0102「工业废水的试验法」第 55 项仅记载了测定法，所以必须同时记述预处理的方法。	

物质名称：铅以及铅化合物		
对象范围：金属、合金、无机化合物、有机化合物、无机盐、有机盐等含有铅元素的所有物质		
对象		禁止供货时期
1 级	<ul style="list-style-type: none"> 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 	立即执行
	<ul style="list-style-type: none"> 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 	立即执行 (从 2004 年 4 月 1 日开始)

1 级	「3 级」和「适用对象外」以外的所有用途 例如， <ul style="list-style-type: none">内藏在 AC 适配器、遥控指挥器、半导体器件等中的零部件之外部电极、引线端子等的表面处理铅的重量百分比小于 85 wt%的有铅焊锡中，其铅含量大于 1000 ppm 的焊料(Pb > 1000 ppm)大于如下允许浓度(*1)的各种合金(包括焊锡材料)AC 适配器、电源线、连接电缆、遥控指挥器、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	立即执行 (从 2005 年 1 月 1 日开始)										
	<ul style="list-style-type: none">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大于 1000 ppm 的皮膜(Pb > 1000 ppm)	立即执行 (从 2006 年 2 月 1 日开始)										
3 级	<ul style="list-style-type: none">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或等于 1000 ppm 的皮膜(Pb ≤ 1000 ppm)											
适用对象外	<ul style="list-style-type: none">连接零部件和组件用的高熔点焊料(即，铅的重量百分比大于或等于 85 wt%的有铅焊锡)电子陶瓷零部件(例如，压电材料、介质材料、磁性材料[铁素体系])光学玻璃、滤光玻璃用于显像管、电子元器件、荧光管的玻璃材料 用于电子元器件的玻璃材料包括电阻、导电浆(银浆、铜浆)、粘结剂、玻璃料、密封材料(密封胶(sealant))等用于焊接微处理器端子和器件封装的焊料中，由 2 种以上的元素组成之含铅量大于 80 wt%但小于 85 wt%的焊料(80 wt% < Pb < 85 wt%)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 IC 内部焊接用突块(bump)下面使用的焊锡膏)。 <div><div>(*1) 各种合金的含铅允许浓度</div><table><tr><td>合金的种类</td><td>含铅允许浓度</td></tr><tr><td>钢材</td><td>≤ 0.35 wt%</td></tr><tr><td>铝合金</td><td>≤ 0.4 wt%</td></tr><tr><td>铜合金(也包括铸铜、磷青铜)</td><td>≤ 4 wt%</td></tr><tr><td>焊料(*2)</td><td>≤ 1000 ppm</td></tr></table><p>各向异性的导电胶片(ACF)及各向异性的导电糊剂(ACP)中如果使用焊料时，该导电物质应采用的焊料为：各种合金的含铅允许浓度中规定的焊料(*2)，即小于或等于 1000 ppm 的焊料。</p></div>	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	
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											

测定对象：塑料(包括橡胶)、涂料、油墨 含铅允许浓度应小于 100 ppm ($Pb < 100 \text{ ppm}$)	
测定标准：	
(1) 预处理	
有关预处理方法主要有下列 4 种：	
1. 存在硫酸状态下进行的灰化法(硫酸灰化法)	
2. 在密闭容器内进行的加压酸分解法[包括微波分解法(例如, EN 13346: 2000 或 EPA 3052: 1996)]	
3. 采用硝酸、过氧化氢溶液、盐酸进行的酸分解法(例如, EPA 3050B Rev. 2: 1996)	
4. 采用硝酸、过氧化氢溶液进行的湿式分解法等。	
(注) 如果在上述所有的预处理过程中, 产生沉淀物(不溶解物质)时, 必须采取某种方法(碱溶法等)完全溶解该沉淀物。	
(2) 测定法	
有关测定方法主要有下列 3 种：	
1. 电感耦合等离子体发射光谱法[ICP-AES(ICP-OES)]; (例如, EN ISO 11885: 1998)	
2. 原子吸收分光光度法(AAS); (例如, EN ISO 5961: 1995)	
3. 电感耦合等离子体质谱法(ICP-MS)	
除上述方法以外, 通过组合预处理和测定方法的结果可以保证铅的定量下限值小于 30 ppm 时, 则规定该组合方法所得到的测定结果合格。	
此外, 镉和铅也可以同时采用上述(2)中的测定法进行分析, 但是, 「2. 原子吸收分光光度法(AAS)」的方法除外。	
(注) 在 EN 71-3: 1994、ASTM F963-96a、ASTM F963-03、ASTM D 5517、ISO 8124-3 中具代表性的萃取法不适合作为预处理的方法。另外, EN 1122 也不适合作为铅的预处理法。	
因 JIS K0102「工业废水的试验法」第 54 项仅记载了测定法, 所以必须同时记述预处理的方法。	

物质名称：汞以及汞化合物		
对象范围：金属、合金、无机化合物、有机化合物、无机盐、有机盐等含有汞元素的所有物质		
对象		禁止供货时期
1 级	<ul style="list-style-type: none"> 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 塑料中的添加剂 	立即执行
	<ul style="list-style-type: none"> 小型日光灯(用于液晶背光等)：每一支的含量大于或等于 5 mg 的产品 直管日光灯：每一支的含量大于或等于 5 mg 的产品 「适用对象外」以外的所有用途 	立即执行 (从 2005 年 1 月 1 日开始)
适用对象外	<ul style="list-style-type: none"> 小型日光灯、直管日光灯以外的灯(高压汞灯等) 小型日光灯：每一支的含量小于 5 mg 的产品 直管日光灯：每一支的含量小于 5 mg 的产品 	

物质名称：六价铬化合物		
对象范围：无机化合物、有机化合物、无机盐、有机盐等含有六价的铬元素的所有物质		
对象		禁止供货时期
1 级	<ul style="list-style-type: none"> 包装零部件和材料(参照 4.2.1 的内容) 	立即执行
	<ul style="list-style-type: none"> 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物质 	立即执行 (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		禁止供货时期
1 级	<ul style="list-style-type: none"> 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 	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		禁止供货时期
1 级	<ul style="list-style-type: none"> 用于包括附件在内的产品外框(机壳)、印刷线路板的用途时。 	立即执行
	<ul style="list-style-type: none"> 上述以外的所有用途。 	立即执行 (从 2006 年 2 月 1 日开始)

物质名称：其他有机氯化合物		
对象		禁止供货时期
3 级	<ul style="list-style-type: none"> 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		禁止供货时期
1 级	• 用于塑料的阻燃剂等的所有用途	立即执行

物质名称：包含十溴联苯醚 (DecaBDE) 的多溴联苯醚 (PBDE)		
对象		禁止供货时期
1 级	• 用于塑料的阻燃剂等的所有用途	立即执行
	• 使用 2002 年 12 月以前既有的模具制造的零部件 (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 月以后制造的新型模具零部件中禁止使用本项物质	立即执行 (从 2005 年 1 月 1 日开始)

物质名称：其他有机溴化合物		
对象		禁止供货时期
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：三丁基锡化合物 (TBT)、三苯基锡化合物 (TPT)		
对象		禁止供货时期
1 级	• 用于涂料、油墨、防腐剂、杀霉剂等的所有用途	立即执行

物质名称：石棉		
对象		禁止供货时期
1 级	• 用于绝缘材、填料等的所有用途	立即执行

物质名称：特定偶氮化合物		
对象为：按照欧盟·欧盟化学品限制指令 76/769/EEC 中引用的试验法进行分解，生成表 4. 2a 的特定胺化合物之特定偶氮化合物，以及 4. 2a 的特定胺化合物		
对象		禁止供货时期
1 级	· 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。	立即执行
3 级	· 不与人体持续接触的产品或零部件(遥控指挥器、胶垫、携带笔记本电脑专用包、鼠标等)	
试验法(参考) 分解偶氮化合物提取胺的方法如下所述： (1) EN 14362-1: 2003 “ Textiles-Methods for the determination of certain aromatic amines derived from azo colorants -Part 1: Detection of the use of certain azo colorants accessible without extraction” (2) CEN ISO/TS 17234: 2003 “Leather-Chemical tests-Determination of certain azo colorants in dyed leathers” (3) EN 14362-2: 2003 “ Textiles-Methods for the determination of certain aromatic amines derived from azo colorants -Part 2: Detection of the use of certain azo colorants accessible by extracting the fibres”		

表 4. 2a 特定胺化合物一览表

CAS No.	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
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
106-47-8	4-氯苯胺
615-05-4	2, 4-二氨基苯甲醚
101-77-9	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
120-71-8	5-甲基邻茴香甲胺
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
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		禁止供货时期
1 级	<ul style="list-style-type: none"> 出口欧州的产品中使用的纤维板(Fibreboard)、刨花板(particleboard), 以及使用胶合板的木工产品(扬声器、机架等) 	立即执行
	<ul style="list-style-type: none"> 非出口欧州的产品中使用的纤维板(Fibreboard)、刨花板(particleboard), 以及使用胶合板的木工产品(扬声器、机架等) 	立即执行 (从 2005 年 1 月 1 日开始)
<p>标准值(排放浓度): 采用如下方法中的其中一种方法</p> <p>(1) 测试室法 在空气中浓度 12 m³、1 m³或 0.0225 m³的气密试验槽中的标准值应为小于或等于 0.1 ppm(小于或等于 0.124 mg/m³)</p> <p>(2) 穿孔法</p> <ul style="list-style-type: none"> 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) <p>或</p> <ul style="list-style-type: none"> 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) <p>(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)</p>		
<p>测定法: (1) 测试室法依照 EN 717-1:2004 (Wood based panels; determination of formaldehyde release; formaldehyde emission by the chamber method) 规定</p> <p>(2) 穿孔法依照 EN 120 (Wood based panels; determination of formaldehyde content; extraction method called perforator method; EN 120:1992) 规定</p> <p>(3) 干燥器法依照 JIS A 5905 (Fibreboards)、JIS A 5908 (Particleboards) 规定</p>		

物质名称：聚氯乙烯(PVC)以及聚氯乙烯混合物		
对象		禁止供货时期
1 级	<ul style="list-style-type: none"> 非接触 IC 卡(FeliCa)用基材 	立即执行 (一开始生产时就未使用本对象物质)
	<ul style="list-style-type: none"> 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) 	立即执行
	<ul style="list-style-type: none"> 捆绑附件、连接电源线的扎线带(cable tie) 	立即执行 (从 2002 年 7 月 1 日开始)
	<ul style="list-style-type: none"> 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) 	立即执行 (从 2005 年 1 月 1 日开始)
	<ul style="list-style-type: none"> 热收缩软管 	立即执行 (从 2005 年 4 月 1 日开始)
	<ul style="list-style-type: none"> 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 	立即执行 (从 2007 年 4 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		禁止供货时期
3 级	<ul style="list-style-type: none"> 连接电缆(1)：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)、套管・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(2)：USB 用电缆、i.LINK 用电缆、录像机电缆、AC 适配器次级引线、扁平线、多芯绞合型电缆、扬声器电缆等 束线、加工线材(同轴电缆、扁平线、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 印相纸(照相纸) 作为电容器、电源开关、保险丝用途的绝缘盖 零部件交货厂商用于包装零部件的托盘、料条(装运管)、带盘、压纹承载带等 安装车用机器(In-vehicle product)的吸盘 用于机器内部的配线用夹(用聚氯乙烯涂装过的金属物品) <p>除此之外，还包括本项中未列举的零部件(但是「1 级」及「适用对象外」中所列举的除外)</p>	
适用对象外	<ul style="list-style-type: none"> 树脂用粘料(粘接料) 高压塑料电线 绝缘带 扬声器的格栅(Speaker grille) 电源线(上述 3 级中所述，出口日本、美国、加拿大以外地区的电源线) 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 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：氧化铍		
对象		禁止供货时期
1 级	<ul style="list-style-type: none"> 管理级别 3 级以外的所有用途 	从 2008 年 4 月 1 日开始
3 级	<ul style="list-style-type: none"> 无替代物之特殊用途的产品或零部件 	

物质名称：铍青铜		
对象		禁止供货时期
3 级	<ul style="list-style-type: none"> 所有用途 	

物质名称：特定邻苯二甲酸盐 (DEHP、DBP、BBP、DINP、DIDP、DNOP、DNHP)		
对象为表 4. 2b 的物质		
对象		禁止供货时期
3 级	<ul style="list-style-type: none"> 用于电缆绝缘、电源线绝缘，及其对应的插头或连接器部位的聚氯乙烯树脂含有增塑剂用途的特定邻苯二甲酸盐时 	

表 4. 2b 特定邻苯二甲酸盐 (邻苯二甲酸盐) 一览表

简称	CAS 号码	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
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		禁止供货时期
1 级	<ul style="list-style-type: none"> 安装于产品中的冷媒、隔热材料等的所有用途 	立即执行 (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		禁止供货时期
1 级	<ul style="list-style-type: none"> 零部件采用的材料中的 PFOS 浓度大于或等于 0.1 wt%时 每个涂布材料(包括纤维或是其他的涂布材料)中的 PFOS 含量大于或等于 $1 \mu\text{g}/\text{m}^2$ 时 例如， 电镀、涂料、颜料、燃料、用拒水剂/拒油剂/防污剂等涂布的材料(纤维、薄膜、纸、皮革等)、氟聚合物树脂涂层、粘结剂、密封胶(sealant)等	立即执行 (从 2008 年 4 月 1 日开始)
适用对象外	<ul style="list-style-type: none"> 用于薄膜、纸、印刷版材中的照片用涂布剂 光刻工艺采用的光刻胶或是防止反射用的涂布剂 	

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		禁止供货时期
1 级	用于如下产品中做为紫外线防护剂、紫外线吸收剂用途的特定苯并三氮唑 <ul style="list-style-type: none"> 装饰性层压板 印相纸(照相纸) 成型塑料产品 	立即执行 (从 2008 年 4 月 1 日开始)

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」、「掌握处理」、「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

物质名称：重金属 (镉、铅、六价铬、汞)		
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		
对象		禁止供货时期
1 级	· 对象为表 4.3a 中记载的包装零部件和材料	立即执行
适用对象外	· 运输公司或零部件交货厂商所使用的物流箱除外	
允许浓度： · 汞、镉、六价铬、铅的重金属允许浓度，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允许浓度，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(装运管(包括止动器))、打包带等】		
(1) 首先，必须先分析六价铬的总铬量，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 种元素合计大于或等于 100 ppm 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，再进行六价铬的检测判定。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下列 3 种：		
1. 在密闭容器内进行的加压酸分解法[包括微波分解法(例如，EPA 3052: 1996)]		
2. 加热气化-冷原子吸光法		
3. 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-AES (ICP-OES) 与附带氢气发生器的 ICP-MS。		

六价格的检测判定

这是为了确认包装零部件和材料中的镉、铅、汞、总铬 4 种元素合计是否大于或等于 100 ppm 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, EPA 3060A)]

(2) 测定法

紫外-可见光分光光度法(例如, EPA 7196A)

如果本测定标准是组合了预处理和测定法, 其结果可以保证个别的定量下限值为: 汞小于 5 ppm、镉小于 5 ppm、总铬小于 5 ppm、铅小于 30 ppm 时, 则规定该组合所得到的测定结果合格。

此外, 镉、铅、总铬量可以同时采用第 5 页(*3)或第 7 页(*4) (2) 中的测定法进行分析, 但是「2. 原子吸收分光光度法(AAS)」的方法除外。

(*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) 本表并不是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)		
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	

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，但是，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		
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		
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
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」。因特别的目的在于助听器、腕表、小型可携带式机器产品、备用电源等中的电池。

因「电池组」采用的电池也是归纳为「电池」，所以适用表 4.4 记载的规定。

此外，「电池」及「电池组」相关的内容，应依照本技术标准的 4.1 及 4.2 项的规定进行。

表 4.4 有关电池的事项

物质名称：重金属(镉、铅、汞)			
对象范围为金属、合金、无机化合物、有机化合物、无机盐、有机盐等含有镉、铅、汞元素的所有物质。			
对象			禁止供货时期
1 级	镉(Cd)	• 镍/镉电池。	立即执行 (从 2007 年 1 月 1 日开始)
		• 「电池」：镉含量大于或等于电池总重量 20 ppm 的电池。 • 「电池组」：镉含量大于或等于电池总重量 20 ppm 的电池组。	立即执行 (从 2008 年 1 月 1 日开始)
	铅(Pb)	• 「电池」：铅含量大于或等于电池总重量 0.4% 的电池。 • 「电池组」：铅含量大于或等于电池总重量 0.4% 的电池组。	立即执行 (从 2005 年 1 月 1 日开始)
		• 锰电池和碱锰电池：铅含量大于或等于电池总重量 0.2% 的电池。	立即执行 (从 2008 年 4 月 1 日开始) (*5)
	汞(Hg)	• 「钮扣电池」：汞含量大于或等于电池总重量 2% 的钮扣电池。 • 「钮扣电池」以外的 「电池」：汞含量大于或等于电池总重量 0.0005% 的电池。 「电池组」：汞含量大于或等于电池总重量 0.0005% 的电池组。	立即执行
		• 锰电池和碱锰电池：汞含量大于或等于电池总重量 0.0001% 的电池。	立即执行 (从 2008 年 4 月 1 日开始) (*6)

(*5) 出口阿根廷的电池产品必须遵守阿根廷的电池法规，于 2007 年 1 月 29 日的禁止供货时期开始执行相关规定。

(*6) 出口中国的电池产品必须遵守「关于限制电池产品汞含量的规定」，于 2005 年 1 月 1 日的禁止供货时期开始执行相关规定。

5. 与交易厂商约定关于环境管理物质的规格

索尼借阅给供货商的零部件、材料等规格书或图纸中，必须明确记载「此零部件中不得使用含有 SS-00259-1 中指定物质的材料」。

供货商必须采取适当的方法掌握且管理本技术标准中规定的允许含量。为了遵守法律规定，对于特别指定需要严格管理的对象(1 级)，如有记载索尼要求的方法时，必须按照该方法证明允许含量符合规定。

具体地应用，必须遵照索尼资材部门另行制定的应用规定等进行管理。

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(主要示例)

2. 所属物质的详细信息(主要示例)

- 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)
- 三丁基锡化合物(TBT)、三苯基锡化合物(TPT)
- 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)
- 全氟辛酸磺酸(及其盐)(PFOS)
- 特定苯并三氮唑

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示例，并不是汇总全部的内容。也就是说，某些化学物质可能有本表以外的其他名称。

1. 世界各国和地区就物质的使用所实施的法律法规(主要示例)

(注) 以下登载的是截至 2008 年 3 月底已确认的内容。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以确认最新版的详细内容。

物质名称	法律法规
镉以及镉化合物	欧盟・欧盟化学品限制指令(76/769/EEC)及其修订版
	欧盟・欧盟镉指令(91/338/EEC)及其修订版
	欧盟・RoHS 指令(2002/95/EC)及其修订版
	欧盟・电池指令(2006/66/EC)
	瑞士・减少化学品风险条令(*简称 ORRChem) 等
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)
	瑞士・减少化学品风险条令(*简称 ORRChem)
	丹麦・指令 No. 1012 及其修订版
	阿根廷・便携式电气能源法律 26, 184 号及决议 14/2007 等
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管办法 等
六价铬化合物	欧盟・RoHS 指令(2002/95/EC)及其修订版
	瑞士・减少化学品风险条令(*简称 ORRChem) 等
多氯联苯(PCB)、 多氯化萘(PCN)、 多氯三联苯(PCT)	欧盟・欧盟化学品限制指令(76/769/EEC)及其修订版
	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 等
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
多溴联苯(PBB)	欧盟・欧盟化学品限制指令(76/769/EEC)及其修订版
	欧盟・RoHS 指令(2002/95/EC)及其修订版
	瑞士・减少化学品风险条令(*简称 ORRChem) 等
多溴联苯醚(PBDE)	欧盟・欧盟化学品限制指令(76/769/EEC)及其修订版
	欧盟・RoHS 指令(2002/95/EC)及其修订版
	瑞士・减少化学品风险条令(*简称 ORRChem) 等
三丁基锡化合物(TBT)、 三苯基锡化合物(TPT)	日本・化学物质审查规制法(简称化审法) 第 1 种、第 2 种特定化学物质 等
石棉	日本・劳动安全卫生法
	德国・化学品禁止规则(简称 ChemVerbotsV) 等
特定偶氮化合物	欧盟・欧盟化学品限制指令(76/769/EEC)以其修订版 等
甲醛	德国・化学品禁止规则(简称 ChemVerbotsV)
	丹麦・指令 No. 289 等
重金属(镉、汞、六价铬)	欧盟・有关包装以及包装废弃物指令(94/62/EC)及其修订版
	美国・纽约州等 16 个州的包装材料重金属规定 等

物质名称	法律法规
氧化铍	欧盟・WEEE 指令(2002/96/EC)及欧盟・欧盟指令(1999/45/EC) 等
氢氟碳化合物(HFC)、全氟化碳(PFC)	欧盟・欧盟法规(2006/842/EC)
	丹麦・指令 No. 552
	瑞士・减少化学品风险条令(※简称 ORRChem) 等
全氟辛烷磺酸(及其盐) (PFOS)	欧盟・欧盟化学品限制指令(76/769/EEC)及其修订版 等
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

※瑞士的「减少化学品风险条令」的英文名称为: Ordinance on Risk Reduction related to Chemical Products(简称 ORRChem)

所属物质的详细信息(典型实例)

● 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	主要用途
镉	Cadmium	7440-43-9	Cd	接点材料、表面处理、镍镉电池
镉合金	Cadmium alloys			低熔点焊锡、保险丝等
氧化镉	Cadmium oxide	1306-19-0	CdO	颜料、碱性电池、化学合成材料
氯化镉	Cadmium chloride	10108-64-2	CdCl ₂	电镀浴(液)、聚氯乙烯的稳定剂
硫化镉；镉黄	Cadmium sulfide	1306-23-6; 8048-07-5	CdS	颜料、半导体受光元件、油漆、油墨
硝酸镉	Cadmium nitrate	10325-94-7	Cd(NO ₃) ₂	着色剂、电池、相片
四水合硝酸镉	Cadmium nitrate tetrahydrate	10022-68-1	Cd(NO ₃) ₂ · 4H ₂ O	
硫酸镉	Cadmium sulfate	10124-36-4	CdSO ₄	镉电池、电镀光泽剂、试剂
硬脂酸镉	Cadmium stearate	2223-93-0	Cd(C ₁₈ H ₃₅ O ₂) ₂	聚氯乙烯的稳定剂
其他镉化合物	Other cadmium compounds			

● 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	主要用途
铅；金属铅	Lead metal	7439-92-1	Pb	
铅-锡合金	Lead-tin alloy		Pb-Sn	焊锡、硬焊材料(brazing material)、电气接点
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	颜料、橡胶硫化促进剂、固体润滑剂
二氧化铅；氧化高铅；过氧化铅	Lead (IV) oxide	1309-60-0	PbO ₂	铅蓄电池、橡胶固化剂、颜料的原料
三氧化二铅；	Dilead trioxide	1314-27-8	Pb ₂ O ₃	
四氧化三铅；铅丹；红丹	Lead (II, IV) oxide	1314-41-6	Pb ₃ O ₄	颜料、铅蓄电池、玻璃、涂料
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	特殊光学玻璃、颜料
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	青铜、印刷、相片
硫化铅(II)	Lead (II) sulfide	1314-87-0	PbS	半导体红外线检测器
氰化铅(II)	Lead (II) cyanide	592-05-2	Pb(CN) ₂	防锈颜料
氟硼酸铅	Lead tetrafluoroborate	13814-96-5	Pb(BF ₄) ₂	电镀浴(液)、耐腐蚀表面处理
六氟硅酸铅	Lead hexafluorosilicate	25808-74-6	PbSiF ₆	电镀浴(液)、铅精炼
硝酸铅	Lead nitrate	10099-74-8	Pb(NO ₃) ₂	光学玻璃
碳酸铅	Lead carbonate	598-63-0	PbCO ₃	
碱式碳酸铅；盐基碳酸铅；铅白	Lead hydroxycarbonate	1344-36-1	(PbCO ₃) ₂ Pb(OH) ₂	颜料、聚氯乙烯的稳定剂
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	颜料、橡胶配合剂、聚氯乙烯的稳定剂、电池
三盐基硫酸铅	Lead oxide sulfate	12202-17-4	Pb ₄ SO ₇	颜料
磷酸铅	Lead (II) phosphate	7446-27-7	Pb ₃ (PO ₄) ₂	塑料稳定剂
硫氰酸铅	Lead thiocyanate	592-87-0	Pb(SCN) ₂	染色、火柴
三水合乙酸铅；三水醋酸铅(II)	Lead(II) acetate, trihydrate	6080-56-4	Pb(CH ₃ COO) ₂ · 3H ₂ O	
乙酸铅；醋酸铅(II)；铅糖	Lead(II) acetate	301-04-2	Pb(CH ₃ COO) ₂	
乙酸高铅盐；四乙酸铅	Lead(IV) acetate	546-67-8	Pb(CH ₃ COO) 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	主要用途
油酸铅	Lead oleate	1120-46-3	$\text{Pb}[\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COO}]_2$	润滑剂、硬化剂等
硬脂酸铅	Lead stearate	7428-48-0	$\text{Pb}(\text{C}_{17}\text{H}_{35}\text{COO})_2$	聚氯乙烯的稳定剂、润滑剂
硼酸铅	Lead(II) metaborate	10214-39-8	$\text{Pb}(\text{BO}_2)_2 \cdot \text{H}_2\text{O}$	油漆的干燥剂
硅酸铅	Lead metasilicate	11120-22-2; 10099-76-0	PbSiO_3	陶瓷
锑酸铅	Lead antimonate	13510-89-9	$\text{Pb}_3(\text{SbO}_4)_2$	颜料、玻璃着色
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	$\text{Pb}(\text{AsO}_2)_2$	杀虫剂
铬酸铅; 铬黄	Lead chromate; chrome yellow	1344-37-2	PbCrO_4	颜料、涂料、油墨
钼酸铅	Lead molybdate	10190-55-3	PbMoO_4	颜料
铅酸钙	Calcium plumbate	12013-69-3	Ca_2PbO_4	氧化剂
四甲基铅; 四甲铅; TML	Tetramethyllead	75-74-1	$\text{Pb}(\text{CH}_3)_4$	
四乙基铅; 四乙铅; TEL	Tetraethyllead	78-00-2	$\text{Pb}(\text{C}_2\text{H}_5)_4$	
其他铅化合物以及合金	Other lead compounds and alloys			

●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	主要用途
汞；金属汞	Mercury	7439-97-6	Hg	电极、汞灯
汞合金；汞齐	Mercury alloys ; amalgam			
氧化亚汞；氧化汞(I)	Mercury(I) oxide	15829-53-5	Hg ₂ O	
一氧化汞；氧化汞(II)	Mercury(II) oxide	21908-53-2	HgO	汞电池、防腐剂
氯化亚汞；氯化汞(I)；甘汞	Mercury(I) chloride	10112-91-1	Hg ₂ Cl ₂	电极、颜料
二氯化汞；氯化汞(II)；升汞	Mercury(II) chloride	7487-94-7	HgCl ₂	金属蚀刻、干电池、防腐剂
硝酸汞；硝酸汞(II)	Mercury(II) nitrate	10045-94-0	Hg(NO ₃) ₂	毛毡、催化剂
硫酸亚汞；硫酸汞(I)	Mercury(I) sulfate	7783-36-0	Hg ₂ SO ₄	电池
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 ₃ COO) ₂	
甲基汞盐	Methylmercury salts	e. g. 22967-92-6	CH ₃ HgX ; X=Cl, Br, I, OH, etc.	防霉剂
乙基汞盐	Ethylmercury salts		C ₂ H ₅ HgX ; X=Cl, Br, I, OH, etc.	防腐剂、杀菌剂
丙基汞盐	Propylmercury salts		C ₃ H ₇ HgX ; X=Cl, Br, I, OH, etc.	
苯基汞盐	Phenylmercury salts		C ₆ H ₅ HgX ; X=Cl, Br, I, OH, etc.	防腐剂、杀菌剂
甲氧基乙基汞盐	Methoxyethylmercury salts		CH ₃ OC ₂ H ₄ HgX ; X=Cl, Br, I, OH, etc.	杀菌剂、防霉剂
二烷基汞	Dialkylmercury		R ₂ Hg ; R=alkyl group (C _n H _{2n+1})	
二苯汞	Diphenylmercury	587-85-9	(C ₆ H ₅) ₂ Hg	
其他汞化合物	Other mercury compounds			

●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	主要用途
三氧化铬；氧化铬(VI)；无水铬酸；铬酸	Chromium(VI) oxide; chromium trioxide	1333-82-0	CrO ₃	颜料、催化剂、电镀、鞣革(Tanning)
铬酸锂	Lithium chromate	14307-35-8	Li ₂ CrO ₄	防锈
铬酸钠	Sodium chromate	7775-11-3	Na ₂ CrO ₄	防锈、鞣革(Tanning)
铬酸钾	Potassium chromate	7789-00-6	K ₂ CrO ₄	颜料、油墨、鞣革(Tanning)
氯铬酸钾	Potassium chlorochromate	16037-50-6	K[CrO ₃ Cl]	
铬酸铵	Ammonium chromate	7788-98-9	(NH ₄) ₂ CrO ₄	相片、催化剂
铬酸铜	Copper chromate	13548-42-0	CuCrO ₄	媒染剂
铬酸镁	Magnesium chromate	13423-61-5	MgCrO ₄	防锈、表面处理
铬酸钙；钙铬黄	Calcium chromate	13765-19-0	CaCrO ₄	颜料、油墨、鞣革(Tanning)
铬酸锶	Strontium chromate	7789-06-2	SrCrO ₄	颜料、防锈
铬酸钡	Barium chromate	10294-40-3	BaCrO ₄	防锈、颜料、陶瓷用着色剂
铬酸铅；铬黄	Lead chromate; chrome yellow	1344-37-2	PbCrO ₄	颜料、涂料、油墨
铬酸锌；黄锌；锌黄	Zinc chromate	12018-19-8; 13530-65-9; 14018-95-2	ZnCrO ₄	颜料、防锈
重铬酸钠	Sodium dichromate; sodium bichromate	10588-01-9	Na ₂ Cr ₂ O ₇	颜料、防锈、相片、鞣革(Tanning)
重铬酸钾	Potassium dichromate; potassium bichromate	7778-50-9	K ₂ Cr ₂ O ₇	颜料、相片、电镀、电池、鞣革(Tanning)
重铬酸铵	Ammonium dichromate; ammonium bichromate	7789-09-5	(NH ₄) ₂ Cr ₂ O ₇	颜料、相片、催化剂
重铬酸钙	Calcium dichromate; calcium bichromate	14307-33-6	CaCr ₂ O ₇	防锈、催化剂
重铬酸锌	Zinc dichromate; zinc bichromate		ZnCr ₂ O ₇	颜料
其他六价铬化合物	Other hexavalent chromium compounds			

●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	主要用途
PCB; 多氯联苯; 氯化联苯	PCB; polychlorinated biphenyls	1336-36-3	$C_{12}H_{10-x}Cl_x$ ($x=1-10$)	热载体、润滑剂和电容器油
PCN; 多氯化萘; 氯化萘	PCN; polychlorinated naphthalenes		$C_{10}H_{8-x}Cl_x$ ($x \geq 3$)	润滑剂、防腐剂、涂料
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	$C_{18}H_{14-x}Cl_x$ ($x=1-14$)	润滑剂、防腐剂、涂料

●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	主要用途
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		增塑剂、阻燃剂

●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	主要用途
PBB; 多溴联苯	PBB; Polybrominated biphenyls	e. g. 67774-32-7	$C_{12}H_{10-x}Br_x$ ($x=1-10$)	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; decabromodiphenyloxiide; 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; octabromodiphenyloxiide; OBDE; OctaBDE	32536-52-0	$C_{12}H_2Br_8O$	阻燃剂 (ABS、HIPS、LDPE用)
六溴二苯醚	Hexabromodiphenyl ether; hexabromodiphenyloxiide	36483-60-0	$C_{12}H_4Br_6O$	阻燃剂
五溴二苯醚; PentaBDE	Pentabromodiphenyl ether; pentabromodiphenyloxiide; PentaBDE	32534-81-9	$C_{12}H_6Br_5O$	阻燃剂

●三丁基锡化合物(TBT)、三苯基锡化合物(TPT)

1. 所属物质的例子

仅三丁基锡化合物和三苯基锡化合物属于此类，而二丁基锡化合物(DBT)和二苯基锡化合物(DPT)等则不属于此类。

另外，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	主要用途
三正丁基溴化锡	Tributyltin bromide	1461-23-0	$(C_4H_9)_3SnBr$	杀菌剂
三丁基氧化锡(TBT0); 双三丁基氧化锡	Tributyltin oxide; Bis(tributyltin)oxide; Distannoxane, hexabutyl-	56-35-9	$C_{24}H_{54}OSn_2$	杀菌剂
三苯基锡	Triphenyltin	668-34-8	$(C_6H_5)_3Sn$	杀菌剂
三苯基氯化锡; 氯化三苯基锡	Triphenyltin chloride; Fentin chloride; Stannane, chlorotriphenyl-	639-58-7	$(C_6H_5)_3SnCl$	杀菌剂
三苯基羟基锡; 三苯基氢氧化锡	Triphenyltin Hydroxide; Fentin hydroxide; Stannane, Bydroxytriphenyl-	76-87-9	$(C_6H_5)_3SnOH$	杀菌剂
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) thi omethyl]thio]triphenyl-	1803-12-9	$(C_6H_5)_3Sn(CH_3)_2$ NCS 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	主要用途
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-propenyloxy)]-	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)2,3-二溴丁二酸 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(tri- butylstannane)	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	主要用途
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 (naphthenoxy)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 ₂ Sn	
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		

●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	主要用途
石棉 (总称)	Asbestos	1332-21-4; 132207-32-0; 132207-33-1		绝缘体、填料
蓝石棉	Crocidolite	12001-28-4	$\text{Na}_2\text{Fe}_5(\text{Si}_8\text{O}_{22})(\text{OH})_2$	绝缘体、填料
温石棉	Chrysotile	12001-29-5	$\text{Mg}_3\text{Si}_2\text{O}_5(\text{OH})_4$	绝缘体、填料
铁石棉	Amosite	12172-73-5	$(\text{Mg}, \text{Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$	绝缘体、填料
直闪石	Anthophyllite	77536-67-5	$(\text{Mg}, \text{Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$	绝缘体、填料
透闪石	Tremolite	77536-68-6	$\text{Ca}_2\text{Mg}_5\text{Si}_8\text{O}_{22}(\text{OH})_2$	绝缘体、填料
阳起石	Actinolite	77536-66-4	$\text{Ca}_2(\text{Mg}, \text{Fe})_5\text{Si}_8\text{O}_{22}(\text{OH})_2$	绝缘体、填料

●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	主要用途
甲醛(单体); 福尔马林	Formaldehyde; formalin; formic aldehyde; formol	50-00-0	CH_2O	防腐剂、单体(如, 酚醛树脂和三聚氰胺树脂)

●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	主要用途
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		聚氯乙烯树脂

●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	主要用途
氧化铍	Beryllium oxide	e. g. 1304-56-9	BeO	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	主要用途
HFC-23; 三氟甲烷	HFC-23; Trifluoromethane	75-46-7	CHF ₃	冷媒
HFC-32; 二氟甲烷	HFC-32; Difluoromethane	75-10-5	CH ₂ F ₂	冷媒
HFC-41; 氟代甲烷	HFC-41; Fluoromethane	593-53-3	CH ₃ F	冷媒
HFC-125; 五氟乙烷	HFC-125; Pentafluoroethane	354-33-6	C ₂ HF ₅	冷媒
HFC-134; 1, 1, 2, 2-四氟乙烷	HFC-134; 1, 1, 2, 2-tetrafluoroethane	359-35-3	CHF ₂ CHF ₂	冷媒
HFC-134a; 1, 1, 1, 2-四氟乙烷	HFC-134a; 1, 1, 1, 2-tetrafluoroethane	811-97-2	CH ₂ FCF ₃	冷媒
HFC-143; 1, 1, 2-三氟乙烷	HFC-143; 1, 1, 2-trifluoroethane	430-66-0	CHF ₂ CH ₂ F	冷媒
HFC-143a; 1, 1, 1-三氟乙烷	HFC-143a; 1, 1, 1-trifluoroethane	420-46-2	CH ₃ CF ₃	冷媒
HFC-152a; 1, 1-二氟乙烷	HFC-152a; 1, 1-difluoroethane	75-37-6	CH ₃ CHF ₂	冷媒
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 ₃ HF ₇	灭火剂
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 ₃ H ₂ F ₆	灭火剂
HFC-245ca; 1, 1, 2, 2, 3-五氟丙烷	HFC-245ca; 1, 1, 2, 2, 3-pentafluoropropane	679-86-7	C ₃ H ₃ F ₅	冷媒
HFC-43-10mee; 1, 1, 1, 2, 3, 4, 4, 5, 5-十氟戊烷	HFC-43-10mee; 1, 1, 1, 2, 3, 4, 4, 5, 5-decafluoropentane	138495-42-8	C ₅ H ₂ F ₁₀	溶剂
PFC-14; 四氟甲烷; 全氟甲烷	PFC-14; Perfluoromethane	75-73-0	CF ₄	干腐蚀
PFC-116; 六氟乙烷; 全氟乙烷	PFC-116; Perfluoroethane	76-16-4	C ₂ F ₆	冷媒
PFC-218; 八氟丙烷; 全氟丙烷	PFC-218; Perfluoropropane	76-19-7	C ₃ F ₈	冷媒
PFC-31-10; 十氟丁烷; 全氟丁烷	PFC-31-10; Perfluorobutane	355-25-9	C ₄ F ₁₀	灭火剂
PFC-c318; 八氟环丁烷	PFC-c318; Perfluorocyclobutane	115-25-3	c-C ₄ F ₈	干腐蚀
PFC-41-12; 十二氟戊烷; 全氟戊烷	PFC-41-12; Perfluoropentane	678-26-2	C ₅ F ₁₂	溶剂
PFC-51-14; 十四氟己烷; 全氟己烷	PFC-51-14; Perfluorohexane	355-42-0	C ₆ F ₁₄	冷媒

●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	主要用途
PFOS；全氟辛烷磺酸；全氟辛基磺酸钾	PFOS； Perfluorooctane sulfonates	e. g. 2795-39-3	C ₈ F ₁₇ SO ₂ X (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)	拒水剂、拒油剂

●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	主要用途
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-(3', 5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole； 2-(2'-Hydroxy-3', 5'-di-tert-butylphenyl)benzotriazole	3846-71-7	C ₂₀ H ₂₅ N ₃ O	紫外线防护剂、紫外线吸收剂

解 说

SS-00259

零部件和材料中的环境管理物质 管理规定

SS-00259

零部件和材料中的环境管理物质 管理规定

第 7 版 解说

第 6 版修订至今已经过了 1 年，此版中反映了这段期间的各国环境相关法令和地区、团体的动向，同时整理并且记载了第 6 版发行后所得到的咨询和意见。

Part 1

1. 「适用范围」

为了更明确「2.1 零部件和材料的适用范围」中记载的适用对象零部件和材料的例子，修改了部分的对象零部件或材料的名称。

2. 「环境管理物质」

2.1 表 4.1 环境管理物质名称一览表

在表中追加了以下的新物质。

「全氟辛烷磺酸(及其盐) (PFOS)」

「特定苯并三氮唑」

2.2 铅以及铅化合物

在「适用对象外」中新追加了如下注释——「各向异性的导电胶片 (ACF) 及各向异性的导电糊剂 (ACP) 中如果使用焊料时，该导电物质应采用的焊料为：各种合金的含铅允许浓度中规定的焊料，即小于或等于 1000 ppm 的焊料」

2.3 氧化铍

在第 6 版时，将「所有用途」规定为管理级别 2 级。但是，第 7 版将「无替代物之特殊用途的产品或零部件」规定为管理级别 3 级，而「管理级别 3 级以外的所有用途」均提升至 1 级管理。

2.4 氢氟碳化合物 (HFC)、全氟化碳 (PFC)

在第 6 版时，将「冷媒、隔热材料等的所有用途」规定为管理级别 3 级。但是，第 7 版将对象变更为「安装于产品中的冷媒、隔热材料等的所有用途」后，提升至 1 级管理。

2.5 全氟辛烷磺酸(及其盐) (PFOS)

将符合如下标准的零部件和材料，新追加于 1 级中管理。

- 零部件采用的材料中的 PFOS 浓度大于或等于 0.1 wt% 时

- 每个涂布材料(包括纤维或是其他的涂布材料)中的 PFOS 含量大于或等于 $1 \mu\text{g}/\text{m}^2$ 时

另外，「用于薄膜、纸、印刷版材中的照片用涂布剂」及「光刻工艺采用的光刻胶或是防止反射用的涂布剂」中采用的 PFOS，列为「适用对象外」管理。

2.6 特定苯并三氮唑

将用于如下产品中做为紫外线防护剂或紫外线吸收剂的「特定苯并三氮唑」新追加于管理级别 1 级中管理。

- 装饰性层压板
- 印相纸(照相纸)
- 成型塑料产品

2.7 关于包装材料的追加项目

为了更明确第6版的「NOT PACKAGING」中所记载的「检索卡片、标签」的说明，将该内容变更为「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」。

在第6版中存在着如下的名称：「包装材」、「包装材料」、「包装零部件」，因此将这些名称统一为「包装零部件和材料」。

2.8 关于电池的项目

明确了「电池」、「电池组」以及「钮扣电池」的定义。

在管理级别 1 级-镉(Cd)的项目中，新追加了如下内容。

「电池」：镉含量大于或等于电池总重量 20 ppm 的电池。

「电池组」：镉含量大于或等于电池总重量 20 ppm 的电池组。

在管理级别 1 级-铅(Pb)的项目中，新追加了如下内容。

「锰电池和碱锰电池：铅含量大于或等于电池总重量 0.2%的电池。」。

变更了管理级别 1 级-汞(Hg)项目中的如下内容。

将第6版规定的内容——「供应中国使用的锰电池和碱锰电池则为 0.0001%以上。」变更为「锰电池和碱锰电池：汞含量大于或等于电池总重量 0.0001%的电池」。

SS-00259

零部件和材料中的环境管理物质 管理规定

第 6 版 解说

第 5 版修订至今已经过了 1 年，此版中反映了这段期间的各国环境相关法令和地区、团体的动向，同时整理并且记载了第 5 版发行后所得到的咨询和意见。

Part 0

1. 「本技术标准的定位」

「产品中的环境管理物质管理规则」之内容，修订为「关于产品中的环境管理物质的使用禁止规定」。并且删除了「(以下简称为“管理规则”)」一文。

2. 「运营标准」及「基本方针」

因本版中同时存在「标准」与「技术标准」这两个名称，因此将名称统一为「技术标准」。

Part 1

1. 「术语的定义」

1.1 管理级别 1 级

为了更明确管理级别 1 级的定义，将「对于该物质及其用途规定为：立即禁止使用。」的内容修订为「将该物质及其用途规定为：禁止用于零部件和材料中。」

1.2 管理级别 2 级

为了更明确管理级别 2 级的定义，将「超过表中规定的日期之后，则不能包含在零部件及材料中，直到达期限之日起才指定为「1 级」。」的内容修订为「表中规定的该日期到来时(即禁止供货日期之期限日)变更为「1 级」。」

2. 「环境管理物质」

2.1 表 4.1 环境管理物质名称一览表

在表中追加了以下的新物质。

「氧化铍」

「铍青铜」

「特定邻苯二甲酸盐(DEHP、DBP、BBP、DINP、DIDP、DNOP、DNHP)」

「氢氟碳化合物(HFC)、全氟化碳(PFC)」

另外，将管理对象由「氯代烷烃(CP)」变更为「短链型氯代烷烃(SCCP)」。

2.2 铅及铅化合物

管理级别 1 级的项目中「使用无电解镀镍、无电解镀金时，电镀皮膜中的铅含量超过 1000 ppm 的零部件」的内容修订为「使用无电解镀镍、无电解镀金等的无电解电镀的皮膜中，其铅含量超过 1000 ppm 的零部件」。

管理级别 3 级的项目中「使用无电解镀镍、无电解镀金时，电镀皮膜中的铅含量未超过 1000 ppm 的零部件」的内容修订为「使用无电解镀镍、无电解镀金等的无电解电镀的皮膜中，其铅含量未超过 1000 ppm 的零部件」。

2.3 六价铬化合物

删除了「金属铬、合金中的铬为适用对象外」一文。

2.4 短链型氯代烷烃(SCCP)

删除了「氯含量 48 wt%以上」一文。

2.5 特定偶氮化合物

「对象为按照 76/769/EEC 中引用的试验法进行偶氮化合物的分解所产生表 4.2a 的胺，与表 4.2a 一览表中的胺」的内容是为了说明特定偶氮化合物，所以，另设栏位记载该内容。

2.6 聚氯乙烯(PVC)以及聚氯乙烯混合物

考虑到代替材料的开发状态和技术性课题，因此重新进行了管理级别 2 级与 3 级的划分。

将管理级别 2 级的「用于木制扬声器外装的片材(sheet)、层压板」、「绝缘板、装饰板、标签、片材(sheet)、层压板」与「扁型软电线(FFC)」的项目，变更为 1 级。

在 3 级中新追加了「用于机器内部的配线用夹(用聚氯乙烯涂装过的金属物品)」一项。

最终的管理级别的划分和标记如表中所示。

2.7 氧化铍

将用于所有的用途的「氧化铍」新追加于管理级别 2 级中，且禁止供货时期规定为 2008 年 4 月 1 日。

2.8 铍青铜

将用于所有的用途的「铍青铜」新追加于管理级别 3 级项目中。

2.9 特定邻苯二甲酸盐(DEHP、DBP、BBP、DINP、DIDP、DNOP、DNHP)

将用于电缆的被覆、电源线的被覆及该部位的插头或连接器部位的聚氯乙烯树脂的增塑剂用途之「特定邻苯二甲酸盐」新追加于管理级别 3 级项目中。

2.10 氢氟碳化合物(HFC)、全氟化碳(PFC)

将用于所有的用途的「氢氟碳化合物、全氟化碳」新追加于管理级别 3 级项目中。

2.11 关于包装材料的追加项目

为了更加明确关于包装材料的测定方法，将该内容变更为如下记述：

- (1) 对于六价铬，首先对总铬量进行分析，确认 4 种元素合计是否未超过 100 ppm。此时，可以与镉和铅同时进行预处理。
- (2) 如果 4 种元素合计超过了 100 ppm 时，必需确认镉、铅、汞的合计含量未超过 100 ppm。当镉、铅、汞的合计含量未超过 100 ppm 时，应对铬是否为六价铬进行检测，最终应确认为：没有检测到六价铬。

2.12 关于电池的项目

明确记载「电池」及「电池组」的定义。

「电池」及「电池组」明确规定为依照 4.1 及 4.2 的内容进行。

把至修订为止规定为管理级别 2 级的「镍・镉电池」变更为 1 级。

SS-00259 零部件和材料中的环境管理物质 管理规定 第 5 版 解说

第 4 版修订至今已经过了 1 年，此版中反映了这段期间的各国环境相关法令和地区、团体的动向，同时整理并且记载了第 4 版发行后所得到的咨询和意见。

此外，此次修订时，同时确认了 PART 0 的内容没有变更。

1. 「目的」

为了明确 SS-00259 的适用范围为索尼的电子相关产品，所以将「索尼产品」变更为「索尼电子产品」。

2. 「适用范围」

2.1 零部件和材料的适用范围

为了明确 SS-00259 的适用范围是索尼的电子相关产品，将「索尼产品」变更为「索尼电子产品」。
同时把「遥控器」变更为「遥控指挥器」。

2.2 产品的适用范围

把「销售或发布」变更为「销售、借阅以及发布」。

3. 「术语的定义」

在「含有」的定义中，追加了如下一文——「对制造半导体器件等使用的掺杂剂(Dopant)，虽然是有意添加的，但实质上在半导体器件中仅有极微量残存，这种情况不作为「含有」，而作为「杂质」处理」。

另外，追加注意事项一文——「对于本技术标准中指定的允许浓度，在零部件、装置中混入或者粘附了作为杂质的该环境管理物质时，其浓度不应超过该允许浓度。」。

4. 「环境管理物质」

4.1 表 4.1 环境管理物质名称一览表

把「多溴联苯醚(PBDE)」变更为「包含十溴联苯醚(DecaBDE)的多溴联苯醚(PBDE)」。

4.2 镉以及镉化合物

为了进一步明确表面处理的用途,把「表面处理(电镀等)、涂层」变更为「表面处理(电镀、无电解电镀等)、涂层」。

把至本版修订止规定为管理级别 2 级的「含锌金属(黄铜等)构成的零部件及部位,镉含量超过 100 ppm 的产品」变更为 1 级立即执行禁止供货。另外,删除了锌铸件,追加了熔融镀锌。

追加了不适合作为预处理法的 ASTM F963-03、ASTM D 5517。

4.3 铅以及铅化合物

至本版修订止规定为管理级别 3 级的「使用于无电解镀镍、无电解镀金时的稳定剂、添加剂的铅」,因无电解镀镍、无电解镀金的电镀膜中的铅含量有可能超过 1000 ppm,因此规定为 1 级立即执行禁止供货。

将管理级别 1 级的「含有允许浓度*1 以上的各种合金(包括焊锡材料)」变更为「含有超过允许浓度(*1)的各种合金(包括焊锡材料)」。

将适用对象外的「含有的如下合金(*1)」变更为「各种合金的含铅允许浓度(*1)」。

追加了不适合作为预处理法的 ASTM F963-03、ASTM D 5517。

4.4 六价铬化合物

为了表达「作为电镀表面的防锈处理(螺丝、钢板等)、墨水或涂料的颜料等的成分而含有的所有用途」的实际情况,将该内容分开记述为:「作为零部件、材料的成分之涂料、墨水以及其他添加剂等中包含该用途时」和「在电镀、化学转化处理等的表面处理(螺丝、钢板等)过程中,残留在被处理部位时」。

4.5 氯代烷烃(CP)

配合挪威等的法规管制,将所有用途的使用规定为:1 级立即执行禁止供货。

4.6 包含十溴联苯醚(DecaBDE)的多溴联苯醚(PBDE)

为了明确在 PBDE 中含有 DicaBDE,把「多溴联苯醚(PBDE)」变更为「包含十溴联苯醚(DecaBDE)的多溴联苯醚(PBDE)」。

4.7 特定偶氮化合物

为了明确按照指定的试验方法分解后,会生成特定胺化合物的「特定偶氮化合物」为管理对象,进行了内容的修订。将引用德国日用品规则的测定法变更为 76/789/EEC。同时,明确规定表 4.2a 中记述的胺化合物也作为管理对象。

4.8 聚氯乙烯(PVC)以及聚氯乙烯混合物

因为新型号与其他的 1 级物质一样采用同样的管理方法，所以废除。

考虑到替代材料的开发情况和技术性课题，重新划分了 2 级和 3 级的项目。

把从最初就没有使用聚氯乙烯的「非接触 IC 卡(FeliCa)用塑料基材」追加到 1 级。从 SS-00259 第 1 版发行日开始，将使用替代材料的「计算机、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」，规定为 1 级立即执行禁止供货。

把 2 级物质的禁止供货日期从 2007 年 1 月 1 日开始变更为 4 月 1 日。新追加了作为 2 级的「扁型软电线(FFC)」。另外，新追加了作为 3 级的「安装车载机器用的吸盘」、「业务用电子产品用配件背包、专用携带配件盒、配件腰包的材料和涂装剂」。

最终的管理级别的划分和标示如表中所示。

4.9 包装材料的识别

为了明确测定内容，变更为如下记述：(1)对于六价铬，首先对总铬量进行分析，确认 4 种元素合计是否不超过 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、汞的合计含量不超过 100 ppm。(3)进而应对铬是否为六价铬进行检测，最终应确认为：没有检测到六价铬。

将六价铬检测方法的预处理方法有「温水萃取法」变更为「沸腾水萃取法」。

明确地说明表 4.3a 上记述的包装材料仅为包装材料的一例。

4.10 有关电池的事项

为了更加明确管理级别 1 级-铅的内容，变更为「除小型密封铅蓄电池以外的「电池和电池组」，且其铅含量占电池总重量的 0.4%以上的电池」。

为了遵守中国的电池规定，所以在管理级别 1 级-汞的内容中，追加了如下一文：「供应中国使用的锰电池和碱锰电池则为 0.0001%以上。」。

将以前作为 1 级项目的「所有的镍镉电池从 2007 年 1 月开始禁止供货」变更为 2 级。

在适用对象外-汞项目中，追加了「但是，供应中国使用的锰电池和碱锰电池，则不超过 0.0001%。」

SS-00259-1

零部件和材料中的环境管理物质 管理规定

第 4 版 解说

第 3 版修订至今已经过了 1 年，此版中反映了这段期间的各国环境相关法令和地区、团体的动向，同时整理并且记载了第 3 版发行后所得到的咨询和意见。

此外，此次修订时，同时确认了 PART 0 的内容没有变更。

1. 「目的」

为了明确管理范围，把「计划全废物质」「计划削减物质」变更为「计划全废物质」、「适用对象外项目」。

2. 「适用范围」

2.1 产品的适用范围以及零部件和材料的适用范围

考虑到 SS-00259 的影响范围，把「2.1 产品的适用范围」和「2.2 零部件和材料的适用范围」变更为「2.1 零部件和材料的适用范围」、「2.2 产品的适用范围」。

2.2 零部件和材料的适用范围 修理用零部件

为了与其他文件统一，把服务用零部件变更为修理用零部件，并定义为「已出货产品的修理用零部件」。

3. 「术语的定义」

3.1 管理级别 3 级

为了进一步明确管理级别 3 级的定义，变更为「目前虽然没有规定全废的日期目标，但是指定了希望朝向完全废除使用目标的零部件、材料中含有的物质及其用途。」。

3.2 管理级别 适用对象外

将管理级别 1~3 级定义为全废的物质，并在适用对象外项目中追加了如下一文——「法令规定对象外或在现阶段没有代替技术方案物质和用途部位。」。

4. 「环境管理物质」

4.1 表 4.1 环境管理物质名称一览表

把多氯化萘 (PCN) 归到有机氯化化合物的多氯联苯 (PCB) 类中，同时追加了新物质——多氯三联苯 (PCT)。

将有机锡化合物中的管理对象物质限定为「三丁基锡化合物」和「三苯基锡化合物」，因此删除了有机锡化合物的记载。

偶氮化合物的管理对象不是所有的偶氮化合物，为了限定部分偶氮化合物，将名称改为「特定偶氮化合物」。

4.2 镉以及镉化合物

为了便于阅览，把分散到各种物质中有关电池的内容，集中进行了汇编。

将至本版修订止规定为管理级别 2 级的「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)」、「焊锡(镉含量为 20 ppm 以上的焊锡)」、「荧光显示装置中含有的荧光体、CdS 光导电池单元」、「电阻(玻璃料)」变更为 1 级，并立即执行禁止供货。

在新规定的管理级别 2 级中，对于过去不受管理的黄铜、锌金属等含有大量锌的金属零部件中非有意添加的杂质，制定了新的管理基准，规定为应不超过 100 ppm。这是因为在市场上使用再生材，所以有必要按照该基准进行管理。

将至今为止规定为管理级别 3 级的「要求使用高可靠性的电气接点电镀而没有替代材料的产品」、「光学玻璃、滤光玻璃」，变更为适用对象外。

对于测定标准，为了强调预处理记载中的注意事项的重要性，变更为「发生沉淀物(不溶物)时，必须采用某种方法(碱溶融法等)将其完全溶解制成溶液」。另外，对预处理还补充了不适合采用的溶出法「ASTM F963-96a」、「ISO 8124-3」。

4.3 铅以及铅化合物

为了便于阅览，把分散在各种物质中电池相关内容另外集中汇编。

将至本版修订止规定为管理级别 2 级的「零部件的外部电极、引线端子等经表面处理时，内装在 AC 适配器、遥控指挥器、半导体器件中的零部件」、「对铅不超过 85 wt% 的有铅焊锡，焊锡中的铅含量超过 1000 ppm 的产品」、「含有超过允许浓度 * 1 的各种合金(包括焊锡材料)」、「AC 适配器、电源线、连接电缆、遥控指挥器、鼠标、机器外露部分以外所使用的塑料(包括橡胶)材料中的稳定剂、染料」、「机器外露部分以外所使用的涂料、墨水」规定为 1 级，且立即执行禁止供货。

将至本版修订止规定为管理级别 3 级的零部件、「器件连接用高熔点焊锡(铅为 85 wt% 以上的有铅焊锡)」、「电子陶瓷零部件【压电材料、介质材料、磁性材料(铁素体系)】」、「各光学玻璃、滤光玻璃」、「显像管、电子零部件、荧光显示管所使用的玻璃材料」、「电子零部件中使用的玻璃材料，包括电阻、导电浆(银浆、铜浆)、粘接剂、玻璃料、密封材料等」、「含有以下合金(*1)」，规定为适用对象外。

*1) 合金的种类	含铅允许浓度
钢材	$\leq 0.35 \text{ wt\%}$
铝合金	$\leq 0.4 \text{ wt\%}$
铜合金(包括铸铜、磷青铜)	$\leq 4 \text{ wt\%}$
焊锡	$\leq 1000 \text{ ppm}$

另外，为了配合法令用语，对于允许浓度，将「以下」改为「不超过」，在合金的种类列表处使用符号「 \leq 」表示。

把「C4 (controlled Collapse Chip Connection) 焊锡球下的焊锡浆」的说法变更为「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锡」，另外还补充了「使用于连接微处理器端子和器件封装的焊锡中由 2 种以上的元素组成，铅的含量超过 80 wt%，但不超过 85 wt% 的焊锡」。

对于测定标准，为了强调预处理记载中的注意事项的重要性，变更为「发生沉淀物(不溶物)时，必须采用某种方法(碱溶融法等)使其完全溶解制成溶液。」。另外，对预处理还补充了不适合采用的溶出法「ASTM F963-96a」、「ISO 8124-3」、「EN 1122」。

4.4 汞以及汞化合物

为了便于阅览，把分散在各种物质中电池相关内容另外集中汇编。

将至本版修订止规定为管理级别 2 级的「小型日光灯：每一支含量为 5 mg 以上的产品」、「直管日光灯：每一支含量为 5 mg 以上的产品」、「适用对象外项目以外的所有用途」改规定为 1 级，立即执行禁止供货。

将至本版修订止规定为管理级别 3 级的「小型日光灯、直管日光灯以外的灯（高压汞灯等）」、「小型日光灯：每一支含量不超过 5 mg 的产品」、「直管日光灯：每一支含量不超过 5 mg 的产品」，改规定为适用对象外。

4.5 六价铬化合物

对于皮制品，因为在最终产品的状态下进行了六价铬的溶出评价，确认了该物质不溶出，所以删除了「皮产品的鞣革剂」。

将至本版修订止规定为管理级别 2 级的「作为电镀表面的防锈处理（螺丝、钢板等）、墨水或涂料的颜料等的成分而含有时之所有用途」规定为 1 级，立即执行禁止供货。

4.6 有机氯化物

把多氯化萘(PCN)归到有机氯化物的多氯联苯(PCB)类中，同时追加了新物质——多氯三联苯(PCT)。

为了配合荷兰的法规，将氯代烷烃(CP)的氯含量 50 wt%以上变更为 48 wt%以上。

4.7 有机溴化合物

对于「多溴联苯醚(PBDE)」，将至本版修订止规定为管理级别 2 级的「使用 2002 年 12 月以前的模具制造的零部件(限定为出口欧洲以外国家的 TV、显示器的框体)2003 年 1 月以后的新型模具零部件将禁止采用」规定为 1 级，立即执行禁止供货。

4.8 三丁基锡化合物、三苯基锡化合物

因为只将有机锡化合物中的「三丁基锡化合物」和「三苯基锡化合物」限定为管理对象物质，所以删除了有机锡化合物的记述。

4.9 偶氮化合物

因为偶氮化合物的管理对象不是所有的偶氮化合物，而是限定于部分的偶氮化合物，所以将名称变更为「特定偶氮化合物」。

为了更加明确管理级别 3 级，追加了「按照德国日用品规则的试验法对偶氮化合物进行分解，有可能产生表 4.2a 中的胺，」的记述。

4.10 聚氯乙烯(PVC)以及聚氯乙烯混合物

由于市场上可以代替的零部件、材料很少等原因,所以重新分类。

详细地列表划分,从可以代替的部位开始适用,将文件编号 QAR-04-006 中所记载的「用于作为包装材料的片材(气垫、泡罩包装、防护袋等)」、「遥控指挥器、电缆等与产品一同装包的包装材料(袋、胶带、泡罩包装等)」、「扎线带(聚氯乙烯制)」规定为 1 级,并立即禁止使用。

把「热收缩软管」、「使用于木工产品外包装的片材(sheet)、层压板类(木制箱、木制扬声器的层压板等)」定为 2 级,从规定日期开始立即禁止供货。另外,把「使用带电缆的连接器等线材的零件、马达引线等机内布线用电线材」、「电源线(包括插头、连接器、电缆卡头):[2P、3P(电气安全法)]」、「机器内外部使用的绝缘和保护用的涂层、绝缘软管、绝缘板、装饰板、标签、携带用挂带(carrying belt)、隔离柱(spacer)、holder、套管·保护盖(cover)、配线槽(duct)等」、「连接电缆(1): 便携型机器用电缆(入耳式耳机、头戴式耳机、耳机麦克风用电线等)」、「连接电缆(2): USB、i.LINK、录像机电线、AC 适配器次级引线、多芯绞合型电缆、扬声器电缆等」、「索尼设计的排线、加工线材(同轴电缆、扁平线、双重屏蔽电线、屏蔽线等)」规定为 2 级,并且变更了至修订前规定的运用规则,改为自规定日期开始索尼所投产的新型号零部件或材料开始适用禁止供货。

把「电源线(包括插头、连接器、电缆套筒):[2P、3P(U/C)]」、「画图纸」、「电容器、电源开关、保险丝用途的绝缘盖」、「零部件交货人的零部件包装用托盘、料条(装运管)、带盘、包装卷带等」定为 3 级。

把将至本版修订止规定为 3 级的「树脂用粘合剂」、「高压塑料电线」、「绝缘带」、「扬声器线圈」、「出口 EU 的电源线(没有符合产品安全规定的代替技术时继续使用)」、「1 级、2 级、3 级以外的对象中,使用氯乙烯共聚、聚氯乙烯与其他聚合物的共混物的零部件」规定为适用对象外。另外,「变压器引线部(清漆浸渍的部分)」、「卷线」、「机内布线材中,AWG36 以上的极细电线」、「业务用机器不能使用通用电缆时(广播电视台用摄像机电缆、麦克风电缆等)」由于没有代替技术,因此规定为适用对象外。

4.11 包装材料的重金属规定

由于明确了包装材料的定义，所以补充了具体的分类。

4.12 有关电池的补充事项

为了便于阅览，把各种物质(镉、铅、汞)中有关电池的内容另外集中汇编。

将至本版修订止，在铅的项目中规定为管理级别 3 级的「除小型密封铅蓄电池以外的电池和电池组，且其铅含量不超过总重量的 0.4% 的电池。但是，对于塑料(包括橡胶)、涂料、墨水中的铅和有铅焊锡则适用于 1 级，所以应按照规定执行。」的内容，及汞项目中规定为管理级别 3 级的「钮扣电池，其汞含量未超过电池总重量的 2%」、「钮扣电池以外的电池和电池组，其汞含量未超过电池总重量的 0.0005%」的内容，皆规定为适用对象外。

4.13 其他管理物质的补充

SS-00259 第 4 版中仅追加了多氯三联苯(PCT)，虽然讨论是否追加其他的物质，但是由于没有用于索尼产品的可能性或者其风险不明确等的原因，因此未进行补充。

SS-00259-1

零部件和材料中的环境管理物质 管理规定

第 3 版 解说

第 2 版修订至今已经过了 1 年，此版中反映了这段期间的各国环境相关法令和地区、团体的动向，同时整理并且记载了第 2 版发行后所得到的咨询和意见。

此外，此次修订时，同时确认了 PART 0 的内容没有变更，与第 2 版的内容相同。

1. 「零部件和材料的适用范围」

由于部分服务用零部件规定了特别处置(对于处理已经有交货业绩，且不能变更材料、模具等零部件时)的运用方法，所以追加了如下内容：「有关部分服务用零部件按照另行的通知书进行处理」。

2. 「术语的定义」

2.1 管理级别 3 级

为了更加明确管理级别 3 级的定义，追加了如下内容：「当相应产品判断为可以引进代替零件、开发材料和代替技术时，应积极努力采用」。

2.2 SS-00259 中塑料的定义

在第 2 版中未特别定义的塑料，在第 3 版中将 SS-00259 的塑料定义为如下：「合成高分子物质形成的材料或素材」。其事例包括：合成高分子生成的纤维/胶片/胶带/成形产品/合成橡胶产品/植物原料塑料/粘合剂等。

3. 「环境管理物质」

3.1 镉以及镉化合物

在 1 级表面处理中，为了明确代替技术困难的部位属于适用对象外，所以追加了如下内容：「要求高可靠性的电气接点电镀而没有代替材料的产品除外」。

根据欧盟电池规程建议，将 2 级管理对象中的镍镉电池由 2 级变更为 1 级。这是因为作为新零部件交货的镍镉电池的禁止供货时期 2003 年 4 月 1 日已经超过规定期限。另外，将所有的镍镉电池供货禁止期限由 2005 年 1 月变更为 2007 年 1 月。

因为难以确立代替技术，所以在 3 级管理对象中补充了光学玻璃、滤光玻璃的项目。

为了明确测定对象，在允许浓度的测定对象中补充了以下项目：塑料(包括橡胶)、涂料、墨水。

3.2 铅以及铅化合物

根据欧盟电池规程建议，在 1 级管理项目中追加了以下内容：「除小型密封铅蓄电池外的电池和电池组，其铅含有量占总重量的 0.4% 以上的产品」。

为了明确 2 级的管理对象部位，追加了以下内容：机器外露部位使用的涂料、墨水(从 2004 年 4 月 1 日)、机器外露部位以外使用的涂料、墨水(从 2005 年 1 月 1 日)。

因为难以确立代替技术，所以在 3 级项目中追加了：「电子陶瓷零部件(磁性材料(铁素体系))」、「光学玻璃、滤光玻璃」、「无电解镀镍、镀金时的稳定剂、添加剂的铅」、「C4(Controlled Collapse Chip Connection)焊锡球下的焊锡浆」、「除小型密封铅蓄电池外的电池和电池组，且其铅含量不超过总重量 0.4% 的产品。但是，属于管理级别 1 级和 2 级的塑料(包括橡胶)、涂料、墨水则依照规定处理」等的内容。另外，补充了 3 级项目中铜合金的内容：「包括铸铜、磷青铜」。

为了明确测定对象，在允许浓度栏里追加了如下内容：「测定对象：塑料(包括橡胶)、涂料、墨水」。

在测定标准的记载中，追加了预处理法相关的事例。

3.3 汞以及汞化合物

根据中国电池规定限制，在 1 级管理项目中追加了如下内容：「钮扣电池，其汞含量达电池总重量 2 % 以上的产品」、「钮扣电池以外的电池和电池组，其汞含量占电池总重量 0.0005% 以上的产品」。(电池的汞量必须符合上述标准)

根据欧盟欧洲危险物质使用限制规程建议的最新规定，将 2 级一直管日光灯每一支的含量为 10 mg 以上且不超过 20 mg 的内容变更为 5 mg 以上。同样，将 3 级一直管日光灯每一支的含量由 10 mg 变更为不超过 5 mg。另外，追加了如下内容：「钮扣电池，其汞含量未超过电池总重量的 2%」、「钮扣电池以外的电池和电池组，其汞含量未超过电池总重量的 0.0005%」。

同时，根据中国电池规定限制，将 2 级对象中的「氧化银电池、碱锰钮扣电池、空气电池」的内容删除。

3.4 六价铬化合物

为了在说明中明确规定部位，追加了如下内容：「金属铬、合金中的铬为对象之外」。另外，因为 1 级项目中的「电池、催化剂」因现在已不使用，所以删除。

3.5 有机氯化物

因为在北美、日本很难买到灭蚁灵、且现在没有阻燃剂用途的使用事例，所以删除。

3.6 有机溴化合物

四溴双酚-A-双-(2,3-二溴丙醚)；商品名 FR-720 等因荷兰法令限制已废除，所以将其统一到 3 级管理项目中的其他的有机溴化合物里。

3.7 甲醛

将第 2 版中的管理对象物质--刨花板的名称变更为一般的名称--纤维板、木屑板。

重新调查了第 2 版中各国、各地区的法律、行业规格等的测定方法，采用了 EN 717-1 测试室法和 EN 120 穿孔法。并且在第 3 版中增加了日本 JIS 规格及 JAS 规格化的干燥器法。用此方法测定的甲醛排放量与测试室法相关联，其干燥器法(JIS A 5905、A 5908)的排放标准值相当于 F☆☆☆。

3.8 聚氯乙烯以及聚氯乙烯混合物

为了明确 2 级片材的规定部位，将内容变更为：用于包装材料的片材(气垫、泡罩包装、金中棉(保护袋)等)。

另外，为了明确关于绝缘板的规定部位，将 2 级项目变更为如下内容：「机器外部使用的绝缘板、绝缘管、绝缘盖」，3 级项目变更为如下内容：「机器内部使用的绝缘板、绝缘管、绝缘盖」。

3.9 包装材料的重金属限制

包装材料的各种原材料为了符合各个环境管理物质的标准，必须管理 4 种重金属。

虽然已经规定了 4 种重金属的合计浓度标准，但是，规定塑料(包括橡胶)、涂料、墨水中镉允许浓度不超过 5 ppm、铅允许浓度不超过 100 ppm(2004 年 4 月 1 日起实施)，并且加上其他重金属的合计不得超过 100 ppm 作为标准值。即，镉 4 ppm、铅 98 ppm 的浓度虽然各自符合标准，但是合计是 102 ppm 时，仍然不合法令的规定。

另外，不能用规定的装置测定六价铬时，必须先测定总铬，仅在超过 100 ppm 时才需要分析六价铬。

为了明确管理对象，追加了如下内容：「零部件交货人所持有的物流箱属于适用对象外」。

SS-00259-1

零部件和材料中的环境管理物质 管理规定

第 2 版 解说

2002 年 4 月发行的第 1 版，与当初相比其内容复杂且较难理解。

此次修订的目的是：公司为了进一步加强内部的管理，并切实地掌握每一种物质的信息，所以按照各个环境管理物质，重新调整了其管理级别的记述及构成，以便更容易和切实地理解和掌握这些信息。为此对内容及构成做了全面的修订，编制为第 2 版。

在第 1 版中为了管理环境相关物质，将相关物质划分为「禁止使用的物质」、「全废的物质」。第 2 版的修订要点如下：将名称定为「环境管理物质」，并根据「对象」（物质、使用部位或用途的组合）设定管理级别。

同时，在发行第 1 版后，就解释方法、与法律相关的查询 / 说明、相关行业的实际情况重新进行了调查和研究，并重新设定了适用范围、特定对象物质、禁止供货时期。

SS-00259-0 原则上虽然划分为秘密等级 B 级（限定于公司内部），但此次修订时，整理了记载的内容后将划分为 C 级，以便让交易厂商更容易理解本技术标准的基本方针和索尼公司的想法。

1. 「适用范围」

新增加了「产品的适用范围」一项，明确了委托生产产品时的操作步骤的内容。因此，更加明确了在索尼公司内部和事业所使用的生产设备，办公设备等并不适用于 SS-00259 的规定。

此外，在「零部件和材料的适用范围」中，更加具体的记述包装材料、附件（电子产品的附属品或者辅助产品）、附属材料等的的内容。

2. 「术语的定义」

- 1) 在第 1 版中作为环境关联物质的管理方法，称呼并定义为「禁止使用的物质」、「全废的物质」，但因其中存在例外物质，且在 1 年后发现使用了禁止使用的部位（用途）等，导致一般人不明确对该物质是否为「禁止使用的物质」或「全废的物质」。

在第 2 版中，将环境管理物质的管理方法变更为指定对象（物质和使用部位或者用途）的管理方法，并且废除了物质的「禁止使用」、「全废」等术语。

并且在第 2 版中，设置这些物质得管理级别，以实现全面废除的目标。

- 2) 追加了「含有」和「杂质」的定义。但是，塑料中的镉和铅，如本文所示，将「不超过 5 ppm」、「不超过 100 ppm」的标准值作为含有其杂质的数值。
- 3) 第 1 版中将禁止供货的对应时期以「全废的目标期限」表示，由于含义暧昧，所以在第 2 版中定义为「禁止供货时期」。

3. 「环境管理物质」

3.1 镉以及镉化合物

尽可能记载禁止供货时期为立即执行的对象(使用部位、用途)。同时在测定标准中追加了一般装置与预处理方法。

除镍、镉电池以外, 2 级中的禁止供货时期, 由 2003 年 4 月 1 日开始变更为 2005 年 1 月 1 日。

金属零部件(以锌为主要材料的制品等)中镉的杂质含量目前暂时不予评论。另外, 不论焊锡的种类如何, 焊锡中的镉杂质均规定不超过 20 ppm。

关于塑料中的镉, 由于在荷兰等国家法律中明确规定限制其含量或禁止使用该物质(含量未明确表示), 因此索尼也是以不含有该物质为原则, 严格的管理含量的实际测定(分析)等。

但是, 实际测定时, 从天然原料精制成原材料的过程中, 考虑到以工业的水准仍然存在着无法去除的杂质, 因此采用 ICP-AES 等精密分析方法得到的数值, 设定其允许含量为不超过 5 ppm。

3.2 铅以及铅化合物

重新制定了塑料中的允许浓度不超过 100 ppm 的标准。这其中包括了从其他金属材料「带入」和测定装置的检测下限。关于预处理方法, 适用与镉相同的方法。

规定了焊锡中的铅杂质不超过 1000 ppm, 从 2005 年 1 月 1 日起开始适用。符合此条件, 才可以作为无铅焊锡使用。

依据含量的实际测定(分析)进行管理等的运用方法, 将遵照采购中心质量保证部另行制定的环境质量管理的指导方针。

3.3 汞以及汞化合物

汞以及汞化合物的项目中, 制定了小型日光灯、直管日光灯的汞含量, 即小型日光灯 1 支平均含量为 10 mg, 直管日光灯 1 支平均含量为 20 mg, 超出上述含量时列为 1 级(立即禁止)管理。今后将依次减少汞的含量。

3.4 有机氯化合物

追加了灭蚁灵。因为估计可能作为阻燃剂用途, 且该物质被指定为化学物质审查管制规定法的第一种特定化学物质, 因此禁止生产、销售和使用。

2002 年 8 月发行的 SS-00259 AMENDMENT 中提及的有机氯化合物中的氯代烷烃(CP), 明确会对环境造成危险的是短链型氯代烷烃(含氯量 50 wt%以上)的用途, 因此规定为 1 级管理(立即禁止使用)。其他用途则作为 3 级管理。

短链型以外的氯代烷烃则作为「其他有机氯化合物」。

多氯联苯(PCB)以及多氯化萘(PCN)依据化学审查管制规定法的第一种特定化学物质的规定, 指定为 1 级。

此外, 作为阻燃剂和增塑剂使用的其他的有机氯化合物, 由于对环境的危险性尚不明确, 所以追加作为 3 级。

3.5 有机溴化合物

由于四溴双酚-A-双-(2,3-二溴丙醚)；商品名 FR-720 等在荷兰法律上被列为禁止生产和销售的物质，因此追加了本项物质。

在初版中作为禁止使用物质的 PBDE，而后发现该物质被用于部分的机器中。同时，索尼调查了各国的法律、环境危险等的结果，限定了其用途且规定禁止用于新机型中。为此设定了新的管理级别 2 级，以实现逐次全废的目标。

此外，作为阻燃剂和增塑剂使用的其他的有机氯化物，由于对环境的危险性尚不明确，所以追加作为 3 级。

3.6 有机锡化合物

配合环境中期行动计划的修订，将三丁基锡化合物 / 三苯基锡化合物指定为 1 级管理(立即禁止)。

3.7 偶氮化合物

分解偶氮化合物时不得产生胺的项目中，追加了四氨基偶氮苯。

另外，在偶氮化合物分解萃取胺的试验方法中增加了 LMBG 82.02.2~4(LMBG: 德国·日用品规则)作为参考。这个测试方法是确认分解偶氮化合物产生的胺，因此需要花费某些成本和时间，因此推荐用基色(C. I. Pigment)进行确认，并且可以从处理颜料及染料的厂家及团体处得到相关信息。

(团体参考信息)

- 化成品工业协会
 - ETAD: Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers
- ※通过 ETAD 的试验结果可知，下表中所示的偶氮染料与德国的胺限制规定：第 5 次修订政令的日用品规则并不抵触。

C. I. Name	C. I. No.	CAS No.	Regulatory status
Pigment Yellow 12	21090	6358-85-6	A
Pigment Yellow 13	21100	5102-83-0	A
Pigment Yellow 14	21095	5468-75-7	A
Pigment Yellow 14	-	7621-06-9	A
Pigment Yellow 17	21105	4531-49-1	A
Pigment Yellow 55	21096	6358-37-8	A
Pigment Yellow 83	21108	5567-15-7	A
Pigment Yellow 126	21101	90268-23-8	A
Pigment Yellow 127	21102	68610-86-6	A
Pigment Yellow 174	21098	78952-72-4	A
Pigment Yellow 176	21103	90268-24-9	A
Pigment Orange 13	21110	3520-72-7	A
Pigment Orange 16	21160	6505-28-8	A
Pigment Orange 34	21115	15793-73-4	A
Pigment Orange 35			
Pigment Orange 37			

NOTE

C. I. : Color Index (颜色索引编号)

在英国出版的染料及颜料的颜色索引

Regulatory status = A : Exempted under the 5th Amendment

3.8 甲醛

第1版中仅规定了甲醛的排放浓度，所以发行之后很多来信询问关于甲醛的测定方法。因此，我们在制定前，重新调查了各国、地区的法律及行业标准等的结果，决定采用 EN 717-1 的测试室法以及 EN 120 的穿孔法作为标准。

并且采用了测试室法或者穿孔法之其中一种的试验方法和标准。

此外，在日本采用的是 JIS 规格、JAS 规格等规定的干燥器法，但用这方法测定出的甲醛排放量与测试室法或穿孔法的相关性并未明确。

虽然 JIS 中规定的 E0 材料符合本技术标准的规定，但还是有必要确认 E1 材料。

3.9 聚氯乙烯以及聚氯乙烯混合物

使用聚氯乙烯聚合物的树脂，因其成本、加工性和具有阻燃性等特点，因此被用于多数的零部件、组件中。由于很难掌握聚氯乙烯与其他树脂的混合状况，以及与其他聚合物的共聚产品的实际情况，为了达到全面废除聚氯乙烯的目标，所以将使用量较多的聚氯乙烯混合物(为把聚氯乙烯制成产品而添加的稳定剂、填料、阻燃剂、颜料等)列为管理级别 2 级。

在此，仅规定了氯乙烯的均聚物，而共聚物和接枝共聚物因技术上难以找到替代材料，所以规为管理级别 3 级。

在表 4.2 中虽然没有记载，但是因使用聚氯乙烯的扎线带(cable tie)中检测出了大量的镉，所以逐渐变更为替代材料。

此外，化学装置等的工厂设备、仪器采用的硬质氯乙烯材料，以及使用这种材料的零部件等聚氯乙烯制品(螺栓和螺母、垫片等)，不包括在 SS-00259 的规定范围内，这是因为目前在技术上没有适当的替代材料，所以不在本技术标准中限制使用该材料。

3.10 包装材料的重金属限制

包装材料的各种原材料为了符合各个环境管理物质的标准，必须管理 4 种重金属。

虽然已经规定了 4 种重金属的合计浓度标准，但是，规定塑料(包括橡胶)、涂料、墨水中镉允许浓度不超过 5 ppm、铅允许浓度不超过 100 ppm，并且加上其他重金属的合计不得超过 100 ppm 作为标准值。即，镉 4 ppm、铅 98 ppm 的浓度虽然各自符合标准，但是合计是 102 ppm 时，仍然不合法令的规定。

另外，不能用规定的装置测定六价铬时，必须先测定总铬，仅在超过 100 ppm 时才需要分析六价铬。

3.11 制造零部件、装置时不得使用的物质

在第一版中规定，制造时不得使用的物质有些偏离本技术标准的目的。此外，与其他的物质性质也不相同，所以删除。特别是破坏臭氧层的物质(CFC、HCFC、溴甲烷、1,1,1-三氯乙烷、四氯化碳)，因各国公认应积极遵守蒙特利尔议定书，因此进货方的企业应自主参与加以限制。此外，对于含氯有机溶剂(1,1,2-三氯乙烷、1,2-二氯乙烷、1,1-二氯乙烷、1,2-二氯乙烯、二氯甲烷、三氯甲烷、三氯乙烯、四氯乙烯)，因属于水质污染防治法及劳动安全卫生法规定的物质，但是本技术标准无法网罗各国法规中指定的所有物质，因此供货厂商应负起企业责任，依照进货国(地)的法规进行供货。

关于此点，应遵守采购中心质量保证部另行制定的绿色伙伴制度等有关环境质量管理的指导方针，同时也需要依靠交易厂商自主性的管理，以确实地实行污削减染物活动。