

FICT Guidelines for Non-inclusion Management of Designated Chemical Substances

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1. Purpose of this guide

Laws and regulations on hazardous chemical substances contained in products, such as the European RoHS Directive, Japan's J-Moss, and China's RoHS, have been strengthened in various countries around the world, and are expected to expand in the future.

FICT Corporation (hereinafter referred to as "FICT") classifies designated chemical substances into "prohibited substances," "controlled substances," "prohibited substances in packaging materials," "prohibited substances used in manufacturing," and "substances subject to laws and regulations in destination countries and regions.". Components of FICT products or OEM products (hereinafter referred to as Deliverables) For prohibited substances, we ask suppliers to comply with relevant laws and regulations in the countries and regions to which they deliver products. For controlled substances, we ask suppliers to record and control the mass, usage, and parts of the substances contained in the delivered products. For prohibited substances in packaging materials, we ask suppliers to prohibit the use of prohibited substances in the packaging materials at the time of manufacture. For substances subject to laws and regulations in the countries and regions to which they deliver products, we ask suppliers to comply with relevant laws and regulations in the countries and regions to which they deliver products. In order to comply with laws and regulations, it is necessary to strictly control the above specified chemical substances. In particular, this guideline describes the basic concepts and methods for evaluating and controlling the non-inclusion of prohibited substances in deliverables.

In addition, the judgment of whether or not the delivered products meet the FICT green procurement standards is made based on the "Standards for Prohibition of Content" in the Green Procurement Standards.

The analytical methods required for evaluation and management are in accordance with IEC 62321 standards.

2. Scope

Applicable to all deliverables such as materials, parts, units, accessories, software packages, packaging materials, etc., which are components of FICT products, and OEM products etc.

3. Definition of terms

3.1 Inclusion

The chemical substance is contained in the deliverables.

3.2 Noninclusion

Deliverables must satisfy all of the banned substances contained in the "FICT Green Procurement Standards" for each material of the deliverables.

3.3 Impurity

A substance that is contained in natural raw materials and cannot be completely removed in the manufacturing process.

3.4 Material

Each uniform material, or composite material that can be regarded as uniform, constituting a deliverable that has been placed and formed at a specific location with a specific purpose of use and cannot be further divided to achieve the purpose of use.

3.5 Content

The ratio of the mass of a chemical substance in a material divided by the mass of the material as a whole. The unit is [ppm] (1 ppm is 1/ 1 million) or [wt%] (1 wt% is 1/100). However, in the case of metal compounds, the mass of only the metal component under consideration shall be divided by the mass of the entire material.

3.6 Intentional addition

The deliberate use of a chemical substance in the formation of a deliverable, regardless of its content, in order to give it specific properties, appearance or quality.

4. Principle of non-inclusion management of designated chemical substances

The basic concept of non-inclusion management of prohibited substances in deliverables is as follows.

- source control : Thoroughly control the non-inclusion of banned substances at the material stage.
- Traceability: Use materials of known origin.
- management responsibility : Suppliers who deliver delivered products correctly provide information on chemical substances contained in products.

It is the responsibility to verify, where appropriate and by appropriate means, whether this is the case.

5. Administrative unit

The content of prohibited substances is controlled by the materials that constitute the delivered products. Therefore, if the content rate is stated in the "Content Prohibited Standards" of the "FICT Green Procurement Standards," the content rate of prohibited substances for each material must be lower than the "Content Rate" set in the "Content Prohibited Standards.". A material unit is a unit that cannot be disassembled any further. The following are examples of material units to be managed. (See Figure -1)

5.1 Examples that should be managed as different materials

- "Metals," which are base materials for structural materials and sheet metals, as well as "plating films," "chromate films," and "paint films" on the surfaces
- Molded plastic and ink and paint film printed on the surface
- "Metal" used for wiring of printed circuit boards and LSIs, and "resin" and "glass" used for insulation

5.2 Examples that should be managed as the same material

- an alloy consisting of two or more metallic elements
- plastic consisting of a polymer mixed with inorganic particles or small molecules
- Glass fiber reinforced epoxy resin used for core material of printed circuit board
- Conductive adhesive which is a composite material of metal powder, polymer component, etc.
- Ink or paint which is a composite material such as coloring component, shielding material or polymer vehicle

6. Management of banned substances

Because it is impractical to verify all materials of all deliverables, the same materials and materials processed by the same manufacturing process are considered equivalent. It was also ensured that no prohibited substances were attached, mixed, or formed in the manufacturing process. In the above, management at the following material stages is basic. If it is difficult to control at the material stage, an analysis method with sufficient detection sensitivity may be used, and analysis of the components of the material after production of the delivered product may be performed at a statistically sufficient frequency, and control may be performed based on the analysis values.

6.1 Materials that are processed into the target shape of delivered products through manufacturing processes that do not involve changes in elemental composition are managed as starting materials.

- Resin pellet before injection molding
- Metal plate, metal ingot, etc., before press working/cutting

6.2 For materials that are processed into the target shape of delivered products through manufacturing processes that involve elemental composition changes, we manage starting materials in anticipation of such composition changes.

- Printing, painting, and adhesive parts

If the inks, paints, or adhesives used in these parts contain volatile components such as organic solvents or water, they are managed on a dry weight basis without volatile components.

- electrodeposition coating

The coating liquid is controlled in terms of electrodeposition components in the paint.

- plating

The amount of lead, cadmium and mercury present in the plating solution is controlled to be sufficiently low. Here, "sufficiently low" means that the content of lead, cadmium, and mercury in the material processed in the plating process can be guaranteed to be lower than the content stated in "7. Content suspected of intentional addition, etc.".

- Vapor deposition film and sputter film

The target material is managed in consideration of the efficiency of evaporation and sputtering of each substance.

6.3 Hexavalent chromium in chromate coatings that undergo redox reactions of chromium is managed by chemical analysis of chromate coated samples that have been formed and processed under the same base materials, processing solutions, and processing conditions as the supplied products. The shape of the sample may be different from that of the delivered product if it has undergone the same processing process.

7. Content suspected to be intentionally added

The Green Procurement Standards allow the inclusion of certain prohibited substances when they are used for exclusive purposes or when they are impurities and are below the specified content.

From the viewpoint of JIS and other public standards and the general raw material/manufacturing method of materials, it is estimated that the content of impurities in materials currently in circulation is controlled to a value sufficiently lower than the value in Table -1.

Therefore, if the product is not classified as an excluded use and the content of the product exceeds the values shown in Table -1, it is highly likely that the product was intentionally added, adhered, mixed, or formed at any

stage of the supply chain. Therefore, it is necessary to identify the cause of the addition and, if it is classified as an intentional addition, remove the cause.

It should be noted that the content percentage shown in Table -1 is a guideline for controlling the presence or absence of intentional addition to the material, and does not represent the content percentage that constitutes the "content prohibition standard" of the material.

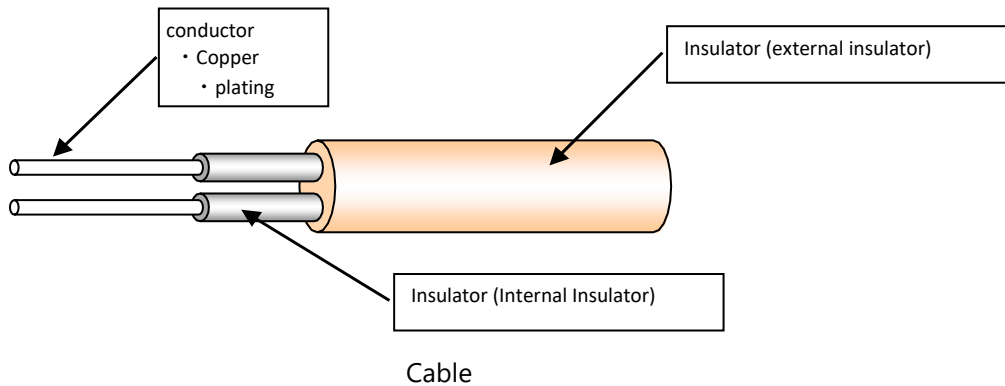
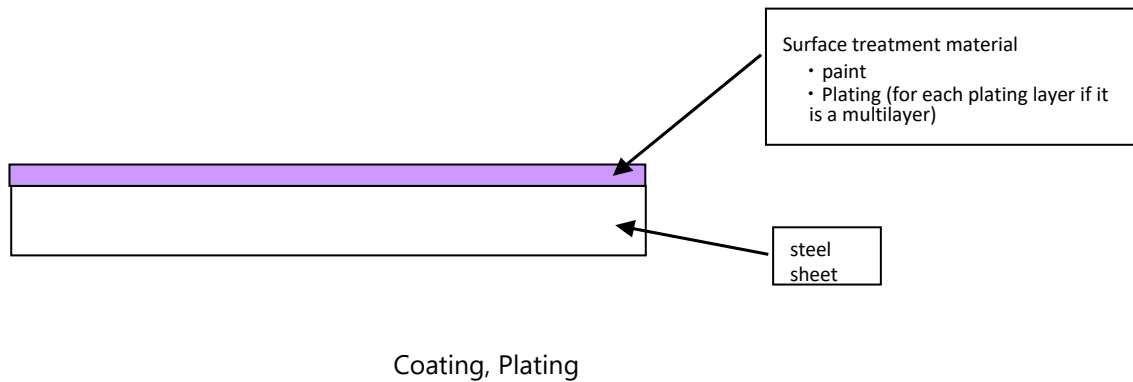
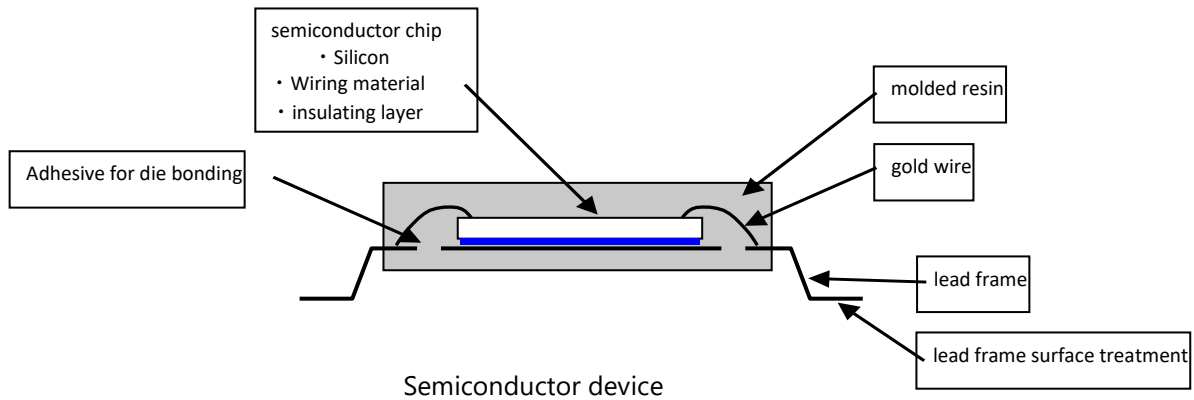
Table -1. Content suspected to be intentionally added (ppm)

iodine Material		Lead	cadmium	mercury	hexavalent chromium
base metal	iron alloy	200	75	100	
	aluminum alloy	100			
	copper alloy	500			
	Metals other than the above	200			
Metal plating film (including lead-free solder plating)		200	75	100	
chromate coating		—	—	—	See paragraph 8.
Solder for mounting		1000	75	100	
resin and plastic		100	50	100	200
paint and ink		100	50	100	200
glass ceramics		500	75	100	200

The analysis method for determining the content shall be one that has been confirmed to have a detection limit and quantitative accuracy that can guarantee that the content is below the content shown in Table -1 above.

Please refer to IEC 62321 for specific analysis methods.

Figure -1 Examples that should be managed as materials



[Revision History]

June 30, 2023	(Edition 0.1)	New edition established
July 06, 2023	(Edition 1.0)	First edition established

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