Magnescale

RMS-0002

Product Environmental Technology Standards

WEB Edition

Magnescale Co., Ltd

CONTENTS

1. Purpose

These technology standards are intended to observe applicable laws, protect the Earth's environment, and reduce harmful effects on the ecosystem through the prevention of the use of environmental management substances in parts, devices, and other products made up of Magnescale products. These standards clarify those substances whose use is prohibited, substances whose use is to be fully abolished, and items outside the scope of these standards.

2. Scope of Application

2.1 Scope of Application for Parts/Materials

These standards apply to parts, materials and other substances procured from, and designed or consigned for manufacture by, Magnescale Co., Ltd. These items must meet the guidelines set forth in these technology standards.

Targeted Products and Materials
Half-finished products (assembly parts including functional units, modules, and board assemblies)
Parts (electric parts, mechanical parts, semiconductor devices, printed wiring boards, recording media, and packaging and materials)
Bolts and screws
Accessories (supplied parts for using equipment, including AC adapters)
Construction materials of indirect materials used in products (including materials used in adhesive tape, solder material, adhesive agents, etc.)
Printed matters (including operating manuals, warrantees, and supplemental information regarding products and parts)
Maintenance and repair parts (Some maintenance and repair parts for products already shipped will be handled according to a separate notification.)
Packaging and materials defined in 4.2.1, "Definition of Package Parts and Materials," used for transportation and protection of parts by the delivery agent.
Batteries

2.2 Scope of Application for Products

(1) Magnescale products designed and manufactured by Magnescale, and sold, leased or distributed by Magnescale

(2) Magnescale products consigned by Magnescale for a third party to design and manufacture, and sold, leased or distributed under the Magnescale brand

(3) Products consigned by a third party for Magnescale to design and manufacture (excluding parts and materials designated by that third party)

Furthermore, even if not explicitly defined in these technology standards, substances and associated applications prohibited and/or restricted by national or regional laws must observe those laws.

3. Definition of Terms

Terms used in these technology standards are defined as given below.

(1) Environmental management substances
Among substances contained in parts and devices, substances that have been determined to have a significant adverse environmental impact on the Earth's environment and/or human body.

(2) Management level
Substances are managed under one of the three management levels given below or as outside the scope of application of these standards.

(a) Level 1 Substances and associated applications prohibited from use in parts and materials.

(b) Level 2 Substances and associated applications to be moved to Level 1 when the time given in the table arrives.

(c) Level 3 Substances and associated applications whose use in parts and materials is to be fully abolished even though no target date for abolishment is currently defined. These are to be moved to Level 2 respectively each time it has been determined that alternate parts, material development and alternate technology have been established and can be introduced, and subsequently fully abolished.

(d) Not covered
Substances and applications not covered by law or for which there is currently no alternate technological solution.

(3) Contained
The term defines a substance that is added, filled, mixed or attached to a part and/or device making up a product, or to a material used therein, regardless of whether or not a substance is used intentionally. (This includes cases in which the substance becomes unintentionally mixed in with, or attached to, a product during the manufacturing process.) Note, however, that even though Dopant is intentionally added during the manufacture of semiconductor devices and other components, it is not handled as "contained" in cases where an extremely small amount remains on the semiconductor device or other component.

(4) Impurity
Substances that are contained in natural materials and cannot be technologically eliminated through a purification process as an industrial material (natural impurity), and substances that occur in a compound reaction process that cannot be technologically eliminated. When a substance referred to as an "impurity" to distinguish it from main raw materials is used to change the properties of a material, it is treated as "contained".

Note: If allowable concentrations of an environmental management substance are specified in these technology standards and the substance in question is mixed in with, or attached to, a part or device as an impurity, its concentration must not exceed the given allowable concentration.

(5) Delivery Prohibition Date

This is the date after which delivery of a part or material to Magnescale is prohibited.

(6) Plastics in these technical standards

Materials formed from synthetic polymers, or fabric, film, adhesive tape, molded products, synthetic rubber products, plant-based plastics or adhesive agents made of synthetic polymer materials, etc. When a natural resin is synthesized with a synthetic polymer of the type described above, it is treated as a plastic.

4. Management Guidelines for Environmental Management Substances

4.1 Environmental Management Substances

The table below gives the names of environmental management substances covered by these technology standards.

Table 4.1 Names of Environmental Management Substance

Substance Name	
Heavy metals	Cadmium and cadmium compounds
	Lead and lead compounds
	Mercury and mercury compounds
	Hexavalent chromium compounds
Organic chlorine compounds	Polychlorinated biphenyl (PCB), polychlorinated naphthalene (PCN), and polychlorinated terphenyl (PCT)
	Short-chain chlorinated paraffins (SCCP)
	Other organic chlorine compounds
Organic bromine compounds	Polybrominated biphenyl (PBB)
	Polybromodiphenyl ether (PBDE), including decabromodiphenyl ether (DecaBDE)
	Other organic bromine compounds
Tributyltin compounds (TBT) and triphenyltin compounds (TPT)	
Asbestos	
Certain azo compounds	
Formaldehyde	
Polyvinyl chloride (PVC) and substances containing PVC	
Beryllium oxide beryllium copper	
Certain phthalate ester (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)	
Hydrofluorocarbons (HFC) and perfluorocarbons (PFC)	
Perfluorooctane sulfonate (including salt) (PFOS)	
Certain benzotriazole	
Cobalt chloride	
Ozone depleting substances (ODS)	

4.2 Detail of Management Substances

4.2.1 Cadmium and Cadmium Compounds

Substance Name: Cadmium and Cadmium Compounds		
Target		Delivery Prohibition Date
Level 1	Stabilizers, pigments, dyes (including insulation for electrical wires, remote commander keys, bundling bands, exterior resin on electronic parts, outer boxes, labels, and phonograph records) and paint used in package parts and materials (See 4.2.1), plastic (including rubber); ink and surface treatments (such as electrolytic plating and non-electrolytic plating); coatings, photographic film; and fluorescent lamps (compact fluorescent lamps and straight-tube fluorescent lamps)	Immediately
	All applications other than non-covered applications. For example: electrical contacts such as DC motors, switches, relays, and breakers; fuse elements of thermal fuses; pigments and dyes for glass and glass-coating materials (pigments and dyes used with glass, and coatings for glass); solder (when cadmium content exceeds 20 ppm); fluorescent substances contained in fluorescent indicators and CdS photoconductive cells; and resistors (glass flit)	Immediately (starting from January 1, 2005)
	Parts made from metals that include zinc (such as brass, welded zinc plating); and parts with cadmium content that exceeds 100 ppm	Immediately (starting from October 1, 2005)
Not covered	Plating for electrical contacts that require high reliability when there is no alternate material; optical glass and filter glass	

Measurement target: Plastic (including rubber), paint and ink

Allowable concentration: less than 5 ppm

Measurement standard:
(1) Pre-processing
Pre-processing methods primarily fall into the following four types.

1. Ashing in the presence of sulfuric acid (for example, IEC 62321:2008)
2. Pressurized acid decomposition in a sealed container (microwave decomposition method) (for example, EN 13346:2000 or EPA 3052:1996)
3. Acid decomposition using nitric acid, hydrogen peroxide solution, or hydrochloric acid (for example, EPA 3050B Rev. 2:1996)
4. Wet decomposition using sulfuric acid, nitric acid, or hydrogen peroxide solution (for example, BS EN 1122:2001)

Note: In all of the cases above, if a precipitant (insoluble) occurs, it must be fully dissolved and liquefied by some method (such as alkali melting).

(2) Measurement method
Measurement methods primarily fall into the following three types.

1. Inductively coupled plasma-optical emission spectrometry (ICP-AES (ICP-OES)) analysis; for example, ISO 11885:2007
2. Atomic absorption spectrometry (AAS) analysis; for example, EN ISO 5961:1995
3. Inductively coupled plasma-mass spectrometry (ICP-MS) analysis; for example, IEC 62321:2008

Combinations of pre-processing and measurement methods other than given above may be used as long as it is possible to guarantee a concentration of cadmium having a lower limit of less

than 5 ppm. Furthermore, methods listed in IEC 62321:2008 may be used as long as a lower limit of 5 ppm can be guaranteed. Finally, cadmium and lead content can be analyzed simultaneously using the methods described above other than AAS.

Note: Elution methods represented in EN 71-3:1994, ASTM F963-96a, ASTM F963-03, ASTM D 5517, and ISO 8124-3:1997 are not suitable for pre-processing.
Item 55 of the Testing Methods for Industrial Wastewater (JIS K0102) only covers the measurement method, so a pre-processing method must also be presented.

4.2.2 Lead and Lead Compounds

Substance Name: Lead and Lead Compounds		
Target		Delivery Prohibition Date
Level 1	Lead-based paint and ink used in package parts and materials (See 4.2.1) and printed wiring boards	Immediately
	Surface treatments for external electrodes and lead terminals of parts (such as electric parts, semiconductor devices, and heat sinks); stabilizers, pigments and dyes contained in plastic (including rubber) materials used in externally exposed parts of AC adapters, electrical cords, connection cords, and equipment; paint and ink used in externally exposed parts of equipment	Immediately (starting from April 1, 2004)
Level 1	All applications other than Level 3 or those not covered. For example, surface treatments for the external electrodes or lead terminals of the parts built into AC adapters, remote commanders, semiconductor devices, etc.; leaded solder with lead content of less than 85 wt% that the concentration of lead included in solder exceeds 1000 ppm; all types of metal alloys (including soldering materials) that exceed the allowable concentration*1; stabilizers, pigments and dyes contained in plastic (including rubber) materials used in parts other than externally exposed parts of AC adapters, electrical cords, connection cords, remote commanders, mice, and equipment; paint and ink used in externally exposed parts of equipment	Immediately (starting from January 1, 2005)
	Non-electrolytic plating films (such as non-electrolytic nickel plating and non-electrolytic gold plating) of which lead content exceeds 1000 ppm	Immediately (starting from February 1, 2006)
Level 3	Non-electrolytic plating films (such as non-electrolytic nickel plating and non-electrolytic gold plating) of which lead content is less than 1000 ppm	
Not covered	High-melting-point solder used for connecting parts and devices (solder containing lead with an 85 wt% or more of lead); glass materials used in electronic ceramic parts (piezoelectric materials, conductive materials, and magnetic materials (ferrite)), optical glass, filter glass, Braun tubes, electronic parts, and fluorescent lamps; glass materials used in electronic parts including resistors, conductive pastes (silver and copper pastes), adhesive agents, glass flit and sealing agents; solders that are used for connection between the microprocessor terminals and the package, are made from two or more elements, and whose concentration of lead exceeds 80 wt%, but is less than 85 wt%; solder used for joining a semiconductor chip inside an IC flip-chip package to the connecting board (including solder paste under C4 bumps)*1; Allowable concentrations for various metal alloys Type of alloy Allowable concentrations of lead Iron 0.35 wt% or less Aluminum alloy 0.4 wt% or less Copper alloy (including brass and phosphor bronze) 4 wt% or less Solder (*2) 1000 ppm or less. When using solder for anistropic conductive film (ACF) or anistropic conductive paste (ACP), solder containing conductive materials (*2) of less than allowable concentrations must be used.	

Measurement target: plastic (including rubber), paint, and ink

Allowable concentration: 100 ppm or less

Measurement standard
(1) Pre-processing methods primarily fall into the following four types.

1. Ashing in the presence of sulfuric acid (for example, IEC 62321:2008)
2. Pressurized acid decomposition in a sealed container (microwave decomposition method) (for example, EN 13346:2000 or EPA 3052:1996)
3. Acid decomposition using nitric acid, hydrogen peroxide solution, or hydrochloric acid (for example, EPA 3050B Rev. 2:1996)
4. Wet decomposition using sulfuric acid, nitric acid, or hydrogen peroxide solution

Note:
In all of the cases above, if a precipitant (insoluble) occurs, it must be fully dissolved and liquefied by some method (such as alkali melting).

(2) Measurement methods primarily fall into the following three types.

1. Inductively coupled plasma-optical emission spectrometry [ICP-AES (ICP-OES)] analysis; for example, ISO 11885:2007
2. Atomic absorption spectrometry (AAS) analysis; for example, EN ISO 5961:1995
3. Inductively coupled plasma-mass spectrometry (ICP-MS) analysis; for example, IEC 62321:2008

Combinations of pre-processing and measurement methods other than given above may be used as long as it is possible to guarantee a concentration of lead having a lower limit of less than 30 ppm. Furthermore, methods listed in IEC 62321:2008 may be used as long as a lower limit of 30 ppm can be guaranteed. Finally, cadmium and lead content can be analyzed simultaneously using the methods described above other than AAS.

Note:
Elution methods represented in EN 71-3:1994, ASTM F963-96a, ASTM F963-03, ASTM D 5517, and ISO 8124-3:1997 are not suitable for pre-processing.

Item 54 of the Testing Methods for Industrial Wastewater (JIS K0102) only covers the measurement method, so a pre-processing method must also be presented.

4.2.3 Mercury and Mercury Compounds

Substance Name: Mercury and Mercury Compounds		
Target		Delivery Prohibition Date
Level 1	Package parts and materials (See 4.2.1); paint and ink; time meters; relays, switches and sensors that use mercury for contacts; preparations for plastic	Immediately
	All applications other than non-covered applications.	Immediately (starting from January 1, 2005)
Not covered	Lamps other than compact fluorescent lamps (such as used for LCD backlighting) and straight-tube fluorescent lamps (such as high-pressure mercury lamps); compact fluorescent lamps with a concentration of less than 5 mg per lamp; straight-tube lamps with a concentration of less than 5 mg per lamp	

4.2.4 Hexavalent Chromium Compounds

Substance Name: Hexavalent Chromium Compounds		
Target		Delivery Prohibition Date
Level 1	Package parts; materials (See 4.2.1)	Immediately
	Applications as component of parts and materials, such as paint, ink or other additive agents; when this substance remains as residue on processed areas in the cases of plating and chemical-based surface treatments (such as used for screws and steel plates)	Immediately (starting from January 1, 2005)

4.2.5 Polychlorinated Biphenyl (PCB), Polychlorinated Naphthalene (PCN), and Polychlorinated Terphenyl (PCT)

Substance Name: Polychlorinated Biphenyl (PCB), Polychlorinated Naphthalene (PCN), and Polychlorinated Terphenyl (PCT)		
Target		Delivery Prohibition Date
Level 1	Oil-filled transformers, capacitors, insulating oil, lubricating oil, plastic fire retardants, and all applications	Immediately

4.2.6 Short-Chain Chlorinated Paraffin (SCCP)

Substance Name: Short-Chain Chlorinated Paraffin (SCCP)		
Short-chain chlorinated paraffin having a carbon chain length of 10-13 is targeted		
Target		Delivery Prohibition Date
Level 1	Applications where the substance is used on the product cabinet, including accessories, and printed wiring boards	Immediately
	All applications other than given above	Immediately (starting February 1, 2006)

4.2.7 Other Organic Chlorine Compounds

Substance Name: Other Organic Chlorine Compounds		
Target		Delivery Prohibition Date
Level 3	Applications where fire retardant or plasticizing agent is used on plastic or where fire retardant is used on printed wiring boards	

4.2.8 Polybrominated Biphenyl (PBB)

Substance Name: Polybrominated Biphenyl (PBB)		
Target		Delivery Prohibition Date
Level 1	All applications such as where fire retardant is used on plastic	Immediately

4.2.9 Polybromodiphenyl Ether (PBDE), including Decabromodiphenyl Ether (DecaBDE)

Substance Name: Polybromodiphenyl Ether (PBDE), including Decabromodiphenyl Ether (DecaBDE)		
Target		Delivery Prohibition Date
Level 1	All applications such as where fire retardant is used on plastic	Immediately
	Parts manufactured using molds existing from before December 2002 (limited to TVs and display chassis other than those for Europe). However, use of newly molded parts after January 2003 is prohibited	Immediately (starting from January 1, 2005)

4.2.10 Other Organic Bromine Compounds

Substance Name: Other Organic Bromine Compounds		
Target		Delivery Prohibition Date
Level 3	All applications such as where fire retardant is used on plastic or printed wiring boards.	

4.2.11 Tributyltin Compounds (TBT) and Triphenyltin Compounds (TPT)

Substance Name: Tributyltin Compounds (TBT) and Triphenyltin Compounds (TPT)		
Target		Delivery Prohibition Date
Level 1	All applications such as paint, ink, antiseptic agents, or anti-mold agents	Immediately

4.2.12 Asbestos

Substance Name: Asbestos		
Target		Delivery Prohibition Date
Level 1	All applications such as insulating or filling materials	Immediately

4.2.13 Certain Azo Compounds

Substance Name: Certain Azo Compounds		
Amine shown in Table 4.2a and azo compounds resulting in amine shown in 4.2a, as decomposed based on testing methods quoted in 76/769/EEC		
Target		Delivery Prohibition Date
Level 1	Applies to pigments used in parts of products intended for continuous contact with the human body (such as earphones, headphones, shoulder pads of shoulder bags, belts, and straps)	Immediately
Level 3	Items that are not intended for continuous contact with the human body (such as remote commanders, cushions, carrying pouches)	
Testing methods (reference): The following methods are available for decomposing azo compounds and extracting amino. 1) EN 14362-1:2003, 2) CEN ISO/TS 17234:2003, and 3) EN 14362-2:2003		

Table 4.2a List of Certain Amine Compounds

CAS No.	Amine
92-67-1	4-aminodipheny
92-87-5	Benzidene
95-69-2	4-chloro-o-toluidine
91-59-8	2-napthylamine
97-56-3	o-aminoazotoluene
99-55-8	2-amino-4-nitrotoluene
106-47-8	p-chloroaniline
615-05-4	2- and 4-diaminoaniline
101-77-9	4- and 4'-diaminodiphenylmethane
91-94-1	3- and 3'-dichlorobenzidine
119-90-4	3- and 3'-dimethoxybenzidine
119-93-7	3- and 3'-dimethylbenzidine
838-88-0	3- and 3'-dimethyl-4,4'-diaminodiphenylmethane
120-71-8	p-cresidine
101-14-4	4,4'-methylene-bis-(2-chloroaniline)
101-80-4	4,4'-oxydianiline
139-65-1	4,4'-thiodianiline
95-53-4	o-toluidine
95-80-7	2,4-toluidinediamine
137-17-7	2,4,5-trimethylaniline
90-04-0	o-anisidine
60-09-3	4-aminoazobenzene

4.2.14 Formaldehyde

<table>
<tr><th colspan="3">Substance Name: Formaldehyde</th></tr>
<tr><th colspan="2">Target</th><th>Delivery Prohibition Date</th></tr>
<tr><td rowspan="2">Level 1</td><td>Products made from wood (such as speakers and racks) that use fiber board, particle board, or plywood included in products intended for Europe</td><td>Immediately</td></tr>
<tr><td>Products made from wood (such as speakers and racks) that use fiber board, particle board, or plywood included in products intended for destinations other than Europe</td><td>Immediately (starting January 1, 2005)</td></tr>
<tr><td colspan="3">Standard value (emission density): In accordance with the testing method described below. (1) Chamber method: 0.1 ppm or less (0.124 mg/m3 or less) in an air-tight container having an aerial density of 12 m3, 1 m3, or 0.0225 m3; (2) Perforater method: 6.5 mg or less per 100 g of particle board without surface treatment (average value over six months); 7.0 mg per 100 g of fiber board without surface treatment (average value over six months); or 8.0 mg or less per 100 g of fiber board or particle board without surface treatment (measured once according to EN120); (3) Dessicater method: an average value of 0.5 mg/l or less and maximum value of 0.7 mg/l or less (check the average value and maximum value with N = 2).</td></tr>
<tr><td colspan="3">Testing methods: Chamber method, EN 717-1:2004; perforater method, EN 120:1992; desiccater mthod, JIS A 5905 (fiberboards) and JIS A 5908 (particle boards)</td></tr>
</table>

4.2.15 Polyvinyl Chloride (PVC) and Substances Containing PVC

Substance Name: Polyvinyl Chloride (PVC) and Substances Containing PVC		
Target		Delivery Prohibition Date
Level 1	Base materials used in non-contact IC cards (FeliCa)	Immediately (not used from the beginning)
	Cloth and coating agents used in carrying bags, carrying cases, and carrying pouches for personal computers, digital cameras, video cameras, and portable audio devices (except industrial use)	Immediately
	Bundling bands for bundling accessories and connection cords, etc.	Immediately (starting from July 1, 2002)
	Package parts and materials used for products and for accessories included with products (such as bags, adhesive tapes, curtains, blister pack)	Immediately (starting from January 1, 2005)
	Heat-shrink tubes	Immediately (starting from April 1, 2005)
	Flexible flat cable (FFC); sheets and laminate in the exterior of wood speakers; insulating panels, decorative panels, labels, sheets and laminate	Immediately (starting from April 1, 2007)
Level 3	Connection cords (1): cords for wearable equipment (such as cables for earphones, headphones, earphone mics, etc.); insulating and protective coatings used on the exterior of equipment; items such as insulating tubes, carrying belts, spacers, holders, covers, and ducts, 2- and 3-prong electrical cords (including plugs, connectors, and cord pushers) intended for Japan, the USA, and Canada; parts that use wires such as connectors with cords and wires inside hardware such as motor leads; and connection cords, (2): cords such as USB cords, iLink cords, video cords, AC adapters with two-wire leads, flat electrical cords, multi-core compound cables, and speaker cords; harnesses and processed wiring (such as coaxial cable, flat electrical cords, double-insulated wires, and shielded cable); the cloth and any coating agents used in carrying bags, carrying cases or carrying pouches for electronic products used for business; photographic paper; insulating caps for capacitors, power switches and fuses; items such as trays, magazine sticks, reels, and embossed carrier tape used in part packaging by the delivering agent; suction pads for installing hardware in motor vehicles; cable holders used inside hardware (metal coated with polyvinyl chloride) Level 1; and parts other than those not covered	
Not covered	Binders used with resin; high-pressure vinyl electrical cords; insulating tape; speaker grills; electrical cords (intended for other than Level 3); parts that use copolymerized vinyl chloride and parts that use a blend of polyvinyl chloride and other polymers (except for parts specified as Levels 1 through 3); transformer leads (leads containing varnish); curl cord; fine wires of AWG36 or higher; cables for commercial use that cannot be used in general-purpose products (such as camera cables and mic cables used by broadcast stations)	

4.2.16 Beryllium Oxide

Substance Name: Beryllium Oxide		
Target		Delivery Prohibition Date
Level 1	All applications other than Level 3	Starting from April 1, 2008
Level 3	Special applications where there is no alternative	

4.2.17 Beryllium Copper

Substance Name: Beryllium Copper		
Target		Delivery Prohibition Date
Level 3	All applications	

4.2.18 Certain Phthalate Ester (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)

Substance Name: Certain Phthalate Ester (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP) Substances listed in Table 4.2b are targeted		
Target		Delivery Prohibition Date
Level 3	Plasticizing applications for polyvinyl chloride resin used in cable coverings, cord coverings, and associated plugs and connectors	

Table 4.2b List of Certain Phthalate Ester (Phthalates)

Abbreviation	CAS No.	Name
DEHP	117-81-7	Bis phthalate (2-ethylhexyl)
DBP	84-74-2	DI-n-butyl phthalate
BBP	85-68-7	n-butyl benzyl phthalate
DINP	28553-12-0 68515-48-0	DI-i-nonyl phthalate
DIDP	26761-40-0 68515-49-1	DI-i-decyl phthalate
DNOP	117-84-0	DI-n-oxyl phthalate
DNHP	84-75-3	Di-n hexyl phthalate

4.2.19 Hydrofluorocarbons (HFC) and Perfluorocarbons (PFC)

Substance Name: Hydrofluorocarbons (HFC) and Perfluorocarbons (PFC)		
Target		Delivery Prohibition Date
Level 1	All applications where the substance is used in products as a refrigerant or heat-insulating agent	Immediately (starting from April 1, 2008)

4.2.20 Perfluorooctane Sulfonate (Including Salt) (PFOS)

Substance Name: Perfluorooctane Sulfanate (Including Salt) (PFOS)		
Target		Delivery Prohibition Date
Level 1	Materials used in products where the PFOS concentration is 0.1 wt% or more; and fabric or other coated materials where the PFOS concentration is 1 μg/m^2 or more per coated material; for example, materials coated with electrolytic plating, paint, pigment, dye, water repellant, oil repellant, or anti-staining agent (such as used with fabric, film, paper, or leather), fluorine resin film, adhesive agents, and sealing material	Immediately (starting from April 1, 2008)
Level 2	All applications other than items in Level 1 or not covered	Starting from April 1, 2010
Not covered	Photographic coating agents used with film, paper, and printing plates; and photo-resistant and/or anti-reflective coatings used in photolithography processes	

4.2.21 Certain Benzotriazole

Substance Name: Certain Benzotriazole		
2-(2H-1, 2, 3-benzotriazole-2-yl)-4 and 6-DI-tert-butyl phenyl (CAS No. 3846-71-7) are targeted		
Target		Delivery Prohibition Date
Level 1	Applications where anti-ultraviolet light agents or ultraviolet light absorption agents are used for the following: decorative panels, photographic paper, and molded plastic products	Immediately (starting from April 1, 2008)

4.2.22 Cobalt Chloride

Substance Name: Cobalt Chloride		
Target		Delivery Prohibition Date
Level 1	Humidity indicators used with desiccating agents (such as silica gel)	Immediately (starting from April 1, 2009)
Level 2	The term “humidity indicator” refers here to the type where paper is impregnated with cobalt oxide.	Starting from April 1, 2011

4.2.23 Ozone Depleting Substances (ODS)

Substance Name: Ozone Depleting Substances (ODS)		
Substances listed in Table 4.2c are targeted		
Target		Delivery Prohibition Date
Level 1	All applications where the substance is used in products as a refrigerant or heat-insulating agent; and products and materials subjected to foam formation and/or cleaning processes using ODS	Immediately

Table 4.2c List of Ozone Depleting Substances (ODS)

CAS No.	Name
75-69-4	CFC-11
75-71-8	CFC-12
76-13-1	CFC-113
76-14-2	CFC-114
76-15-3	CFC-115
353-59-3	Halon-1211
75-63-8	Halon-1301
124-73-2	Halon-2402
75-72-9	CFC-13
354-56-3	CFC-111
76-12-0	CFC-112
422-78-6	CFC-211
3182-26-1	CFC-212
165-97-7	CFC-213
29255-31-0	CFC-214
4259-43-2	CFC-215
661-97-2	CFC-216
422-86-6	CFC-217
56-23-5	Carbon tetrachloride
71-55-6	1,1,1,-trichloroethane

4.3 Additional Information About Package Parts and Materials

4.3.1 Definition of Package Parts and Materials

A package part or material is a product from parts and any materials of any type that are used to “contain,” “protect,” “handle,” “transport,” and “deliver” goods, from raw materials to processed products, from the producer to the user or consumer. (Note: This excludes packaging such as recoverable and reusable containers that are under the control of a transportation or delivery company and are not disposed of in-house or by the end-user.)

Table 4.3 Additional Information About Package Parts and Materials

Substance Name: Heavy Metals (Cadmium, Lead, Hexavalent Chrome, and Mercury)		
In addition to specifications given in Section 4.1 (Table 4.2), the following conditions must be satisfied based on legal regulations.		
Target		Delivery Prohibition Date
Level 1	Packaging parts and materials listed in Table 4.3a are targeted	Immediately
Not covered	Containers owned by a transportation or part delivery company	
Allowable concentrations: The allowable concentrations for the heavy metals such as mercury, cadmium, hexavalent chrome, and lead must total 100 ppm for all heavy metals for each material, ink and paint making up packaging. However, in the case of allowable concentrations of cadmium and lead for plastic (including rubber), paint, and ink locations, specifications given for cadmium and cadmium compounds and lead and lead compounds must also be satisfied. (Primary plastic parts: such as handles, plastic bags, cushioning materials, film, trays, reels, adhesive tape, magazine sticks (including stoppers), and bands.)		
(1) For hexavalent chrome, analyze the total chrome amount, and confirm that the total for the four elements is less than 100 ppm. In this case, pre-processing for cadmium and lead may be performed at the same time. (2) If the total for the four elements is more than 100 ppm, confirm that the total for cadmium, lead and mercury is less than 100 ppm. If the total for cadmium, lead and mercury is less than 100 ppm, perform detection of hexavalent chrome and confirm that hexavalent chrome is not ultimately detected. Measurement standards: (1) For pre-processing for cadmium and lead, methods must conform to methods for cadmium*3 and lead*4 in plastic. For overall chrome content, methods must conform to the method for cadmium*3 in plastic. For mercury, the following three primary methods can be given: 1. Pressurized acid decomposition (microwave decomposition) (for example, EPA 3052:1996 or IEC 62321:2008); 2. Heated vaporization-cold atomic absorption spectroscopy (for example, IEC 62321:2008); and 3. Wet decomposition method for sulfuric acid and nitric acid using an analysis flask with convective cooling device. (Kjeldahl method) (Note: For all of these methods, care must be taken that mercury does not sublimate. In addition, if precipitant occurs, it must be dissolved and liquefied by some method.) (2) Measurement methods: For cadmium, lead and overall chrome, methods must conform to methods for cadmium*3 and lead*4 in plastic. Although the method for mercury is similar to those for cadmium*3 and lead*4 in plastic, if low-level contamination is anticipated beforehand, analysis by reductive vaporization and atomic absorption spectrometry, or ICP-AES (ICP-OES) or ICP-MS with attached hydrogen generator may be suitable.		

Detection and Determination of Hexavalent Chrome

This confirmation method is valid in cases where the total concentration of the four elements, cadmium, lead, mercury, and hexavalent chrome, is 100 ppm or higher.

Detection Method
(1) Pre-processing elution method [water vaporization extraction method, alkali extraction method (for example, EPA 3060A and IEC 62321:2008 Annex C)]
(2) Measurement method ultraviolet-visible absorption spectrometry (for example, EPA 7196A or IEC62321:2008 Annex C)

In this measurement standard, any method may be used as long as it is possible to guarantee that the lower limit for each heavy metal is less than 5 ppm for mercury, less than 5 ppm for cadmium, less than 5 ppm for hexavalent chrome, and less than 30 ppm for lead for the combination of pre-processing and measurement method. Finally, cadmium, lead and hexavalent chrome content can be analyzed simultaneously by methods other than AAS.
(3) See the items “Substance Name: Cadmium and Cadmium Compounds” and “Measurement Target: Plastic (including rubber), paint, and ink,” in Table 4.2, “Primary Targets and Delivery

Prohibition Date for Environmental Management Substances."
(4) See the items "Substance Name: Lead and Lead Compounds" and "Measurement Target: Plastic (including rubber), paint, and ink," in Table 4.2, "Primary Targets and Delivery Prohibition Date for Environmental Management Substances."

Table 4.3a Specific Examples of Identifying Package Parts and Materials

Note: This does not cover all package parts and materials.

Package Parts and Materials Used to Transport Magnescale Products		
PACKAGING		
1.	Cartons (boxes)	Individual cartons, sub-master cartons, and master cartons made from any material
2.	Cushioning materials	
3.	Protective bags (sheets)	Such as bubble wrap and non-woven fabric
4.	Plastic bags	
5.	Envelopes	Such as envelopes for warrantees
6.	Blister pack	
7.	Film	Including protective film applied to LCD display surface, etc.
8.	Clamshells	
9.	Dividers and spacers	
10.	Printing ink	Ink used for printing on package parts
11.	Adhesive tape	Tape used to protect and stabilize moving parts or seal cartons and/or plastic bags
12.	Staples	
13.	Labels	Labels applied to package parts under the control of Magnescale such as barcode labels
14.	Joints	Such as carton joints
15.	Bands	Such as PP bands
16.	Suspension tabs	
17.	Handles	Handles and the parts used to make them
18.	Frames	Such as wooden frames
19.	Shrink wrap	
20.	Bottles	
21.	Sleeves	
22.	Cosmetic boxes	Cosmetic boxes such as for fountain pens or cosmetics
23.	Skids	
NOT PACKAGING		
1.	CD cases/bags	Items such as cases, bags, and spindles used with video tapes, CDs, MOs, MDs, and DVDs are considered part of the product
2.	Index cards/labels	Items such as index cards and labels supplied with CDs or other recording media are considered part of the product
3.	Carrying cases/pouches	Carrying cases and pouches supplied with products are considered part of the product
4.	Labels	Labels attached to items other than package parts and materials
5.	Labels	Labels attached by third parties such as cargo labels and invoices

Items Used With Devices, Semiconductors, and Other Components		
PACKAGING		
1.	Magazine sticks	Magazine sticks used for transporting items such as ICs
2.	Stoppers	
3.	Trays	
4.	Reels	

Items Used for Distribution		
PACKAGING		
1.	Palettes	One-way specification, including slip sheets, made from wood, plastic or paper
2.	Wooden boxes	
3.	Stretch wrap	Such as used to prevent shipments from breaking open
4.	Wooden containers	
5.	Items used for additional packaging	Such as cartons, cushioning materials, and adhesive tape to use as additional packaging for dispatching parts
6.	Bands and cords	Such as PP bands
NOT PACKAGING		
1.	Ship and airplane containers	Such as air freight containers and 40-foot containers for transportation by ship

5. Revisions

Edition	Issued date	Remarks
1	January 18, 2010	1st edition / only Japanese language
2	March 15, 2010	2nd edition / only Japanese language
3	August 1, 2010	3rd edition / Japanese and English language <Latest version>