
REQUIREMENTS ON PROHIBITED AND DECLARABLE SUBSTANCES IN PRODUCT MATERIALS AND PACKING MATERIALS

1 Principle

Prohibited and declarable substances are hazardous for human being and environment. The use of prohibited and declarable substances has to be minimized. Where ever it is possible the concentration of such a substance has to be reduced. Hazardous substances have to be substituted by less hazardous alternatives.

2 Scope

TA000067 constitutes requirements on substances in

- *Product Materials*, which are used for the final products of Micronas, e.g. mold compounds, leadframes, gold wires, die attach, silicon chips;
- *Packing Materials*, which are used for packing the final products of Micronas, e.g. cartons, trays, reels, bubble foils.

The TA000067 is directed to the suppliers of Micronas, who deliver materials to Micronas, e.g. mold compounds, leadframes, gold wires, die attach, silicon chips and packing materials.

3 Definitions

3.1 Substance

A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition (source: Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)).

A product material and packing material consists of one or more substances.

3.2 Prohibited Substances

The intentional use of a prohibited substance is not allowed above or below an existing threshold¹⁾. The concentration of an impurity has to be below an existing threshold¹⁾ and has to be declared.

3.3 Declarable Substances

Any content equal or exceeding the threshold¹⁾ must be indicated.

4 Requirements on Product Materials and Packing Materials

Requirements regarding prohibited substances and substances which have to be declared in materials used as part of products and packing materials are based at least on following legal standards and standards of industries in their latest version:

- Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances, valid until 2015 and then included into the Regulation REACH
- Directive 1999/45/EC concerning the classification, packaging and labelling of dangerous preparations, valid until 2015 and included then by the Regulation REACH
- Directive 2000/53/EC on end-of life vehicles (ELV)
- Regulation (EC) No 1005/2009 on substances that deplete the ozone layer

1) If there is no specific threshold defined, the threshold is 1000 ppm

TABLE
Prohibited and Declarable Substances
Requirements on Analysis Certificates

- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
- Regulation (EC) No 850/2004 on persistent organic pollutants
- Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases
- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
 - SVHC (Substances of Very High Concern) – defined in the Candidate List of ECHA
- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP)
- Directive 94/62/EC on packaging and packaging waste
- Global Automotive Declarable Substance List (GADSL) (<http://www.gadsl.org/>). The use of substances that are indicated in GADSL with P or D/P is prohibited,
- Joint Industry Guide (JIG, JIG, www.ce.org/jig), Material Composition Declaration for Electrotechnical Products.

Additional relevant legal requirements or legal standards with requirements beyond regarding prohibited substances and substances, which have to be declared, have to be fulfilled.

The existence of any substance, which is part of a material delivered to Micronas, has to be fully compliant with any relevant legal requirement.

5 Specific Requirements on Product Materials and Packing Materials

In addition to the requirements described the following specifications are relevant:

Serial number	Substance	CAS-No.	Threshold	Status		Source
				To be declared	Prohibited	
1	Decabromo diphenyloxide	1163-19-5	1000 ppm		X	Delphi*
2	Formaldehyde	50-00-0	10 ppm		X	Delphi*
* Delphi Specification Number 10949001, 2010						

1 ppm = 1 µg/g = 10⁻⁴ %

6 Detailed requirements on the Analysis Certificate

The material Mold Compound requires analytical proof, that the following substances are not present or below the threshold. The analyses have to be performed by an analytical laboratory accredited according to DIN EN ISO/IEC 17025.

Substance	CAS-Nr.	Threshold [ppm]
Lead* or its compounds	7439-92-1	1000 ppm Packing materials: Sum of Cadmium, Lead, Mercury, Chromium (VI): 100 ppm
Cadmium* or its compounds	7440-43-9	100 ppm Packing materials: Sum of Cadmium, Lead, Mercury, Chromium (VI): 100 ppm
Chromium(VI) or its compounds	14977-61-8	1000 ppm Packing materials: Sum of Cadmium, Lead, Mercury, Chromium (VI): 100 ppm
Mercury* or its compounds	7439-97-6	1000 ppm Packing materials: Sum of Cadmium, Lead, Mercury, Chromium (VI): 100 ppm
Polybrominated Biphenyle (PBB)		10 ppm
Polybrominated Diphenylethers (PBDE)		1000 ppm

*If the sum concentration of the four metals Lead, Cadmium, Chromium and Mercury is higher than 100 ppm, the Cr(VI) concentration must be determined separately by a suitable measuring method.

Clearly indicate the items below in the Analysis Certificate, which was issued by the accredited laboratory:

1. The labeling of analyzed material in the Analysis Certificate must clearly show, that the analyzed material is identical with the material, which is delivered to Micronas (e.g. the labeling of "Plastic" in the Analysis Certificate is not sufficient).
2. Pre-conditioning method: If an official standard was used, indicate its name and if other than an official standard was used, indicate so. Please ensure that the sample has been totally digested and dissolved by entering "totally dissolved".
3. Analysis method: Enter the name of the analysis method (e.g. ICP-MS or AAS) or the name of the official standard.
4. Name the persons who performed the analysis, who are in charge for analysis, and name the analysis institution.
5. Analysis date
6. Analysis results. If elements are not detectable, please indicate the detection limit.

If any of these items are not entered in the Analysis Certificate, Micronas will not accept the certificate.

Inappropriate pre-conditioning methods for Cadmium (Cd) and Lead (Pb) in plastics: The elution methods according to ASTM F963-96a, ASTM F963-03, ASTM D 5517, ISO 8124-3 and EN 71-3 cannot be accepted.

7 Detailed requirements on Ingredient Lists (FB002061)

In the Ingredient List (FB002061) the supplier guarantees in written form, with calendar date and legally binding signature that no prohibited substances according to TA000067 are contained in a material or could be released from a material delivered to Micronas. Furthermore the supplier guarantees in written form, with calendar date and legally binding signature that at least all substances that have to be declared according to TA000067 are indicated in the Ingredient List (FB002061).

An Ingredient List has to be sent unrequested from the supplier of the material to Micronas with new Sample Inspections or new Material Specifications and in the case of major changes. Major changes are for example¹:

- The composition of the material will be changed.
- The place of manufacture of the material will be changed.
- Modifications in TA000067 that are relevant for supplied materials, e.g.:
 - a new standard has been included,
 - a new substance has been included,
 - an alteration of the grading of a substance (e.g. from *to be declared* to *prohibited*) or
 - an alteration of a relevant thresholds has been implemented.

Please see current version of TA000067.

LIST OF AMENDMENTS

Name: Norbert Streckfuss
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Amendments: complete document revised

Reference documents

- FB002061

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¹ Guideline for General Automotive Quality Agreement for Electronic Components (ZVEI [2006]).