Supplement 1

Chemical Substance Control Level Classification Table (Ver. 7)

Use of Level 1 Prohibited Substances: Table 1-1
Chemical substances whose use is prohibited under domestic or international laws and regulations, or per customer requests

Threshold Value: Table 1-1
Concentration level that is guaranteed in materials delivered by suppliers to USHIO as well as USHIO products shipped

Control Value: Table 1-2
The content concentration that cannot be exceeded unless the chemical substance is intentionally used or mixed in as well as the concentration level that needs to be controlled by USHIO and its suppliers

When the content concentration as impurities of prohibited substances exceeds the control value, USHIO will request reanalysis, an explanation of the reason and reduction in content concentration to a level below the control value.

Use of Level 2 Restricted Substances: Table 2
Chemical substances contained in products whose use will be prohibited based on deadlines specified under domestic or international laws and regulations, or per customer requests

Level 3 Controlled Substances: Table 3
Chemical substances whose use is controlled and which are not prohibited or restricted at the present time

Additional clause

1. There may be cases when the value in the specifications, drawings, etc., exceeds the reference value specified in this standard. In such cases, the values specified in the specifications, drawings, etc., take precedence.

2. This standard is based on JIG-101. USHIO further added chemical substances and threshold values based on social circumstances that include customer requests, SVHC of REACH regulation and other substances.

3. (*S) sign is put on SVHC of the REACH regulation.

Revision History

<table>
<tr><th>No.</th><th>Date of</th><th>Details of revisions</th></tr>
<tr><td>Version 6</td><td>March 2012</td><td>- Addition to Level 1 Prohibited substances
In accordance with revised REACH Annex XVII Restriction, 3 additional substances (No. 20-22) were included in Table 1-1. Because TBTO, TBTs and TPTs (formerVersion 10 and 16) are types of Tri-substituted organostannic compounds in No. 20, they were included as such.
-Rflected the evision details of EU RoHS in the exempt use of Table 1-1 No. 3: Lead .
- We revised the Threshold level of Table 1-1 No. 1: Cadmium .</td></tr>
<tr><td>Version 7</td><td>December 2014</td><td>- Level 1 Prohibited Substances
・Chemical substances added
<table>
<tr><th>Chemical substances</th><th>Related laws and regulations</th></tr>
<tr><td>23. Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA</td><td>Norwegian Product Regulation</td></tr>
<tr><td>24. Tris phosphates (TCEP,TCPP,TDCPP)</td><td>United States. Vermont State. Act 85</td></tr>
<tr><td>25.Phthalates (DEHP,DBP,BBP,DIBP)</td><td>Danish Regulations, ban on the use of phthalates</td></tr>
<tr><td>26. Hexabromocyclododecane (HBCDD)</td><td>POPs Treaty,
Law Concerning Examination and Regulation of Manufacture and Handling of Chemical Substances</td></tr>
</table>
・Exclusions and Threshold added
<table>
<tr><th>Chemical substances</th><th>Additional content</th></tr>
<tr><td>8. Polychlorinated Biphenyls (PCBs)</td><td>Add the threshold of the target range as 2.</td></tr>
<tr><td>14. Vinyl Chloride Polymer (PVC)</td><td>Add paint, ink to exemptions.</td></tr>
</table>
- Level 2 Restricted Substances
"PFOA" is deleted because it was added to the "Level 1 prohibited substances".

- Level 3 Controlled Substances
・Chemical substances added
<table>
<tr><th>Chemical substances</th><th>Related laws and regulations</th></tr>
<tr><td>29. Mirex</td><td>POPs Treaty,
Law Concerning Examination and Regulation of Manufacture and Handling of Chemical Substances</td></tr>
<tr><td>30. Polycyclic aromatic hydrocarbons (PAH)</td><td>REACH ANNEX17</td></tr>
<tr><td>31. Chlorinated flame retardants</td><td>JS709（DEFINING “LOW-HALOGEN” ELECTRONIC PRODUCTS）</td></tr>
</table>
・Chemical substances Delete
"Hexabromocyclododecane (HBCD, HBCDD)", "phthalate (DEHP, DBP, BBP, DIBP)", "phosphoric acid tris (TCEP)" Remove from level 3 because it was added to the "Level 1 Prohibited Substances" .</td></tr>
</table>

Table 1-1: Use of Level 1 Prohibited Substances

1. Cadmium and Cadmium Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Cadmium	7440-43-9	Colorants, anti-corrosion surface treatment, batteries, contacts, optical materials, PVC stabilizer
Cadmium oxide	1306-19-0	
Cadmium sulfide	1306-23-6	
Cadmium chloride	10108-64-2	
Cadmium sulfate	10124-36-4	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. Content that exceeds 100ppm as impurities
3. Inclusion of more than 75 ppm when used for surface treatment, coloring agent, or plastic stabilizer in product not subject to the RoHS Directive.
4. Use of cadmium for packaging materials in which the total content of cadmium, mercury, hexavalent chromium and lead exceeds 100ppm

<Exempted items>
Can be used if applicable to any of the following:
*Cadmium and cadmium compounds and cadmium plating used in electrical contacts
*Cadmium used in optical glass and filter glass

2. Hexavalent Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Sodium dichromate	10588-01-9	Colorants, coating materials, inks, catalysts, anti-corrosion surface treatment, dyes, anti-corrosion
Chromium trioxide	1333-82-0	
Calcium chromate	13765-19-0	
Lead (II) chromate (*S)	7758-97-6	
Potassium bichromate	7778-50-9	
Potassium chromate	7789-00-6	
Sodium dichromate, dihydrate (*S)	7789-12-0	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. Content that exceeds 1000ppm as impurities
3. Use of hexavalent chromium for packaging materials in which the total content of cadmium, mercury, hexavalent chromium and lead exceeds 100ppm

<Exempted items>
Can be used if applicable to any of the following:
Hexavalent chromium as an anti-corrosion material for a carbon steel cooling system in absorption refrigerators.

3. Lead and Lead Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Lead	7439-92-1	Colorants, coating materials, rubber curing agent, plastic stabilizer, batteries, rubber vulcanizing agent, solder, glass, free-cutting alloy material, alloy element, resin additive
Lead (II) carbonate	598-63-0	
Lead (IV) oxide	1309-60-0	
Lead (II, IV) oxide	1314-41-6	
Lead (II) sulfide	1314-87-0	
Lead (II) oxide	1317-36-8	
Lead (II) carbonate basic	1319-46-6	
Lead hydroxidcarbonate	1344-36-1	
Lead (II) sulfate	7446-14-2	
Lead (II) phosphate	7446-27-7	
Lead (II) chromate	7758-97-6	
Lead (II) titanate	12060-00-3	
Lead sulfate	15739-80-7	
Tribasic lead sulphate	12202-17-4	
Lead stearate	1072-35-1	
Dibasic lead stearate	56189-09-4	
Lead hydrogen arsenate (*S)	7784-40-9	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. Content that exceeds 300ppm as impurities
[Application area and material]
*Plastic resin (including rubber, films)
*Coating material, ink, colorant, dye
*PVC resin coating in PVC electrical cable
3. Content that exceeds 1000ppm as impurities
[Application area and material]
*Area and material other than 2 above
4. Use of lead for packaging materials in which the total content of cadmium, mercury, hexavalent chromium and lead exceeds 100ppm
5. Lead content exceeds 0.4% in terms of the cumulative weight for use in batteries and accumulator batteries
<Exempted items>
Can be used if applicable to any of the following:
*Glass used in cathode-ray tubes (CRT), electronic parts and fluorescent tubes
*Lead as an alloy element in steel materials containing less than 0.35% by weight, copper alloy containing 4% or less of lead by weight, and aluminum materials containing 0.4% or less of lead by weight
*Lead contained in high-melting point solder (lead alloy containing over 85% of lead by weight)
*Lead contained in solder for servers, storage, storage array systems, and network infrastructure equipment for switching, signaling and transmission, as well as network management for telecommunications
*Lead contained in electronic ceramic parts (e.g. piezoelectric devices)
*Lead contained in bearing shells and bearing bushes for lead bronze bearings
*Lead in compliant pin connector system
*Lead as coating material for thermal conduction module C-rings
*Lead contained in optical and filter glass
*Lead contained in solder consisting of more than two elements for connecting pins and microprocessor packages with a lead content of more than 80% and less than 85% by weight in proportion to the tin-lead content
*Lead contained in solder for completing a viable electrical connection between semiconductor dies and carriers in flip chip IC packages

*7(c)-I 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
*7(c)-II Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher
*7(c)-III Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC (Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013)

Note: 7(c)-I,II,III are the exempt use numbers of EU RoHS Directive.

4. Mercury and Mercury Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Mercury	7439-97-6	Batteries, fluorescent materials, contacts, thermometers, colorants
Mercury chloride (II)	7487-94-7	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. Content that exceeds 1000ppm as impurities
3. Use of mercury for packaging materials in which the total content of cadmium, mercury, hexavalent chromium and lead exceeds 100ppm
4. Mercury used in batteries exceeding 5ppm and mercury used in button cell batteries exceeding 2%
<Exempted items>
Can be used if applicable to any of the following:
*Mercury in compact fluorescent lamp not exceeding 5mg per lamp
*Mercury in straight fluorescent lamps for general purposes not exceeding the following thresholds:
Halophosphate (halogenoid phosphate) 10mg
Triphosphate with a normal lifetime 5mg
Triphosphate with a long lifetime 8mg
*Mercury in straight fluorescent lamps for special purposes
*Mercury in lamps not defined in this document

5. Polybrominated Biphenyls (PBBs)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Decabromobiphenyl	13654-09-6	Flame retardant
3,3',4,4' - bromobiphenyl	77102-82-0	
2,2',4,5,5'- bromobiphenyl	67888-96-4	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. Content that exceeds 1000ppm as impurities

6. Polybrominated Diphenyl ethers (PBDEs)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Pentabromodiphenyl ether	32534-81-9	Flame retardant
Octabromodiphenyl ether	32536-52-0	
Decabromodiphenyl ether	1163-19-5	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. Content that exceeds 1000ppm as impurities

7. Asbestos

Substance name	CAS No.	Application or use
Asbestos	1332-21-4	Electric insulator, filler, adiabatic material, friction material
Actinolite	77536-66-4	
Amosite	12172-73-5	
Anthophyllite	77536-67-5	
Chrysotile	12001-29-5	
Crocidolite	12001-28-4	
Tremolite	77536-68-6	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added

8. Polychlorinated Biphenyls (PCBs)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
PCB (Polychlorinated Biphenyls)	1336-36-3	Insulating oil, lubricant, electrical insulating medium, plasticizers, coating solvent, heating medium
Pentachlorobiphenyls	25429-29-2	
PCT (Polychlorinated terphenyls)	61788-33-8	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
2. In such cases it is unintentionally produced in such manufacturing process, if there is a content in excess of material per 50ppm.

9. Polychloronapthalenes (more than 3 chlorine atoms)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Polychloronapthalenes (more than 3 chlorine atoms)	70776-03-3	Lubricant, coating material, plastic stabilizer, electrical insulating medium, flame retardant
Pentachloronaphthalene	1321-64-8	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added

10. Shortchain Chlorinated Paraffins

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Chlorinated Paraffins (C10-13) (*S)	85535-84-8	Flame retardant, PVC plasticizer

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
However, polyvinyl chloride (PVC) should be separately treated as a substance to be controlled and not included in chlorinated paraffin.

11. Azocolorants and Azodyes (Certain Amines)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Azocolorants and azodyes forming certain amines	-	Pigments, dyes, coloring agents
biphenyl-4-ylamine	92-67-1	
Benzidine	92-87-5	
4-chloro-o-toluidine	95-69-2	
2-naphthylamine	91-59-8	
4,4'- Diaminodiphenylmethane (*S)	101-77-9	

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
< Exempted items >
Can be used if applicable to any of the following:
*Use in places where the substance does not come into direct contact with the skin or mouth for an extended period of time
(e.g. packaging materials)

12. Ozone Depleting Substances

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Substances specified under annexes of the Montreal Protocol		Cooling medium, flame extinguisher, foaming agent, detergent, fumigation

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added
< Exempted items >
Can be used if applicable to any of the following:
*Use of methyl bromide in halogen lamps, as defined in Annex E, Group I

13. Formaldehyde

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Formaldehyde (monomer); formalin	50-00-0	Antiseptics

Scope of application—Not to be used if applicable to any of the following:
1. Plastic resin or fiber content that exceeds 75ppm
2. Wood products such as fiber board or laminated wood in which the substance exceeds 0.1ppm according to the chamber method

14. Polyvinyl Chloride (PVC)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Polyvinyl chloride (PVC)	9002-86-2	Vinyl chloride resin, packaging materials, insulating materials

Scope of application—Not to be used if applicable to any of the following:
1. Intentionally added in packaging materials (bag, tape, bonding band, etc.), cases, heat shrink tubing
<Exempted items>
Can be used if applicable to any of the following:
* Except for the above-mentioned cases, use of such items as paints, inks, rod coverings and insulating caps (condensers, switches, fuses, etc.) are to be controlled.

15. Perfluorooctane sulfonate (PFOS) and its salt, and Perfluorooctane sulfonate fluoride(PFOSF)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Perfluorooctane sulfonate	1763-23-1	Photolithography, photocoating materials, hydraulic fluid, metal plating, cleaning materials, fire-fighting foams, and coating materials for
Perfluorooctane sulfonate fluoride	307-35-7	
Lithium heptadecafluorooctanesulphonate	29457-72-5	
Potassium	2795-39-3	
Ammonium nonadecafluorononanesulphonate	17202-41-4	

1. Scope of application:
Intentionally added
<Exempted items>
Can be used if applicable to any of the following:
(i) Photoresist or anti-mirror coating for photolithography process
(ii) Photo coating applied to films, documents, or printing plates
(iii) Inclusion of less than 0.1 % in the following specified metal plating until May, 2013
(a) Chromium electroplating, chromium anodizing and reverse etching
(b) Non-electrodeposited metallic precipitate nickel-polytetrafluoroethylene plating
(c) Etching of the plastic plate before hardened

16. Fluorinated greenhouse gases (PFC, SF6, HFC)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Carbon tetrafluoride (perfluoromethane)	75-73-0	Fluorinated greenhouse gases (PFC, SF6, HFC)
Perfluoroethane (hexafluoroethane)	76-16-4	
Perfluoropropane (octafluoropropane)	76-19-7	
Perfluorobutane (decafluorobutane)	355-25-9	
Perfluoropentane (dodecafluorobutane)	678-26-2	
Perfluorohexane (tetradecafluorohexane)	355-42-0	
Perfluorocyclobutane	115-25-3	
Sulfur hexafluoride (SF6)	2551-62-4	
Trifluoromethane - (HFC-23)	75-46-7	
Difluoromethane (HFC-32)	75-10-5	
Methyl fluoride- (HFC-41)	593-53-3	
2H,3H-Decafluoropentane (HFC-43-10mee)	138495-42-8	
Pentafluoroethane (HFC-125)	354-33-6	
1,1,2,2-Tetrafluoroethane (HFC-134)	359-35-3	
1,1,1,2-Tetrafluoroethane - (HFC-134a)	811-97-2	
1,1-Difluoroethane -(HFC-152a)	75-37-6	
1,1,2-Trifluoroethane -(HFC-143)	430-66-0	
1,1,1-Trifluoroethane -(HFC-143a)	420-46-2	
2H-Heptafluoropropane -(HFC-227ea)	431-89-0	
1,1,1,2,2,3-Hexafluoropropane (HFC-236cb)	677-56-5	
1,1,1,2,3,3-Hexafluoropropane (HFC-236ea)	431-63-0	
1,1,1,3,3,3-Hexafluoropropane (HFC-236fa)	690-39-1	
1,1,2,2,3-Pentafluoropropane (HFC-245ca)	679-86-7	
1,1,1,3,3-Pentafluoropropane (HFC-245fa)	460-73-1	
1,1,1,3,3-Pentafluorobutane (HFC-365mfc)	406-58-6	

Scope of application:
1. Intentionally added

17. 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole
(Other name: Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)

Target chemical substances	CAS No.	Application or use
2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)-2H-benzotriazole	3846-71-7	Adhesive agents, paints,printing ink, plastics, ink ribbons, putties,caulking, filling materials (ultraviolet light

Scope of application:
1. Intentionally added
Note : "Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)" indicated JIG is the same substance as "2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole" indicated in Chemical

18. Dimethyl fumarate (DMF)

Target chemical substances	CAS No.	Application or use
Dimethyl fumarate (DMF)	624-49-7	Moisture prevention agents, mildew-proofing agents

Scope of application:
1. Intentionally added
Note Other name: Fumaric acid dimethyl

19. Hexachlorobenzene

Target chemical substances	CAS No.	Application or use
Hexachlorobenzene	118-74-1	Sterilizer,mildew-proofing agents, Stain-proofing agent, Synthetic medium

Scope of application:
1. Intentionally added

20. Tri-substituted organostannic compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Bis(tri-n-butyltin) oxide (*S) (TBTO)	56-35-9	Coating materials, colorants, antiseptics, cooling medium, foaming agent
Triphenyl Tin＝N, -dimethyldithiocarbamate	1803-12-9	Antibacterial and antifungal agents, paint, pigment
Triphenyltinfluoride	379-52-2	
Triphenyltinacetate	900-95-8	
Triphenyltinchloride	639-58-7	
Tributyltinacetate	56-36-0	
Bis(tributyltin)fumalate	6454-35-9	
Tributyltin laurate	3090-36-6	
Trioctyltin chloride	2587-76-0	
Trimethyltin hydroxide	994-32-1	
Trimethyltin chloride	994-31-0	

Scope of application:
If any of the following cases applies, the use of chemical substances is prohibited.
(1) Intentional use
(2) Inclusion of more than 1,000 ppm as impurity in packaging items
Note1: A tri-substituted organostannic compound refers to a tin compound that has three organic substituents, such as tributyltin (TBT) compounds and triphenyltin (TPT) compounds.
Note2: Concentration of tin mass after conversion into metal

21. Dibutyltin (DBT) compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Dibutyltin oxide	818-08-6	Plasticizers, paper coatings, inks, stabilizer for PVC, curing catalyst for silicone resin and urethane resin,
Dibutyltin diacetate	1067-33-0	
Dibutyltin dilaurate	77-58-7	
Dibutyltin maleate	78-04-6	

Scope of application:
If the following case applies, the use of chemical substances is prohibited.
(1) Inclusion of more than 1,000 ppm in homogeneous materials
<Exemption>
The above compounds may be included up to June 30, 2014 if any of the following cases applies (deadline for placing on the EU market: December 31, 2014):
(i) One-component and two-component room temperature vulcanisation sealants (RTV-1 and RTV-2 sealants) and adhesives
(ii) Paints and coatings containing DBT compounds as catalysts when applied on articles
(iii) Soft polyvinyl chloride (PVC) profiles whether by themselves or coextruded with hard PVC
(iv) Fabrics coated with PVC containing DBT compounds as stabilisers when intended for outdoor
applications
(v) Outdoor rainwater pipes, gutters and fittings, as well as covering material for roofing and facades
Note: Concentration of tin mass after conversion into metal

22. Dioctyltin (DOT) compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Dioctyltin oxide	870-08-6	Stabilizer for PVC, curing catalysts for silicone resin and
Dioctyltin dilaurate	3648-18-8	

Scope of application:
If the following case applies, the use of chemical substances is prohibited.
(1) Inclusion of more than 1,000 ppm in homogeneous materials in the following items:
(i) Textile and (natural and/or man-made) leather articles intended to come into contact with the skin
(ii) Childcare articles
(iii) Two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)
Note: Concentration of tin mass after conversion into metal

23. Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA

Target chemical substances	CAS No.	Application or use
Perfluorooctanoic acid (PFOA)	335-67-1	Photolithography, photo-coating materials, hydraulic fluid, metal plating, cleaning materials, fire-fighting foams, coating materials for paper, and plastic stabilizers.
Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	
Sodium salt of Perfluorooctanoic acid	335-95-5	
Potassium salt of Perfluorooctanoic acid	2395-00-8	
Silver(1+) salt of Perfluorooctanoic acid	335-93-3	
Perfluorooctanoyl fluoride	335-66-0	
Methyl perfluorooctanoate	376-27-2	
Ethyl perfluorooctanoate	3108-24-5	

Scope of application:
If the following case applies, the use of chemical substances is prohibited.
(1) Inclusion of more than 1,000 ppm in homogeneous materials
(2) Inclusion of more than 10 ppm in chemicals
(3) Inclusion of more than 1μg/m2 in fibers, carpets and other coated products

24. Tris phosphate(TCEP,TCPP,TDCPP)

Target chemical substances	CAS No.	Application or use
Tris(2-chloroethyl)phosphate(TCEP) (*S)	115-96-8	Flame retardants used in lastics, resins, fabrics, and textiles
Tris(1-chloro-2-propyl)phosphate(TCPP)	13674-84-5	
Tris(1,3-dichloro-2-propyl)phosphate(TDCPP)	13674-87-8	

Scope of application:
If the following case applies, the use of chemical substances is prohibited.
(1) Inclusion of more than 1,000 ppm in homogeneous materials

*Reference laws and regulations: United States. Vermont State. Act 85

25. Phthalate ester

Target chemical substances	CAS No.	Application or use
Bis (2-ethylhexyl) phthalate (DEHP) (*S)	117-81-7	Plasticizers, dyes,colorants, coating materials, inks,adhesives, choke coil,tube,trans
Dibutylphthalate (DBP) (*S)	84-74-2	
Butyl benzyl phthalate (*S)	85-68-7	
Diisobutyl phthalate(DIBP) (*S)	84-69-5	

Scope of application:
If both of the following cases applies, the use of chemical substances is prohibited.
(1) Inclusion of more than 1,000 ppm in homogeneous materials
(2) Parts for indoor. Or Parts that may contact the skin or mucous membranes.

26. Hexabromocyclododecane(HBCDD)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Hexabromocyclododecane (*S)	25637-99-4	Flame retardant, solder
	4736-49-6	
	65701-47-5	
	138257-17-7	
	138257-18-8	
	138257-19-9	
	169102-57-2	
	678970-15-5	
	678970-16-6	
	678970-17-7	
1,2,5,6,9,10-hexabromocyclododecane (HBCD) (*S)	3194-55-6	
α -hexabromocyclododecane (*S)	134237-50-6	
β -hexabromocyclododecane (*S)	134237-51-7	
γ -hexabromocyclododecane (*S)	134237-52-8	
Scope of application: If the following case applies, the use of chemical substances is prohibited. (1) Intentionally added (2) Inclusion of more than 1,000 ppm in homogeneous materials		

Table 2 Level 2 Restricted Substances

No chemicals corresponding to this level.

Table 3 Level 3 Controlled Substances

1. Antimony and Antimony Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Antimony	7440-36-0	Colorants, coating materials, flame retardant, flame retardant aid, stabilizers
Antimony trichloride	10025-91-9	
Antimony trioxide	1309-64-4	
Antimony pentoxide	1314-60-9	
Sodium antimonate	15432-85-6	

Scope of application:
1. Content that exceeds 1000ppm

2. Arsenic and Arsenic Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Arsenic	7440-38-2	Semiconductor basal plate, glass antifoaming agent, colorants, coating materials, flame retardant
Gallium arsenide	1303-00-0	
Arsenic pentoxide (*S)	1303-28-2	
Arsenic trioxide (*S)	1327-53-3	
Triethyl arsenate (*S)	15606-95-8	

Scope of application:
1. Content that exceeds 1000ppm

3. Berylium and Berylium Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Berylium	7440-41-7	Metal alloys, ceramic materials
Beryllium oxide	1304-56-9	

Scope of application:
1. Content that exceeds 1000ppm

4. Bismuth and Bismuth Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Bismuth	7440-69-9	Semiconductors, metal alloys, solder materials
Bismuth trioxide	1304-76-3	
Bismuth nitrate	10361-44-1	

Scope of application:
1. Content that exceeds 1000ppm

5. Nickel and Nickel Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Nickel	7440-02-0	Colorants, batteries, surface treatment, electrodes, nickel coatings, metal alloys
Nickel (II) oxide	1313-99-1	
Nickel (II) carbonate	3333-67-3	
Nickel (II) sulfate	7786-81-4	

Scope of application:
1. Content that exceeds 1000ppm, except for metal alloys (e.g. stainless, etc.)

6. Selenium and Selenium Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Selenium	7782-49-2	Photo conductor, pigments, glass coloring agents, semiconductors, photocells
Selenious acid	7783-00-8	

Scope of application:
1. Content that exceeds 1000ppm

7. Brominated Flame Retardants

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
3,5,3',5'-tetrabromobisphenol A (TBBPA)	79-94-7	Flame retardant
TBBA- (2,3-dibromopropyl ether)	21850-44-2	
TBBA Bis-(2-hydroxyethyl ether)	4162-45-2	
1,2,5,6,9,10-hexabromocyclododecane(HBCD) (*S)	3194-55-6	
Hexabromocyclododecane (HBCDD) (*S)	25637-99-4	
2,3-dibromopropanol	96-13-9	
Decabromodiphenylethane	84852-53-9	

Scope of application:
1. Content that exceeds 1000ppm; however, this condition does not apply to polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs), which are restricted substances.

8. Phthalate ester

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Dibutylphthalate (DBP) (*S)	84-74-2	Plasticizers, dyes,colorants, coating materials, inks,adhesives, choke coil,tube,trans
Bis (2-ethylhexyl) phthalate (DEHP) (*S)	117-81-7	
Butyl benzyl phthalate (*S)	85-68-7	
Diisononyl phthalate	28553-12-0 68515-48-0	
Diisodecyl phthalate	26761-40-0 68515-49-1	
Di-n-octyl phthalate (DNOP)	117-84-0	
Diisobutyl phthalate(DIBP) (*S)	84-69-5	

Scope of application:
1. Content that exceeds 1000ppm
Resin comprised mainly of phthalate ester is not included as phthalate ester (e.g. aromatic polyester, etc.)

9. Radioactive substances

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Uranium	—	Optical glass and lenses, scintillation counter
Plutonium	—	
Thorium	—	
Cesium	7440-46-2	
Strontium	7440-24-6	

Scope of application:
1. Content that exceeds 1000ppm

10. Magnesium and Magnesium Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Magnesium	7439-95-4	Metal alloys, optical materials, optical thin film material, structural material, aluminum alloy(duralumin), magnesium alloys, fatty acid salt
Magnesium oxide	1309-48-4	
Other Copper Compounds	—	

Scope of application:
1. Content that exceeds 1000ppm

11. Copper and Copper Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Copper	7440-50-8	Lead wire,Terminal,Alloy such as brass
Other Copper Compounds	—	

Scope of application:
1. Content that exceeds 1000ppm

12. Gold and Gold Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Gold	7440-57-5	Plating
Other Gold Compounds	—	

Scope of application:
1. Content that exceeds 1000ppm

13. Palladium and Palladium Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Palladium	7440-05-3	Electronic parts
Other Palladium Compounds	—	

Scope of application:
1. Content that exceeds 1000ppm

14. Silver and Silver Compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Silver	7440-22-4	Solder,Plating
Other Silver Compounds	—	

Scope of application:
1. Content that exceeds 1000ppm

15. Perchlorates

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Lithium perchlorate	7791-03-9	Coin-cell batteries

Scope of application:
1. Content that exceeds 0.006ppm

16. Anthracene

Target chemical substances	CAS No.	Application or use
Anthracene (*S)	120-12-7	Fireworks raw material, Anthraquinone raw material (inferiority), Carbon black raw material, Wood preservation,Mothball

Scope of application:
1. Content that exceeds 1000ppm

17. Cobalt chloride (CoCl2)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Cobalt chloride or Cobalt(II) dichloride (*S)	7646-79-9	Desiccant indicator
Cobalt(II) chloride hexahydrate	7791-13-1	
Cobalt(III) chloride	10241-04-0	
Cobalt chloride	34240-80-7	

Scope of application:
1. The substance is contained as an indicator in a drying agent.

18. 5-tert-butyl-2,4,6-trinitro-m-xylene(musk xylene)

Target chemical substances	CAS No.	Application or use
5-tert-butyl-2,4,6-trinitro-m-xylene (*S) (musk xylene)	81-15-2	Fragrant materials

Scope of application:
1. Content that exceeds 1000ppm

19. Anthracene oil

Target chemical substances	CAS No.	Application or use
Anthracene oil (*S)	90640-80-5	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
Anthracene oil, anthracene paste, distn. lights (*S)	91995-17-4	
Anthracene oil, anthracene paste, anthracene fraction (*S)	91995-15-2	
Anthracene oil, anthracene-low (*S)	90640-82-7	
Anthracene oil, anthracene paste (*S)	90640-81-6	

Scope of application:
1. Content that exceeds 1000ppm

20. Coal tar pitch, high temperature

Target chemical substances	CAS No.	Application or use
Coal tar pitch, high temperature (*S)	65996-93-2	Pitch, coal tar, high temp. is mainly used in the production of electrodes for industrial applications. Smaller volumes are dedicated to specific uses such as heavy duty corrosion protection, special purpose paving, manufacture of other substances and the production of clay targets.

Scope of application:
1. Content that exceeds 1000ppm

21. Refractory Ceramic Fibres

Target chemical substances	JAMP SN*	Application or use
Aluminiosilicate, Refractory Ceramic Fibres (*S)	JAMP-SN0007	Refractory ceramic fibres are used for high-temperature insulation, almost exclusively in industrial applications (insulation of industrial furnaces and equipment, equipment for the automotive and aircraft/aerospace industry) and in fire protection (buildings and industrial process equipment).
Zirconia Aluminosilicate,Refractory Ceramic Fibres (*S)	JAMP-SN0055	

Scope of application:
1. Content that exceeds 1000ppm
Note:
(a) Aluminiosilicate, Refractory Ceramic Fibres
Al2O3 and SiO2 are present within the following concentration ranges:
- Al2O3: 43.5 - 47 % w/w, and SiO2: 49.5 – 53.5 % w/w, or
- Al2O3: 45.5 – 50.5 % w/w, and SiO2: 48.5 – 54 % w/w
(b) Zirconia Aluminosilicate,Refractory Ceramic Fibres
Al2O3, SiO2 and ZrO2 are present within the following concentration ranges:
- Al2O3: 35 - 36 % w/w, SiO2: 47.5 – 50 % w/w, and ZrO2: 15 – 17 % w/w
(c) Fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (μm)

*JAMP SN(Substance Number) is substituted because there is no CAS number in this chemical.

22. 2,4-Dinitrotoluene

Target chemical substances	CAS No.	Application or use
2,4-Dinitrotoluene (*S)	121-14-2	2,4-dinitrotoluene is used in the production of toluene diisocyanate, which is used for the manufacture of flexible polyurethane foams. The substance is also used as gelatinizing-plasticizing agent for the manufacture of explosives.
Scope of application: 1. Content that exceeds 1000ppm		

23. Lead chromate molybdate sulphate red (C.I. Pigment Red 104)

Target chemical substances	CAS No.	Application or use
Lead chromate molybdate sulphate red (*S) (C.I. Pigment Red 104)	12656-85-8	Lead chromate molybdate sulphate red (C.I. Pigment Red 104) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment, vehicles and aircraft as well as road and airstrip painting.
Scope of application: 1. Content that exceeds 1000ppm		

24. Lead sulfochromate yellow (C.I. Pigment Yellow 34)

Target chemical substances	CAS No.	Application or use
Lead sulfochromate yellow (*S) (C.I. Pigment Yellow 34)	1344-37-2	Lead sulfochromate yellow (C.I. Pigment Yellow 34) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment, vehicles and aircraft as well as road and airstrip painting. The substance is further used for camouflage or ammunition marking in the defence area.
Scope of application: 1. Content that exceeds 1000ppm		

25. Cyanide compounds

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Barium cyanide	542-62-1	Colorants, coating materials, Plating, plastics raw material, plating processing agent
Barium tetracyanoplatinate	562-81-2	
Cyanogen bromide	506-68-3	
Calcium cyanide	592-01-8	
Copper (I) cyanide	544-92-3	
Copper (II) cyanide	14763-77-0	
Copper cyanide	4367-08-2	
Hydrogen cyanide	74-90-8	
Lead( ) dicyanide	592-05-2	
Mercury dicyanide	592-04-1	
Nickel cyanide	557-19-7	
Potassium cyanide	151-50-8	
Potassium dicyanoaurate	13967-50-5	
Potassium cobalt cyanide	13963-58-1	
Potassium dicyanocuprate	13682-73-0	
Dipotassium tetracyano mercurate	591-89-9	
Potassium nickel cyanide	39049-81-5	
Silver cyanide	506-64-9	
Sodium cyanide	143-33-9	
Sodium copper cyanide	14264-31-4	
Zinc cyanide	557-21-1	
Scope of application: 1. Intentionally added		

26. Pentachlorophenol

Target chemical substances	CAS No.	Application or use
Pentachlorophenol	87-86-5	Insecticide, general agricultural chemicals, (The medium is included.)
Scope of application: 1. Intentionally added		

27. Benzene

Target chemical substances	CAS No.	Application or use
Benzene	71-43-2	Solvent, cleaning agent, synthetic medium
Scope of application: 1. Intentionally added		

28. 1,1,2-Trichloroethane

Target chemical substances	CAS No.	Application or use
1,1,2-Trichloroethane	79-00-5	Solvent, cleaning agent, lubricant, synthesis medium, fat and oil, wax

Scope of application:
1. Intentionally added

29. Mirex

Target chemical substances	CAS No.	Application or use
Mirex	2385-85-5	Insecticide, Insect repellent

Scope of application:
1. Intentionally added

30. Polycyclic aromatic hydrocarbons (PAH)

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Benzo[a]pyrene	50-32-8	Rubber, plastic parts, lubricating oil, Extender oil in the tire, Preservative for wood
Benzo[e]pyrene	192-97-2	
Benz[a]anthracene	56-55-3	
Chrysene	218-01-9	
Benzo[b]fluoranthene	205-99-2	
Benzo[j]fluoranthene	205-82-3	
Benzo[k]fluorathene	207-08-9	
Dibenz[a,h]anthracene	53-70-3	

Scope of application:
1. Intentionally added

31. Chlorinated flame retardants

Examples (Typical examples of target chemical substances)	CAS No.	Application or use
Tetrakis(2-chloroethyl)dichloroisopentyldiphosphate	38051-10-4	Frame retardants
Tris(1-chloro-2-propyl)phosphate	13674-84-5	
Tris(2,3-dichloro-1-propyl)phosphate	66108-37-0	
Other Chlorinated flame retardants	-	

Scope of application:
1. Intentionally added

Note: For “level 3 Controlled Substances”, please report if the content even contain less than 1000ppm is known.

Note: Please confirm the Chemical Substance for SVHC of REACH regulation with ECHA (European Chemicals Agency) or JAMP (Joint Article Management Promotion-consortium).

ECHA: Candidate list of SVHC http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

JAMP: Declarable Substances Reference List http://www.jamp-info.com/list

Table 1-2

Control Value: The content concentration that cannot be exceeded unless the chemical substance is intentionally used or mixed in as well as the concentration level that needs to be controlled by USHIO and its suppliers

When the content concentration as impurities of prohibited substances exceeds the control value, USHIO will request reanalysis, an explanation of the reason and reduction in content concentration to a level below the control value.

	Control Value									Threshold Value Ref. Table 1-1
	1) Plastic resin (including rubber, film)	2) Coating materials, inks, pigments, dyes	3) Lead-free solders, (bar solder, wire solder, resin flux-cored solder) except flow soldering section	4) Flow soldering (solder flow bath)	5) Electroless nickel plating	6) Metal materials other than lead-free solder.	7) Chromated parts and materials	8) Polyvinyl chloride (PVC) undercoating	9) Materials other than those mentioned	All materials
Cadmium and Cadmium Compounds	20 ppm	20 ppm	20 ppm	20 ppm	-	-	-	-	75 ppm	75 ppm
Hexavalent Chromium Compounds	-	-	-	-	-	-	100 ppm	-	1000 ppm	1000 ppm
Lead and Lead Compounds	100 ppm	100 ppm	500 ppm	800 ppm	800 ppm	500 ppm	-	300ppm	1000 ppm	1000 ppm (except 1), 2), and 8), which are 300ppm)
Mercury and Mercury Compounds									1000 ppm	1000 ppm
Polybrominated Biphenyls (PBBs)	100 ppm	-	-	-	-	-	-	-	1000 ppm	1000 ppm
Polybrominated Diphenyls ethers (PBDEs)	100 ppm	-	-	-	-	-	-	-	1000 pm	1000 ppm

- Packaging materials: Not permitted when the gross weight of cadmium, mercury, hexavalent and lead exceeds 1000ppm
- Refer to Table 1-1 “Use of Level 1 Prohibited Substances” for exempted items.
- For “ – ”, chemical substances are to be controlled according to the threshold value.