JOINT INDUSTRY GUIDE (JIG)

Material Composition Declaration for Electrotechnical Products

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MATERIAL COMPOSITION DECLARATION GUIDE FOR ELECTROTECHNICAL PRODUCTS

Contents

Introduction *5*
1 Scope *6*
2 Use of Guide *7*
3 Terms and Definitions *8*
4 Materials and Substances *9*
5 Data Format *10*
6 Disclaimers *10*

Annex A (Normative) JIG Declarable Substance List *11*
Annex B (Informative) Detailed Substance Lists with CAS Numbers and/or EC Numbers .. *22*
Annex C (Normative) Dual Threshold Level and Reporting Flow Chart *34*
Annex D (Normative) Set of Data Fields *35*
Annex E (Informative) Examples of Material Declaration Forms *36*
Annex F (Informative) REACH Screening Methodology *39*
Annex G (Informative) JIG Update Process *43*
Annex H (Informative) JIG Revision History *45*

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(Formulated under the cognizance of the Joint Industry Materials Declaration Guide International Steering Committee)

Introduction

The electrotechnical industry tracks and discloses specific information about the material composition of its products due to legal and market requirements. In order to obtain this information, the industry must gather information about the composition of products that are purchased from suppliers for incorporation into final products. This affects the entire supply chain worldwide.

Material composition information can help manufacturers among others to:

- satisfy legal and regulatory requirements;
- drive improvements in product design; and
- respond to inquiries from customers, product recyclers and other stakeholders.

To obtain material composition data, many manufacturers have developed material declaration questionnaires (also known as green procurement surveys or supply chain questionnaires) that require suppliers to disclose certain information about the products they sell. These questionnaires usually take the form of a list of banned or restricted materials and substances that the supplier must disclose if they are present in the product. Due to the diversity of information requests and formats, it is difficult for suppliers to manage material declaration requests.

Recognizing the challenges that the entire global electrotechnical industry faces from diverse material composition requests, a workgroup composed of industry representatives developed this material composition declaration guide, which is designed to promote consistent and standardized material declaration requests across the global supply chain.

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1 Scope

This Guide applies to products that are supplied to manufacturers of electrotechnical products for incorporation (into their products). It covers materials and substances that may be present in the supplied product, including batteries. It does not apply to process chemicals (i.e. chemicals used and consumed during manufacture) unless those process chemicals constitute part of the finished product, nor does it apply to packaging (e.g. cardboard, plastic tray).

This Guide represents industry-wide consensus on the relevant materials and substances that shall be disclosed by suppliers when those materials and substances are present in products that are incorporated into electrotechnical products. The Guide benefits suppliers and their commercial customers by providing consistency and efficiency to the material declaration process and will promote the development of consistent data exchange formats and tools that will facilitate and improve data transfer along the entire global supply chain. It applies to business-to-business transactions. It is not intended to be used by the general public when making purchasing decisions.

This Guide contains:

- the lists of substances for disclosure when contained in electrotechnical products;
- the threshold levels for substances in electrotechnical products, equal to or above which the quantity of the substance must be disclosed;
- the regulatory requirements that establish threshold levels for electrotechnical products, where appropriate;
- a set of data fields for information exchange.

This Guide does not preclude companies from inquiring about the presence of additional substances when necessary for their needs. However, such requests are outside the scope of this Guide.

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2 Use of Guide

This Guide establishes the framework that the industry may use to report a substance content declaration. The Guide establishes the substances to be reported as well as their reporting thresholds, agreed by the industry to govern substance content disclosures for electrotechnical products due to regulatory or market requirements. Criteria justifying the substances to be reported and their threshold levels are provided in chapter 4. Threshold levels may not always indicate regulatory bans or restrictions as substance disclosure is also warranted to support regulatory labeling and/or reporting as well as industry recognized design for environment requirements. Suppliers shall disclose the presence of a substance or material if it exceeds the specified threshold level described in this Guide in their supplied product. Reporting substance content that exceeds these threshold levels is required regardless of whether the supplier's product is eligible for any exemption from regulatory requirements. This substance content disclosure information is relevant because it has been determined that manufacturers and other purchasers require this data in order to determine the status of the supplier's product with respect to applicable regulation, design specifications, or other objectives.

Suppliers shall be prepared to report to their customers substance categories or substances that are listed in the normative Annex A. The informative Annex B provides additional information and lists members of the substance categories without being comprehensive in most cases. If suppliers lack the substance information that is necessary to respond to customer inquiries that are based on this Guide, suppliers are expected to use this Guide with their own suppliers in order to obtain the necessary information. The recommended set of data fields for reporting purposes is provided in Annex D.

When determining whether it is necessary to report a substance, the following should be considered:

1) If a material/substance is present in the product above the threshold level it shall be reported. Where this level is set as a numeric value, the presence of substances shall be reported when the amount present equals or exceeds that value. Where the threshold level is set to "intentionally added", the presence of substances shall be reported when the substance meets the definition of "intentionally added" regardless of quantity. Suppliers shall report such substances when they have knowledge (or with reasonable inquiry should have knowledge) of their presence. Where this level represents a dual reporting threshold ("intentionally added" or a numerical value listed in Table A) follow the flowchart Figure C-1 in Annex C to determine if and at what level reporting is required.

2) If the reporting of a substance is limited to specific reportable applications (see Table A in Annex A), reporting is required if the substance exceeds the threshold level and if the product falls within these reportable applications. If the supplier is uncertain on applicability of the reportable application to their product, then the presence of the substance should be declared if it exceeds the threshold level in the supplied product.

3) In situations where a substance has multiple threshold levels due to varying legal/regulatory requirements for different reportable applications, separate reporting is required for each of the reportable applications for which the threshold level is exceeded.

4) If a substance is present in the product below the threshold level, reporting is not required.

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3 Terms and Definitions

For the purposes of this Guide the following definitions apply:

Homogeneous material: A material that cannot be mechanically disjointed into different materials.

- The term "homogeneous" means "of uniform composition throughout." Examples of "homogeneous materials" are individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.
- The term "mechanically disjointed" means that the materials can, in principle, be separated by mechanical actions such as: unscrewing, cutting, crushing, grinding and abrasive processes.

Intentionally added: Deliberately used in the formulation of a product where its continued presence is desired to provide a specific characteristic, appearance, property, attribute or quality.

Material: A material is made up of one or more substances (e.g., an alloy is a material, which in turn is made up of a number of substances).

Product: The item that the respondent making a material composition declaration is supplying to the electrotechnical industry (such as assembly, subassembly or component). The term "product" also covers a product family if the products within that family perform the same function and have consistent material declarations.

Note: Under the EU REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals) product would be called "article".

Reportable application: The intended use of a substance which determines its relevance to a given scope and threshold for disclosure

Note: This use is defined in the scope of the underlying law or industry standard. Examples are batteries, textiles, wood etc.

Substance: A chemical element or compound e.g., lead (a chemical element), lead oxide (a compound), polyvinyl chloride (a compound). Registry Numbers (RN) of the Chemical Abstracts System of the American Chemical Society ("CAS" numbers) and/or European Chemical ("EC" numbers) are attributed to all chemical elements and most of their compounds and should be used for their identification. CAS numbers and EC numbers are provided (in Annex B) for these substances where known.

Threshold level: The concentration level that defines the limit at or above which the presence of a substance in a product shall be declared based on the requirements of this Guide.

Numerical threshold levels are provided in weight % (and parts per million, or ppm). The conversion to be used to calculate ppm is 0.1 % = 1 000 ppm.

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4 Materials and Substances

This Guide establishes three criteria that determine whether substances shall be declared. The resulting declarable substance list is based on these criteria which the industry has determined justify disclosure when these material/substances are present in electrotechnical products in amounts that exceed their specified threshold levels.

- Criteria 1 – R (Regulated)
  Substances that are subject to enacted legislation that (a) prohibits their use; or (b) restricts their use; or (c) requires reporting or results in other regulatory effects (e.g. labeling) and where the substance-specific effective date is currently in effect or scheduled to go into effect at a specific date in the future.

- Criteria 2 – A (For Assessment Only)
  Substances that are likely to be subject to enacted legislation where the substance-specific effective dates of the regulatory requirements are uncertain..

- Criteria 3 – I (For Information Only)
  Substances that are not regulated but where there is a recognized market requirement for reporting their content in electrotechnical products. Reporting is used to facilitate company assessment regarding widely adopted industry environmental agreements or standards.

The criteria are listed in their order of priority. Substances that might be covered by more than one of these criteria will enter the declarable substance list only once, referring to the criteria with the highest order of priority and its requirements. The fact that a substance is listed in Annex A does not necessarily indicate a ban or restriction of that substance.

The following criteria determine the threshold level for substance/material reporting:

- When a law or regulation exists that sets a content threshold for a substance, the value of concentration set forth in the law serves as threshold level for that substance.

- Threshold levels for a substance are assigned to reportable applications if the law specifies such information (e.g., lead in batteries has a different reporting threshold than lead in other applications).

- Where multiple laws/regulations apply to a substance in a reportable application:

  - If these laws all contain numerical content threshold levels the lowest concentration specified among all laws acts as the threshold level.
  - If none of these laws specifies a numeric content threshold level, “intentionally added” acts as the threshold level
  - If at least one of these laws specifies a numerical content threshold and another law does not specify a numerical content threshold, then the lowest numerical concentration threshold and “intentionally added” both act as dual reporting thresholds. See Annex C for instructions on the application of dual reporting thresholds.

- For substances falling under Criteria 3 – I, the default threshold level is set to 0.1 % (1 000 ppm) by weight of the product unless a different limit is specified by the industry standard or agreement.

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5 Data Format

This Guide establishes the data disclosure framework. The framework contains required data fields as well as optional data fields. Optional fields may be added at the discretion of the requestor. Annex D contains the required and optional data fields.

There are a variety of data formats and tools that companies can use to implement this Guide. These tools could range from a paper form, a computerized spreadsheet, to an xml based e-business solution, such as the IPC-1752 family of reporting standards. This Guide does not dictate the use of any specific tool. Rather, it establishes the minimum data fields (as well as possible optional data fields) that can be used, giving companies the flexibility to select the tool that best meets their business needs. As a result, companies are allowed to add additional data fields not covered by this Guide, but still be consistent with the data format of the Guide.

Annex E contains two examples of a simple material declaration format. The first contains only the required fields. The second example contains the required data fields and the optional negative declaration field. Annex E also references examples of other material declaration formats and tools.

6 Disclaimers

Although this guide and its annexes contain references to legal citations and regulatory limits for certain listed substances, these citations and regulatory limits should not be relied upon for compliance purposes. The annexes also provide examples of expected use and regulatory restrictions and prohibitions relating to the substances. The examples are for reference only and do not constitute a comprehensive reference to all uses, regulations, and prohibitions and should not be used for compliance purposes. Please contact legal counsel for specific compliance requirements. Any use of this Guide, other than uses that are consistent with its stated purpose, are neither sanctioned nor endorsed by CEA, DIGITALEUROPE or JGPSSI. Furthermore, where substances are listed in this Guide, their listing does not infer or constitute an industry judgment as to their safety, environmental or health impacts.

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Annex A (Normative) JIG Declarable Substance List

The threshold levels are set by applicable legal requirements that ban or restrict their use or require reporting or labeling. Therefore, assessment as to whether the threshold level has been met must be based on the relevant legal requirements. If a new law establishes a lower threshold for ban, restriction, labeling or reporting purposes; the thresholds and regulatory citations will be revised accordingly. Suppliers can voluntarily report to levels below the thresholds shown in Table A, but this is not required to meet the intent of this Guide.

NOTE 1: Where this level is set as a numeric value, the presence of substances shall be reported when the amount present equals or exceeds that value. Where the threshold level is set to “intentionally added”, the presence of substances shall be reported when the substance meets the definition of “intentionally added” regardless of quantity. Suppliers shall report such substances when they have knowledge (or with reasonable inquiry should have knowledge) of their presence. Where this level represents a dual reporting threshold (“intentionally added” or a numerical value listed in Table A) follow the flowchart Figure C-1 in Annex C to determine if and at what level reporting is required.

NOTE 2: For some categories the numeric threshold level specifies a different denominator than the product. In these cases reporting of the substance shall be based on the details provided (e.g. weight percentage of the substance in the material or in a battery).

NOTE 3: The “Key Legal and Regulatory or Industry Standard/Agreement Citation” and “Examples of Use” columns in Table A are for information only.

NOTE 4: The “Key Legal and Regulatory or Industry Standard/Agreement Citation” aims to cite the regulation that is responsible for setting the respective numeric threshold. As “intentionally added” is used as a default in case no numeric threshold is provided in any legislation, none of the legislations cited might specify this threshold. The listing of legislations is not comprehensive. Please consult legal counsel for additional compliance information if necessary.

NOTE 5: In some cases only a subset of the substances in a chemical category is regulated. Please refer to Annex B for details.

NOTE 6: When a substance is listed in Table A with a CAS number, then the reporting applies to the substance with that specific CAS number only. Reporting shall be based on the total mass of the substance with CAS number listed in Table A in the product being declared.
For substance / substance categories listed in Table A without a CAS number quantification and reporting shall be based on the total mass of all relevant compounds in the category that are present in the product being declared, unless the threshold level defines a deviating method.

NOTE 7: The “Latest Revision” indicates the date when this entry was last changed. “Revision Type” indicates the type of change limited to (i) addition as a new substances, (ii) change of the reportable application (iii) change in threshold level. Changes in the legal citation do not trigger an update of these entries. Annex H contains JIG-101 edition number and more details on the change for the corresponding latest revision date.

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Table A – JIG Declarable Substance List

Substance/ Category	CAS #/ EC #	Criteria	Key Legal and Regulatory or Industry Standard/Agreement Citation	Reportable Application(s)	Threshold Level (Reporting level)	Examples of Use	Latest Revision	Revision Type
Asbestos	See Annex B	R	ANNEX XVII of REACH Regulation (EC) No 1907/2006; US TSCA; Swiss Ordinance on Reduction of Risk from Chemical Products	All	Intentionally added	Insulator, filler, pigment, paint, talc,	4/1/2005	(i)
Azocolourants and azodyes which form certain aromatic amines [1]	Not applicable [1]	R	ANNEX XVII of REACH Regulation (EC) No 1907/2006;	Textiles and leather	0.003% by weight (30 ppm) of the finished textile/leather product [1]	Pigment, dyes, colorants	4/28/2009	(iii)
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	CAS# 71888-89-6 EC# 276-158-1	A	ECHA Registry of Intentions 25.10.2010	All	0.1% by weight (1 000 ppm) of the product	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	3/10/2011	(i)
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	CAS# 68515-42-4 EC# 271-084-6	A	ECHA Registry of Intentions 04.10.2010	All	0.1% by weight (1 000 ppm) of the product	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	3/10/2011	(i)
Beryllium oxide (BeO)	CAS# 1304-56-9	I	DIGITALEUROPE [2]/CECED/ AeA [3]/ EERA guidance	All	0.1% by weight (1 000 ppm) of the product	Ceramics	4/28/2009	(ii)
4-[4,4'-bis(dimethylamino) benzhydrylidene] cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Violet 3)	CAS# 548-62-9 EC# 208-953-6	A	ECHA Registry of Intentions 25.10.2010	All	0.1% by weight (1 000 ppm) of the product	Colorant in plastics or paints	3/10/2011	(i)
Boric acid	See Annex B	R	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006 (Candidate list of SVHC for authorization 18.06.2010)	All	0.1% by weight (1 000 ppm) of the product	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative, as flame retardant in wood, cotton and other plant derived material	9/13/2010	(i)
Brominated flame retardants (other than PBBs,PBDEs, or HBCDD)	See Annex B	I	DIGITALEUROPE [2]/CECED/ AeA [3]/ EERA guidance,	Plastic parts >25 grams other than in printed wiring board assemblies [4]	0.1% by weight (1 000 ppm) of plastic material	flame retardant for housing, connectors, package molding sealing	4/28/2009	(ii)

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Substance/ Category	CAS #/ EC #	Criteria	Key Legal and Regulatory or Industry Standard/Agreement Citation	Reportable Application(s)	Threshold Level (Reporting level)	Examples of Use	Latest Revision	Revision Type
Brominated flame retardants (other than PBBs,PBDEs, or HBCDD)	See Annex B	I	IPC-4101 and IEC 61249-2-21	Printed wiring board laminate [4]	0.09% total bromine content by weight (900 ppm) in the laminate	flame retardant	3/31/2010	(ii,iii)
Cadmium/cadmium compounds	See Annex B	R	ANNEX XVII of REACH Regulation (EC) No 1907/2006; EU Directive 2002/95/EC and 2005/618/EC; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50	All, except batteries	0.01% by weight (100 ppm) of cadmium in homogeneous materials	Pigment, anti-corrosion surface treatment, optical glass, stabilizer, plating, fluorescent, electrode, solder, electric contact, contact point, zinc plating,	4/28/2009	(ii)
Cadmium/cadmium compounds	See Annex B	R	Swiss Ordinance on Reduction of Risk from Chemical Products; EU Battery Directive 2006/66/EC Chinese Standard GB 24427-2009 "Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries"	Batteries [5]	0.0005% by weight (5 ppm) of cadmium in battery	NiCd accumulators	4/28/2009	(ii)
Chromium VI compounds	See Annex B	R	EU Directive 2002/95/EC and 2005/618/EC; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50	All	0.1% by weight (1 000 ppm) of chromium (VI) in homogeneous materials	Pigment, paint, ink, catalyst, plating, anti-corrosion surface treatment, dye,	4/28/2009	(iii)
Cobalt dichloride ($CoCl_2$)	CAS# 7646-79-9 EC# 231-589-4	R	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006 (Candidate list of SVHC for authorization 13.01.2010)	All	0.1% by weight (1 000 ppm) of the product	Pneumatic panels to indicate water contamination	3/31/2010	(i)
Diarsenic pentoxide	CAS# 1303-28-2 EC# 215-116-9	R	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006 (Candidate list of SVHC for authorization 28.10.2008)	All	0.1% by weight (1 000 ppm) of the product	Additive in wood, metal, glass and plastics	4/28/2009	(i)
Diarsenic trioxide	CAS# 1327-53-3 EC# 215-481-4	R	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006 (Candidate list of SVHC for authorization 28.10.2008)	All	0.1% by weight (1 000 ppm) of the product	Additive in wood, metal, glass and plastics	4/28/2009	(i)

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Substance/ Category	CAS #/ EC #	Criteria	Key Legal and Regulatory or Industry Standard/Agreement Citation	Reportable Application(s)	Threshold Level (Reporting level)	Examples of Use	Latest Revision	Revision Type
Dibutyltin (DBT) compounds	See Annex B	R	ANNEX XVII of REACH Regulation (EC) No 1907/2006 and Commission Regulation (EU) No 276/2010	All	0.1% by weight (1 000 ppm) of tin in a material [6]	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	3/31/2010	(i)
Dioctyltin (DOT) compounds	See Annex B	R	ANNEX XVII of REACH Regulation (EC) No 1907/2006 and Commission Regulation (EU) No 276/2010	(a) textile and leather articles intended to come into contact with the skin, (b) childcare articles (c) two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)	0.1% by weight (1 000 ppm) of tin in a material [6]	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	3/31/2010	(i)
Dimethyl fumarate	CAS# 624-49-7	R	COMMISSION DECISION 2009/251/EC	All	0.00001% by weight (0.1 ppm) in a material [6]	Biocide, mold treatment of electronic leather seats, including recliners, massage chairs	3/31/2010	(i)
Disodium tetraborate, anhydrous	See Annex B	R	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006 (Candidate list of SVHC for authorization 18.06.2010)	All	0.1% by weight (1 000 ppm) of the product	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative	9/13/2010	(i)
Fluorinated greenhouse gases (PFC, SF6, HFC)	See Annex B	R	EU Reg. No. 842/2006	All	Intentionally added	Refrigerants, blowing agents, extinguishing agents, cleaning agents, insulating media, caustic gas	4/28/2009	(i)

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Substance/ Category	CAS #/ EC #	Criteria	Key Legal and Regulatory or Industry Standard/Agreement Citation	Reportable Application(s)	Threshold Level (Reporting level)	Examples of Use	Latest Revision	Revision Type
Formaldehyde	CAS# 50-00-0	R	US/CA CARB Rule US Federal Law 111-199/TSCA Section 601	Composite wood (plywood, particle board, medium density fiberboard) products or components	Intentionally added [7]	Stereo cabinets, kiosk enclosures	4/28/2009	(i)
Formaldehyde	CAS# 50-00-0	R	Austria - BGB I 1990/194: Formaldehydverordnung, §2, 12/2/1990; Lithuanian Hygiene Norm HN 96:2000 (Hygiene standards and regulations)	Textiles	0.0075% by weight (75 ppm) of textile product	Textiles	4/28/2009	(i)
Hexabromocyclododecane (HBCDD) and all major diastereoisomers	See Annex B	R	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006 (Candidate list of SVHC for authorization 28.10.2008)	All	0.1% by weight (1 000 ppm) of the product	Flame retardant mainly used for expanded polystyrene and some types of fiber	4/28/2009	(i)
Lead/lead compounds	See Annex B	R	EU Directive 2002/95/EC and 2005/618/EC; ANNEX XVII of REACH Regulation (EC) No 1907/2006; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50	All, except as noted below	0.1% by weight (1 000 ppm) of lead in homogeneous materials	Rubber hardener, pigment, paint, lubricant, plastic stabilizer, free-machining alloy, free-cutting steels, optical materials, X-ray shielding in CRT glass, solder materials, curing agent, vulcanizing agent, ferroelectrics, plating, metal alloy	4/28/2009	(ii)
Lead/lead compounds	See Annex B	R	U.S. Consumer Product Safety Improvement Act	Consumer products designed or intended primarily for children 12 years of age or younger	0.03% by weight (300 ppm) of lead in the children's product	Pigment, paint, stabilizer, colorant	4/28/2009	(ii)

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