

Audio-Technica Group
Environmental Quality Standards
for Products

Eighth Edition



audio-technica

Published on November 15, 2019



audio-technica

Management's Philosophy Regarding the Environment

Protection of the global environment and appreciation of nature are concepts closely tied to Audio-Technica's ongoing quest for exquisite sound. Determined to leave a more beautiful planet to our children, we at Audio-Technica Group are highly cognizant of the importance of our planet, and all of our corporate activities are designed to be consistent with environmental conservation efforts.

Kazuo Matsushita

President of Audio-Technica corporation

Contents

1. Objective	2
2. Scope	2
3. Definition of Terms	3
4. Environment Control Substances Subject to These Standards	5
5. Control Level of Environment Control Substances	7
6. Quantitative Analysis Method	19
7. Appendix	21
8. Revision History and Comment	23

Constituted on: June 30, 2006 (1st edition)

Revised on: June 27, 2008 (2nd edition)

Revised on: July 17, 2008 (3rd edition)

Revised on: November 1, 2010 (4th edition)

Revised on: September 3, 2012 (5th edition)

Revised on: December 12, 2016 (6th edition)

Revised on: April 24, 2017 (7th edition)

Revised on: November 15, 2019 (8th edition)

Prepared by: Audio-Technica Product Environmental Quality Committee

Issued by: Quality Assurance Department of Audio-Technica Corporation



1. Objective

Based on the environmental policy of Audio-Technica Group (hereafter referred to as the A-T Group), and in an effort to both abide by relevant laws & regulations and offer environmentally friendly products to our customers, we have outlined in this document the A-T Group's internal regulations regarding Environment-related Substances to be Controlled. These regulations are to be used in the carrying out of management and surveillance activities relating to product parts, semi-processed goods provision, assembly, manufacturing and sales. Other important objectives include the clarification of prohibited substances and control substances; the dissemination of important, topical information within the A-T Group and amongst suppliers; and improvements in, and maintenance of, the environmental quality of the A-T Group's products.

2. Scope

These standards apply for materials, parts, half-finished products and finished products that are procured, machined and assembled, and sold by AT Group. Note that the standards may separately be specified for particular management methods varied depending on destinations of the finished products.

These standards are applicable for the following member companies and offices of AT Group.

Audio-Technica Corporation
Audio-Technica Fukui Inc.
Audio-Technica U.S. Inc. (US)
Audio-Technica Canada Inc.
Audio-Technica Europe Holding B.V.
Audio-Technica (GC) Ltd. (Hong Kong)
Audio-Technica (S.E.A.) Pte. Ltd. (Singapore)
Audio-Technica Taiwan Co., Ltd.
Audio-Technica Hangzhou Co., Ltd.
Audio-Technica Haining Co., Ltd.
Hangzhou Tengyu Photoelectric Co., Ltd.

< Contact >

For any question arisen on these standards, contact the AT Group department with which you have business relations. For a particular green procurement procedure applicable for your products or parts, follow that indicated by the AT Group department with which you have business relations.



3. Definition of Terms

These standards use the following terminology:

(1) Environment-related Substances to be controlled

Environment-related Substances to be controlled are substances contained in parts and/or half-finished products constituting finished products that are judged by Audio-Technica to burden the global environment and/or have a high impact on the human body.

(2) Prohibited substances

Prohibited substances are those whose use or inclusion is prohibited by Audio-Technica.

The use of such substances must immediately be stopped if intentionally used or contained.

The following substances are also included in the prohibited substances:

- those whose inclusion in products or use in production processes is regulated by laws and regulations domestically and/or abroad,
- those that can be controlled in the near future, and
- those specified by AT on its own.

(3) Control substances

These are substances for which AT determines that it is necessary to understand the current status of their inclusion and use.

When any of these substances is contained, information must be disclosed on a request from AT.

The following substances are also included in the control substances:

- those for which it is required by laws and regulations domestically and/or abroad to disclose the information about the current status of their use in products and production processes,
- those that can be controlled in the near future, and
- those specified by AT on its own.

(4) Substances subject to REACH SVHC (candidate substances)

These are substances designated as Substances of Very High Concern (SVHC : Substances of Very High Concern)* in REACH regulation of European Union (EU) or those subject to authorization thereof (candidate substances).

* Information on SVHC of which content is more than 0.1 wt% in products destined for EU must be provided by upstream manufacturers to downstream manufacturers.

(5) Inclusion

Inclusion is defined as addition, incorporation or adherence of substances to materials used for parts or products regardless whether intentionally or not, and incorporation or adherence of those in production processes, resulting in their presence in final products. For example, if molds, jigs or machining facilities in a production process directly contact and possibly contaminate portions of a product, such portions must be considered subject to inclusion-prohibition of prohibited substances.



(6) Intentional use

Intentional use is defined as intentionally using particular substances during production of parts or products when continuous inclusion of the substances is desired in order to provide particular characteristics, appearance or quality.

(7) Regulation value

When prohibited substances are unintentionally contained as impurities, the threshold value of inclusion concentration, if specified as the regulation value, must be met.

(8) Exemption

Exemption is applicable to substances and their applications exempted by laws and regulations or to substances for which no alternative technology exists at present. Still, reporting their inclusion amounts is mandatory.

(9) Concentration values

Concentration value is calculated using the weight of a homogeneous material as denominator. Note that a homogeneous material is defined as a material in the smallest unit which cannot be mechanically broken down.

Concentration value [wt%] = Content of substance of homogeneous material / Weight of homogeneous material *100

- Compounds, polymer alloy, metal alloy, etc.
- Materials ultimately formed by assumed usage of such raw materials as paint, adhesive, ink, paste, resin polymer, glass powder and ceramic powder.
Example: Paint and adhesive dried and hardened; resin polymer formed and shaped; glass and ceramic formed and shaped.
- Single layer of paint, printing or plating; each layer of multiple layers of those



4. Environment Control Substances Subject to These Standards

4-1. Prohibited substances (P^{**})

The number is assigned to each substance with the initial letter “P” of “Prohibited” affixed. See Sections 5-1 and 5-2 for details of substances together with their applications.

No.	Name of substance
P01	Cadmium and its compounds
P02	Hexavalent chromium compounds
P03	Lead and its compounds
P04	Mercury and its compounds
P05	Polybrominated biphenyls (PBBs)
P06	Polybrominated diphenyl ethers (PBDEs)
P07	Phthalate esters (DEHP, DBP, BBP and DIBP)
P08	Bis(tributyltin)oxide (TBTO)
P09	Tri-substituted organostannic compounds (including tributyltin and triphenyltin compounds)
P10	Polychlorinated biphenyls (PCBs)
P11	Polychlorinated terphenyls (PCTs)
P12	Polychlorinated naphthalene (number of chlorine elements: 1 or more)
P13	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)
P14	Asbestos
P15	Azocolourants and azodyes which form certain aromatic amines
P16	Ozone depleting substances
P17	Radioactive substances
P18	Formaldehyde
P19	Polyvinyl chloride (PVC)
P20	Perfluorooctane sulfonate (PFOS) and its salts
P21	2-(2H-1,2,3-benzotriazole-2-yl)-4,6-di- <i>tert</i> -butylphenol (UV -320)
P22	Cobalt dichloride
P23	Beryllium oxide
P24	Dimethyl fumarate (DMF)
P25	Dibutyltin (DBT) compounds
P26	Dioctyltin (DOT) compounds
P27	Hexabromocyclododecane (HBCDD)
P28	Polycyclic aromatic hydrocarbons (PAHs)
P29	Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances
P30	Phosphate ester flame retardants (TCEP, TCPP and TDCPP)



4-2. Control substances (C)**

The number is assigned to each substance with the initial letter “C” of “Control” affixed.
See Section 5-3 for details of substances together with their applications.

No.	Name of substance
C01	Phthalate esters (DINP, DIDP, DNOP and DnHP)
C02	Nickel and its compounds
C03	Brominated flame retardants (Other than PBB, PBDE and HBCDD)
C04	Perchlorate
C05	Fluorinated greenhouse gases (HFC, PFC and SF ₆)
C06	Bisphenol A (BPA)

4-3. Substances subject to REACH SVHC (candidate substances) (R)**

The number is assigned to each substance with the initial letter “R” of “REACH” affixed.
See Schedule 1 for details of substances together with their applications.

No.	Name of substance
R**	Substances subject to REACH SVHC (candidate substances)

For the latest information, refer to the website of European Chemicals Agency (ECHA).
<https://echa.europa.eu/>



5. Control Level of Environment Control Substances

5-1. Control level of prohibited substances

P01. Cadmium and its compounds

Control level	Target application	Criterion/threshold value
Prohibition	Packaging material	* See the section for heavy metals in packaging materials.
	Battery and battery pack	* See the section for heavy metals in battery.
	All applications except for the items exempted Example: <ul style="list-style-type: none"> - Plastics (including rubber and film) - Paint, ink, pigment and dye (The regulation value shall be met under the condition with absence of volatilization components.) - Electric contacts such as switches and relays - Soluble elements of thermal fuses - Solder - Surface finishing (plating, etc.) or coating - Fluorescent materials contained in fluorescent display units - Resistive elements (glass frit) - Pigment and dye for glass or glass paint - All metals 	100 ppm or less for homogeneous materials
Exemption	Filter glass	

P02. Hexavalent chromium compounds

Control level	Target application	Criterion/threshold value
Prohibition	Packaging material	* See the section for heavy metals in packaging materials.
	All applications except for the items exempted Example: <ul style="list-style-type: none"> - Rustproofing of metals - Resin, paint, ink, pigment 	1000 ppm or less for homogeneous materials
Exemption	Metal chrome and chrome contained in alloy are excluded.	



P03. Lead and its compounds

Control level	Target application	Criterion/threshold value
Prohibition	Packaging material	* See the section for heavy metals in packaging materials.
	Battery and battery pack	* See the section for heavy metals in battery.
	The resin coating of an electric wire, a cable or the cord (include a plug and a connector)	300 ppm or less for homogeneous materials
	All applications except for those above-mentioned and the items exempted Example: - Soldering of external electrode of parts and wire lead terminals - Electroless nickel plating (lead contained in the membrane)	1000 ppm or less for homogeneous materials
	Alloys listed below in which regulation values are exceeded: - Steel product and galvanized steel sheet - Aluminum alloy - Copper alloy	For homogeneous materials, 3500 ppm or less 4000 ppm or less 40000 ppm or less
Exemption	<ul style="list-style-type: none"> - Glass fluorescent tubes with lead content not exceeding 0.2wt% - High-melting point solder for internal connection (Lead-based alloy with lead content of 85 wt% or more) - Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound - Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher - Optical glass and filter glass - Lead in the solder necessary to ensure electric connection between the internal semiconductor die and the carrier of integrated circuit packages (flip chips) 	

P04. Mercury and its compounds

Control level	Target application	Criterion/threshold value
Prohibition	Packaging material	* See the section for heavy metals in packaging materials.
	Battery and battery pack	* See the section for heavy metals in battery.
	All applications other than the above Example: Preparation agent for pigment, paint, ink and plastic	1000 ppm or less for homogeneous materials



P05. Polybrominated biphenyls (PBBs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example : Flame retardant for plastics	1000 ppm or less for homogeneous materials

P06. Polybrominated diphenyl ether (PBDEs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example : Flame retardant for plastics	1000 ppm or less for homogeneous materials

P07. Phthalate esters (DEHP, DBP, BBP and DIBP)

Control level	Target application	Criterion/threshold value
Prohibition	Electrical and electronic equipment Example: - Polyvinyl chloride, rubber, and other soft plastic products (electric wire, cable, plug, insulation cap, insulation sleeve, O ring, resins sheet, molding part, and others) - Plasticizer, dye, pigment, paint, ink, adhesive and lubricant	1000 ppm of any or less each, for homogeneous materials
	Other than electric and electronic equipment Example: Parts and materials for carrying bags, carrying cases, and carrying pouches	1000 ppm as the sum of the phthalate (DEHP, DBP, BBP, and DIBP) concentrations or less, for homogeneous materials
	Packaging materials	* See the section for Phthalate esters in packaging materials.
	Battery and battery pack	* See the section for Phthalate esters in the battery.

CAS No.	Name of substance subject to control	Abbreviation
117-81-7	Bis (2-ethylhexyl) phthalate	DEHP
84-74-2	Dibutyl phthalate	DBP
85-68-7	Benzyl butyl phthalate	BBP
84-69-5	Diisobutyl phthalate	DIBP

P08. Bis(tributyltin)oxide (TBTO) (CAS No. 56-35-9)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Paint, ink, antiseptic agent and anti-mold agent	Intentional use prohibited

**P09. Tri-substituted organostannic compounds (including tributyltin (TBT) and triphenyltin (TPT) compounds)**

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Paint, ink, antiseptic agent and anti-mold agent	Intentional use prohibited

P10. Polychlorinated biphenyls (PCBs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Oil-contained capacitor, capacitor, insulating oil, lubricating oil and plastic flame retardant	Intentional use prohibited

P11. Polychlorinated terphenyls (PCTs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Lubricating oil and paint	Intentional use prohibited

P12. Polychlorinated naphthalene (number of chlorine elements: 1 or more)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Lubricating oil and paint	Intentional use prohibited

P13. Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Printed circuit boards and outer casings of products including accessories	Intentional use prohibited

P14. Asbestos

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Insulating and filling materials	Intentional use prohibited

**P15. Azocolourants and azodyes which form certain aromatic amines**

Azo compounds that may produce specific amines listed in the table below when decomposed in accordance with the method specified in Appendix XVII of REACH regulation (EC) No. 1907/2006.

Control level	Target application	Criterion/threshold value
Prohibition	- Material (Cloth or hides product and part) to use for a part touching the direct skin for a long time - Pigment on particular portions of products that are made as having the function to continually contact human body (earphone, headphones, belt, strap, etc.), where such portions directly contact human body	Intentional use prohibited
Exemption	Azo compounds used for regions not continually contacting human body	

Specific amines that must not be produced through reductive decomposition

CAS No.	Name of substance
60-09-3	4-aminoazobenzene
90-04-0	<i>o</i> -anisidine
91-59-8	2-naphthylamine
91-94-1	3,3'-dichlorobenzidine
92-67-1	4-aminodiphenyl
92-87-5	Benzidine
95-53-4	<i>o</i> -toluidine
95-69-2	4-chloro- <i>o</i> -toluidine
95-80-7	2,4-toluenediamine
97-56-3	<i>o</i> -Aminoazotoluene
99-55-8	5-nitro- <i>o</i> -toluidine
101-14-4	4,4'-methylenebis (2-chloroaniline)
101-77-9	4,4'-diaminodiphenylmethane
101-80-4	4,4'-oxydianiline
106-47-8	<i>p</i> -chloroaniline
119-90-4	3,3'-dimethoxybenzidine
119-93-7	3,3'-dimethylbenzidine
120-71-8	<i>p</i> -cresidine
137-17-7	2,4,5-trimethylaniline
139-65-1	4,4'-thiodianiline
615-05-4	2,4-diaminoanisole
838-88-0	4,4'-Diamino-3,3'-dimethyldiphenylmethane
95-68-1	2,4-Dimethylaniline
87-62-7	2,6-Dimethylaniline



P16. Ozone depleting substances

Substances subject to Appendix A, B, C or E of Montreal Protocol (including CFCs, HCFCs, HBFCs and carbon tetrachloride)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Cleaning agent for parts	Intentional use prohibited

P17. Radioactive substances

Control level	Target application	Criterion/threshold value
Prohibition	All radioactive substances	Intentional use prohibited

P18. Formaldehyde (CAS No. 50-00-0)

Control level	Target application	Criterion/threshold value
Prohibition	Woodwork products and parts (speaker, rack, etc.) using particleboard, fiberboard, etc.	Aerial density of less than 0.1 ppm (Chemicals prohibitive regulation of Germany) Aerial density of less than 0.15 mg/m ³ (Formalin act of Denmark)
Exemption	Formaldehyde used for applications other than the above	

P19. Polyvinyl chloride (PVC) (CAS No. 9002-86-2)

Control level	Target application	Criterion/threshold value
Prohibition	- Packaging materials used for parts and products supplied with the products (for example, bag, tape, clear carton, blister pack, etc.) - Banding band	Intentional use prohibited
Control	All applications other than the above	

P20. Perfluorooctane sulfonate (PFOS) and its salts

Control level	Target application	Criterion/threshold value
Prohibition	All applications	Intentional use prohibited
Exemption	· Photoresist for photo-lithography process. · Photographic coating for film, paper or print original plate.	

**P21. 2-(2H-1,2,3-benzotriazole-2-yl)-4,6-di-tert-butylphenol (UV-320) (CAS No. 3846-71-7)**

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Plastic molded product, decorative laminate (plastic architectural material) or photographic paper as ultraviolet protectant or absorbent	Intentional use prohibited

P22. Cobalt dichloride (CAS No. 7646-79-9)

Control level	Target application	Criterion/threshold value
Prohibition	Humidity indicator used for desiccant (such as silica gel)	Intentional use prohibited
Exemption	Cobalt chloride used for applications other than the above	

P23. Beryllium oxide (CAS No. 1304-56-9)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Raw materials for ceramics	Intentional use prohibited

P24. Dimethyl fumarate (DMF) (CAS No. 624-49-7)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Anti-mold agent and desiccant	Intentional use prohibited

P25. Dibutyltin (DBT) compounds

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Stabilizer for polyvinyl chloride, hardening catalyst for silicone resin and urethane resin, glass coating agent	1000 ppm or less for homogeneous materials (tin equivalent)

P26. Dioctyltin (DOT) compounds

Control level	Target application	Criterion/threshold value
Prohibition	Applications as additives for textile products which come in contact with skin	1000 ppm or less for homogeneous materials (tin equivalent)
Exemption	All applications other than the above	



P27. Hexabromocyclododecane (HBCDD)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: - Applications as flame retardant for resin and that for fiber - Resin flux cored solder	Intentional use prohibited and 1000 ppm or less

P28. Polycyclic aromatic hydrocarbons (PAHs)

Control level	Target application	Criterion/threshold value
Prohibition	Rubber or plastic components that come in direct contact with or prolonged or short-term repetitive contact with skin or oral cavity	Less than 1 ppm of any for homogeneous materials
Exemption	All applications other than the above	

CAS No.	Name of substance subject to control	Abbreviation
50-32-8	Benzo[a]pyrene	BaP
192-97-2	Benzo[e]pyrene	BeP
56-55-3	Benzo[a]anthracene	BaA
218-01-9	Chrysene	CHR
205-99-2	Benzo[b]fluoranthene	BbFA
205-82-3	Benzo[j]fluoranthene	BjFA
207-08-9	Benzo[k]fluoranthene	BkFA
53-70-3	Dibenzo[a,h]anthracene	DBAhA

P29. Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example : Water-repellent coating, fluorine-based polymer, emulsifier of the fluorine-based elastomer, lubricant.	Less than 25ppb, for PFOA including its salts.
		Less than 1000 ppb (1ppm) for one or a combination, for PFOA-related substances.

P30. Phosphate ester flame retardants (TCEP, TCPP and TDCPP)

Control level	Target application	Criterion/threshold value
Prohibition	Applications as flame retardant for plastic, resin, fiber or fabric material	1000 ppm or less per part

CAS No.	Name of substance subject to control	Abbreviation
115-96-8	Tris (2-chloroethyl) phosphate	TCEP
13674-84-5	Tris (1-methyl-2-chloroethyl) phosphate	TCPP
13674-87-8	Tris (1,3-dichloro-2-propyl) phosphate	TDCPP



5-2. Control level in special application of prohibited substances

5-2-1. Heavy metals for packaging materials (cadmium, hexavalent chromium, lead and mercury)

Control level	Target application	Criterion/threshold value
Prohibition	The inclusion amount of heavy metal (mercury, cadmium, hexavalent chromium and lead) is regulated in terms of each homogeneous material in members comprising packaging. Example of packaging materials: Individual packaging, shipping carton, clear carton, polyethylene bag, tape, etc. Example of homogeneous materials: Paper, ink, paint, polyethylene film, adhesive, etc.	Total heavy metal concentration of 100 ppm or less for homogeneous materials

5-2-2. Phthalate esters for packaging materials (DEHP, DBP, BBP and DIBP)

Control level	Target application	Criterion/threshold value
Prohibition	The inclusion amount of Phthalate esters (DEHP, DBP, BBP and DIBP) is regulated in terms of each homogeneous material in members comprising packaging. Example of packaging materials: Individual packaging, shipping carton, clear carton, polyethylene bag, tape, etc. Example of homogeneous materials: Paper, ink, paint, polyethylene film, adhesive, etc.	Less than 1000 ppm as the sum of the phthalate esters (DEHP, DBP, BBP, and DIBP) concentrations, for homogeneous materials.



5-2-3. Heavy metal in battery (cadmium, lead and mercury)

Control level	Substance subject to control	Target application	Criterion/threshold value
Prohibition	Cadmium	Nickel-cadmium battery	Use prohibited
		Battery or battery pack other than the above	0.002% or less of the total weight of the battery
	Lead	Manganese dioxide and alkaline-manganese batteries	0.2% or less of the total weight of the battery
		Battery or battery pack other than the above	0.4% or less of the total weight of the battery
	Mercury	Manganese dioxide and alkaline-manganese batteries	0.0001% or less of the total weight of the battery
		Battery or battery pack other than the above (including button battery)	0.0005% or less of the total weight of the battery
Note : For heavy metal contained in plastics, paint or ink used for battery packs and other parts, the regulation values shall be followed.			

5-2-4. Phthalate esters in the battery (DEHP, DBP, BBP, and DIBP)

Control level	Target application	Criterion/threshold value
Prohibition	The inclusion amount of Phthalate esters (DEHP, DBP, BBP, and DIBP) is regulated in terms of each homogeneous material in members comprising battery. Example of packaging materials: Electric wire, sleeve, etc. Example of homogeneous materials: Ink, paint, adhesive, etc.	Less than 1000 ppm as the sum of the phthalate esters (DEHP, DBP, BBP, and DIBP) concentrations, for homogeneous materials.



5-3. Control level of control substances

< Control range >

Where the substances listed below are intentionally used or their inclusion is known, applications using those substances shall be subject to control.

C01. Phthalate esters (DINP, DIDP, DNOP, and DnHP)

Control level	Target application
Control	All applications Example: Plasticizer, dye, pigment, paint, ink, adhesive and lubricant

CAS No.	Name of substance subject to control	Abbreviation
28553-12-0	Di-isononyl phthalate	DINP
26761-40-0	Di-isodecyl phthalate	DIDP
117-84-0	Di- <i>n</i> -octyl phthalate	DNOP
84-75-3	Di- <i>n</i> -Hexyl Phthalate	DnHP

C02. Nickel and its compounds

Control level	Target application
Control	All applications Example: Nickel plating and stainless component

C03. Brominated flame retardants (Other than PBB, PBDE and HBCDD)

Control level	Target application
Control	Bromine-related flame retardant other than PBB, PBDE and HBCDD. Applications as flame retardant for plastics and flame retardant used for printed wiring.

C04. Perchlorate

Control level	Target application	Criterion/threshold value
Control	All applications Example: Coin cell battery	Less than 0.006 ppm per part

C05. Fluorinated greenhouse gases (HFC, PFC and SF₆)

Control level	Target application
Control	All applications Example: Cleaning agent for parts, refrigerant, heat insulator, insulating material

C06. Bisphenol A (BPA) (CAS No. 80-05-7)

Control level	Target application
Control	All applications Example: Plasticizer, etc.



5-4. Control level of substances subject to REACH SVHC (candidate substances)

< Control range >

Where the substances listed below are intentionally used or their inclusion is known, applications using those substances shall be subject to report.

R. Substances subject to REACH SVHC (candidate substances)**

* See Schedule 1 for the list of the substances.

Control level	Target application	Criterion/threshold value
Report	All applications	Less than 1000 ppm per part

For the target applications of each substance and their details, refer to the website of European Chemicals Agency (ECHA).

<https://echa.europa.eu/>



6. Quantitative Analysis Method

Standard analysis methods are described below.

6-1. Cadmium, lead and their compounds

1) Pretreatment method

The following four methods are listed as pretreatment methods.

1. Ashing method under the presence of sulfuric acid (e.g., IEC 62321: 2008)
2. Pressurized acid decomposition method within airtight containers (microwave decomposition method; e.g., EN 13346: 2000 and EPA 3052: 1996)
3. Acid decomposition method using nitric acid, hydrogen peroxide solution or hydrochloric acid (e.g., EPA 3050B Rev.2: 1996)
4. Wet digestion method using sulfuric acid, nitric acid or hydrogen peroxide solution (e.g., BS EN 1122: 2001)

* If deposits (or insoluble matter) are produced in any method listed above, the deposits require to be completely dissolved into solution by using such methods as alkali melting method.

* Elution methods represented by EN71-3: 1994, ASTM F963-96a or ISO 8124-3: 1997 shall not be applicable for pretreatment. Also, EN 1122: 2001 shall not be applicable for pretreatment lead.

2) Measurement method

The following three are main measurement methods.

1. Inductively coupled plasma emission spectroscope (ICP-AES: Inductively Coupled Plasma - Atomic Emission Spectrometry, ICP-OES: Inductively Coupled Plasma - Optical Emission Spectrometry) (e.g., EN ISO 11885: 2007)
2. Atomic absorption spectrometer (AAS: Atomic Absorption Spectrometry) (e.g., EN ISO 5961: 1995)
3. Inductively coupled plasma mass spectroscope (ICP-MS: Inductively Coupled Plasma - Mass Spectrometry) (e.g., IEC 62321: 2008)

Alternatively, the methods described in IEC 62321: 2008 shall be applicable when it is assured that the lower limit of determination is less than 5 ppm for cadmium alone and less than 30 ppm for lead alone using the combination of pretreatment and measurement devices. Note that cadmium and lead can concurrently be analyzed using methods other than AAS listed above.

6-2. Hexavalent chromium compounds

1) Pretreatment method

Elution method {boiling water extraction method and alkali extraction method (e.g., EPA 3060A and IEC 62321: 2008 Annex C)}

2) Measurement method

Ultraviolet-visible radiation spectrophotometric method (e.g., EPA 7196A and IEC 62321: 2008 Annex C)



6-3. Mercury and its compounds

1) Pretreatment method

The following three are main pretreatment methods.

1. Pressurized acid decomposition method within airtight containers.
{microwave decomposition method (e.g., EPA 3052: 1996 and IEC 62321: 2008)}
2. Heated aeration cooled atomic absorption (e.g., IEC 62321: 2008).
3. Wet decomposition method with sulfuric acid or nitric acid using decomposition flasks with reflux condensers (Kjeldahl method).

* Care must be taken for mercury not to be vaporized and proliferated. If deposits are produced, they require to be dissolved into solution by using certain methods.

2) Measurement method

Similarly to the case for cadmium and lead, analyses using the following methods are considered appropriate if low concentration incorporation is predicted: Reduction aeration atomic absorption method, ICP-AES (ICP-OES) with hydrogenation device or ICP-MS.

6-4. Polybrominated biphenyl (PBBs) and polybrominated diphenyl ether (PBDEs)

1) Pretreatment method

The solvent extraction method and the post-pulverization Soxhlet extraction method can be listed.

2) Measurement method

High-resolution gas chromatography/mass spectrometer (HRGC/HRMS: High-Resolution Gas chromatograph and High-Resolution Mass Spectrometer)

6-5. Heavy metals in packaging materials (mercury, cadmium, hexavalent chromium and lead)

The total chromium content shall be analyzed to verify that the total concentration of its four elements is less than 100 ppm. If the total concentration is 100 ppm or more, hexavalent chromium in the total chromium shall be analyzed to verify that the summed concentration of mercury, cadmium, hexavalent chromium and lead is less than 100 ppm.

1) Pretreatment method

For cadmium, lead and total chromium, comply with the pretreatment method for cadmium, lead and their compounds described in Section 6-1. For mercury, comply with the pretreatment method for mercury and their compounds described in Section 6-3.

2) Measurement method

For cadmium, lead and total chromium, comply with the measurement method for cadmium, lead and their compounds described in Section 6-1. For mercury, comply with the measurement method for mercury and their compounds described in Section 6-3. Alternatively, other methods shall be applicable if it is assured that the lower limit of determination is less than 5 ppm for cadmium alone, less than 5 ppm for mercury alone, less than 5 ppm for total chromium alone and less than 30 ppm for lead alone using the combination of pretreatment and measurement devices. Note that cadmium, lead and total chromium can concurrently be analyzed using methods other than AAS listed above.



7. Appendix

Environment control substances and main examples of laws and regulations in some countries

Note: Details of regulations should be checked with latest editions thereof, as they are subject to revision.

No.	Name of substance	Regulation
P01	Cadmium and its compounds	EU: RoHS Directive (2011/65/EU), Battery Directive (2006/66/EC), REACH regulation (No.1907/2006) and Packaging & Packaging Waste Directive (94/62/EC)
		U.S. : Proposition 65
P02	Hexavalent chromium compounds	EU: RoHS Directive (2011/65/EU) and Packaging & Packaging Waste Directive (94/62/EC)
P03	Lead and its compounds	EU: RoHS Directive (2011/65/EU), Battery Directive (2006/66/EC), REACH regulation (No.1907/2006) and Packaging & Packaging Waste Directive (94/62/EC)
		U.S. : Proposition 65
P04	Mercury and its compounds	EU: RoHS Directive (2011/65/EU), Battery Directive (2006/66/EC), REACH regulation (No.1907/2006) and Packaging & Packaging Waste Directive (94/62/EC)
P05	Polybrominated biphenyls (PBBs)	EU: RoHS Directive (2011/65/EU) and REACH regulation (No.1907/2006)
P06	Polybrominated diphenyl ethers (PBDEs)	EU: RoHS Directive (2011/65/EU) and REACH regulation (No.1907/2006)
P07	Phthalate esters (DEHP, DBP, BBP and DIBP)	EU: RoHS Directive (2011/65/EU) and REACH regulation (No.1907/2006)
		U.S. : Proposition 65
P08	Bis(tributyltin)oxide (TBTO)	Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1
		EU: REACH regulation (No.1907/2006)
P09	Tri-substituted organostannic compounds (including tributyltin and triphenyltin compounds)	Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 2
		EU: REACH regulation (No.1907/2006)
P10	Polychlorinated biphenyls (PCBs)	Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1
P11	Polychlorinated terphenyls (PCTs)	EU: REACH regulation (No.1907/2006)
P12	Polychlorinated naphthalene	Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1
		EU: POPs regulation (No.850/2004)
P13	Short-chained chlorinated paraffin	EU: REACH regulation (No.1907/2006)
P14	Asbestos	EU: REACH regulation (No.1907/2006)
		Japan: Industrial Safety and Health Law



No.	Name of substance	Regulation
P15	Azocolourants and azodyes which form certain aromatic amines	EU: REACH regulation (No.1907/2006)
P16	Ozone depleting substances	EU: Directive on Ozone Depleting Substances (No.2037/2000)
		U.S. : Clean Air Act
		Japan: Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures
P17	Radioactive substances	Japan: Nuclear Reactor Regulation Law
P18	Formaldehyde	Germany: Chemicals prohibitive regulation
		Denmark: Formalin act
P19	Polyvinyl chloride (PVC)	-
P20	Perfluorooctane sulfonate (PFOS) and its salts	EU: POPs regulation (No.850/2004)
		Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1.
P21	2-(2H-1,2,3-benzotriazole-2-yl)-4,6-di- <i>tert</i> -butylphenol (UV-320)	Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1.
P22	Cobalt dichloride	EU: REACH regulation (No.1907/2006)
P23	Beryllium oxide	Japan: Industrial Safety and Health Law
P24	Dimethyl fumarate (DMF)	EU: REACH regulation (No.1907/2006)
P25	Dibutyltin (DBT) compounds	EU: REACH regulation (No.1907/2006)
P26	Diocetyl tin (DOT) compounds	EU: REACH regulation (No.1907/2006)
P27	Hexabromocyclododecane (HBCDD)	Japan: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1.
		EU: POPs regulation (No.850/2004) and REACH regulation (No.1907/2006)
P28	Polycyclic aromatic hydrocarbon (PAH)	EU: REACH regulation (No.1907/2006)
P29	Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances	EU: REACH regulation (No.1907/2006)
		Norway: Product Regulations
P30	Phosphate ester flame retardants (TCEP, TCPP and TDCPP)	EU: REACH regulation (No. 1907/2006)
		U.S. : Vermont's Act 85



8. Revision History and Comment

8-1. Revision history

Edition	Issued	Major revisions	Approved	Drafted
Initial edition	June 30, 2006			Environmental Quality Promotion WG
2nd edition	June 27, 2008	Added "Machida Office" in Section 2, Scope. Added two substances in Section 4-1, Prohibited substances. Specified phthalate ester in Section 4-2, Control substances. Added two substances in Section 6, Appendix.	May 15, 2008 Responsible person of Quality Assurance Control Division: Ishiwata	May 15, 2008 Product Environmental Quality Committee
3rd edition	July 17, 2008	Changed the regulation value in Section 4.1, Heavy metals in battery. Section 6, Appendix, Regulation: Battery Directive (2006/66/EC)	July 17, 2008 Responsible person of Quality Assurance Control Division: Ishiwata	July 17, 2008 Product Environmental Quality Committee
4th edition	November 1, 2010	The office consolidation at Technica Fukui Co., Ltd. in Section 2, Scope. Added substances subject to REACH approval in Section 4, Substances subject to environment control. The control level of environment control substances was separated as Item 5 and the item numbers were changed accordingly. Added prohibited substances. Changed some expression. Changed all regulation values on cadmium to 100 ppm. Sorted out the control substances and deleted some. Added substances subject to REACH SVHC (Schedule 1). Changed target application of nickel. Added "IEC 62321: 2008" in Section 6, Quantitative Analysis Method. Added substances and related regulations in Section 7, Appendix.	November 1, 2010 Responsible person of Quality Assurance Control Division: Katai	November 1, 2010 Product Environmental Quality Committee
5th edition	September. 3, 2012	Added dibutyltin (DBT) compounds and dioctyltin (DOT) compounds as prohibited substances in Section 4. Changed the regulation value of PFOS to "Intentional use prohibited" for all applications in Section 5. Added substances and related regulations in Section 7, Appendix.	September. 3, 2012 Responsible person of Quality Assurance Control Division: Katai	September. 3, 2012 Product Environmental Quality Committee
6th edition	December. 12, 2016	In Section 4-1, Prohibited substances (P**): Added hexabromocyclododecane (HBCDD) and polycyclic aromatic hydrocarbons (PAHs). Moved the phthalate esters (DEHP, DBP, BBP and DIBP) from Control substances (C**) to Prohibited substances (P**). In Section 5-1, Control level of prohibited substances: Reviewed the description of Example of Target application at P01 and P03. Changed the number of chlorine elements from 3 to 1 at P11. Added two substances to Specific amines at P14. Deleted "Subject to control if 0.1% or more to the total weight" at P18. Amended the description of Target application and corrected the control level of the target applications for which the term of Control has expired to Prohibition at P24.	December. 12, 2016 Amano, Quality Assurance Department	December. 12, 2016 Product Environmental Quality Committee



		<p>Newly added P26 to P28.</p> <p>Added "for homogeneous materials" in the applicable columns for regulation value. In Section 5-2, Control level in special application of prohibited substances:</p> <p>Added "for homogeneous materials" in the column for regulation value in Subsection 5-2-1.</p> <p>Changed the regulation value of mercury content in a button battery in Subsection 5-2-2.</p> <p>In Section 5-3, Control level of control substances:</p> <p>Amended the substances subject to control and the target applications at C01.</p> <p>Amended the target applications at C03.</p> <p>Updated Section 7, Appendix.</p>		
7th edition	April 24, 2017	<p>Corrected "Audio-Technica Ltd.(UK)" to "Audio-Technica Europe Holding B.V" in Section 2, Scope.</p> <p>Added "Audio-Technica Haining Co., Ltd." And "Hangzhou Tengyu Photoelectric Co., Ltd.".</p> <p>In Section 4-1, Prohibited substances (P**):</p> <p>Added perfluorooctanoic acid (PFOA) and its salts and its esters and phosphate ester flame retardants (TCEP, TCPP and TDCPP).</p>	April 24, 2017 Amano, Quality Assurance Department	April 14, 2017 Product Environmental Quality Committee
8th edition	November 15, 2019	<p>In section 2, Scope:</p> <p>Added "Audio-Technica Canada, Ltd. ".</p> <p>In section 4-1, Prohibited substances (P**):</p> <p>Changed the name of P15 to "Azocolourants and azodyes which form certain aromatic amines".</p> <p>Changed the name of P29 to "Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances".</p> <p>In section 4-2, Control substances (C**):</p> <p>Added DnHP to C01.</p> <p>Changed the name of C02 to "Nickel and its compounds".</p> <p>Added C06 "Bisphenol A (BPA)".</p> <p>In section 5-1, Control level of prohibited substances:</p> <p>Updated exemption of P01 "Cadmium and its compounds".</p> <p>Updated target application of P03 (Criterion / threshold value: 300 ppm or less for homogeneous materials).</p> <p>Added target application to P07.</p> <p>Added target application to P15.</p> <p>Updated target application and Criterion / threshold value of P29.</p> <p>In section 5-2, Control level in the special application of prohibited substances:</p> <p>Added "5-2-2. Phthalate esters for packaging materials (DEHP, DBP, BBP, and DIBP)".</p> <p>Added "5-2-4. Phthalate esters in the battery (DEHP, DBP, BBP, and DIBP)".</p> <p>In section 5-3, Control level of control substances:</p> <p>Updated C01, C02 and C06.</p> <p>In section 7, Appendix:</p> <p>Added U.S. Proposition 65 to the regulation of P07.</p> <p>Added EU REACH regulation(No. 1907/2006) to regulation of P29.</p>	October 24, 2019 Amano, Quality Assurance Department	October 16, 2019 Product Environmental Quality Committee



8-2. Comments

Eighth edition (Revised on November 15, 2019)

This standard has been closely investigated and been optimized by reflecting on the environmental laws and ordinances enforced in countries and the movement of communities, after the issue of the seventh edition.

2. Scope

- "Audio-Technica Canada, Ltd." was added onto the list of member companies and offices of AT Group.

4. Environment Control Substances Subject to These Standards

4-1. Prohibited substances (P**)

- P15: "Specific azo compounds" were changed to "Azocolourants and azodyes which form certain aromatic amines".
- P29: "Perfluorooctanoic acid (PFOA) and its salts and its esters" were changed to "Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances".

4-2. Control substances (C**)

- C01: DnHP was added to C01 "Phthalate esters".
- C02: The name of C02 "Nickel" was changed to "Nickel and its compounds".
- C06: "Bisphenol A (BPA)" was added.

5. Control Level of Environment Control Substances

5-1. Control level of prohibited substances

- P01 "Cadmium and its compounds": Exemption was updated.
- P03 "Lead and its compounds": Target application of "The resin coating of an electric wire, a cable or the cord (include a plug and a connector)" 's Criterion/threshold value: "300 ppm or less for homogeneous materials" was updated.
- P07 "Phthalate esters (DEHP, DBP, BBP and DIBP)": Target application was added.
- P15 "Azocolourants and azodyes which form certain aromatic amines": Target application was added.
- P29 "Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances": Both Target application and Criterion/threshold value were updated.

5-2. Control level in special application of prohibited substances

- "5-2-2. Phthalate esters for packaging materials (DEHP, DBP, BBP, and DIBP)" was added.
- "5-2-4. Phthalate esters in the battery (DEHP, DBP, BBP and DIBP)" was added.

5-3. Control level of control substances

- C01 "Phthalate esters (DINP, DIDP, DNOP and DnHP)" was updated with, by additions.
- C02 "Nickel and its compounds" was updated with, by addition.
- C06 "Bisphenol A (BPA)" was updated with, by addition.

7. Appendix

- P07 Name of substance "Phthalate esters (DEHP, DBP, BBP, and DIBP)" of Regulation: "U.S. : Proposition 65" was added.
- P29 Name of substance "Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances" of Regulation: "EU REACH regulation (No. 1907/2006)" was added.



Seventh edition (Revised on April 24, 2017)

These standards were closely investigated for adequacy based on the laws and ordinances enforced in countries and movement of communities after the issue of the sixth edition.

2. Scope

- "Audio-Technica Ltd.(UK)" was corrected to "Audio-Technica Europe Holding B.V".
- "Audio-Technica Haining Co., Ltd." and "Hangzhou Tengyu Photoelectric Co., Ltd." Were added.

4. Environment Control Substances Subject to These Standards

4-1. Prohibited substances (P**)

- The names of some substances were corrected to their popular names.
- The 10 substances specified by the RoHS Directive, namely, cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), and four phthalate esters (DEHP, DBP, BBP and DIBP) were renumbered and gathered as P01 to P07. The number P08 and subsequent numbers were given in the conventional list order.
- Perfluorooctanoic acid (PFOA) and its salts and its esters and phosphate ester flame retardants (TCEP, TCPP and TDCPP) were added to Prohibited substances (P**).

4-3. Substances subject to REACH SVHC (candidate substances) (R**)

- For the substances subject to REACH SVHC (candidate substances), reference to the latest information provided by the European Chemicals Agency (ECHA) was added together with their website address.

5. Control Level of Environment Control Substances

- The table column name "Regulation value" was corrected to "Criterion/threshold value".
- The description style of target application was corrected for some substances.

5-1. Control level of prohibited substances

- Description was added for the added two types of substances.

5-3. Control level of control substances

- The criterion/threshold value was added to C01 and C04.

5-4. Control level of the substances subject to REACH SVHC (candidate substances)

- The criterion/threshold value was added.
- For the substances subject to REACH SVHC (candidate substances), reference to the latest information provided by the European Chemicals Agency (ECHA) was added together with their website address.

7. Appendix

- The items were rearranged according to their sequence in the list of prohibited substances given in 4-1 and description for the added substance was added.



Sixth edition (Revised on December 12, 2016)

These standards were revised to reflect the amendment to Appendix II to the revised RoHS Directive (2011/65/EU) which specifies that four phthalate esters, namely, bis (2-ethylhexyl) phthalate (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP) are included in the substances subject to environment control.

Hexabromocyclododecane (HBCDD) added in Annex A (Elimination) to Stockholm Convention on Persistent Organic Pollutants (POPs) and under international efforts to eliminate it and polycyclic aromatic hydrocarbons (PAHs) whose restricted range has been extended by the Annex XVII (restriction) to REACH regulation were added to Prohibited substances (P**). These substances were added to prohibition because the regulation for HBCDD came into effect on November 26, 2014 and that for the PAHs came into effect on December 27, 2015.

The company name of Technica Fukui Co., Ltd. was changed to Audio-Technica Fukui Inc. in Section 2, Scope.

4. Environment Control Substances Subject to These Standards

4-1. Prohibited substances (P**)

- Bis (2-ethylhexyl) phthalate (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP), diisobutyl phthalate (DIBP), hexabromocyclododecane (HBCDD) and polycyclic aromatic hydrocarbons (PAHs) were added.

4-2. Control substances (C**)

- Bis (2-ethylhexyl) phthalate (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP) were deleted.

5. Control Level of Environment Control Substances

- Control criteria for hexabromocyclododecane (HBCDD) and polycyclic aromatic hydrocarbons (PAHs) were added.
- Control criteria for bis (2-ethylhexyl) phthalate (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP) were added.
- In accordance with Japan's Act on Control of Household Products Containing Harmful Substances enforced on April 1, 2016, two amines were added to the specific amines that must not be produced from specific azo compounds, increasing the number of specific amines to 24 in total.
- The mercury level in button batteries was changed from 2% to 0.0005% in accordance with EU Battery Directive enforced on October 1, 2015.

Fifth edition (Revised on Sep. 3, 2012)

These standards were closely investigated for adequacy based on the laws and ordinances enforced in countries and movement of communities after the issue of the fourth edition.

4. Environment Control Substances Subject to These Standards

Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds are changed from control substances to prohibited substances.

5. Control Level of Environment Control Substances

5-1. Control level of prohibited substances

- The description of "Intentional use prohibited" was deleted from the regulation value for six substances subject to RoHS.
- Exemptions of lead and its compounds have been revised
- Because long period of time has passed since discontinuation of sales of PFOS materials, the regulation value of PFOS was changed to "Intentional use prohibited" for all applications.



- "P24. Dibutyltin (DBT) compounds" and "P25. Dioctyltin (DOT) compounds" were added. Gradual change to substances subject to prohibition depending on their use was clearly described.
"Subject to prohibition from October 2014"
- 5-2. Control level in special application of prohibited substances
 - The description of "Intentional use prohibited" was deleted from the regulation value for heavy metals for packaging materials.
- 7. Appendix
 - Names of prohibited substances were added. An applicable regulation was changed.

Fourth edition (Revised on Oct. 1, 2010)

These standards were closely investigated for adequacy based on the laws and ordinances enforced in countries and movement of communities after the issue of the third edition.

2. Scope

Due to office consolidation at Technica Fukui Co., Ltd. in 2010, the description was changed for only listing the company name.

4. Environment Control Substances Subject to These Standards

Prohibited and control substances were added or deleted and some expressions were modified in order to correspond to REACH.

5. Control Level of Environment Control Substances

5-1. Control level of prohibited substances

- The description of control level for heavy metal contained in packaging materials and batteries was separated to Section 5-2.
- The regulation value of cadmium was changed to 100 ppm in accordance with laws and regulations even though the value had been set to 75 ppm to meet the severer standards implemented by the business partner.
- The description "1000 ppm or less" was deleted from the regulation value of bis(tributyltin)oxide. Also, only "Intentional use prohibited" was made effective.
- Tri-substituted organostannic compounds was specified to integrate tributyltin and triphenyltin compounds. The description "1000 ppm or less" was deleted from the regulation value. Also, only "Intentional use prohibited" was made effective.
- The description "1000 ppm or less" was deleted from the regulation value of polychlorinated biphenyl. Also, only "Intentional use prohibited" was made effective.
- Polychlorinated terphenyl was added.
- The description "1000 ppm or less" was deleted from the regulation value of asbestos. Also, only "Intentional use prohibited" was made effective.
- Specific amine was specified, as it must not be produced by decomposition of specific azo compounds.
- Cobalt dichloride, beryllium oxide and dimethyl fumarate were added to the intentional use prohibited substances.

5-3. Control level of control substances

- The following substances were deleted: Dihexyl phthalate (specific phthalate ester), antimony and its compounds, arsenic and its compounds, beryllium and its compounds, bismuth and its compounds, selenium and its compounds and chlorine-related flame retardant.
- The following substances were added: Diisobutyl phthalate (specific phthalate ester), dibutyltin compounds, dioctyltin compounds, perchlorate and fluorinated greenhouse gases (HFC, PFC and SF6).
- Target application of nickel was expanded, describing "All applications including nickel plating and stainless component."



- 5-4. Control level of substances subject to REACH SVHC [approval (candidate substances)]
 - All texts were added in order to correspond to REACH regulation.
6. Quantitative Analysis Method
 - "IEC 62321: 2008" as an international standard officially issued was added for the ashing method under the presence of sulfuric acid.
7. Appendix
 - Names of prohibited substances were added. Various regulations were added.

Third edition (Revised on July 17, 2008)

The regulation values were changed in order to correspond to the revision of EU Battery Directive.

4-1. Change of the regulation value of heavy metals for batteries

The regulation value regarding cadmium was additionally specified: "Battery or battery pack other than nickel-cadmium battery: 0.002% or less of the total weight of the battery."

The regulation values and an item regarding lead were additionally specified or deleted as follows: "Manganese dioxide and alkaline-manganese batteries: 0.2% or less of the total weight of the battery."

"Compact sealed lead battery" was deleted based on understanding that it would not be used for AT Group products.

6. Appendix and Regulations

The directive number was changed due to the revision of Battery Directive: "91/157/EEC" to "2006/66/EC."

Second edition (Revised on June 27, 2008)

These standards were closely investigated for adequacy based on the environment-related laws and ordinances enforced in countries and movement of communities after the issue of the initial edition.

2. Scope

"Material" was added to Scope.

The target scope was properly set.

"Machida Office" was added to the target offices, and thereby Special Equipment Department of Machida Office appeared for the first time.

4-1. Prohibited substances

The following two substances were added:

- "Perfluorooctane sulfonate (including salt) (PFOS)" to correspond POPs pact
- "Specific benzotriazole" to correspond to revision of the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

4-2. Control substances

"Phthalate ester" was added with "Specific" to limit the target to seven types of phthalate ester.

6. Appendix

"Perfluorooctane sulfonate (including salt) (PFOS)" and "Specific benzotriazole" were added.