

**Control Standard for Handling Chemical
Substances in Products, Parts and Materials
(for Suppliers)**

The 9th Edition

Hitachi Maxell, Ltd.

Contents

1. Purpose.....	3
2. Scope.....	3
3. Terms and definitions	3
4. Standards for Controlling Contained Chemical Substances in Products.....	3
4.1 Controlled substances.....	3
4.2 Identification of Contained Chemical Substances in materials, parts,partially fabricated products, units or finished products.....	4
4.3 Definitions of the denominator and numerator of the mass of Contained Chemical Substances.....	6
4.4 Priority standards.....	7
5. Implementation of the control levels.....	7
5.1 Survey of inclusion of environmental controlled chemical substances.....	7
5.2 Guarantee to the non-inclusion of prohibited substances.....	8
5.3 Environmental Suppliers.....	8
6. Exemption.....	8
6.1 Chemical substances exempted by legal regulations.....	8
7. Analytic Processes.....	8
8. Alteration History.....	9

1. Purpose

This control standard aims to prohibit, reduce, or appropriately control chemical substances contained in products and other articles to be produced and sold by Hitachi Maxell, Ltd. and group company (here in after referred to as "Maxell"), thus reducing the impacts of such substances on the global environment and making a sustainable society a reality.

2. Scope

This control standard shall apply to products, parts, materials, packing materials and auxiliary materials to be purchased from suppliers. This does not include products, parts and materials for research and development.

3. Terms and definitions

(1) Contained chemical substances

Chemical substances used in products, parts and materials (including packing materials).

(2) Inclusion

"Inclusion" shall refer to cases when a product, part or material includes a certain chemical substance at a rate exceeding the range where separation is technically possible without altering the form of an ordinary material. For the purpose of this standard document, it shall mean the inclusion of any such substance at a rate exceeding a specified control level.

(3) Non-inclusion

Non-inclusion shall refer to cases when a product, part or material does not include a specific environmental controlled chemical substance at a rate exceeding a specified control level, even if any portion is measured.

(4) Impurities

Chemical substances that are included in natural materials or industrially processed materials and which can't be technically removed in the separation process as unmodified materials. Provided that substances that are intentional addition shall not be called "impurities".

(5) Intentional addition

Intentional addition is the addition of substances for purpose of performance. Even if a small amount of the chemical substance was added (1mg or 1ppm), it is considered to be an inclusion.

(6) Crust

"Crust" shall refer to the portion of a product or part that is usually in contact with the atmosphere and to the surface where chemical substances are detected in an extraction test or other experiment.

(7) Control level

"Control level" shall refer to a level set by Maxell in this control standard and shall refer to the uppermost limit on a chemical substance included in a part or material which constitutes a product or other item.

(8) Packing materials

"Packing materials" shall refer to external film, internal cases, padding materials, corrugated cardboard, and related materials used to protect products, parts and materials. They include specific packing materials.

(9) Auxiliary materials

This term shall refer to labels, operation manuals and related materials sold together with products.

4. Standards for Controlling Contained Chemical Substances in Products

4.1 Controlled substances

Category	Controlled substances	Main laws
Level 1 *1	Chemical substances prohibited by Maxell. Chemical substances which may potentially be used for our products (including packing materials), though their use is prohibited or limited as per domestic or international laws or regulations. However, these standards do not apply under the following three conditions: 1) Concentration of the substances is not beyond the legal limits; 2) The substances are exempt from legal requirements; 3) Clients request to use the substances within a legally compliant range. See the "List of Level 1 Substances" (attached Table 3.1 or Attached list 1).	See attached Table 2 and Attached list 1.
Level 2 *2	Controlled substances whose intentional use is not limited under laws, but whose actual status of usage should be checked, or for which recycling or appropriate processing should be considered. See the "List of Level 2 Substances" (attached Table 3.2 or Attached list 2).	See attached Table 2 and Attached list 2.
Level 3 *3	Chemical substances prohibited or controlled by legal regulation or customer requirement concerning Maxell products.	See attached Table 2.

*1: Level 1 (prohibited substances)

- (1) Controlled substances are regulated in terms of intentional addition and numerical values.
- (2) It is considered an inclusion when a chemical substance is added over the controlled value in a homogeneous material, and its use is prohibited. (Mainly impurities)
- (3) A homogeneous material is the smallest unit that composes a part, and cannot be mechanically divided further.
- (4) About the thing that a regulation level is determined by laws and the thing which a customer requires, I give priority to a regulation level.

*2: Level 2 (controlled substances)

- (1) About the thing that a regulation level is determined by laws and the thing which a customer requires, I give priority to a regulation level.

*3: Level 3 (prohibited substances and controlled substances set by a customer demand)

- (1) Maxell manage it individually in each business headquarters.

4.2 Identification of Contained Chemical Substances in materials, parts, partially fabricated products, units or finished products

- (1) Examination of Contained Chemical Substances in materials, parts, partially fabricated products, units or finished products:

(i) Controlled chemical substances to be examined:

Regarding Level 1 or 2 chemical substances, the department nominated by the Manager of each business group or unit shall obtain information concerning the chemical substances, presenting a supplier the drawing numbers, names, and other details of the target materials, parts, partially-fabricated products, units or finished products. However, the Manager of each business group or unit shall be authorized to reduce or make an exemption to the examination after assessing the abidance by laws and the efficiency of an examination based on his/her technical knowledge. Level 3 shall be left to the discretion of Maxell.

(ii) Examination unit:

RoHS: For each homogeneous material.

Not RoHS: For each supplied product or for each arbitrary class into which supplied products are divided.

(iii) Units of examination values:

When the substances of Level 1 are contained in products, units of examination values shall be measured based on (a) the mass of the denominator and numerator, or (b) the mass and concentration of the denominator, in each specified part including the substances. As to Level 2, when such substances are contained, the units of examination values shall be measured based on (c) the mass of the substances included in the units of purchase of materials, parts, partially fabricated products, units, or finished products, or (d) the mass of the substances of each hierarchical unit dividing the materials, parts, partially fabricated products, units or finished products into arbitrary levels. Level 3 shall be handled similarly to Levels 1 and 2 according to the management details.

(iv) Classification of examination values:

Regarding the classification of examination values, the maximum (a theoretical or actual value) shall be obtained for Level 1, while an average (theoretical or actual value) or maximum (theoretical or actual value) shall be obtained for Level 2. Level 3 shall be handled similarly to Level 1 and 2 according to the management details.

(v) Control level of the examination values:

(a) Intentional addition of controlled chemical substances:

When controlled chemical substances (Level 1, 2 or 3) are intentionally added, the value specified in Article 4, clause 2, (1), (iii) all be examined, and obtained.

(b) Unintentional addition of controlled chemical substances:

Unintentionally added chemical substances (Level 1, 2, or 3), which are generated or remain as impurities or by-products in manufacturing process, shall be handled as follows:

a) Level 1:

Check for the potential presence of a specific substance. If it can be contained, examine and obtain the values specified in Article 4, clause 2, (1), (iii).

b) Level 2:

Not only when is the substance identified but also when its value is figured out, examine and obtain the value specified in Article 4, clause 2, (1), (iii) regardless of the originally identified values.

c) Level 3:

Level 3 shall be handled similarly to Levels 1 and 2 according to the management details.

The summary from (i) to (V) is as follows.

	Units of survey	Unit and classification of the examination values	Control level of the examination values	
			Intentionally added	Unintentionally added
Level 1	RoHS:For each homogeneous material. Not RoHS:For each supplied product or for each arbitrary class into	Units: in each part containing substances, (a) the mass of the denominator and the numerator or (b) the mass and concentration of the denominator: maximum (theoretical or actual value).	To be obtained regardless of the values.	To be obtained if the substances can be included.
Level 2	which supplied products are divided.	Units: the mass of the specific substance included in the units of purchase or each hierarchical unit dividing the items into arbitrary levels. Classification: Average (a theoretical or actual value) or maximum (a theoretical or actual value)	To be obtained regardless of the values.	To be obtained if the substances are identified and the values are figured out.

4.3 Definitions of the denominator and numerator of the mass of Contained Chemical Substances

(1) Definitions of the denominator and numerator of the mass of chemical substances included: Applied to Level 1.

(i) The denominator to measure the mass of chemical substances shall be the mass of the homogeneous materials (the same materials).

Composite materials and other substances are listed below:

	Composite materials	Definitions of the denominator
1	Compounds, alloys, etc.	To be homogeneous materials.
2	Paints, adhesives, ink, paste and other raw materials	The stuff ultimately formed in an assumed method shall be homogeneous material. (e.g.: the post drying and hardening status of paints and adhesives)
3	Materials that have undergone painting,printing,plating(chromate treatment) or other treatments	Each single layer shall be a homogeneous material. (When galvanization and chromate process is carried out, each of them shall be made of an individual homogeneous material.)

(ii) Definition of the molecular mass in the mass measure of chemical substances:

	Chemical substances	Definition of the numerator
1	Metals and metal compounds	Mass of the metal element
2	Non-metals and non-metal compounds	Mass of the chemical substance

4.4 Priority standards

If there is more than one legal regulation, the legal regulation that favors a lower environmental impact shall be applied. Provided, however, that if there is a legal regulation that is to be given priority regarding the products and other articles to which it relates, that legal regulation shall be applied.

For example, the regulation values for heavy metals included in batteries shall conform to EU Battery Directive (2006/66/EC) and the control values concerning the crust of products that may be used in toys shall conform to the European Safety Standard for toys (EN71-3).

5. Implementation of the control levels

This standard shall come into effects on October 1, 2015.

As for eighth edition, an application is possible until September 30, 2015 as a transition period.

5.1 Survey of inclusion of environmental controlled chemical substances

The survey of chemical substances included in the parts and materials is requested to its suppliers, and the handling of chemical substances is thoroughly conducted in-house. Therefore, Maxell will make sure that the chemical substances included in the products are appropriately controlled. The suppliers shall conduct a survey for each part (or constituent unit in some cases) to confirm if any product, part, or material delivered to Maxell includes any environmental controlled chemical substance exceeding a specific standard. It shall be submitted the data by letter.

5.2 Guarantee to the non-inclusion of prohibited substances

To make sure that Maxell products do not include any prohibited substance, Maxell will request its suppliers to submit a guarantee of non-inclusion to ensure that the parts and materials do not include any prohibited substance.

Maxell may request the submission of a guarantee to the non-inclusion regarding un-prohibited substances.

5.3 Environmental Suppliers

Suppliers who have made eco-friendly efforts and have satisfied the following items ① and ② will be certified as "Environmental Suppliers". A certification of "Environmental Suppliers" is necessary to supply products. parts and materials from now on.

① "Maxell environmental suppliers" audit prescribed by Maxell is passed.

But, when a supplier takes a certification of ISO14001 or a third person environment certification system, Maxell considers him to "Environmental Supplier".

② "Memorandum of Non-inclusion of the Prohibited Chemical Substances in Products" is concluded.

6. Exemption

The chemical substances that have very high impacts on the global environment, human health or ecosystems should be prohibited immediately. However, those satisfying the requirements listed below may be exempted.

① Products, parts and materials which are exempted by legal regulations

② Those content of constituent units is no more than the control value.

- ③ Products, parts and materials that used Polyvinyl Chloride (PVC) except packing use.

6.1 Chemical substances exempted by legal regulations

- (1) The materials of the batteries shown below can be made into the object of exclusion based on EU Battery Directive (2006/66/EC).
 - ① Mercury in battery containing equal to or less than 0.0005% by weight. (Mercury in button battery containing equal to or less than 2% by weight)
 - ② Cadmium in battery containing equal to or less than 0.002% by weight.
 - ③ When Lead included in battery exceeds 0.004% by weight, Chemical sign "Pb" must be displayed to the battery by September 26,2009.

- (2) The parts and materials shown below can be made into the object of exclusion based on RoHS Directive (2002/95/EC).
 - ① Lead in glass of electronic components
 - ② Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight.
 - ③ Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85% lead).
 - ④ Lead in electronic ceramic parts (e.g. piezo electronic devices).
 - ⑤ Lead and cadmium in optical and filter glass.

In addition, other exclusions approved by RoHS Directive are included.

7. Analytic Processes

Follow the analysis method showed on table 1, or use the measurement procedure conforming to the Hitachi Group's "Guidelines for Analysis of RoHS Directive-compliant of Cadmium, Lead, Mercury, Hexavalent Chromium and Bromine-based Flame Retardants (PBBS and PBDEs)"

(http://www.hiweb.hitachi.co.jp/corporate_env/key/chemical/guideline_101112rev0_2_e.pdf).

Otherwise use a measurement method for substances which have equivalent accuracy or higher.

The analysis data may vary according to the process of preparing or analysis method. Therefore, the appropriate analysis process should be selected after consulting a specialist analysis agency.

8. Alteration History

Alteration points to the ninth edition from the eighth edition are as follows:

5.1 Survey of inclusion of environmental controlled chemical substances

We delete "the input to A Gree' Net".

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