Audio-Technica Group

Environmental Quality Standards for Products

Ninth Edition

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Prepared by: Audio-Technica Product Environmental Quality Committee
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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

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 Co., Ltd.
Audio-Technica U.S.INC
Audio-Technica Canada.INC
Audio-Technica America Latina S.A.
Audio-Technica DO BRASIL
Audio-Technica Europe Holding B.V
Audio-Technica(GC)LTD
Audio-Technica(S.E.A.)Pte.LTD
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.

The expiration date of exemptions relevant to EU Directive 2011/65/EU (EU RoHS) is subject to change. Refer to the latest status of each.
Implementation of the RoHS Directive

(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

Refer to IEC 62321（Determination of certain substances in electrotechnical products）for the main analysis methods.
https://webstore.iec.ch/

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-(2*H*-1,2,3-benzotriazole-2-yl)-4,6-di-*tert*-butylphenol (UV -320)
P22	Cobalt dichloride
P23	Beryllium oxide
P24	Dimethyl fumarate (DMF)
P25	Dibutyltin (DBT) compounds
P26	Dioctyltin (DOT) compounds
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P28	Polycyclic aromatic hydrocarbons (PAHs)
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P30	Phosphate ester flame retardants (TCEP, TCPP and TDCPP)
P31	Fluorinated greenhouse gases (HFC, PFC and SF_6)
P32	Perfluorocarboxylic acids (PFCAs) C9-14 and its salts and related substances
P33	Phenol, Isopropylated, Phosphate (3:1) (PIP(3:1))
P34	Pentachlorothiophenol (PCTP)

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, HBCDD, DBDPE and TBBPA)
C04	Perchlorate
C05	Bisphenol A (BPA)
C06	Decabromodiphenylethane (DBDPE)
C07	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10] octadeca -7,15-diene (“Dechlorane Plus”TM)
C08	2-(2*H*-benzotriazol-2yl)-4,6-ditertpentylphenol (UV-328)
C09	Tetrabromobisphenol A (TBBPA)
C10	Mediumchain chlorinated paraffins (MCCPs)- Alkanes, 14-17, chloro

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/candidate-list-table

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	*Refer to article 5-2-1
	Battery and battery pack	*Refer to article 5-2-3
	All applications except for the items exempted Example: - 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	Less than 100 ppm in homogeneous material
Exemption	Filter glass	

P02. Hexavalent chromium compounds

Control level	Target application	Criterion/threshold value
Prohibition	Packaging material	*Refer to article 5-2-1
	All applications except for the items exempted Example: - Rustproofing of metals - Resin, paint, ink, pigment	Less than 1000 ppm in homogeneous material
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	*Refer to article 5-2-1
	Battery and battery pack	*Refer to article 5-2-3
	The resin coating of an electric wire, a cable or the cord (include a plug and a connector)	Less than 300 ppm in homogeneous material
	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)	Less than 1000 ppm in homogeneous material
	Alloys listed below in which regulation values are exceeded: - Steel product and galvanized steel sheet - Aluminum alloy - Copper alloy	In homogeneous material, - less than 3500 ppm - less than 4000 ppm - less than 40000 ppm
Exemption	- 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	*Refer to article 5-2-1
	Battery and battery pack	*Refer to article 5-2-3
	All applications other than the above Example: Preparation agent for pigment, paint, ink and plastic	Less than 1000 ppm in homogeneous material

P05. Polybrominated biphenyls (PBBs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example：Flame retardant for plastics	Less than 1000 ppm in homogeneous material

P06. Polybrominated diphenyl ether (PBDEs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example : Flame retardant for plastics	Less than 1000 ppm in homogeneous material

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	Less than 1000 ppm in homogeneous material
	Other than electric and electronic equipment Example: Parts and materials for carrying bags, carrying cases, and carrying pouches	Less than 1000 ppm as the sum of the phthalate concentrations (DEHP, DBP, BBP, and DIBP) in homogeneous material
	Packaging materials	*Refer to article 5-2-2
	Battery and battery pack	*Refer to article 5-2-4

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 or less than 50ppm

P11. Polychlorinated terphenyls (PCTs)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Lubricating oil and paint	Less than 50ppm

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 or less than 1000ppm

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	Less than 30mg/kg (30ppm)
	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	*o*-anisidine
91-59-8	2-naphthylamine
91-94-1	3,3’-dichlorobenzidine
92-67-1	4-aminodiphenyl
92-87-5	Benzidine
95-53-4	*o*-toluidine
95-69-2	4-chloro-*o*-toluidine
95-80-7	2,4-toluenediamine
97-56-3	*o*-Aminoazotoluene
99-55-8	5-nitro-*o*-toluidine
101-14-4	4,4’-methylenebis（2-chloroaniline)
101-77-9	4,4’-diaminodiphenylmethane
101-80-4	4,4’-oxydianiline
106-47-8	*p*-chloroaniline
119-90-4	3,3’-dimethoxybenzidine
119-93-7	3,3’-dimethylbenzidine
120-71-8	*p*-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 and plywood etc.	Aerial density of less than 0.1 ppm (Chemicals prohibitive regulation of Germany) Aerial density of less than 0.15 mg/m^3 (Formaldehyde regulation 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	Textiles or other coated materials.	Intentional use prohibited or less than 1μg/m^2 for surface treatment
	All except textiles or other coated materials.	Intentional use prohibited or less than 1000ppm

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
	Humidity indicator card which is impregnated with cobalt dichloride	Less than 1000ppm
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	Less than 1000ppm of product

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	Less than 0.1ppm

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	Less than 1000 ppm in homogeneous material (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	Less than 1000 ppm in homogeneous material (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 less than 100 ppm

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.	Intentional use prohibited and less than 25ppb, for PFOA including its salts.
		Intentional use prohibited and 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	Less than 1000 ppm

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

P31. Fluorinated greenhouse gases (HFC, PFC and SF_6)

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example:Cleaning agent for parts, refrigerant, heat insulator, insulating material	Intentional use prohibited

P32. Perfluorocarboxylic acids (PFCAs) C9-14 and its salts and related substances

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Water repellent, coating and lubricant etc.	Less than 25ppb (0.025ppm) for C9-14 PFCAs including its salts.
		Less than 260ppb (0.260ppm) for one or a combination, for C9-14 PFCA-related substances.

P33. Phenol, Isopropylated, Phosphate (3:1) (PIP(3:1)) （CAS No. 68937-41-7）

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Flame retardant, plasticizer, lubricant, greases, adhesive and sealant	Intentional use prohibited

P34. Pentachlorothiophenol (PCTP) （CAS No. 133-49-3）

Control level	Target application	Criterion/threshold value
Prohibition	All applications Example: Peptizer	Intentional use prohibited

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 less than 100 ppm for homogeneous material

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 material

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

Control level	Substance subject to control	Target application	Criterion/threshold value
Prohibition	Cadmium	Carbon zinc batteries, Alkaline manganese batteries and Nickel hydrogen rechargeable batteries （except button cells each）	Less than 0.001wt%(10ppm) of battery
		All other batteries except above	Less than 0.002wt%(20ppm) of battery
	Lead	Carbon zinc batteries	Less than 0.1wt%(1000ppm) of battery
		Alkaline manganese batteries （including button cells）	Less than 0.004wt%(40ppm) of battery
		Zinc air button cells	Less than 0.05wt%(500ppm) of battery
		Silver oxide button cells	Less than 0.02wt%(200ppm) of battery
		All other batteries except above	Less than 0.2wt%(2000ppm) of battery
	Mercury	All batteries	Intentionally added or less than 0.0001wt%(1ppm) of battery
			Less than 0.0005wt%(5ppm) of total Hg in homogenous material
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 material

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-*n*-octyl phthalate	DNOP
84-75-3	Di-*n*-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, HBCDD, DBDPE and TBBPA)

Control level	Target application
Control	Bromine-related flame retardant other than PBB, PBDE, HBCDD DBDPE and TBBPA. 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. Bisphenol A (BPA) (CAS No. 80-05-7)

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

C06. Decabromodiphenylethane (DBDPE)（CAS No. 84852-53-9）

Control level	Target application
Control	All applications Example: Bromine-related flame retardant, etc.

C07. 1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10] octadeca-7,15-diene ("Dechlorane Plus"TM)
（CAS No. 13560-89-9; 135821-03-3; 135821-74-8)

Control level	Target application
Control	All applications Example: Chlorine- based flame retardant, etc.

C08. 2-(2*H*-benzotriazol-2yl)-4,6-ditertpentylphenol (UV-328)（CAS No. 25973-55-1）

Control level	Target application
Control	All applications Example: Ultraviolet absorbent, etc.

C09. TetrabromobisphenolA (TBBPA)（CAS No. 79-94-7）

Control level	Target application
Control	All applications Example: Bromine-related flame retardant, etc.

C10. Mediumchain chlorinated paraffins (MCCPs)- Alkanes, 14-17, chloro
（CAS No. 85535-85-9; 198840-65-2; 1372804-76-6）

Control level	Target application
Control	All applications Example: Paint, adhesive, sealant, flame retardant and 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	More than 0.1wt% (1000ppm) in an article

For the target applications of each substance and their details, refer to the website of European Chemicals Agency (ECHA).
https://echa.europa.eu/candidate-list-table

6. Appendix

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

Reference laws and regulations do not include all laws, ordinances, and standards to be the basis, but give only examples.
Details of regulations should be checked with latest editions thereof, as they are subject to revision.

No.	Name of substance	Reference laws and regulations	
P01	Cadmium and its compounds	EU	RoHS Directive (2011/65/EU), REACH regulation (No.1907/2006), Battery Directive (2006/66/EC) and Packaging & Packaging Waste Directive (94/62/EC)
		U.S.	Proposition 65
		China	GB24427-2021
P02	Hexavalent chromium compounds	EU	RoHS Directive (2011/65/EU), REACH regulation (No.1907/2006) and Packaging & Packaging Waste Directive (94/62/EC)
P03	Lead and its compounds	EU	RoHS Directive (2011/65/EU), REACH regulation (No.1907/2006), Battery Directive (2006/66/EC) and Packaging & Packaging Waste Directive (94/62/EC)
		U.S.	Proposition 65
		China	GB24427-2021
P04	Mercury and its compounds	EU	RoHS Directive (2011/65/EU), REACH regulation (No.1907/2006), Battery Directive (2006/66/EC) and Packaging & Packaging Waste Directive (94/62/EC)
		China	GB24427-2021
P05	Polybrominated biphenyls (PBBs)	EU	RoHS Directive (2011/65/EU), REACH regulation (No.1907/2006) and POPs regulation ((EU) 2019/1021)
P06	Polybrominated diphenyl ethers (PBDEs)	EU	RoHS Directive (2011/65/EU), REACH regulation (No.1907/2006) and POPs regulation ((EU) 2019/1021)
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)	EU	REACH regulation (No.1907/2006)
		Japan	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1
P09	Tri-substituted organostannic compounds (including tributyltin and triphenyltin compounds)	EU	REACH regulation (No.1907/2006)
		Japan	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1

No.	Name of substance	Reference laws and regulations	
P10	Polychlorinated biphenyls (PCBs)	EU	REACH regulation (No.1907/2006) and POPs regulation ((EU) 2019/1021)
		U.S.	TSCA
		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	EU	POPs regulation ((EU) 2019/1021)
		Japan	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1
P13	Short-chained chlorinated paraffin	EU	REACH regulation (No.1907/2006) and POPs regulation ((EU) 2019/1021)
P14	Asbestos	EU	REACH regulation (No.1907/2006)
		U.S.	TSCA
		Japan	Industrial Safety and Health Law
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 ((EC) No 1005/2009)
		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	U.S.	TSCA
		Germany	Chemicals prohibitive regulation
		Denmark	Formaldehyde regulation
P19	Polyvinyl chloride (PVC)	Republic of Korea	Act on the promotion of saving and recycling of resources
P20	Perfluorooctane sulfonate (PFOS) and its salts	EU	POPs regulation ((EU) 2019/1021)
		Japan	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1.
P21	2-(2*H*-1,2,3-benzotriazole-2-yl)-4,6-di-*tert*-butylphenol (UV-320)	EU	REACH regulation (No.1907/2006)
		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	Dioctyltin (DOT) compounds	EU	REACH regulation (No.1907/2006)

No.	Name of substance	Reference laws and regulations	
P27	Hexabromocyclododecane (HBCDD)	EU	REACH regulation (No.1907/2006) and POPs regulation ((EU) 2019/1021)
		Japan	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Specified Chemical Substances Class 1.
P28	Polycyclic aromatic hydrocarbon (PAH)	EU	REACH regulation (No.1907/2006)
P29	Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances	EU	POPs regulation ((EU) 2019/1021)
		Norway	Product Regulations
P30	Phosphate ester flame retardants (TCEP, TCPP and TDCPP)	EU	REACH regulation (No. 1907/2006)
		U.S.	Vermont's Act 85 and Proposition 65
P31	Fluorinated greenhouse gases (HFC, PFC and SF_6)	EU	(EU) No. 517/2014 on fluorinated greenhouse gases
P32	Perfluorocarboxylic acids (PFCAs) C9-14 and its salts and related substances	EU	REACH regulation (No.1907/2006)
		Canada	Prohibition of certain toxic substances regulations
P33	Phenol, Isopropylated, Phosphate (3:1) (PIP(3:1))	U.S.	TSCA
P34	Pentachlorothiophenol (PCTP)	U.S.	TSCA

7. Amended Contents

9th Edition	Main change points
Prohibited substances	・Changed the below control substance to prohibited substance. P31「Fluorinated greenhouse gases (HFC, PFC and SF_6)」 ・Added the below substances. P32「Perfluorocarboxylic acids (PFCAs) C9-14 and its salts and related substances」 P33「Phenol, Isopropylated, Phosphate (3:1) (PIP(3:1))」 P34「Pentachlorothiophenol (PCTP)」 ・Updated of target applications and Criterion/threshold values. P10「Polychlorinated biphenyls (PCBs)」 P11「Polychlorinated terphenyls (PCTs)」 P13「Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)」 P15「Azocolourants and azodyes which form certain aromatic amines」 P18「Formaldehyde」 P20「Perfluorooctane sulfonate (PFOS) and its salts」 P22「Cobalt dichloride」 P23「Beryllium oxide」 P24「Dimethyl fumarate (DMF)」 P27「Hexabromocyclododecane (HBCDD)」 P29「Perfluorooctanoic acid (PFOA) and its salts and PFOA related substances」 About Criterion/threshold values, "or less" is revised by "less than".
Control substances	・Added the below substances. C06「Decabromodiphenylethane (DBDPE)」 C07「1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™)」 C08「2-(2*H*-benzotriazol-2yl)-4,6-ditertpentylphenol (UV-328)」 C09「Tetrabromobisphenol A (TBBPA)」 C10「Mediumchain chlorinated paraffins (MCCPs)- Alkanes, 14-17, chloro」 ・Updated of the name. C03「Brominated flame retardants (Other than PBB, PBDE, HBCDD, DBDPE and TBBPA)」
5-3. Control level of control substance**s**	Updated of target applications and Criterion/threshold values.
6. Appendix	・Added reference laws and regulations ・Updated of official gazettes.
Other items	・Deleted the below items. ・「Quantitative Analysis Method」 ・「Revision history and Comment」