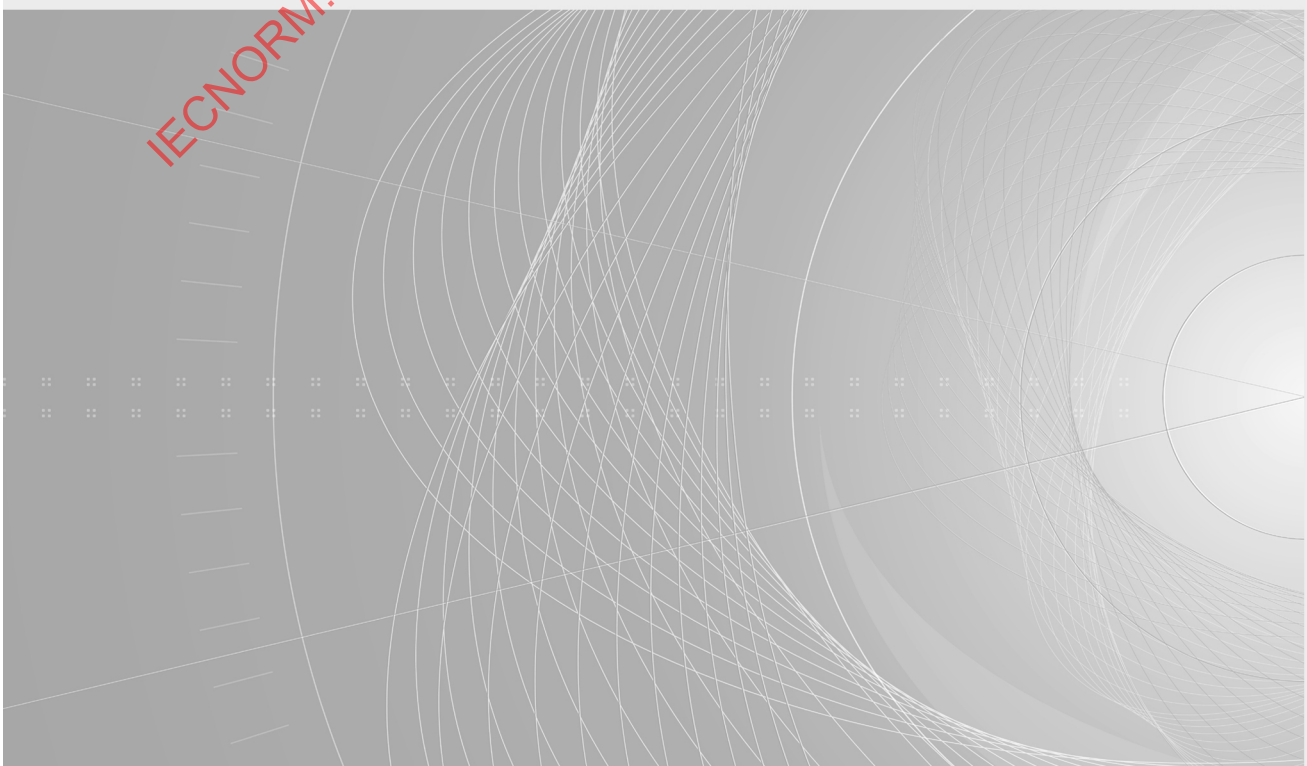
IEC 62474

Edition 2.0 2018-11
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

Material declaration for products of and for the electrotechnical industry



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 01.110; 13.020.01; 29.100

ISBN 978-2-8322-6338-9

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MATERIAL DECLARATION FOR PRODUCTS OF AND FOR THE ELECTROTECHNICAL INDUSTRY

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 62474 has been prepared by IEC Technical Committee 111: Environmental standardization for electrical and electronic products and systems.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The material classes and exemption lists capabilities have been improved.

b) The introduction and scope have new diagrams and information to give a better overview of the standard and identify what information is mandatory, optional or conditionally mandatory.

c) Definitions have been added. Minimum requirements to be in conformance with the IEC 62474 standard are defined, including XML format as the officially accepted format. By defining an authority, list identity and list version, the standard format could be used for lists other than the IEC 62474 database.

d) Terms have been aligned for consistency throughout the document. For example, the “IEC 62474 database” was previously referred to as “IEC 62474 database”, “IEC 62474”, “IEC 62474 Database”, “IEC 62474 DB”.

e) The annexes have been removed as they are now contained within documents managed by the validation team 62474 (VT 62474). Annex A (Annex B in the previous edition) is provided for non-XML users as a reference only.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
111/498/FDIS	111/503/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62474 series, published under the general title *Material declaration for products of and for the electrotechnical industry*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

~~The electrotechnical industry tracks and declares specific information about the material composition of its products for compliance and environmentally conscious design requirements. The electrotechnical industry needs to gather information about the composition of products and product parts that are purchased from suppliers for incorporation into their products. Currently material declarations are driven by individual product manufacturer's specifications and there is no internationally accepted standardization. This results in economic inefficiencies. To simplify requirements across the supply chain and to improve economic efficiencies, it is necessary to standardize the exchange of material composition data and provide requirements for material declarations.~~

~~This International Standard benefits the electrotechnical industry by establishing requirements for reporting of substances and materials, standardizing protocols, and facilitating transfer and processing of data.~~

This document benefits the electrotechnical industry by establishing requirements for reporting of material declaration data, standardizing protocols, and facilitating the transfer and processing of data. Material declarations are used by the electrotechnical industry to track and declare specific product information used for compliance and/or environmentally conscious design (ECD) considerations. To simplify requirements across the supply chain and to improve economic efficiencies, it is important to standardize the exchange of product, product part, material and substance data, and provide requirements within material declarations.

IEC 62474 is made of two parts: this document, which contains requirements for material declarations and a database containing information such as a declarable substance list (DSL), exemption list and data exchange format (see Clause 8).

This document defines the two most common types of material declarations and their requirements:

1) Declaration for compliance – is always at a product level in reference to the list of declarable substances and declarable substance groups within the IEC 62474 declarable substance list (DSL).
2) Composition declaration – is the much more detailed product part level reporting down to individual substances contained within the IEC 62474 DSL.

The IEC 62474 database is maintained by the validation team (VT 62474) which updates information in the IEC 62474 database based on requirements specified in the IEC 62474 standard (see Clause 8).

By fulfilling the requirements of the IEC 62474 standard and based on the information from the IEC 62474 database, two types of declaration can be created as shown in Figure 1 below.

- a declaration for compliance which is the information required to determine product compliance with substance regulations and market needs (see 4.4);
- a composition declaration that is the information required to assess where declarable substances above threshold are contained in the product (see 4.5).

The transmission of information in the supply chain can be done in two modes:

- Distribution mode: The supplier provides material declaration data about their product(s) to a recipient.
- Requester/responder mode: The requester determines the type of material declaration(s) the responder will provide.

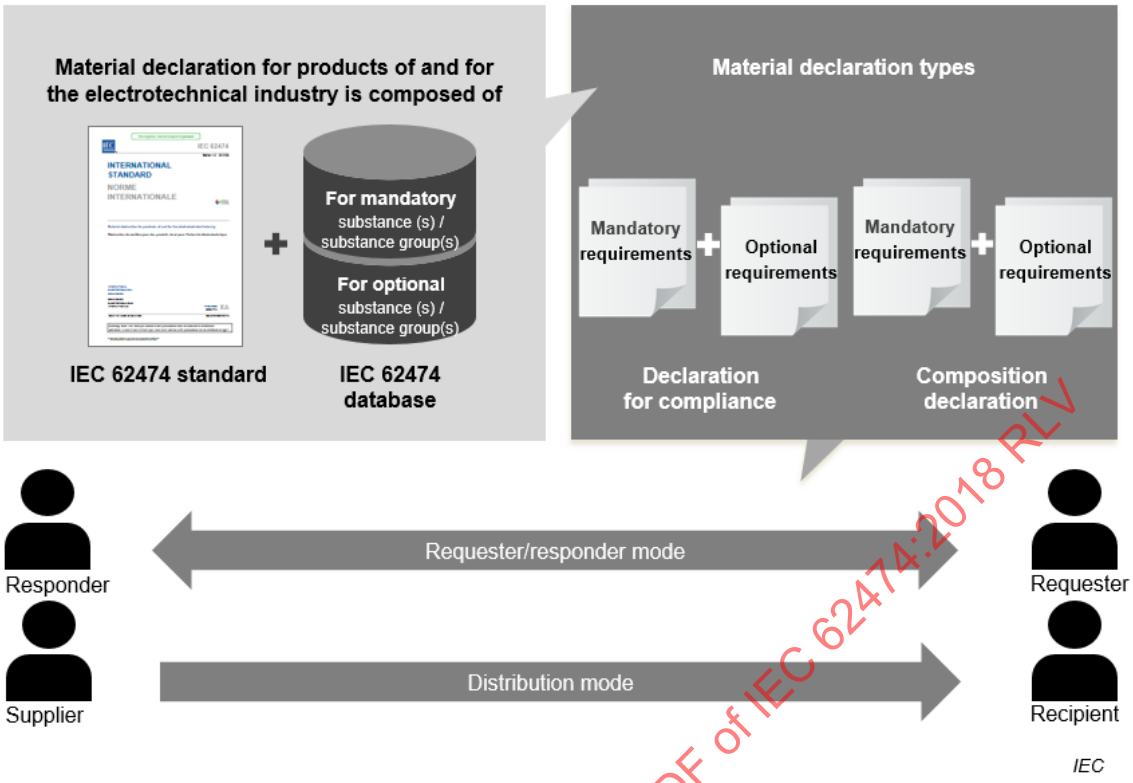


Figure 1 – IEC 62474 principles

The IEC 62474 principles are determined in the following clauses:

- Clause 4 specifies requirements for material declarations.
- Clause 5 specifies the criteria and thresholds for declarable substances (DSs), declarable substance groups (DSGs) and material classes in the IEC 62474 database.
- Clause 6 specifies the criteria for exemption lists in the IEC 62474 database.
- Clause 7 specifies the IEC 62474 database data format and exchange requirements with further information in Annex A (informative).
- Clause 8 specifies the IEC 62474 database maintenance process.

MATERIAL DECLARATION FOR PRODUCTS OF AND FOR THE ELECTROTECHNICAL INDUSTRY

1 Scope

This document specifies the procedure, content, and form relating to material declarations for products and accessories of ~~companies~~ organizations operating in and supplying to the electrotechnical industry. Process chemicals, emissions during product use and product packaging material are not in the scope of this document.

The main intended use of this document is to provide data ~~to downstream manufacturers~~ up and down the supply chain that:

- allows ~~them~~ organizations to assess products against substance ~~restriction~~ compliance requirements,
- ~~they can use~~ allows organizations to use this information in their environmentally conscious design process and across all product life cycle phases.

~~Clause 4 specifies requirements for a material declaration.~~

~~Clause 5 specifies the criteria for declarable substances and material classes in the IEC 62474 database associated with this standard.~~

~~Clause 6 specifies the data format and exchange requirements to be included in the IEC 62474 database.~~

~~Clause 7 specifies the process to regularly update and maintain the IEC 62474 database.~~

~~Although this International Standard specifies base requirements, it offers flexibility to product manufacturers and suppliers in the selection of additional requirements or information.~~

This document specifies mandatory declaration requirements and also provides optional declaration requirements.

This document does not ~~provide~~ suggest any specific method or process to capture material ~~composition data~~ declaration data in the supply chain. However, it provides a data format used to transfer information within the supply chain. Organizations have the flexibility to determine the most appropriate method to capture material ~~composition~~ declaration data without compromising data utility and quality. This document is intended to allow reporting based on engineering judgement, supplier material declarations, and/or ~~on~~ sampling and testing.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61360-1, *Standard data element types with associated classification scheme ~~for electric items~~ – Part 1: Definitions – Principles and methods*

IEC 61360-2, *Standard data element types with associated classification scheme for electric components – Part 2: EXPRESS dictionary schema*

~~IEC 61360-5, *Standard data element types with associated classification scheme for electric components – Part 5: Extensions to the EXPRESS dictionary schema*~~

ISO/IEC Directives, IEC Supplement~~: 2011~~, *Procedures specific to IEC*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

~~**3.1**~~
~~**absence declaration**~~
~~negative declaration~~
~~**statement that materials, substances or substance groups are not present in the product above their respective, specified threshold**~~

~~**3.3**~~
~~**homogeneous material**~~
~~one material of uniform composition throughout or a material, consisting of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions, such as unscrewing, cutting, crushing, grinding and abrasive processes~~

3.1
article
object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition

[SOURCE: EU REACH Regulation (EC) No.1907/2006, Article 3]

3.2
composition declaration
quantitative declaration of substances contained within a product, product part, or material as applicable

3.3
data exchange format
data elements and attributes specified in an XML schema and developer's table to support a material declaration exchange

3.4
declaration for compliance
declaration regarding the presence or absence of declarable substances and declarable substance groups with mandatory reporting requirements in the IEC 62474 declarable substance list relative to a reporting threshold level for a defined reportable application

~~**3.2**~~
~~**declarable substance and declarable substance group**~~
~~substance and substance group that meet the criteria stated in this International Standard and are specified in the IEC 62474 database~~

~~Note 1 to entry: Such substances and substance groups are listed in the IEC 62474 database with either a mandatory or optional reporting requirement above the specified threshold in the IEC 62474 database.~~

3.5
declarable substance
DS
substance that meets specified criteria for reporting

Note 1 to entry: Criteria for declarable substances within the IEC 62474 DSL are specified in Clause 5.

Note 2 to entry: This note applies to the French language only.

3.6
declarable substance group
DSG
substance group that meets specified criteria for reporting

EXAMPLE Chromium (VI) compounds.

Note 1 to entry: Criteria for declarable substance groups within the IEC 62474 DSL are specified in Clause 5.

Note 2 to entry: This note applies to the French language only.

3.7
declarable substance group substance(s)
DSG substance(s)
substance(s) that belongs to a declarable substance group

3.8
declarable substance list
DSL
list of declarable substances and/or declarable substance groups each with a reporting threshold for a reportable application(s) which has a mandatory or optional reporting requirement when contained at or above its maximum threshold value within a product, product part or material

Note 1 to entry: This note applies to the French language only.

3.9
declaration hierarchy
tree-like structure containing one or more branches that represents the relationship between product, product part(s), material(s) and/or substance(s) within a material declaration

Note 1 to entry: Figure 5 demonstrates a declaration hierarchy with a single branch

3.10
exemption
allowance for the use of regulated declarable substances or declarable substance groups above their threshold(s) as defined in laws or regulations

3.11
list authority
designated owner of a list

Note 1 to entry: The list authority is used in conjunction with the list identity and list version.

3.12
list entry identity
parameter used to identify a specific entry within a defined list

Note 1 to entry: The IEC 62474 DSL entry identity would be used to identify a specific declarable substance or declarable substance group within its list.

3.13
list identity
parameter used to identify a specific list

Note 1 to entry: The list identity is used in conjunction with the list authority and list version.

3.14
list version
parameter used to identify a specific version of a list

Note 1 to entry: The list version is used in conjunction with the list authority and list identity.

~~**3.1**~~**3.15**
material
substance or mixture of substances within a product or product part

~~**3.2**~~**3.16**
material class
defined classification of materials that are established in the referenced IEC 62474 database for purposes of inventorying aspects of a product, such that no two classes contain the same materials

Note 1 to entry: If a material falls under multiple material classes, such as copper zinc alloy which can fall under copper and its alloys or zinc and its alloys, the substance with the largest mass within the material should take precedence.

3.17
material declaration
declaration of certain substances and/or substance groups contained within a product, product part, or material as applicable

Note 1 to entry: The declaration might be a composition declaration, where the amount of the declared substance or substance group is provided or it might be a declaration for compliance, where only the presence or absence of the declared substance or substance group is provided.

~~**3.3**~~**3.18**
mixture
~~preparation~~
~~mixture~~ composite or solution composed of two or more substances in which they do not react

Note 1 to entry: An alloy is treated as a mixture.

~~**3.4**~~**3.19**
product
any goods or service

Note 1 to entry: This general definition of product is, in the context of this document, limited to any product of the product category “hardware” according to ISO 9000:~~2005, No. 3.4.2~~2015, 3.7.6 of and for the electrotechnical and electronic industry (E&E).

Note 2 to entry: This general definition of product(s) used in Clause 4 specifies any goods or service of the responder.

~~**3.5**~~**3.20**
product family
group of products each of which contains the same substances or material at a similar concentration level

Note 1 to entry: A common case would be an electrical component supplier having many products of the same substance content that have different electrical values, such as a capacitor, resistor, inductor or an integrated circuit.

~~3.6~~3.21
product part
sub-unit of a product ~~or another (product) part~~

~~Note 1 to entry: This is a recursive definition.~~

Note 1 to entry: A product part can be a sub-unit of another product part.

Note 2 to entry: If a standard product part e.g. a cable of 1 m length is declared as product part, only portions of it might be physically present in the product.

~~3.7~~3.22
reference substance
individual substance ~~designated as "reference" in the IEC 62474 database~~ entry within the reference substance list

3.23
reference substance list
RSL
list of substances belonging to declarable substance groups in the declarable substance list

Note 1 to entry: The list of substances in the RSL for a DSG may or may not be a complete or exhaustive list.

Note 2 to entry: This note applies to the French language only.

~~3.8~~3.24
reportable application
intended use of a declarable substance or declarable substance group which determines its relevance ~~to a given scope and the threshold~~ for disclosure

~~Note 1 to entry: This use is defined in the scope of the underlying law or industry standard. Examples are batteries, textiles and wood.~~

Note 1 to entry: The use of reportable applications may be applicable to declarable substances, declarable substance groups, product parts and materials. Examples of product parts and materials are batteries, textiles and wood.

Note 2 to entry: As legislations have different scopes for some declarable substances, declarable substance groups, product parts or materials, more than one reportable applications are provided in the IEC 62474 database. This information supports the downstream manufacturer in the assessment against declarable substance compliance requirements.

~~3.9~~3.25
reporting threshold level
concentration limit at or above which the presence of a declarable substance in a material, product part or product is declared ~~if declaration of the substance is mandatory according to the IEC 62474 database, or if it is agreed on to be declared~~

3.26
requester
organization or individual that requests a material declaration

Note 1 to entry: The requester is sometimes referred to as the manufacturer.

3.27
responder
organization or individual that provides a material declaration

Note 1 to entry: The responder is sometimes referred to as the supplier.

~~3.10~~3.28
substance
~~a~~ chemical elements and ~~its~~ their compounds in the natural state or obtained by any ~~manufacturing~~ production process, including any additive necessary to preserve ~~its~~ the

stability of the product and any impurities 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: Globally Harmonized System of Classification and Labelling (GHS):~~2003~~2017, Chapter 1.2, Definitions and Abbreviations]

~~3.11~~3.29
substance group
~~one~~ two or more substances, ~~where in the case of multiple substances they~~ that share at least one chemical sub-structure, or chemical or physical property under a generic name

~~3.12~~3.30
validation team 62474
VT 62474
~~permanent, "executive", group of experts appointed by and acting as delegates on behalf of their National Committees to validate proposed items and vote for their release as part of a database standard~~ validation team for maintenance of the IEC 62474 database

~~Note 1 to entry: All P-members have the right and duty to appoint their own member of the team. The validation team evaluates proposals and votes, using the normal database procedure, on items on behalf of their National Committees. The validation team reports to the technical committee or subcommittee.~~

~~Note 2 to entry: The described procedure asks for very short response times from the validation team members. For this reason, the National Committees should appoint one or more deputies that can take over the task when the designated person, for any reason, is absent (travel, business, etc.).~~

~~Note 3 to entry: It is up to the National Committee to decide for how long time a member should be appointed, and also to organize the possible supporting network of experts on National level.~~

~~Note 4 to entry: The secretariat manages the validation team.~~

~~[SOURCE:ISO/IEC Directives Supplement:2011, Annex J]~~

Note 1 to entry: The validation team (VT 62474) is a permanent, "executive" group of experts appointed by and acting as delegates on behalf of their National Committees to validate proposed items and vote for their release as part of a database standard.

Note 2 to entry: See ISO/IEC Directives, IEC Supplement.

Note 3 to entry: This note applies to the French language only.

4 Requirements for material declarations

~~4.1 General~~

~~This clause describes the base requirements and additional requirements for a material declaration. Subclause 4.2 describes the base data requirements and Subclause 4.3 describes additional requirements, should the manufacturer and supplier agree to declare more.~~

~~Clause 4 is organized in the order of the conceptual diagrams (see Figures 1 and 2) for ease of understanding. Required information is shown with solid boxes and arrows. Options are shown within dotted boxes. Product, substance groups or substances with a mandatory reporting requirement in the IEC 62474 database are mandatory objects in this approach. Product parts, material classes, materials, and substance groups or substances without a mandatory reporting requirement in the IEC 62474 database are optional objects in this approach. Substance groups and substances not listed in the IEC 62474 database are also optional objects. Further mandatory requirements apply without being displayed in the diagrams (e.g. mass or mass percent).~~

~~See informative Annex A for examples related to requirements for material declaration.~~

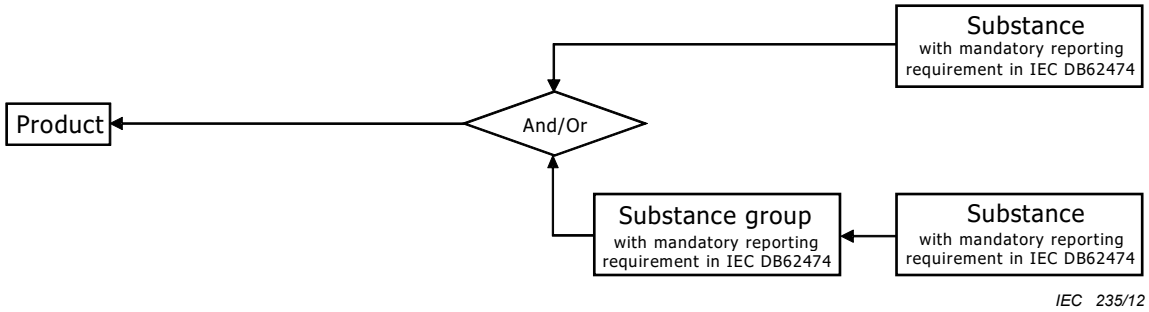
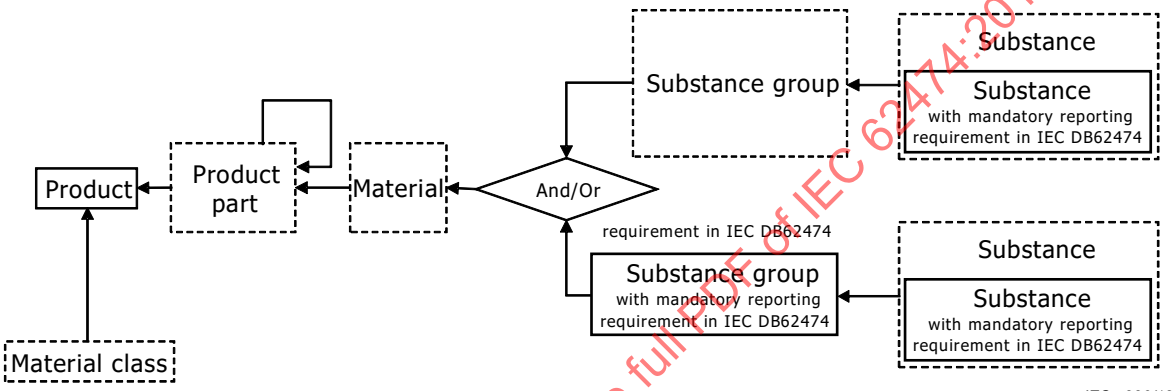


Figure 1 – Conceptual diagram for base requirements



NOTE The arrow around the product part indicates that any product part could be broken down into further product parts and thus it indicates that the product assembly is not just limited to two levels (product – product part) as displayed in this conceptual diagram.

Figure 2 – Conceptual diagram for additional requirements

4.2 Base data requirements

4.2.1 Products

The following requirements shall apply to products:

a) A material declaration shall be provided for a product or product family.

NOTE 1 Only the supplier is likely to know the appropriate product family groupings for material declaration purposes based on their technical knowledge of product material content.

b) The product shall have an identification and a mass assigned. In the case of a product family, the identification and mass of each product within the product family shall be specified.

NOTE 2 When each product in the product family has the same mass, it is sufficient to provide this mass just once.

4.2.2 Product parts

Product parts shall be declared if a substance group or substance in the IEC 62474 database refers to this part in the reporting threshold level and its reporting threshold level is exceeded.

NOTE Examples for such product parts are when batteries are incorporated into a printed circuit board assembly.

If such product parts need to be declared, the following shall apply:

a) Product parts shall be assigned to the product;

b) Product parts shall have an identification assigned;

c) Product parts shall have a mass or percentage of the product mass assigned.

4.2.3 Substances or substance groups listed in the IEC 62474 database with a mandatory reporting requirement

Substances or substance groups listed in the IEC 62474 database with a mandatory reporting requirement shall be declared if they are present in the product at or above the reporting threshold level given in the IEC 62474 database and if the reportable application as listed in the IEC 62474 database is applicable for that substance or substance group.

NOTE 1 When such substances or substance groups are not declared in a material declaration, they are not present over the specified threshold, but could be present below this threshold or the reportable application as listed in the IEC 62474 database is not applicable.

If such substances or substance groups are present above the reporting threshold level given in the IEC 62474 database and if the reportable application as provided in the IEC 62474 database is applicable, the following requirements shall apply:

a) Such substance groups shall be assigned to the product part (if 4.2.2 applies) or otherwise to the product. Such substances shall be assigned to the substance group (if the substance group has a mandatory reporting requirement) or otherwise to the product part (if 4.2.2 applies) or otherwise to the product.

b) Such substances or substance groups shall be named as given in the IEC 62474 database.

c) In general, such substance groups or substances shall have a mass or percentage of the product part mass (if 4.2.2 applies) or otherwise a percentage of the product mass assigned. If such substance groups or substances have reporting threshold levels specified in the IEC 62474 database, referring to the material, they shall have a material mass percent assigned.

NOTE 2 The IEC 62474 database lists some substance groups that require reporting as percentage of the material mass.

NOTE 3 The reporting requirement as percentage of the material mass can differ e.g. the numerator for this percentage can be the sum of the masses of all substances belonging to this substance group present or just the mass of a specific element. Details are given in the IEC 62474 database.

d) Such substance groups and substances with a reporting threshold level in the IEC 62474 database at the material or the product part level shall be declared separately for each occurrence in the product exceeding the threshold.

4.2.4 Other requirements

The following requirements shall apply to material declarations:

a) Business information that is needed to exchange material declarations shall be provided (see the IEC 62474 database).

b) In the case that the product manufacturer requests more than base requirements as specified in this International Standard and the IEC 62474 database, the contracting parties shall agree to details, such as safeguards protecting supplier trade secrets at the request of the supplier.

c) The International System of Units (SI) shall be used.

NOTE For the purpose of presentations and communications among computers, the SI units together with relevant SI prefixes are preferred. For example, small product parts could be best represented in grams rather than kilograms.

d) If the supplier is uncertain on the applicability of the reportable application to their product, then the presence of the substance shall be declared if it exceeds the reporting threshold in the supplied product.

~~**4.3 Additional requirements**~~

~~**4.3.1 Product parts**~~

~~The following requirements apply to product parts when they are declared:~~

~~a) Product parts shall be assigned to another product part (if a higher level product part is declared) or otherwise to the product.~~

~~b) Product parts shall have an identification assigned.~~

~~c) Product parts shall have a mass or otherwise the percentage of another product part mass (if a higher level product part is declared) or otherwise the percentage of the product mass assigned.~~

~~d) For identical product parts occurring multiple times, the information may be given only once. In this case, the number of identical product parts shall be provided.~~

~~**4.3.2 Material classes (optional)**~~

~~The following requirements apply to material classes when declared:~~

~~a) Material classes shall be assigned to the product.~~

~~b) Material classes shall be named according to the IEC 62474 database.~~

~~c) Material classes shall have a mass or percentage of the product mass assigned.~~

~~d) The sum of the mass of the declared material classes should represent at least 95 % of the product mass.~~

~~**4.3.3 Materials (optional)**~~

~~The following requirements apply to materials when declared:~~

~~a) Materials shall be assigned to a product part (if product part is declared) or otherwise to the product.~~

~~b) Materials should be characterized by names as defined in a standard (e.g., ISO 1043, parts 1 through 4 for plastics) or by internationally recognized names.~~

~~c) Materials shall have a mass or percentage of the product part mass (if product part is declared) or otherwise percentage of product mass assigned.~~

~~d) Materials shall be allocated to material classes as specified in the IEC 62474 database.~~

~~NOTE 1 The definitions to use when determining the material class applicable to a specific material are contained in the IEC 62474 database.~~

~~NOTE 2 When allocating a material to a material class, this does not trigger the conditions of 4.3.2(d)~~

~~**4.3.4 Substances or substance groups listed in the IEC 62474 database with a mandatory reporting requirement**~~

~~Substances or substance groups listed in the IEC 62474 database with a mandatory reporting requirement shall be declared if they are present in the product at or above the threshold level given in the IEC 62474 database and if the reportable application as listed in the IEC 62474 database is applicable for that substance or substance group. Substances and substance groups with a mandatory reporting requirement in the IEC 62474 database may be declared if they are present in the product below the threshold level given in the IEC 62474 database or if the reportable application as listed in the IEC 62474 database is not applicable for that substance or substance group.~~

~~NOTE 1 When such substances or substance groups are not declared in a material declaration, they are not present over the specified threshold, but could be present below this threshold or the reportable application as listed in the IEC 62474 database is not applicable.~~

~~The following requirements apply to such substances or substance groups when declared:~~

a) Such substance groups shall be assigned to the material (if material is declared), to the product part (if product part is declared) or otherwise to the product. Such substances shall be assigned to the substance group (if substance group is declared) or to the material (if material is declared) or to the product part (if product part is declared) or otherwise to the product.

b) Such substances or substance groups shall be named as given in the IEC 62474 database.

c) In general, such substance groups or substances shall have a mass or percentage of the material mass (if material is declared) or a percentage of the product part mass (if product part is declared) or otherwise a percentage of the product mass assigned. If such substance groups or substances have reporting threshold levels specified in the IEC 62474 database, referring to the material they shall have a material mass percent assigned.

NOTE 2 The IEC 62474 database lists some substance groups that require reporting as percentage of the material mass.

NOTE 3 The reporting requirement as a percentage of the material mass can differ e.g. the numerator for this percentage can be the sum of the masses of all substances belonging to this substance group present or just the mass of a specific element. Details are given in the IEC 62474 database.

d) Such substance groups and substances with a reporting threshold level in the IEC 62474 database at the material or the product part level shall be declared separately for each occurrence in the product exceeding the threshold.

e) Such substance groups and substances may have information on the reportable application. If such information is provided, it shall be named as in the IEC 62474 database.

NOTE 4 Reportable applications for all declarable substance groups and substances are listed in the IEC 62474 database.

NOTE 5 For those substances groups or substances with more than one reportable application, this information supports the downstream manufacturer in the assessment against substance restriction compliance requirements.

f) Such substances or substance groups may have information on applicable exemptions pertaining to the allowed use. If such information is provided, it shall be carried through the supply chain.

4.3.5 Substances or substance groups listed in the IEC 62474 database with an optional reporting requirement, as reference substances or substances or substance groups not listed in the IEC 62474 database

Substances or substance groups listed in the IEC 62474 database with an optional reporting requirement should be declared if they are present in the product at or above the reporting threshold level given in the IEC 62474 database and if the reportable application as listed in the IEC 62474 database is applicable for that substance or substance group. Substances and substance groups with an optional reporting requirement in the IEC 62474 database may be declared if they are present in the product below the reporting threshold level given in the IEC 62474 database or if the reportable application as listed in the IEC 62474 database is not applicable for that substance or substance group. Substances listed in the IEC 62474 database as reference substances or substances or substance groups not listed in the IEC 62474 database may be declared.

The following requirements apply to such substances or substance groups when declared:

a) Such substance groups shall be assigned to the material (if material is declared) or to the product part (if product part is declared) or otherwise to the product.

Such substances shall be assigned to the substance group (if substance group is declared), to the material (if material is declared) or to the product part (if product part is declared) or otherwise to the product.

b) Substances or substance groups with an optional reporting requirement in the IEC 62474 database shall be named as given in the IEC 62474 database. Substances not listed in the IEC 62474 database shall be identified by an internationally recognized name (e.g. IUPAC name) and preferably also identified with CAS Registry Number, EC Commission Number etc. when these are available.

NOTE 1 IUPAC Name: name assigned to a chemical compound according to recommendations by IUPAC Nomenclature of Organic (or Inorganic) Chemistry. IUPAC is the abbreviation for the International Union of Pure and Applied Chemistry.

NOTE 2 CAS Registry Number (also referred to as CAS Number): unique numeric identifier assigned by the Chemical Abstracts Service, a division of the American Chemical Society.

NOTE 3 European Commission Number (also referred to as EC Number, EC-No and EC#): unique numeric identifier assigned by the Commission of the European Union to chemical substances that are commercially available within the European Union.

c) Such substance groups or substances shall have a mass or percentage of the material mass (if material is declared) or percentage of the product part mass (if product part is declared) or otherwise percentage of the product mass assigned.

d) Such substance groups and substances may have information on the reportable application. If such information is provided, it shall be named as in the IEC 62474 database.

NOTE 4 Reportable applications for all declarable substance groups and declarable substances are listed in the IEC 62474 database.

NOTE 5 For those substances groups or substances with more than one reportable application, this information supports the downstream manufacturer in the assessment against substance restriction compliance requirements.

4.3.6 Other requirements

The following requirements are applicable to material declarations:

a) Material declarations may include statements relating to product parts, material, or substance content of products. These statements shall be designed so that they can be answered by True or False.

NOTE For example, statements can provide information about the presence of product parts, such as batteries or product parts of interest for end-of-life (EOL) treatment facilities.

b) In the case of information provided regarding the absence of materials, substance groups or substances, the absence criteria shall be specified.

4.1 General

4.1.1 Overview

Clause 4 describes the requirements for material declarations as specified in 4.1 through 4.7. Figure 2 below shows the concept of material declaration capabilities. Some subclauses, such as business information, are required while other subclauses, such as material classes, are optional. The material declaration shall include a declaration for compliance (4.4) or a composition declaration (4.5). It may also include both.

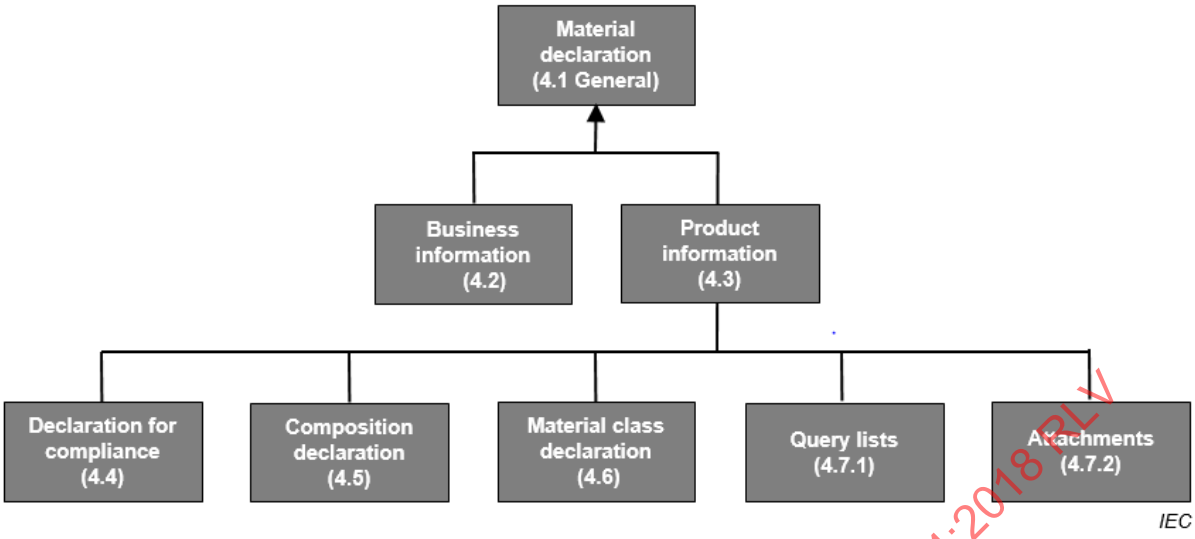


Figure 2 – Material declaration capabilities

- Material declaration: specifies the basic rules for a material declaration (4.1).
- Business information: specifies the business information, such as company name and contact information (4.2).
- Product information: specifies the product and its attributes associated with the material declaration (4.3).
- Declaration for compliance: specifies the information required to assess product compliance (4.4).
- Composition declaration: specifies the information about substances, materials, and/or product parts contained in the product (4.5).
- Material class declaration: specifies the information required for an optional material class declaration (4.6).
- Query list: specifies a list of statements with true/false responses (4.7.1).
- Attachments: specifies the capability to include supporting documents within a material declaration (4.7.2).

Figure 3 summarizes what elements are mandatory, optional, or conditional in a declaration for compliance and a composition declaration.

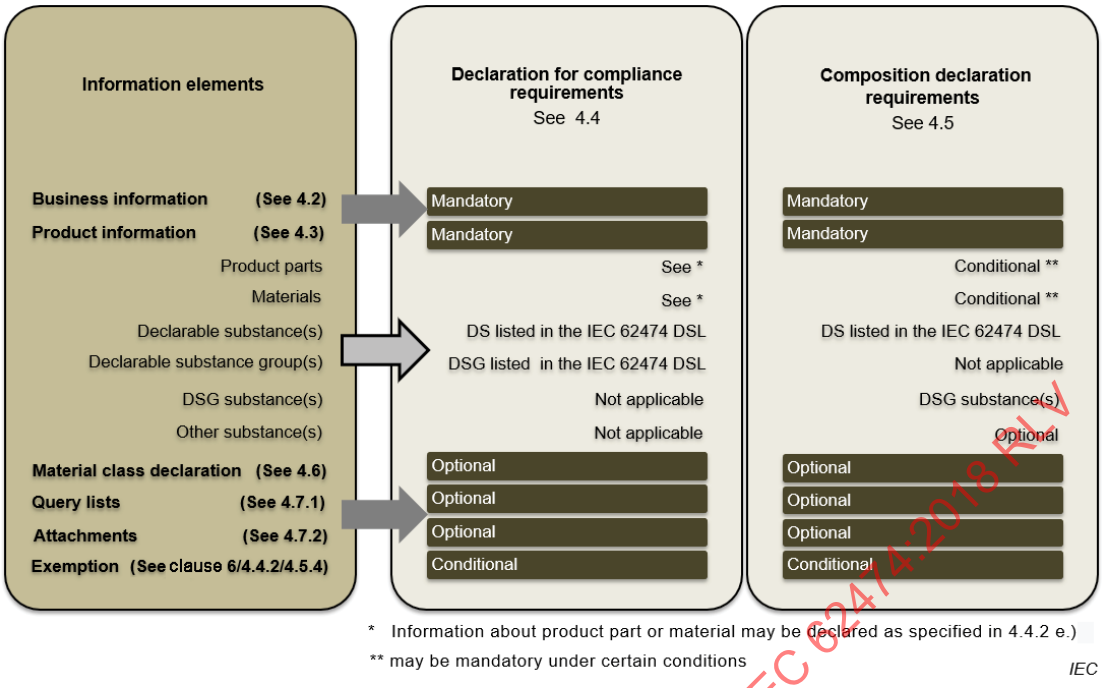


Figure 3 – Material declaration structure

The conceptual diagrams (see Figure 4 and Figure 5) are high level views of the declaration for compliance (Figure 4) and composition declaration models (Figure 5). In both figures, required information is shown with solid boxes and arrows. Optional information is shown within dotted boxes.

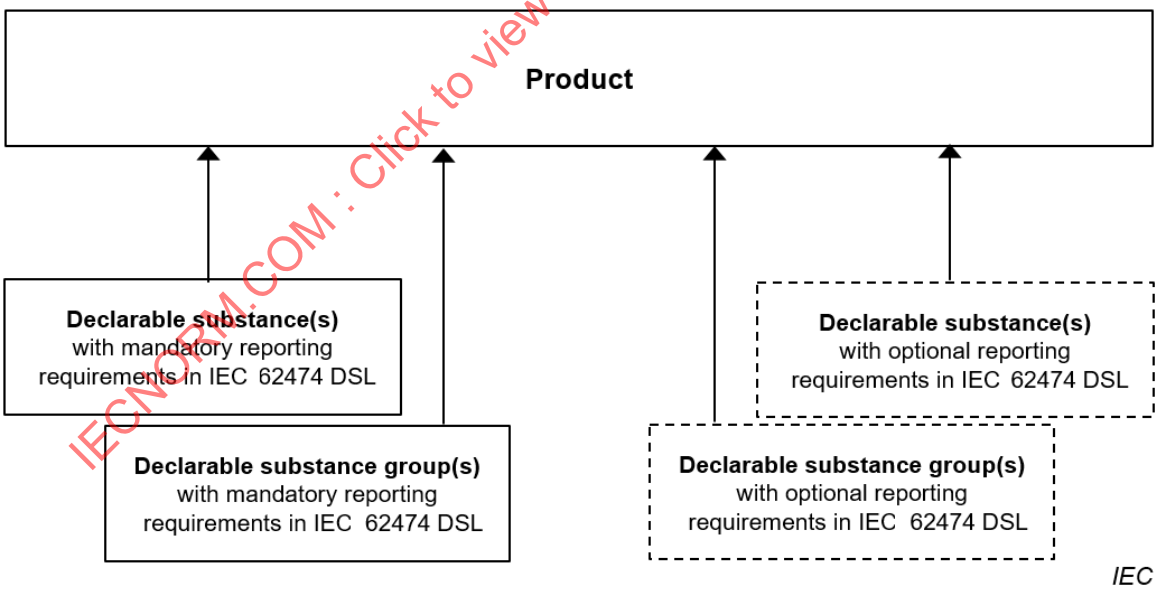


Figure 4 – Data model for a declaration for compliance

A declaration for compliance provides data at the product level. Product, DSs and DSGs with mandatory reporting requirements in the IEC 62474 DSL are mandatory objects in the declaration for compliance (see 4.4 and Figure 4).

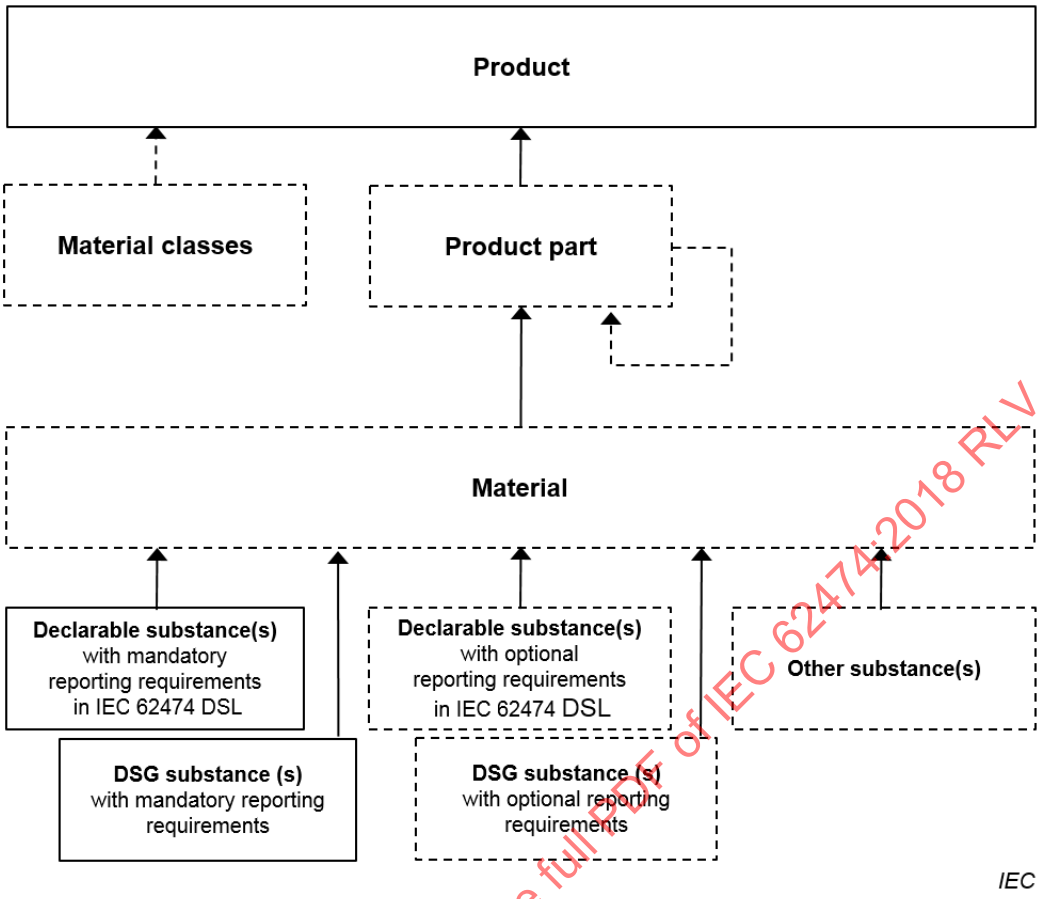


Figure 5 – Data model for a composition declaration

A composition declaration provides substance data at a material and/or product part and/or product level. This data can also be used to verify compliance of a product.

For simplicity, not all of the mandatory requirements are displayed in the diagrams (e.g. mass or mass percent information or mandatory declaration of certain product parts or materials in the composition declaration when the reporting threshold level refers to such product parts or materials and the reporting threshold level is exceeded) (see 4.5 for details).

The developer's table within the IEC 62474 database contains a full description of mandatory and optional requirements. Annex A provides an informative reference for mandatory and optional information. However, if there is a discrepancy between the IEC 62474 database and Annex A, the IEC 62474 database shall take precedence.

4.1.2 Conformity to the IEC 62474 standard

For a material declaration to conform to the IEC 62474 standard, it shall utilize the IEC 62474 database consisting of the DSL, material class list and the data exchange format and meet the requirements specified in this document. The material declaration shall specify the declarable substance list authority as "IEC62474" and the list identity and list version as specified within the IEC 62474 database.

This document enables the declaration against other lists. If a list contains, at minimum, the IEC 62474 DSL, utilizes the IEC 62474 data exchange format, and meets the requirements specified in the standard, it is in conformity with the standard. If other lists are used, they shall contain a list authority, list identity and list version and should be based on industry standard requirements. If a list does not contain at minimum the IEC 62474 DSL, it is not in conformity with this document.

4.1.3 General requirements

a) In the case where the requester requests more than the mandatory requirements of a material declaration as specified in this document and the IEC 62474 database, the contracting parties should agree to details, such as safeguards protecting supplier trade secrets at the request of the supplier.

b) The International System of Units (SI) shall be used.

4.2 Business information

Business information shall include company information, contact information and date, as well as other data specified in the data exchange format in the IEC 62474 database. The transfer of material declaration information uses either the distribution mode, where only the responder's business information shall be provided or the requester/responder mode, where both the requester's and the responder's business information shall be provided.

4.3 Product information

The following requirements shall apply to products:

a) A declaration for compliance or a composition declaration shall be provided for a product or product family.

NOTE 1 Only the supplier is likely to know the appropriate product family groupings for material declaration purposes based on their technical knowledge of product material content.

b) The product shall have an identification and a mass assigned. In the case of a product family, the identification and mass of each product within the product family shall be specified.

NOTE 2 When each product in the product family has the same mass, it is sufficient to provide this mass just once.

c) If a product contains a DS or DSG substance(s) that:

- has a reporting threshold level based on 'article',
- is present at or above the reporting threshold level for a reportable application, and
- is within the declaration of the product,

then the product shall be identified as an article.

4.4 Declaration for compliance requirements

4.4.1 General information

A declaration for compliance provides information about the presence or absence of DSs and DSGs as listed in the DSL for a product. Each DS and DSG entry within the DSL requires a positive ("true") or negative ("false") response. This information allows the requester to assess their product compliance with substance regulations and market needs at a product level.

4.4.2 DSs and DSGs with mandatory reporting requirements

DSs or DSGs with a mandatory reporting requirement in the IEC 62474 DSL shall be reported. When reporting DSs or DSGs with a mandatory reporting requirement, the following requirements apply:

a) The DSs and DSGs listed in the IEC 62474 DSL shall be assigned to the product.

b) Each such DS and DSG shall be named as given in the IEC 62474 DSL and shall include the reportable application and the reporting threshold level. The DSL entry identity associated with the DS or DSG entry in the DSL should be declared. Other identity(s) such as the CAS Registry Number may also be declared.

c) A declaration on the presence of DSs and DSGs at or above the reporting threshold level for an applicable reportable application provided in the IEC 62474 DSL shall have a positive ("true") response for all such DSs or DSGs.

d) A declaration on the absence of DSs and DSGs shall have a negative (“false”) response for DSs or DSGs provided in the IEC 62474 DSL that are:

   – not present, or

   – present below the reporting threshold level for an applicable reportable application, or

   – present and the reportable application is not applicable.

e) The presence of DSs or DSGs shall be quantified if they are present in the product at or above the reporting threshold level for an applicable reportable application given in the IEC 62474 DSL.

   – The mass percent of each DS or DSG within the product shall be provided.

   – The mass percent shall be calculated based on the reporting threshold relative to the reporting threshold level (e.g. product part or material) as specified in mass information requirements in the IEC 62474 DSL.

      • If such DSs or DSGs have reporting threshold levels specified in the IEC 62474 DSL referring to the product part, the declaration of the DS or DSG shall include the mass percent of the product part.

      • If DSs or DSGs have reporting threshold levels specified in the IEC 62474 DSL that refer to the material, the declaration of the DS or DSG shall include the material mass percent. The material mass percent is the percentage of the DS or DSG in the material.

      • If the mass percent of a DS and/or DSG can occur within a range of values, then the maximum (worst case) value shall be declared.

      NOTE 1 If the mass percent of a declarable substance can range from 1,1 % to 1,2 %, then a value of 1,2 % is declared.

      NOTE 2 The IEC 62474 DSL lists some DSs and DSGs that require reporting as percentage of the material mass.

      NOTE 3 The reporting requirement as percentage of the material mass can differ, e.g. the numerator for this percentage can be the sum of the masses of all DSs belonging to this DSG present or just the mass of a specific element. Details are given in the IEC 62474 DSL.

   – If the DSs or DSGs have a mass reporting requirement specified in the mass information requirements field of the IEC 62474 DSL, then the mass of the DSs or DSGs shall be declared.

      NOTE 4 The declaration of mass is in addition to the requirements specified to declare mass percent.

      NOTE 5 The mass of DSs and/or DSGs in the product is sometimes necessary to meet regulatory requirements and can be used to assess recyclability of a product.

   – If the responder (supplier) is uncertain on the applicability of the reportable application to the product, then the DSs or DSGs shall be declared if they are present at or above the reporting threshold level in the supplied product.

   – If the declaration of a DS or DSG includes a mass percent, identification of the material, product part or product that represents the denominator of such mass percent may be provided and included in the material declaration that is passed through the supply chain.

f) In general, if there is more than one occurrence of a DS or DSG within a reportable application that is present at or above the reporting threshold within the product, the occurrence with the highest mass percent above the reporting threshold within the product shall be declared. Additional occurrences below the highest mass percent may be declared.

   – When exemptions are reported for a DS or DSG, at least one occurrence shall be declared for each different exemption. The occurrence with the highest mass percent (or material mass percent as required) shall be declared for each such exemption. If such information is provided, it shall be included in the material declaration that is passed through the supply chain.

- If there is an occurrence of a DS or DSG within a reportable application that is present at or above the reporting threshold within the product that does not have an applicable exemption, the highest mass percent shall be declared.
- When reporting of mass is required by the DS and/or DSG entry(s) within the IEC 62474 DSL, then the total mass of all such occurrences of the DS or DSG shall be reported.

g) If an exemption is declared, the exemption list (list authority, list identity and list version) and exemption identification shall be declared.

- If the exemption being declared is included in the IEC 62474 database, then the exemption identification (including identity (ID) and description) from the IEC 62474 database should be reported.
- If the exemption is from a list that is not included in the IEC 62474 database, then the list authority, list identity and list version with a description of the exemption shall be reported. An exemption identity should be reported.

4.4.3 DSs and DSGs with optional reporting requirements

DSs or DSGs with an optional reporting requirement in the IEC 62474 DSL may be declared. When reporting, the requirements of 4.4.2 shall be followed.

NOTE DSs and DSGs listed as criteria 3 in the IEC 62474 DSL are examples of DSs and DSGs with optional reporting requirements.

4.5 Composition declaration requirements

4.5.1 General requirements

a) A composition declaration provides information on the presence of substances used within a product. Examples of how composition declaration information are used include:

- assessing where DSs and DSG substances at or above threshold are contained in the product;
- detailing substance data for assessing product compliance with substance regulations and market needs;
- allowing reporting substances with optional reporting requirements or substances not contained in the IEC 62474 DSL;
- providing up to a "full" material declaration of all substances contained in a product and where they are located within the product.

b) Mass information shall include mass or mass percent, but not both.

NOTE 1 In a composition declaration it is always possible to calculate mass from mass percent or to calculate mass percent from mass. It is not necessary to provide both. Providing both has the potential to create inconsistency between the numbers.

c) The reporting requirements of the DSG shall apply to all DSG substance(s) that belong to this DSG.

NOTE 2 If a DSG has a mandatory reporting requirement, the DSG substance(s) will inherit this mandatory reporting requirement.

4.5.2 Product parts

Product parts shall be declared if a DS or DSG substance(s) with a mandatory reporting requirement referring to the product part, is present at or above the reporting threshold level in the product part. Any other product part(s) contained in the product may also be declared.

NOTE 1 The list of DSG substances within the IEC 62474 RSL may or may not be a complete or exhaustive list.

NOTE 2 Example of such a mandatory declaration of a product part is a battery incorporated into a printed circuit board assembly.

If a product part contains a DS or DSG substance(s) that:

- has a reporting threshold level based on ‘article’,
- is present at or above the reporting threshold level for a reportable application, and
- is within the declaration hierarchy of the product part,

then the product part shall be identified as an article.

For traceability, the product/product part(s) within the declaration hierarchy above the product part(s) should be identified as containing an article.

When product part(s) are declared, the following requirements shall apply:

a) Product parts shall be assigned to another product part (if a higher level product part is declared) or otherwise to the product.

b) An identification shall be assigned to each product part.

NOTE 3 An identification can be a product part name, number, or other identification relevant to the responder.

c) For identical product parts occurring multiple times, the information may be declared only once. In this case, the number of identical product parts shall be reported as the number of units (NoU). A decimal number shall be used to declare the number of units (NoU).

NOTE 4 The number of units information allows for the declaration of single or multiple instances of a product part (e.g. 2,0 for 2 instances of a product part) as well as fractions of a unit of measure, such as wire, which can be greater or smaller than a metre (e.g. 0,1 for a wire that is 0,1 m in length and declared based on a 1,0 m unit of measure).

d) Product parts shall include either the mass of the product part or the mass percent but not both. If mass percent is declared, then the percentage shall be the mass of the product part within another product part (if a higher level product part is declared) or otherwise the mass percent of the product.

NOTE 5 In a composition declaration it is always possible to calculate mass from mass percent or to calculate mass percent from mass. It is not necessary to provide both. Providing both has the potential to create inconsistency between the numbers.

4.5.3 Materials

Materials shall be declared if a DS or DSG substance(s), with a mandatory reporting requirement referring to the material, is present at or above the reporting threshold level in the material.

Materials should be declared when substances contained in the materials are declared.

Any other materials contained in the product may be declared.

The following requirements apply to materials when declared.

a) Materials shall be assigned to the product part containing the material (if the product part is declared) or otherwise to the product.

b) If a material contains a DS or DSG substance(s) that:

   – has a reporting threshold level based on ‘article’,
   – is present at or above the reporting threshold level for a reportable application, and
   – is within the declaration hierarchy of the material,

   then the material shall be identified as an article.

   For traceability, the product/product part(s) within the branch of the declaration hierarchy of the material(s) should be identified as containing an article.

c) Materials should be characterized by names as defined in a standard (e.g. ISO 1043, Parts 1 through 4 for plastics) or by internationally recognized names.

d) Materials shall include either the mass of the material or the mass percent. If mass percent is declared, then the percentage shall be the mass of the material with respect to the mass of the product part that contains the material (if the product part is declared) or otherwise the mass percent of the product.

e) Each material should include an identification of the corresponding material class.

NOTE The definitions to use when determining the material class applicable to a specific material are contained in the material class list.

4.5.4 DSs and DSG substance(s) with mandatory reporting requirements

The following substances shall be declared:

- DSs listed in the DSL with a mandatory reporting requirement, if they are present in the product at or above the reporting threshold level and if the reportable application is applicable.
- DSG substances with a mandatory reporting requirement, if the substances are collectively present in the product at or above the reporting threshold level for the DSG and if the reportable application is applicable.

Such substances may be declared if they are present in the product below the reporting threshold level or if the reportable application is not applicable for that DS or DSG.

NOTE 1 When such DSs are not declared in a material declaration, they are not present over the specified reporting threshold level, but could be present below this threshold or the reportable application as listed in the DSL is not applicable.

The following requirements apply to such DSs or DSG substance(s) when declared:

a) Such substances shall be assigned to the material (if material is declared), to the product part (if material is not declared and product part is declared) or otherwise to the product (if neither material nor product parts are declared).

b) Such substances shall be named as given in the DSL or RSL if the substance(s) are listed in the DSL or RSL. These substances shall be identified using the CAS Registry Number (if assigned), EC Commission Number (if assigned) or other identifier such as a DSL entry identity.

NOTE 2 The CAS Registry Number is a unique numeric identifier assigned by the Chemical Abstracts Service, a division of the American Chemical Society.

NOTE 3 The European Commission Number (also referred to as EC Number, EC-No and EC#) is a unique numeric identifier assigned by the Commission of the European Union to substances that are commercially available within the European Union.

c) In general, the declaration for such substances shall include either the mass or mass percent. If mass percent is declared, then the percentage shall be the mass of the substance with respect to the mass of the material (if the material is declared) or otherwise the mass of the product part (if the product part is declared) or otherwise the mass of the product.

NOTE 4 The reporting requirement as a percentage of the material mass can differ e.g. the numerator for this percentage can be the sum of the masses of all DSG substances belonging to a DSG present or just the mass of a specific element. Details are given in the DSL

Such DS or DSG substance(s) within different materials or different product parts shall be declared separately for each occurrence at or above the threshold in the product.

d) If a DS or DSG substance(s) has a reporting threshold that refers to an element or compound, the mass percent of the element or compound shall be used to determine if the substance is at or above threshold

– If more than one substance in a DSG is present, then the contribution of all such substances shall be summed to determine if the reporting threshold has been reached.

e) Such substances may have information on applicable exemptions pertaining to the allowed use. If such information is provided, it shall be included in the material declaration that is passed through the supply chain.

f) If a substance is known to belong to a DSG but the substance name is either unknown or confidential business information (CBI) then:
   – the DSG name and identity may be used as the substance name and substance identity and/or
   – a declaration for compliance may be provided to ensure accurate reporting of the DSG.

g) If a DSG substance that refers to a specific metal (e.g. lead/lead compounds) but the substance name is unknown or CBI, the mass or mass percent of only the metal shall be declared.

h) If the responder is uncertain whether or not a reportable application applies to their product, then the presence of the DS or DSG substance shall be declared if it exceeds the reporting threshold level in the supplied product.

i) The value of a mass or mass percent specified in the composition declaration shall be for each DS and/or DSG substance occurrence exceeding its reporting threshold.

4.5.5 DSs and DSG substance(s) with optional reporting requirements

DSs or DSG substances with an optional reporting requirement in the IEC 62474 DSL may be declared. When reporting, the requirements of 4.5.4 shall be followed.

4.5.6 Other substance(s)

Substances not listed in the IEC 62474 DSL may be declared. When reporting, the requirements of 4.5.4 a) and 4.5.4 c) shall be followed.

A practical reporting threshold for such substances may be at or above 0,1 mass percent of the mass of the material, product part or product, whichever is the lowest product unit (e.g. material, product part or product) that the declaration requires.

If substances not listed in the IEC 62474 DSL are declared, they should be identified by an internationally recognized name (e.g. IUPAC name) and should be identified with a CAS Registry Number, EC Commission Number, etc. when these are available.

NOTE The IUPAC (International Union of Pure and Applied Chemistry) name is a name assigned to a chemical compound according to recommendations by IUPAC Nomenclature of Organic (or Inorganic) Chemistry.

4.6 Material class declaration

This subclause specifies the requirements for the material classes that are present in the product. Material classes provide for the classification of materials into material types. This classification provides some of the information that the requester may use to conduct a life cycle assessment, to calculate recyclability or for other ECD purposes.

NOTE In addition, each material in the composition declaration can be assigned a material class that allows the requester to roll-up the total amount of each material class in the product if the responder has declared all materials in the product.

The following requirements apply to material classes when declared:

a) Material classes shall be named according to a material class list.

b) The list authority, list identity and list version of the material class list shall be declared. If material class lists are used other than the material classes specified in the IEC 62474 database, the material class list should be based on industry standard requirements and contain a list authority, list identity and list version.

c) The material class declaration shall be directly linked to the product.

d) The declaration of each material class shall include the mass or mass percent within the product.

e) The sum of the mass or mass percent of the declared material classes should represent at least 90 % of the product mass.

4.7 Other information

4.7.1 Query lists

A query list shall contain statement(s) created by the requester or responder using a text string with a corresponding true/false response for each statement. An example query statement could be: “The product contains a battery", with a response being either “true” or “false”.

4.7.2 Attachments

Supporting documents, such as a test report or certificate of compliance, may be provided with the material declaration.

4.7.3 Requester/responder mode

In the requester/responder mode, the requester may specify if the responder is to provide a declaration for compliance or a composition declaration or both.

The requester may also specify that the responder provides the following:

1) material class declaration,
2) query list response,
3) supporting document(s) as attachment(s).

4.7.4 Distribution mode

The supplier shall provide to the recipient either a declaration for compliance or a composition declaration, or both a declaration for compliance and a composition declaration. In distribution mode, the recipient is not identified.

The supplier may also provide the following:

1) material class declaration,
2) query list response,
3) attachment(s).

5 Criteria and thresholds for ~~substances~~ DSs, DSGs and material classes in the IEC 62474 database

5.1 General

Clause 5 describes the criteria used to determine the ~~substance groups, substances~~ DSs, DSGs, and material classes to be included in the IEC 62474 database. Clause 5 also specifies how reporting threshold levels and reportable applications shown in the IEC 62474 database are determined.

IEC National Committees shall use these criteria when submitting change requests for modifying the IEC 62474 database and the ~~validation team~~ VT 62474 shall assess these requests as described in Clause ~~7~~8.

5.2 ~~Declarable substances~~ DSs and DSGs criteria

The criteria to be used by the ~~validation team~~ VT 62474 for determining inclusion of ~~substance groups and substances~~ DSs and DSGs in the IEC 62474 ~~database~~ DSL are provided in Table 1. Before applying the criteria, the ~~validation team~~ VT 62474 shall determine ~~that~~ if the ~~substance groups and/or substances~~ DSs and/or DSGs may be contained in electrotechnical products and that the reason for inclusion is related to a possible

environmental aspect or impact. The process for ~~validation team~~ the VT 62474 to remove or reclassify ~~substance groups and substances~~ DSs and DSGs is described in ~~7.2~~ 8.3.

Table 1 – ~~Declarable substances~~ DSs and DSGs criteria

Category	Description
Criteria 1 “currently regulated”	A) A ~~substance group or substance~~ DS or DSG shall be added to the IEC 62474 ~~database~~ DSL with a "mandatory” reporting requirement if: 1. it is explicitly included within an existing national law or regulation in an IEC member country; and 2. the law or regulation is applicable to electrotechnical products; and 3. the law or regulation either prohibits or restricts the presence of it in electrotechnical products; or due to its presence within electrotechnical products the law or regulation: – requires reporting or – requires labelling, and 4. the law or regulation cites a specific effective date (which may be in the future) for the requirements under statement 3 above for that ~~substance group or substance~~ DS or DSG. B) Additionally, a ~~substance group or substance~~ DS or DSG shall be considered for addition to the IEC 62474 ~~database~~ DSL if it is included within an existing IEC member country sub-national law or regulation that has significant impact on the global market place and meets statements A) 2, A) 3 and A) 4 above. NOTE 1 A sub-national law or regulation is considered to be any existing law or regulation at a level of government below the national level of government. C) A law or regulation that restricts the levels of these ~~substance groups or substances~~ DSs or DSGs in leachate (or extract) or emissions from products shall not be used as a basis for including ~~substance groups or substances~~ DSs or DSGs in the IEC 62474 ~~database~~ DSL with a “mandatory” reporting requirement.
Criteria 2 “for assessment”	A) A ~~substance group or substance~~ DS or DSG shall be considered for addition to the IEC 62474 ~~database~~ DSL with a “mandatory” reporting requirement if: 1. the ~~substance group or substance~~ DS or DSG meets all the criteria 1 “currently regulated” requirements in A) 1, 2 and 3 above, except 4 and 2. the law or regulation does not cite a specific effective date for the requirements under criteria 1 statement 3 above for that ~~substance group or substance~~ DS or DSG. B) Additionally, a ~~substance group or substance~~ DS or DSG shall be considered for addition to the IEC 62474 ~~database~~ DSL if it is included within an existing IEC Member country sub-national law or regulation that has significant impact on the global market place and meets ~~statements 1 and 2 in~~ criteria 2 A) above. NOTE 2 A sub-national law or regulation is considered to be any existing law or regulation at a level of government below the national level of government. C) A law or regulation that restricts the levels of these ~~substance groups or substances~~ DSs or DSGs in leachate (or extract) or emissions from products shall not be used as a basis for including ~~substance groups or substances~~ DSs or DSGs in the IEC 62474 ~~database~~ DSL with a “mandatory” reporting requirement.

Category	Description
Criteria 3 “for information only”	A) A ~~substance group or substance~~ DS or DSG shall be considered for addition to the IEC 62474 ~~database~~ DSL with an “optional” reporting requirement if: 1. the ~~substance group or substance~~ DS or DSG is not included under the criteria 1 “currently regulated” or criteria 2 “for assessment”; and 2. there is a recognized industry-wide common market requirement for reporting this ~~substance group or substance~~ DS or DSG in electrotechnical products. ~~NOTE 3 Examples of industry-wide common market requirements include: widely adopted industry agreements or standards; product design material content requirements; scarcity; end-of-life impacts; and/or environmental risk; and corporate responsibility.~~ When making a decision, the following considerations should be taken into account: – available scientific evidence on adverse environmental impacts, – information on potential environmental benefits, – widely adopted industry agreements or standards, – product design material content requirements, – opportunities to enable circular economy (e.g. end of life impacts, scarcity). NOTE ~~4~~3 Criteria 3 “for information only” are not intended to provide a competitive advantage or compromise trade secrets.

5.3 Material class criteria

To support environmentally conscious design, the material classes contained in the IEC 62474 database shall be uniquely identified in order to effectively and efficiently describe products from a material perspective. ~~See informative Annex D for a comparison of IEC 62474 database material classes to automotive industry material classes~~.

NOTE 1 IEC 62430 provides additional information on environmentally conscious design.

The material classes shall provide enough product information needed to help determine recyclability, recoverability rates and for life cycle assessment.

NOTE 2 IEC TR 62635 provides guidelines for end-of-life information of electrical and electronic products for recyclability and recoverability rates calculation.

5.4 Reporting threshold levels and reportable applications for ~~declarable substance groups and declarable substances~~ DSs and DSGs

For criteria 1 and 2 ~~substance groups and substances~~ DSs and DSGs, the reporting threshold value shall be based on the lowest applicable regulatory limit where it exists. Where different limits exist for different reportable applications, multiple reporting thresholds may be established for the different reportable applications. Reporting threshold levels and reportable applications ~~are specified in the IEC 62474 database~~, reporting level, and mass information requirements are specified in the IEC 62474 DSL. If applicable for the DS or DSG entry, substance clarification shall also be specified in the DSL to clarify or elaborate on the scope of the substance(s) included in the entry.

A default reporting threshold of 0,1 % of the product mass ~~shall~~ should be used for criteria 3 ~~substance groups and substances unless a lower value is necessary~~ DSs and DSGs. The VT 62474 may select a different value if needed to meet stakeholder requirements.

5.5 Threshold levels for material classes

Material class reporting thresholds are not established for ~~an~~any individual material class.

5.6 Reference substances in the IEC 62474 database

For ~~declarable substance groups~~ DSGs listed in the IEC 62474 ~~database~~ DSL, the database provides examples of individual substances belonging to those groups designated as “reference” on a separate ~~worksheet~~ list named “reference substances ~~Informative~~”. The

reference substances ~~list~~ for a ~~particular declarable substance group is~~ DSG are not intended to be an exhaustive list, unless this is otherwise stated in the IEC 62474 ~~database~~ RSL.

When reporting individual reference substances, thresholds shall be sufficient to conform to the reporting threshold level for the ~~substance group~~ DSG as specified in the IEC 62474 ~~database~~ DSL. However, explicit reporting threshold levels for individual reference substances are not provided in the IEC 62474 ~~database~~ DSL. ~~Reporting of individual reference substances is optional under this International Standard and reference substances are included for informative purposes only~~.

6 Criteria for exemption lists in the IEC 62474 database

Exemptions listed in the IEC 62474 database shall be organized into exemption lists that are specific to a single law or regulation. Exemptions lists shall consist of one or more exemptions that are specified in the law or regulation.

Each exemption in an exemption list shall specify an identity and a description. The exemption identity and description should be consistent, when possible, with an exemption identifier and description provided in the law or regulation. The VT 62474 shall ensure that exemptions can be clearly and uniquely identified by users of this document, particularly when exemptions are updated by regulators.

The exemptions should specify DSs or DSGs, applications, thresholds, and any other specified conditions for which the DS or DSG is permitted under the applicable regulation.

~~6~~7 IEC 62474 database data format and exchange

~~6.1~~7.1 General

Clause 7 describes the specifics of how material declaration data is required to be formatted and exchanged, to support information transfer through the supply chain. Although hardcopy exchange may be used, this document specifies criteria for the electronic exchange of material declarations by eXtensible Markup Language (XML). Clause 7 provides instructions to users, but it is mainly focused to provide requirements to software developers. It is not intended to promote a specific software application.

~~Data format and exchange supports base requirements as well as additional requirements, so that data can be exchanged through the supply chain without interruption.~~

~~6.2~~7.2 Data exchange format

The data ~~format and~~ exchange format shall support the requirements for ~~declarable substances groups, declarable substances, substances~~ DSs, DSGs, materials and material classes, as specified in Clause 4. The lists of ~~declarable substance groups, declarable substances~~ DSs, DSGs, and material classes as described in Clause 5 are specified in the IEC 62474 database. The IEC 62474 ~~database~~ data exchange format shall conform to the requirements of IEC 61360 ~~Parts 1, 2 and 5~~-1 and IEC 61360-2.

Material declaration data shall be in XML and will be ~~defined~~ formatted using the W3C (World Wide Web Consortium) XML schema as ~~defined~~ provided in the IEC 62474 database. See ~~7~~ 8.1 for the IEC 62474 database update process. This XML schema ~~defines~~ specifies the data elements (type of data and constraints) and structure (relationship between data) of a material declaration data file. Conforming XML files shall be the primary mechanism for exchanging data between parties in the supply chain. See Annex ~~B~~ A for a description of major data exchange elements and examples of data element types in a material declaration.

If there is a discrepancy between the IEC 62474 database and Annex A, the IEC 62474 database shall take precedence.

Software solutions providing material declaration tools conforming to the IEC 62474 standard shall support the ~~XML representation defined here~~ IEC 62474 data exchange format as specified by the IEC 62474 XML schema, the developers table, and the requirements specified in Clause 4. The XML schema and the corresponding developer's table may be revised from time to time as specified in Clause 8. When declaring conformity to the IEC 62474 standard, solution providers shall indicate the latest schema database version of the standard that their software supports.

Solution providers may require a transition time to adopt changes to the data exchange format and not all material declarations will be immediately updated to reflect the new format. Therefore, solution providers should support the import of material declarations that are formatted according to previous data exchange formats when possible (this document does not specify the number of previous versions that should be supported, but the solution provider should consider market needs to determine its own transition schedule and backward compatibility). To remain in conformity with IEC 62474, it is recommended that the software solution supports the changes to the data exchange format within 12 to 18 months of its release.

~~6.3~~7.3 Data exchange

~~6.3.1~~7.3.1 Two-way and one-way data exchange

The data exchange schema shall support two-way and one-way electronic data exchange. In the two-way scenario, the requester initiates an electronic data request; the responder then replies to the requester with the requested data. In the one-way scenario, the responder initiates the electronic data exchange.

~~6.3.2~~7.3.2 Data exchange specification in the IEC 62474 database

The following requirements are applicable to data exchange specifications included in the IEC 62474 database:

a) The data exchange ~~specification~~ format in the IEC 62474 database shall support the ~~base requirements and additional requirements~~ declaration for compliance, the composition declaration, the material class declaration and other information specified in Clause 4.

b) The IEC 62474 database shall include a table that specifies the data elements, attributes and multiplicities to support material declaration data exchange.

NOTE Users can refer to Annex ~~B~~ A for a summary representation of the data exchange specification. For the actual description of mandatory and optional requirements refer to the data exchange format within the IEC 62474 database. If there is a discrepancy between Annex A and the IEC 62474 database, the IEC 62474 database takes precedence.

c) The IEC 62474 database shall include the XML schema required to support the material declaration data exchange format.

~~6.3.3~~7.3.3 Additional data exchange requirements

The data ~~format and~~ exchange ~~methodology~~ format shall allow for the inclusion of supporting information and a text field for additional freeform comments or information, and shall provide for the attachment of supporting files.

~~6.3.4~~7.3.4 XML file

An IEC 62474 material declaration ~~exchange file shall be valid according to the XML schema included in the IEC 62474 database~~ XML file that conforms to the IEC 62474 standard shall meet the requirements specified in the data exchange format and Clause 4. Given that the data exchange format and the DSL are periodically updated, the material declaration shall declare which version of the data exchange format and which version of the DSL was used to

create the material declaration. An XML schema (as defined by W3C XML Schema Part 0,1,2) provides a set of rules to which an XML file shall conform in order to be considered correct or valid. ~~See informative Annex E for declaration examples as XML files.~~

~~6.4~~7.4 Criteria for the IEC 62474 database maintenance of data ~~format and~~ exchange ~~information~~ format

The criteria to be used by the ~~validation team~~ VT 62474 for determining changes to the data format are provided below.

A change to the data format as specified in the IEC 62474 database "developer table" and "XML schema" (including data elements, relationships, and multiplicities ~~or schema~~) shall be considered if there is an industry-wide purpose for modifying data elements, relationships, multiplicities or schema to meet common stakeholder requirements~~, as long as it does not require a change to Clause 4, 5 or 6~~. Changes shall not conflict with the requirements specified in Clauses 4, 5 and 6. Changes may be based on revised regulatory requirements. The VT 62474 should consider whether or not a change is backward compatible. Changes that preserve compatibility should be implemented whenever possible.

~~7~~8 IEC 62474 database maintenance

8.1 General

The IEC 62474 database is available at http://std.iec.ch/iec62474 and shall contain:

- DSs and DSGs;
- reference substances;
- material classes;
- XML schema for data exchange format and the accompanying developer table;
- exemptions;
- other useful information identified by the VT 62474.

~~7.1~~8.2 IEC 62474 database update process

The IEC 62474 database shall be controlled and maintained according to the procedures for the maintenance of the IEC standards in database format specified in the ISO/IEC Directives, IEC Supplement~~, Annex J, normal database process~~. The voting requirements are also specified in ~~Annex J~~ these procedures. The IEC 62474 database shall be reviewed at least annually and updated as appropriate. National Committees can request the ~~TC 111 Secretary~~ VT 62474 to conduct an out-of-cycle review for an urgent request (e.g. errors in the IEC 62474 database that prevent the exchange of data as intended by this document).

P-members in the IEC Technical Committee 111 may designate persons to the Material Declaration VT 62474. ~~Validation team~~ VT 62474 members representing a National Committee (NC) have a single vote regardless of how many members the National Committee designates to the ~~validation team~~ VT 62474. ~~Validation team~~ VT 62474 members are expected to have the necessary expertise regarding chemical content in electronic industry products and/or information technology to effectively evaluate the change requests. If the VT 62474 members do not have the appropriate expertise, they shall consult with the appropriate experts to evaluate the technical aspects of the change requests.

~~The TC 111 Secretary or his designee shall send out a notice to National Committees to submit their change requests for the annual update of the IEC 62474 database.~~

NOTE A P-member is a full member of the NC who has access to all technical and managerial activities and functions, at all levels of the IEC, including voting rights in Council.

A change request form is used in order to provide the ~~validation team~~ VT 62474 with sufficient information to make its determinations. ~~See informative Annex C that describes the database update process and instructions for VT members.~~

~~A schedule including dates and major milestones for~~ The IEC 62474 database update process is included in the IEC 62474 database.

~~7.2~~8.3 Reclassification and removal of ~~substance groups and substances~~ DSs and DSGs from the IEC 62474 ~~database~~ DSL

The ~~validation team~~ VT 62474 is responsible for developing the screening methodology for ~~substance~~ DS and/or DSG applicability to electrotechnical products. ~~Annex C provides an example process that may be used by the validation team.~~

A criteria 2 “for assessment” ~~substance group or substance~~ DS or DSG shall be reclassified as criteria 1 “currently regulated” once the effective date of a regulatory requirement is specified.

A criteria 3 “for information only” ~~substance group or substance~~ DS or DSG shall be reclassified as criteria 1 or criteria 2 if one of those criteria becomes applicable.

If a ~~substance group or substance~~ DS or DSG is included in the IEC 62474 ~~database~~ DSL under criteria 1 or 2, and the applicable law or regulation is withdrawn, the ~~validation team~~ VT 62474 shall remove listing according to criteria 1 or 2 and shall consider if criteria 3 applies. If criteria 3 does not apply, such ~~substance group or substance~~ DS or DSG shall be removed from the IEC 62474 ~~database~~ DSL.

If a ~~substance group or substance~~ DS or DSG is included in the IEC 62474 ~~database~~ DSL under criteria 3, and the recognized industry-wide common market requirement is no longer applicable, such ~~substance group or substance~~ DS or DSG shall be removed from the IEC 62474 ~~database~~ DSL.

8.4 Maintenance of exemption lists in the IEC 62474 database

The VT 62474 shall develop a process to maintain the exemption lists that are listed on the IEC 62474 database to reflect any changes in the applicable law or regulation.

The VT 62474 shall evaluate change requests for addition, deletion and modifications to exemption lists in the IEC 62474 database.

A change request to update an exemption list within the IEC 62474 database is expected to be entered and considered after notice that a law or regulation is modified or removed. The change request shall be approved if the exemption(s) specified in the exemption list are:

- explicitly included within an existing law or regulation that meets criteria 1 or 2 as specified in 5.2,
- relevant to DSs or DSGs that are already listed in the IEC 62474 database or are being concurrently reviewed for listing in the IEC 62474 database, and
- relevant to electrotechnical products.

~~7.3~~8.5 Maintenance of data ~~format part~~ exchange format ~~of the IEC 62474 database~~

The ~~validation team~~ VT 62474 is responsible for developing a methodology to consider requests for changes to the data exchange format. Change requests involving the data exchange information and format shall be handled according to the expedited or standard process as described below~~:~~.

a) Expedited processing

Change requests intended to solve critical problems or limitations in the data exchange shall be processed through the change request system as soon as they are entered into the system rather than waiting for the ~~annual~~ next scheduled update ~~process~~.

b) Standard processing

Change requests suggesting improvement of the data exchange model and format and that are in line with the intended function of the data exchange shall be considered by the ~~validation team~~ VT 62474 for compilation and consideration for future upgrades.

Annex A
(informative)

Examples corresponding to Clause 4 – Requirements for material declaration

A.1 General

This annex illustrates several examples of material declaration. For examples 1 and 2, the minimum requirements of 4.2 "base data requirements" are illustrated as well as one declaration showing "additional requirements" as described in 4.3. Example 3 just illustrates a declaration following the "additional requirements". For presentation purposes, these declarations are separated into i) business information (mandatory and optional information) ii) product part/material/substance/substance group declaration (mandatory and optional information) and iii) a declaration of the material classes (entirely optional).

The examples show selected information from the material declaration. For a complete list of information required for material declaration according to this International Standard, see Clauses 4 and 6 and the XML schema in the IEC 62474 database.

A.2 Example 1 - component

A.2.1 General

A product (electronic component) weighing 0,12 grams consists of three product parts. One of those product parts contains four materials, two of which contain 'lead/lead compounds' above the reporting threshold level.

Subclause A.2.2, and Tables A.1 and A.2 illustrate the material declaration based on the "base data requirements" of 4.2. The declarable substance group "lead/lead compounds" shall be declared separately for each homogenous material that contains lead/lead compounds above the reporting threshold level; thus two declarations of 'lead/lead compounds' are shown.

Subclause A.2.3 illustrates the material declaration reporting optional information that goes beyond the base requirements. This declaration is based on "additional requirements" of 4.3, showing information on selected product parts, materials, substance groups and substances. All information is provided as mass percent of the next level in the product hierarchy except those substance groups where 4.2.3 c) requires declaration of material mass percent. For the two occurrences of lead present in different materials, the information on applicable exemptions is provided (see Table A.4). Subclause 4.3.2 d) recommends that material classes declared represent at least 95 % of the product, in this example the information is more precise and 100 % of the product composition is declared.

When optional information is being declared, the supplier and requester may determine what information is reported and what information is not included.

A.2.2 Material declaration reporting "base data requirements"

Table A.1 – Base data requirements – Business information

BusinessInfo	Business information is provided as specified in this International Standard
ProductID.identifier	ABC4523
ProductID.effectiveDate	23-Nov-09
ProductID.Mass	0,12 (g)
ProductFamilyName	-
QueryList	-
unitType	Each
Comment	-

Table A.2 – Example 1 – Base data requirements – Substance/substance group information

Substance Group[a]				Substance[a]			
	Mass[b] g	Mass[b] %	Material mass[b] %	Name	Mass[b] g	Mass[b] %	Material mass[b] %
Lead/lead Compounds [c]			9,30				
Lead/lead Compounds [c]			97				

[a] Substance Groups or substances with mandatory reporting requirements shall be reported.

[b] See 4.2.3 c) for details on reporting requirements.

[c] The declarable substance group 'lead/lead compounds' shall be declared separately for each homogenous material that contains lead or lead compounds above the reporting threshold level; thus two declarations of 'lead/lead compounds' are shown, see 4.2.3 d).

A.2.3 Material declaration reporting "additional information"

Table A.3 – Additional requirements – Business information

BusinessInfo	Business information is provided as specified in this International Standard
ProductID.identifier	ABC4523
ProductID.effectiveDate	23-Nov-09
ProductID.Mass	0,12 (g)
ProductFamilyName	-
QueryList	-
unitType	Each
Comment	-

In this example, just the identical business information as under the base requirements is provided.

Table A.4 – Additional requirements – Product part/material/substance group/substance information

Product part			Material			Substance group[a]					Substance[a]			
Name	Mass[b] g	Mass[b] %	Name	Mass[c] g	Mass[c] %	Name	Mass[d] g	Mass % [d]	Material mass %[d]	Exemption[e]	Name	Mass[d] g	Mass[d] %	Material mass[d] %
Active part	–	6,50	Ceramics	–	100	–	–				Mn_3O_4		64	–
						–	–				NiO		17	–
						–	–				Co_3O_4		15	–
Termination	–	73,50	Metal/ Plating	–	0,65	–	–				Ag		100	–
			Glass	–	0,03	–	–				SiO_2		90	–
						Lead/Lead Compounds	–		9,3	RoHS exemption 5 lead in glass of electronic components	PbO		10	–
			Metal/solder	–	1,36	Lead/Lead Compounds	–		97,0	RoHS exemption 7a Lead in high melting temperature type solders	Pb		97	–
						–	–				Sn		1	–
						–	–				Ag		2	–
			Metal/ Leads	–	97,96	–	–				Cu		96	–
						–	–				Sn		4	–
Encapsulation		20,00	Organic Polymer		100						Epoxy		100	

a Substance Groups or substances with mandatory reporting requirements shall be reported; reporting of all other substance groups or substances is optional

b See 4.3.1 c) for details on reporting requirements.

c See 4.3.3 c) for details on reporting requirements.

d See 4.3.4 c) and 4.3.5 c) for details on reporting requirements.

e See 4.3.4 e) for details on reporting exemptions.

In addition to the base data requirements product parts, materials, substances and exemptions are declared in this example.

Table A.5 – Additional requirements – Material class information

Material class ID	Mass g	Mass %	Material class
M-004	–	72,0	Copper and its alloys
M-008	–	0,5	Precious metals
M-009	–	1,0	Other non-ferrous metals and alloys
M-010	–	6,5	Ceramics /Glass
M-014	–	20,0	Other Plastics and rubber

A.3 Example 2 - Electrical appliance (toaster)

A.3.1 General

This example is a material declaration of a finished product, a toaster. The toaster weighs 1 600 g.

Subclause A.3.2 illustrates the material declaration based on the "base data requirements" of 4.2. The declarable substance group "lead/lead compounds" shall be declared separately for each homogenous material that contains lead and lead compounds above the reporting threshold level. In this example, there is only one instance of lead which is contained within the printed circuit board. The presence of the substance Di(2-ethylhexyl)phthalate (DEHP) is also declared as this substance with mandatory reporting requirements in the IEC 62474 database exceed the reporting threshold levels specified in the IEC 62474 database.

Subclause A.3.3 illustrates a declaration showing optional elements that go beyond the base data requirements. Selected product parts, substance groups and substances are shown based on the "additional requirements" of 4.3. The toaster is divided into eleven product parts; however, no materials have been declared. In this example, quantification is typically using mass in grams. For the one occurrence of lead present in the printed circuit board, optional information on the applicable exemption is provided. In addition, the presence of substance groups beryllium/beryllium compounds and shortchain chlorinated paraffins (C10-C13) as well as of the substance nickel is declared. The declaration of nickel in this specific case is optional even if nickel is intentionally added but the top plate of a toaster is generally not considered to match the reportable application "All, where prolonged skin contact is expected" that is specified in the IEC 62474 database. The declaration of shortchain chlorinated paraffins (C10-C13) is optional too, as the content in the product does not exceed the reporting threshold level specified in the IEC 62474 database. The material class information is specified using mass (in grams) rather than the percentage of the product mass, representing just the recommended 95 % of the total mass of the toaster.

When optional information is being declared, the supplier and requester may determine what information is reported and what information is not included.

A.3.2 Material declaration reporting "base data requirements"

Table A.6 – Base data requirements – Business information

BusinessInfo	Business information is provided as specified in this International Standard
ProductID.name	ToasterX
ProductID.effectiveDate	14-Feb-10
ProductID.Mass	1 600 (g)
ProductFamilyName	-
QueryList	-
unitType	Each
Comment	

Table A.7 – Example 2 – Base data requirements – Substance/substance group information

Substance group [a]				Substance [a]			
	Mass[b] g	Mass[b] %	Material mass[b] %	Name	Mass[b] g	Mass[b] %	Material mass[b] %
Lead/lead Compounds	-	-	88,0	-	-	-	-
				Di(2-ethylhexyl)phthalate (DEHP)	7		

a Substance groups or substances with mandatory reporting requirements shall be reported.

b See 4.2.3 c) for details on reporting requirements.

A.3.3 Material declaration reporting "additional information"

Table A.8 – Additional requirements – Business information

BusinessInfo	Business information is provided as specified in the International Standard
ProductID.identifier	ToasterX
ProductID.effectiveDate	14-Feb-10
ProductID.Mass	1 600 (g)
ProductFamilyName	-
QueryList	"The product contains a battery", "false"
unitType	Each
Comment	-

In this example, in addition to the business information provided under the base requirements, the query list information is provided.

Table A.9 – Additional requirements – Product part/material/substance group/substance information

Product part			Material			Substance group [a]					Substance [a]			
Name	Mass [b] g	Mass [b] %	Name	Mass g	Mass %	Name	Mass [c] g	Mass [c] %	Material mass [c] %	Exemptions [d]	Name	Mass [c] g	Mass [c] %	Material mass [c] %
Body	372,6	-		-	-		-			-	-	-		
Stop/ selection button	2,1	-		-	-		-			-	-	-		
Base pan	210	-		-	-		-			-	-	-		
Top cover plate	155	-		-	-	nickel	15			-	nickel	15		
Heat shield	83,5	-		-	-		-			-	-	-		
Power cord	82	-		-	-	shortchain chlorinated paraffins (C10 – C13)	1			-				
						phthalates	7			-	Di(2-ethylhexyl) phthalate (DEHP)	7		
Spring	16	-		-	-		-			-	-	-		
Heating tube	24	-		-	-		-			-	-	-		
Heating tube fixing	15	-		-	-		-			-	-	-		
Body (internal part)	534,5	-		-	-		-			-	-	-		
Printed Circuit Board	48,6	- -		- -	- -	beryllium/ beryllium compounds	2			-	-	-		
						lead/lead Compounds	-		85	RoHS exemption 7a): Lead in high melting temperature type solders				

a Substance groups or substances with mandatory reporting requirements shall be reported; reporting of all other substance groups or substances is optional.

b See 4.3.1 c) for details on reporting requirements.

c See 4.3.4 c) and 4.3.5 c) for details on reporting requirements.

d See 4.3.4 e) for details on reporting exemptions.

In addition to the base data requirements, the optional product parts and some optional substance group/substance information are provided in this example.

Table A.10 – Additional Requirements – Material class information

Material class ID	Mass g	Mass %	Material class
M-001	778		Stainless steel
M-002	31		Other ferrous alloys, non-stainless steels
M-004	60		Copper and its alloys
M-010	39		Ceramics /Glass
M-012	24		Polyvinylchloride (PVC)
M-013	590		Other thermoplastics

A.4 Example 3 - Product family - capacitor

A.4.1 General

Subclause A.4.2 provides an example of how product families which use like materials, but with differing masses, could be defined.

The use of percentage of the product mass for each substance and the total mass for the product provide the capability to calculate the specific mass for each substance. The example exceeds the minimum declaration requirements as described in 4.2 (base data requirements), as it reports substances and substance groups not listed in the IEC 62474 database except nickel. The declaration of nickel in this specific case is not mandatory, even if nickel is intentionally added but a capacitor typically being an internal component would not be considered to match the reportable application "All where prolonged skin contact is expected" that is specified in the IEC 62474 database. Thus the declaration is based on the "additional requirements" of 4.3. The optional Material class information is specified using percentage of the product mass percent adding up to 100 % in this example.

When optional information is being declared, the supplier and requester may determine what information is reported and what information is not included.

A.4.2 Material declaration reporting additional information

Table A.11 – Additional requirements – Business information

BusinessInfo	Business information is provided as specified in this International Standard
ProductID[0].identifier	CAP2345-10
ProductID[0].effectiveDate	1-Jul-06
ProductID[0].Mass	0,0014 (g)
ProductID[1].identifier	CAP2345-20
ProductID[1].effectiveDate	1-Jul-06
ProductID[1].Mass	0,006 (g)
ProductID[2].identifier	CAP2345-50
ProductID[2].effectiveDate	1-Jul-06
ProductID[2].Mass	0,21 (g)
ProductFamilyName	CAP2345-xx
QueryList	
unitType	Each
Comment	

In this example, only the business information mandated under the base requirements is provided.

Table A.12 – Additional requirements – Product part/material/substance group/substance information

Product part			Material			Substance group [a]					Substance [a]			
Name	Mass g	Mass %	Name	Mass g	Mass %	Name	Mass [b] g	Mass [b] %	Material mass [b] %	Exemptions	Name	Mass [b] g	Mass [b] %	Material mass [b] %
						Barium and its compounds		75			Barium titanate		75	
						Bismuth and its compounds		11			Bismuth titanium oxide		11	
						Silver and its compounds		3			Silver		3	
						Palladium and its compounds		1			Palladium		1	
						Gold and its compounds		2			Gold		2	
						Nickel and its compounds		3			Nickel		3	
						Tin and its compounds		5			Tin		5	

a Substance groups or substances with mandatory reporting requirements shall be reported; reporting of all other substance groups or substances is optional.

b See 4.3.4 c) and 4.3.5 c) for details on reporting requirements.

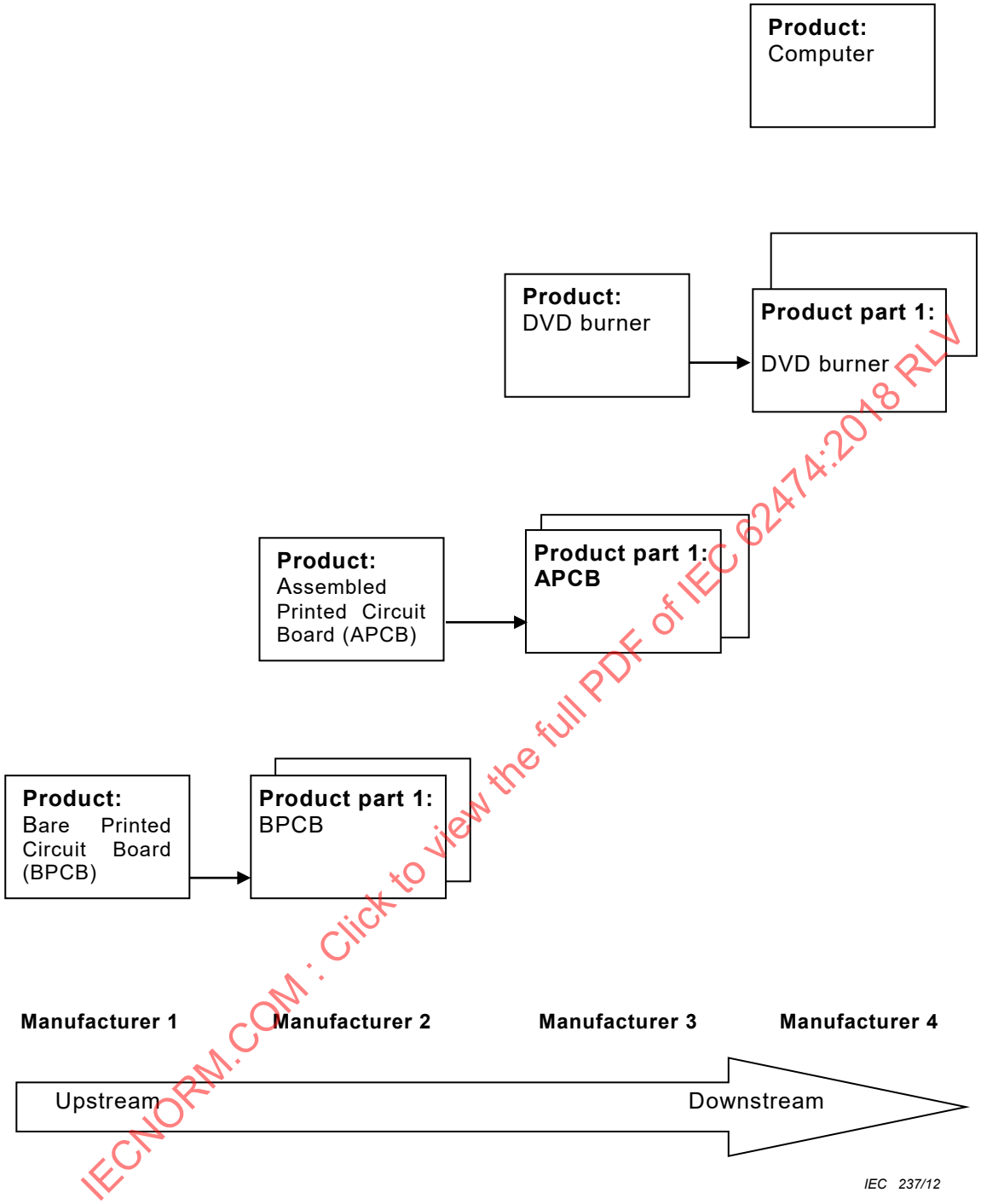
In addition to the base data requirements, optional substance information is provided.

Table A.13 – Additional requirements – material class information

Material class ID	Mass g	Mass %	Material class
M-006		3	Nickel and its alloys
M-008		6	Precious metals
M-009		5	Other non-ferrous metals and alloys
M-010		86	Ceramics /Glass

A.5 Product assembly along the supply chain

A product supplied by an upstream supplier becomes a product part for the downstream manufacturer. This is shown in Figure A.1.



~~Figure A.1 – Schematic representation of products versus product parts along the supply chain~~

~~A.6 Statements to be implemented in material declaration questionnaire (examples)~~

~~Various statements may be posed to the responder in addition to the request for material data to be answered as true or false. These statements may be used to supplement material data to assess one's compliance status or to gather relevant information that may be helpful for environmentally conscious design. Below are example statements.~~

~~Example statements:~~

- ~~The product contains a battery.~~
- ~~The product needs special treatment during recycling.~~
- ~~There are special risks or hazards in the product.~~
- ~~The product contains printed circuit boards.~~
- ~~One or more exemptions of the EU RoHS directive apply.~~

Annex ~~B~~ A
(informative)

~~Examples corresponding to Clause 6 – Data format and exchange~~ Simplified representation of data exchange format

~~Table B.1 describes the major mandatory and optional data elements in material declarations.~~

Table A.1 describes what mandatory, optional and conditional data elements may be in material declarations at the time of publication of this document. It should be noted that data exchange requirements may change and that the official requirements are those included in the IEC 62474 database as maintained by the VT 62474.

NOTE Conditional could become mandatory such as, mass becoming mandatory when mass percent is not provided in a composition declaration or a requester requires certain information.

The data elements in ~~Table B.1~~ Table A.1 represent a simplified view of the data fields in the XML schema. This provides a useful overview for the declaration user. For implementation or development purposes, refer to the ~~detailed declaration data fields and the XML schema in the IEC 62474 database~~ IEC 62474 database, which contains the full description of mandatory and optional requirements (e.g. data fields and XML schema).

Data elements are grouped into categories that correspond to the boxes in the conceptual diagrams (Figures ~~1 and 2~~ 4 and 5), with the addition of business information (4.2~~.4~~). The description provided for each category in ~~Table B.1~~ Table A.1 indicates whether or not the declaration of the category is mandatory (included in the declaration) or optional. For example, at the time of publication of this document, 'Business information' and 'Product' ~~shall always be~~ are categories required to be declared in a completed material declaration. The declaration of product parts, material classes and materials is usually optional.

For each category that is present in a completed materials declaration, the "Obligation" column in ~~Table B.1~~ Table A.1 indicates which data elements are mandatory (data provided in the category declaration), which data elements are optional and which data elements are conditional. Note that some data elements are conditional based on reporting requirements and on information provided in other data elements. For example, generally only one of the data elements mass or mass percent needs to be completed.

The following additional notes apply to ~~Table B.1~~ Table A.1:

- Each data element type contains one or more pieces of data. For example, the data element "SupplyCompany" contains multiple data such as company name, company address and company ID.
- Links between objects are defined in the conceptual diagrams (see Figures ~~1 and 2~~ 4 and 5) and are not included as data elements in ~~Table B.1~~ Table A.1.
- When "homogeneous material" is used in this document, it is referring to the definition within the EU RoHS Directive (EC) No. 2011/65, Article 3 20.

In a completed material declaration, the data elements are organized in a hierarchy containing the data of the actual declaration. The top level of the declaration includes "BusinessInfo", "Product" (referred to as product or product family in ~~Table B.1~~ Table A.1), and "DatabaseVersion", the version of the IEC 62474 database on which the XML schema is based.

Table ~~B.1~~ A.1 – Data element types of a material declaration

~~Category~~	~~Data element type~~	~~Obligation~~	~~Description~~
~~Main (top level object to be included in every material declaration)~~	~~schemaDatabaseVersion~~	~~Mandatory~~	~~Version of the IEC database which contains the XML schema on which the declaration is based~~
	~~substanceDataBaseVersion~~	~~Mandatory~~	~~Version of the IEC database which contains the list of reportable substances~~
	~~Signature~~	~~Optional~~	~~Digital signature~~
~~Business Info (to be included in every material declaration)~~	~~Supplier company~~	~~Mandatory~~	~~Name, identifier, and address of the supplier company~~
	~~Supplier contact~~	~~Mandatory~~	~~Name, title, phone, email of the supplier contact person~~
	~~Supplier authorizer~~	~~Mandatory~~	~~Name, title, phone, and email of the supplier person authorizing the accuracy of this material declaration~~
	~~Request company~~	~~Conditional (mandatory if request-response mode)~~	~~Name and identifier of the requesting company~~
	~~Request contact~~	~~Conditional (mandatory if request-response mode)~~	~~Name, title, phone, email of the contact person from the requesting company~~
	~~Mode~~	~~Mandatory~~	~~An indicator that conveys whether the declaration is a request-response declaration or a distribute declaration~~
	~~Request date~~	~~Conditional (mandatory if request is made)~~	~~Date of declaration request~~
	~~Respond by date~~	~~Optional~~	~~Date specifying when the response is expected~~
	~~Response date~~	~~Mandatory~~	~~Date that declaration is completed. This date can be either a date that a company has responded or distributed a declaration~~
	~~Field lock~~	~~Optional~~	~~Lock flag for requester defined information which should not be changed by responding company.~~
	~~Attachment~~	~~Optional~~	~~Supplementary file added to the declaration~~
~~Product or Product family~~ ~~(to be included in the Material declaration)~~	~~Responder Product Name~~	~~Optional~~	~~Product name used by the supplier~~
	~~Responder Identifier~~	~~Mandatory~~	~~An identifier for the product~~
	~~productFamilyName~~	~~Optional~~	~~Name of product family being declared~~
	~~Manufacturing Site~~	~~Optional~~	~~Manufacturing site of the product~~
	~~Effective Date~~	~~Mandatory~~	~~Date that the material declaration is applicable and valid~~
	~~Version~~	~~Optional~~	~~Product version (if applicable)~~
	~~Requester Name~~	~~Optional~~	~~Product name used by the requester~~
	~~Requester Identifier~~	~~Optional~~	~~Product identifier used by the requester~~
	~~Mass~~	~~Mandatory~~	~~The total mass of the product~~

Category	Data element type	Obligation	Description
	Unit of Measure	Mandatory	The unit of measure for the mass of the product
	Unit Type	Mandatory	A unit type describes the units used to measure a product or product family. Eg. each, g, kg, cm^2, m^2, cm^3
	Query List	Optional	List of questions to be answered by supplier and responses to the questions
	Attachment	Optional	Supplementary file added to the declaration
	Comment	Optional	Comment field for any additional information
Product part (this category is optional - if product part is declared, these data element types are applicable; if product part is not declared, these data elements types are not applicable)	Product Part Name	Optional	The name of the product part
	Identifier	Optional	The identifier of the product part; for example manufacturer's part number
	Version	Optional	Product part version (if applicable)
	Mass	Conditional (either mass or mass percent is mandatory)	The mass of the product part
	Unit of Measure	Mandatory	The unit of measure for the mass of the product part
	Mass Percent	Conditional (either mass or mass percent is mandatory)	The mass percent of the product part to the product
	Number of Units	Mandatory	Number of identical instances of product part in the product (this allows a single product part declaration for a product part that exists multiple times in the product). The default value will be 1.
	Comment	Optional	Comment field for any additional information
Material class (this category is optional in the material declaration)	Material class Name	Mandatory	The name of the material class as it appears on the material class list in the IEC 62474 database
	Mass	Conditional (either mass or mass percent is mandatory)	The mass of the sum of materials in the material class in the product
	Unit of Measure	Conditional (mandatory if mass is specified)	The unit of measure for the mass of the material class in the product
	Mass Percent	Conditional (either mass or mass percent is mandatory)	The mass percent of the material class relative to the product
Material (this category is optional - if material is declared, these data element types	Name	Mandatory	Name or unique identifier of the material within the product
	Unique ID	Optional	A unique identifier of the material (if applicable) and the applicable reference standard

Category	Data element type	Obligation	Description
are applicable)	Mass	Conditional (either mass or mass percent is mandatory)	The mass for the material
	Unit of Measure	Conditional (mandatory if mass is specified)	The unit of measure for the mass of the material
	Mass Percent	Conditional (either mass or mass percent is mandatory)	The nominal mass percent of the material relative to the product part (if declared) or otherwise the product
	Material class Name	Optional	The name of the material class to which this material belongs
	Comment	Optional	Comment field for any additional information
Substance group (this category is declared for all substance groups with mandatory reporting requirement – if substance group is declared, these data element types are applicable)	Name	Mandatory	The name of the substance group; for declarable substance groups, this shall correspond to the IEC DB
	Mass	Conditional (either mass or mass percent is mandatory unless material level reporting is required by the IEC 62474 database)	The mass of the substance group
	Unit of Measure	Conditional (mandatory if mass is specified)	The unit of measure for the mass of the substance group
	Mass Percent	Conditional (either mass or mass percent is mandatory unless material level reporting is required by the IEC 62474 database)	The mass of the substance group as a percent (%) of the mass as specified in the declaration requirements
	Material Mass Percent	Conditional (mandatory if listed in the IEC 62474 database with reporting threshold level at material level)	The substance group concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
	Above Threshold Level	Optional	Yes/No response stating substance group contained in product is above reporting threshold level or not
	Reportable Application	Optional	The reportable application specified in the IEC 62474 database of the reporting threshold level, which triggered declaration of the substance group
	Exemptions	Optional	List of any exemptions applicable to this substance group in the specified material
	Comment	Optional	Comment Field for any additional information

Category	Data element type	Obligation	Description
	Descriptions of Use	Optional	Field to describe where substance group is found if used in product or product part being declared. This can be used to describe the material (or homogeneous material) for this substance group and/or exemption
Substance (this category is declared for all substances with a mandatory reporting requirement – if substance is declared, these data element types are applicable)	Name	Mandatory	The name of the substance; for declarable substances, this corresponds to the IEC 62474 database entry.
	Unique ID	Conditional	A unique identifier of the substance (e.g. CAS number)
	Mass	Conditional (either mass or mass percent is mandatory unless material level reporting is required by the IEC 62474 database)	The mass of the substance
	Unit of Measure	Conditional (mandatory if mass is specified)	The unit of measure for the mass of the substance
	Mass Percent	Conditional (either mass or mass percent is mandatory unless material level reporting is required by the IEC 62474 database)	The mass of the substance as a percent (%) of the mass as specified in the declaration requirements
	Material Mass Percent	Conditional (mandatory if listed in the IEC 62474 database with reporting requirement at material level)	The substance concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
	Above Threshold Level	Optional	Yes/No response stating substance contained in product is above reporting threshold level or not
	Reportable Application	Optional	The reportable application specified in the IEC 62474 database of the reporting threshold level, which triggered declaration of the substance
	Exemptions	Optional	List of any exemptions applicable to this substance in the specified material
	Comment	Optional	Comment field for any additional information
	Descriptions of Use	Optional	Field to describe where the substance is found if used in product or product part being declared. This field can be used to describe the material (or homogeneous material) for this substance and/or exemption
NOTE The Data Element Types 'Mass' and 'Mass Percent' in Table B.1 include optional data fields for the responder to specify the tolerance in the mass or mass percent. Positive tolerance and negative tolerance could be individually specified.			

Category	Data element type		Obligation	Description
Main (top level object to be included in every material declaration)	schemaDatabaseVersion		Mandatory	Version of the IEC database which contains the XML schema on which the declaration is based.
	ToolNameVersionID		Optional	Unique tool name and its version number used for material declaration data exchange compliant with IEC 62474 requirements.
	Signature		Optional	Digital signature.
	Include		Mandatory	Contents of the declaration Declaration for compliance, composition declaration, declaration for compliance and composition declaration, material class, lists, etc.
	declarationComplete		Optional	Status declaration indicating the XML data file is complete or is in process of file-creation.
	charaLocal		Conditional	The language character set as defined by ISO 639-1:2002 specifies the local language that is used in the elements with postfix "Local" (for example, 'nameLocal').
	BusinessInfo		Mandatory	Company information and company contact information.
	Product		Mandatory	Product being declared.
Business information (this category is mandatory in every material declaration)	Response	SupplyCompany	Mandatory	Name, identifier and address of the supplier company.
		Contact	Mandatory	Name, title, phone, email of the supplier contact person.
		Authorizer	Mandatory	Name, title, phone, email of the supplier person authorizing the accuracy of this material declaration.
		date	Mandatory	Date the response is returned to the requester by the responder in response/responder mode or the date the distributed form is completed in distribution mode.
		docID	Optional	Identification code for declaration. In requester/responder mode, the responder defines the identification code. In distribution mode, the declaring company defines the identification code.
		comment	Optional	Comment field for any additional information regarding the supplier.
	Request	RequestCompany	Mandatory	Name, identifier and address of the supplier company.
		Contact	Mandatory	Name, title, phone, email of the supplier contact person.
		date	Mandatory	Date the request is made by the requesting company.
		docID	Optional	Identification code for the request as specified by the requester.
		internalSupplierID	Optional	Identifier for the responder assigned by the requester.
		comment	Optional	Comment field for any additional information corresponding to the requester.

Category	Data element type		Obligation	Description
		respondByDate	Optional	Date when the responder is expected to respond to the request.
		RequestContent	Optional	Contents of the requests. Declaration for compliance, composition declaration, declaration for compliance and composition declaration, material class, lists, etc.
	Attachment		Optional	Supplementary file added to the declaration, requester response. It should be embedded in the XML file.
	mode		Mandatory	An indicator that conveys whether the declaration is a requester/responder mode or a distribution mode.
Product (this category is mandatory in every material declaration)	ProductID	name	Optional	Product name used by the supplier.
		identifier	Mandatory	An identifier (list authority, list identity and list version) for the product defined by the supplier.
		manufacturingSite	Optional	Manufacturing site of the product.
		effectiveDate	Mandatory	Date that the material declaration is applicable and valid.
		version	Optional	Product version (if applicable).
		requesterName	Optional	Product name used by the requesting company.
		requesterIdentifier	Optional	An identifier (list authority, list identity and list version) for the product defined by the requester.
		Mass	Mandatory	The total mass of the product and its unit of measure for the mass.
		InstanceID	Optional	Identification of a specific product instance or a range of instances that are applicable to this declaration.
	productFamilyName		Optional	Name of product family being declared.
	QueryList		Optional	A query list provides the ability to declare true/false responses to statements that may be specified by either the requester or responder.
	unitType		Mandatory	A unit type describes the units used to measure a product or product family. (e.g. each, g, kg, cm^2, m^2, cm^3, m^3, cm, m, l).
	comment		Optional	Comment field for any additional information regarding the product.
	Exemptions		Conditional	Exemptions being declared at the product level.
	Attachment		Optional	Supplementary file added to the product. It should be embedded in the XML file.
	Compliance		Conditional	Contents of declaration for compliance.
	Composition		Conditional	Contents of composition declaration.
	MaterialClassDeclaration		Optional	Contents of material class.
	isArticle		Conditional	'article flag' for product regarded as article.

Category	Data element type		Obligation	Description
Compliance	DeclarableSubstanceList		Mandatory	An identifier (list authority, list identity and list version) of a compliance substance list for the declaration for compliance.
	Declarable Substance or Declarable Substance Group	name	Mandatory	The name of the DS or DSG.
		UniqueID	Conditional	The unique ID (list authority, list identity and list version) of the DS or DSG.
		Mass	Conditional	Mass of the DS or DSG substance within a product, product part or material.
		MassPercent	Conditional	Percentage mass of the DS or DSG substance within a product, product part or material
		MatMassPercent	Conditional	DS or DSG substance concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
		Threshold	Mandatory	The threshold is determined by the reportable application for any particular DS or DSG. If the DS or DSG is at or above the threshold of the reportable application, the response would be “True”. If the DS or DSG is at or below the threshold, the response would be “False”.
		Exemptions	Conditional	Exemptions applicable to a DS or DSG substance and identifier of the exemption list.
		comment	Optional	Comment field for any additional information regarding the DS or DSG.
		descriptionOfUse	Optional	Location information where the substance is used in the product. It can be a product, product part(s) or material(s).
Composition	DeclarableSubstanceList		Mandatory	An identifier (list authority, list identity and list version) for the reference declarable substance list in the composition declaration. (Only if present).
	ProductPart		Conditional	Sub-unit of a product or another (product) part. A product part can be decomposed into other product parts.
	Material		Conditional	Material and its properties which is being reported for the product family, product, or product part.
	Substance	name	Mandatory	The name of the substance.
		UniqueID	Conditional	Name of the declarable substance corresponding to the DSL defined as SubstanceList.
		Mass	Conditional	The unique identifier (list authority, list identity and list version) of the substance.
		MassPercent	Conditional	The mass of the substance within a product, product part or material and its unit of measure for the mass.
		MatMassPercent	Conditional	The mass percent of the mass.

Category	Data element type		Obligation	Description
		reportingThreshold	Optional	Substance concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
		Exemptions	Conditional	Concentration limit at or above which the presence of a DS or DSG substance in a material or product is declared.
		comment	Optional	Exemptions applicable to the declared substance and identifier of the exemption list.
		descriptionOfUse	Optional	Comment field for any additional information regarding the substance.
MaterialClassDeclaration (this category is optional in every material declaration)	MaterialClassList		Mandatory	An identifier (list authority, list identity and list version) for the material class list.
	MaterialClass	name	Mandatory	Name of the material class.
		id	Mandatory	A unique identifier (list authority, list identity and list version) of the material class.
		MassPercent	Conditional	The nominal mass percent of the material class relative to the product.
		Mass	Conditional	The mass of the material class and its unit of measure.
		comment	Optional	Comment field for any additional information regarding the material class.
ProductPart (this category is conditional)	ProductID	name	Optional	The name of the product part.
		identifier	Optional	The identifier of the product part.
		manufacturingSite	Optional	Manufacturing site of the product part.
		effectiveDate	Conditional	Date that the material declaration is applicable and valid.
		version	Optional	Product part version (if applicable).
		requesterName	Optional	Product part name used by the requesting company.
		requesterIdentifier	Optional	Product part identifier used by the requesting company.
		Mass	Conditional	The mass of the product part and its unit of measure for the mass.
		MassPercent	Conditional	The mass percent of the product part to the product.
		InstanceID	Optional	Identification of a specific product instance or a range of instances that are applicable to this declaration.
	numberOfUnits		Mandatory	Number of identical instances of a product part in a declared product.
	comment		Optional	Comment field for any additional information regarding the product part.
	Material		Conditional	Material and its properties which are being reported for the product family, product, or product part.
	isArticle		Conditional	'article flag' for product part regarded as article.

Category	Data element type	Obligation	Description
Material (this category is conditional)	name	Mandatory	Name of the material within the product or product part.
	UniqueID	Optional	A unique identifier (list authority, list identity and list version) of the material.
	MassPercent	Conditional	The nominal mass percent of the material relative to the product or product part.
	Mass	Conditional	The mass of the material and its unit of measure.
	MaterialClassDeclaration	Optional	The name, list authority, list identity, list version, use of the material class with which the material is classified. The material class shall correspond to the MaterialClassList included under Composition class.
	comment	Optional	Comment field for any additional information regarding the material.
	isArticle	Conditional	'article flag' for material regarded as article
	Substance	Conditional	Substance information as defined in the IEC 62474 database.
NOTE 1 Table A.1 is for informational purposes only and indicates the data structure at the time the second edition of this document was developed. For more detailed and up to date information, refer to the database. NOTE 2 The data element types 'Mass' and 'Mass Percent' in Table A.1 include optional data fields for the responder to specify the tolerance in the mass or mass percent. Positive tolerance and negative tolerance could be individually specified.			

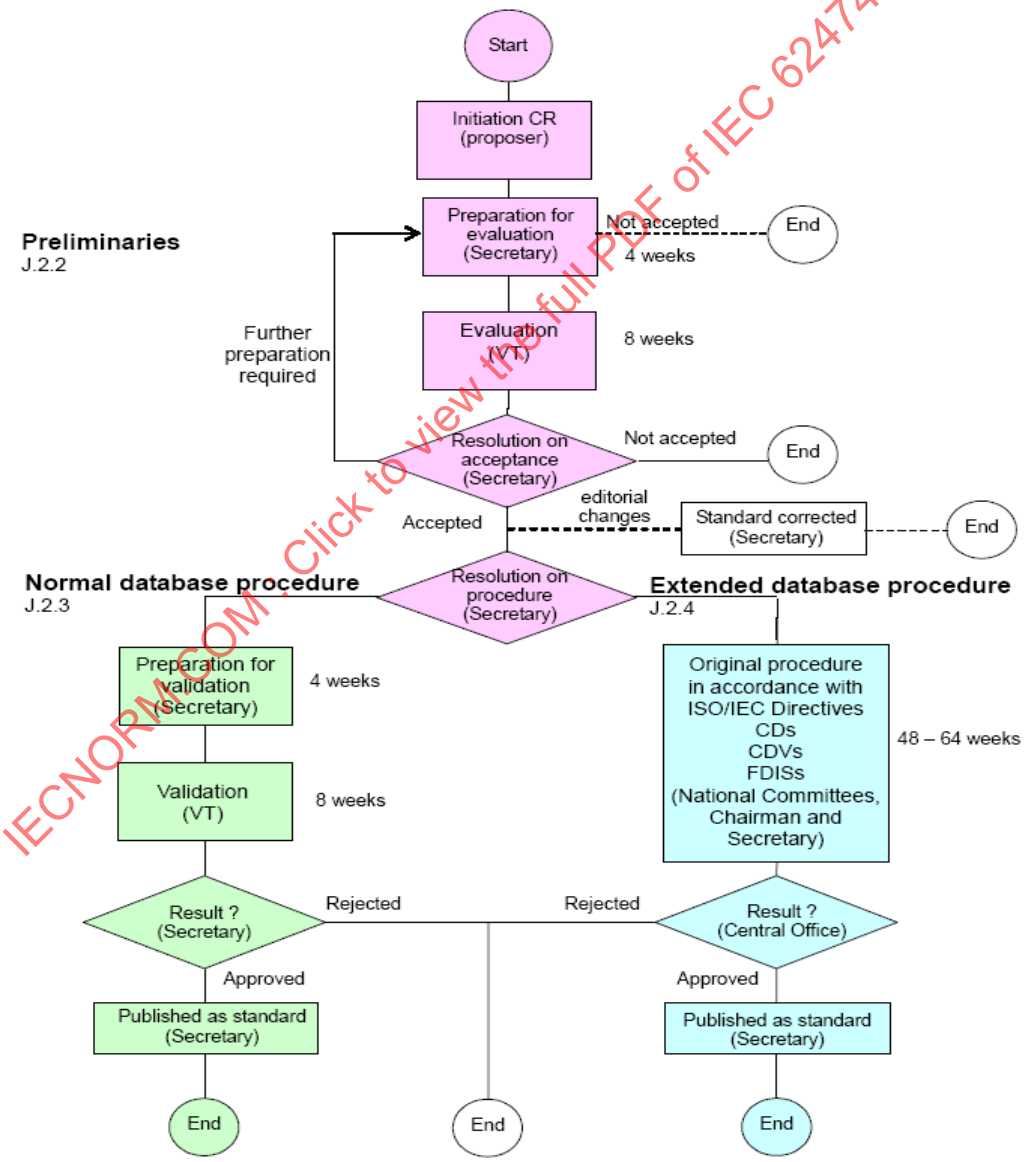
~~Annex C~~
~~(informative)~~

~~Examples corresponding to Clause 7 – IEC 62474 database management~~

~~C.1 Description of IEC 62474 database update~~

~~National Committees can nominate multiple VT members to provide experts on chemical content in electrotechnical industry products, information technology or other necessary discipline.~~

~~The ISO/IEC Directive Supplement Annex J controls the process for the IEC 62474 database update and maintenance. Below is a reprint of Figure J.1.~~



~~Figure J.1 – Overview of the procedures~~

~~Adapted for the IEC 62474 database, this process consists of the following basic steps:~~

1) A change request is entered by an NC, specifying the minimum information needed for the validation team to consider the request. Forms C1 and C2 below show the information that is expected to be included with a substance/substance group or data exchange change request.

Form C.1 IEC 62474 database change request – Substances and substance groups

Change request name:	Revision:	Replaces:

Comments pertain to section(s) checked.		
☐	Part I	Chemical description and identification
☐	Part II	Criteria for presence on list
☐	Part III	Reporting threshold level and reportable application
☐		Delete entry (see Part 1/Current/comments for justification)
☐		Addition of a new substance (enter in Part 1/Proposed)

Part I – Chemical description and identification of declarable substance / substance group

New entry:

Substance name	
Substance group name	
CAS number(s)	
Multiple CAS exists?	☐ No ☐ Yes ☐ (Please fill out Reference list section below)
Examples of use in electrotechnical products	
Comment:	

Change of a current entry:

Database identification #	
Substance/ substance group name	
CAS number(s)	
Multiple CAS exists?	☐ No ☐ Yes ☐ (Please fill out Reference list section below)
Examples of use in electrotechnical products	
Comment:	

Part II – Criteria for presence of chemical(s) on declarable substance list

	Criteria – please check most appropriate criterion below	Justification (mandatory) Please give citations and explanations, for justification of your proposal. Criteria 1 and 2: Name of legislation, country/region, effective date. Criteria 3 has to give reasons like "recycling problems", environmental relevance etc. Exemptions should be mentioned. Attach document if additional space needed.
☐	Criteria 1: R = Currently regulated	———
☐	Criteria 2: FA = For assessment	———
☐	Criteria 3: FI = For information	———
☐	Reference substance	Please fill out Attachment 1 reference substance list

Part III – Reporting threshold level and reportable application

Threshold	Reportable threshold level will be based on the lowest level required by regulation or reasonably required by scientific evaluation. Show current threshold and rationale for proposed change. Check "new" in the column marked "current" if this is a new entry for database.
Current ☐ New ———	Proposed ———
Reportable application	Reportable application will be based on the regulation or industry agreement/standard setting the reporting threshold level. Show current reporting threshold level and rationale for proposed change. Check "new" in the column marked "current" if this is a new entry for database.
Current ☐ New	Proposed (Note: Attach document if additional information is needed)
☐ All	☐ All
☐ Specific reportable application:	☐ Specific reportable application: (please clarify)

~~Part IV – Change request submitters to contact for further information~~

~~CR form submittal date~~		
~~Submitter name~~	~~National Committee~~	~~Email or phone~~
———	———	———
———	———	———
———	———	———
———	———	———
———	———	———
———	———	———

~~Part V – Result~~

		~~Preliminary voting of VT (if needed)~~	~~Reason for decision of VT~~	~~Database evaluation voting of VT~~
~~Status:~~	———			
~~Date:~~	———			
~~Rationale:~~	———			
~~Comments:~~	———			

~~Attachment 1 (For reference substances list)~~

~~IEC DB identification# (See Note below)~~	~~Substance *group*~~	~~Specific substance~~	~~CAS #~~	~~Common synonym(s)~~

~~NOTE The IEC database identification number column is not used for new substances.~~

Form C2. IEC 62474 database change request – data exchange

Change request name:	Revision:	Replaces:
Comments pertain to section(s) checked.		
☐	Part I	Correction in current version
☐	Part II	Improvement suggestion

Part I – Corrections

Correction suggestion:

IEC 62474 database identification #	
Name (slogan):	
Description:	
Proposed solution:	
Comment:	

Part II – Improvements

Improvement suggestion:

IEC 62474 database identification #	
Name (slogan):	———
Description:	———
Motivation:	———
Comment:	

Part III – Change request submitters to contact for further information

CR form submittal date		
Submitter name	National Committee	Email or phone
———	———	———
———	———	———
———	———	———
———	———	———
———	———	———
———	———	———

Part IV – Result

		Preliminary voting of VT (if needed)	Reason for decision of VT	Database evaluation voting of VT
Status:	———			
Date:	———			
Rationale:	———			
Comments:	———			

2) The TC 111 Secretary or his designee has a maximum of four weeks to ensure that all mandatory entries and data required of each change request have been included with the change request.

3) The TC 111 Secretary or his designee circulates each change request to validation team (VT) members.

The VT discusses applicable changes, and has up to eight weeks to evaluate each individual change request. The VT reviews each change request and uses the criteria according to Clauses 5 and 6 of this standard as the basis for rejecting or moving each change request to the next step in the process.

If any change request needs to be improved, step 3 is repeated after the revised change request is submitted. The TC 111 Secretary has one additional week to conduct final resolution on change request acceptance.

4) Once the change request has been accepted for review, the TC 111 Secretary or his designee has up to four weeks to prepare a formal proposal for validation based on any changes received during step 3. Unless the extended database procedure is specifically requested by the NC, all change requests will be processed through the normal Annex J database procedure.

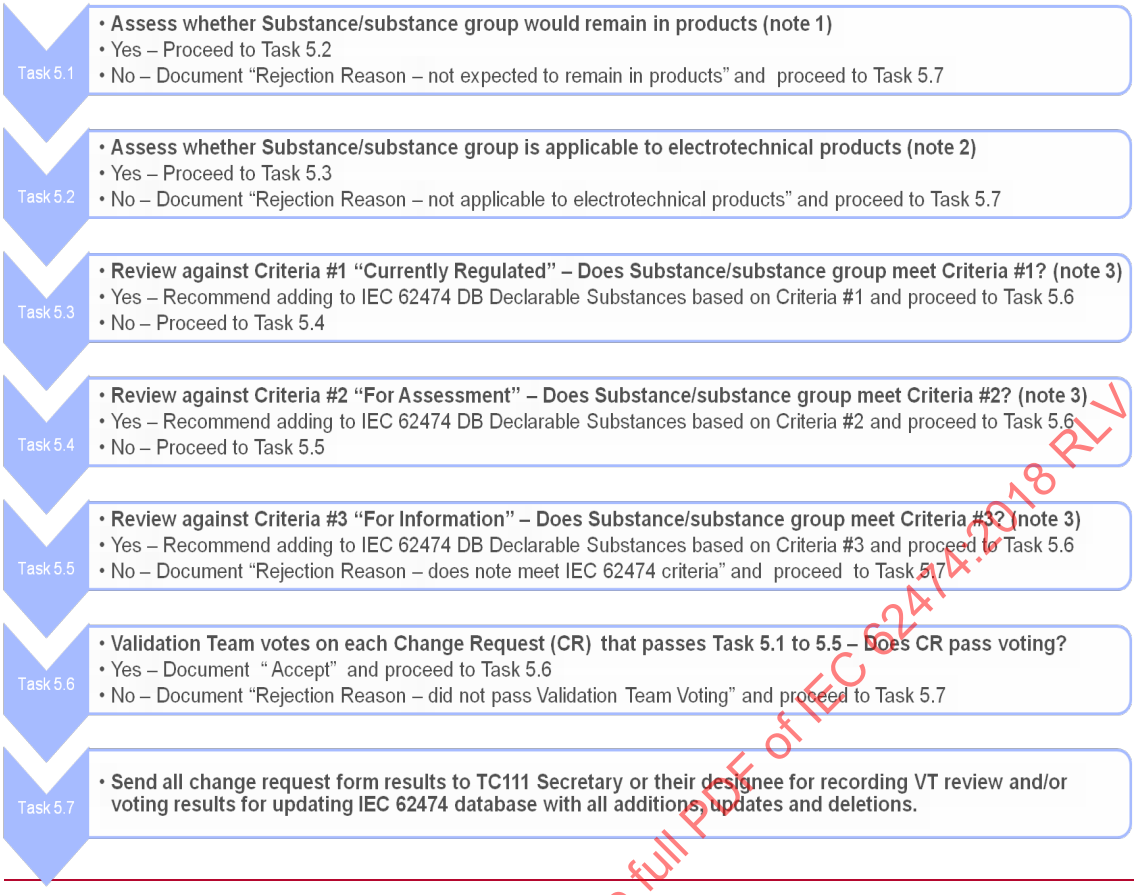
5) The formal voting of the VT for each change request has to be executed within eight weeks (one vote per represented NC). The criteria applied are the same as for a normal FDIS. Abstentions from voting mean that the vote is not counted.

6) The TC 111 Secretary or his designee has one additional week to record the result of validation and publish any approved change, if the vote on any specific substance was approved according to the voting rules.

Any NC may appeal a decision of the validation team by filing a new change request. This would trigger a new review at the next review period according to the above process. National Committees may request the use of the extended database process of ISO/IEC Directives Supplement Annex J. The VT will consider this at step 3 above. Previously approved changes remain in effect through any appeal. See ISO/IEC Directives Supplement Annex J for more details on the database update and resolution procedures.

C.2 Guidance to validation team on step #5 (review of C-1 substance/substance group change requests)

The validation team will need to apply chemical and scientific judgment when reviewing the C-1 Substance/Substance group change requests submitted by National committees. However, the VT assessment based on this approach shall produce a result that is logical and sensible. The VT will be responsible for establishing their review process. Figure C.1 below gives guidance on how the VT screening process may be used to complete step 5 in the IEC 62474 database annual update process.



~~**Figure C.1 – Guidance to validation team on C-1 substance/ substance group change request review**~~

~~The first task of the VT review is to determine whether or not the substance and/or substance group are within the scope of this International Standard. Manufacturing process chemicals that do not remain in the final product are outside the scope of this International Standard. The VT will need to apply chemical and scientific judgement to determine whether the substance will be present in the product identified by the CAS number (or other published unique identifier if CAS number is not available); to differentiate between additive and reactive uses and to ensure that the substance does not get converted or removed during the manufacturing conditions. Consideration shall be made for the possibility that although not intentionally added, some substances may be produced and incorporated into the product during the manufacturing process (e.g. Cr+3 compound may get oxidized to Cr+6 during manufacturing and end up in product as Cr+6 (reportable)).~~

~~NOTE The VT will be responsible for establishing a methodology to determine applicability to electrotechnical products. The Joint Industry Guide (JIG) 101 established a process to screen for REACH substances of very high concern (SVHC). The first step is to gather information from public databases relating to chemical substances which are readily accessible. Then, the technical knowledge of industry chemical experts is applied to determine known historical and/or existing uses of the substance in electrotechnical products. Several common use categories in electronics include:~~

- ~~colorant/dye~~
- ~~surface finish (ink, paint, plating)~~
- ~~Surfactant/lubricating~~
- ~~wood (preservative)~~
- ~~metal/metal alloy (additive)~~
- ~~textiles (additive or fibers)~~
- ~~glass/ceramic (additive or fibers)~~
- ~~additives of plastic, rubber or other polymers (photo degradation prevention; flame retardants; plasticizers; fillers; other additive (e.g. curing agents, etc.)).~~

~~The VT will need to apply technical judgment to the above applications as some substances have very specific uses or are used only with certain materials. For example, HBCDD is a flame retardant used in polystyrenes; metallic applications would not be expected to contain significant amounts of organic substances; only certain phthalates are incorporated into PVC for reasons of chemical compatibility and for imparting desired properties to PVC. Some substances may have more than one use across the horizontal electrotechnical industry. VT should include in the "examples of use" column in the IEC 62474 database the primary uses to ensure industry focuses reporting on the most common applications.~~

~~Only substances and/or substance groups that pass Task 5.1 and 5.2 screening should be reviewed against the Criteria 1, 2, or 3 in Clause 5 of this International Standard.~~

~~C.3 Description of the IEC 62474 database data format and exchange clause maintenance~~

~~The purpose of the Data exchange change request is to fix errors that prevent the data exchange from being implemented, to fix errors where the data exchange format does not match what is specified in this International Standard, or to improve the efficiency of data exchange. An example of an in-scope change is fixing the multiplicity of an attribute in the XML schema to match the requirements defined in Clause 4.~~

~~Issues that would change the requirements of IEC 62474 are not in scope for this process.~~

Annex D
(informative)

Additional information

Table D.1 – Comparison of IEC 62474 material classes to automotive industry material classes[1]

-	-	-	ID	Material class	Definitions of IEC 62474 Material classes	Automotive material class mapping
Inorganic materials	Metals and metal alloys	Ferrous alloys	M-001	Stainless steel	A group of corrosion resisting ferrous alloys containing minimum 10 % chromium content be present	1A - Iron and steel including alloys
			M-002	Other ferrous alloys, non-stainless steels	Iron and any alloy whose defining component is iron and is not stainless steel	1A - Iron and steel including alloys
		Non-ferrous metals and alloys	M-003	Aluminium and its alloys	Aluminium and any alloy whose defining component is aluminium	1B - Light metals and alloys
			M-004	Copper and its alloys	Copper and any alloy whose defining component is copper	1C - Heavy metals and alloys
			M-005	Magnesium and its alloys	Magnesium and any alloy whose defining component is magnesium	1B - Light metals and alloys
			M-006	Nickel and its alloys	Nickel and any alloy whose defining component is nickel	1C - Heavy metals and alloys
			M-007	Zinc and its alloys	Zinc and any alloy whose defining component is zinc	1C - Heavy metals and alloys
			M-008	Precious metals	Any metal or alloy whose defining component is ruthenium, rhodium, palladium, silver, osmium, iridium, platinum and/or gold	1D - Noble metals
			M-009	Other non-ferrous metals and alloys	Other non-ferrous metals and alloys that do not contain iron and that are not included in M-003 through M-008	1B - Light metals and alloys or 1C - Heavy metals and alloys
	Non-metals		M-010	Ceramics / glass	An inorganic, non-metallic solid prepared by the action of heat and subsequent cooling. Materials in this category may have a crystalline or partly crystalline structure (e.g. ceramics), or may be amorphous (e.g. glass)	3A - Ceramics/ 3B - glass
			M-011	Other inorganic materials	Inorganic materials which are not included in M-001 through M-010	4A - Inorganic, solid

[1] * WERKSTOFF-KLASSIFIZIERUNG IM KRAFTFAHRZEUGBAU (Material classification in the automotive engineering); VDA (Verband der Automobilindustrie) 231-106 (available in German only).

Table D.1 *(continued)*

-	-	-	ID	Material class	Definitions of IEC 62474 Material classes	Automotive material class mapping
Organic materials	Plastics and rubber		M-012	PolyVinylChloride (PVC)	A thermoplastic material composed of polymers of vinyl chloride	2A - Thermoplastics
			M-013	Thermoplastics	Resin or plastic compounds that has the potential to be remelted and remolded. Poly Vinyl Chloride (PVC) is excluded from this category	2A - Thermoplastics
			M-014	Other plastics and rubber	All polymers and rubbers whose main matrix is other than thermoplastic are included in this material class. Note that even if the filler content is high, material will be grouped into this class if main matrix considered "Other plastics and rubber"	2B - Elastomer or 2C - Duromer
	Other organics		M-015	Other organic materials	Other organic materials which are not included under any other material class M-012 through M-014	Bio-materials

Annex E
(informative)

Declaration examples as XML files

This annex illustrates example material declarations represented as XML files. Example 1 in Annex A is used for illustrative purposes. The data needed to create a valid XML file according to the IEC 62474 database requirements are shown below and contain some additional information not represented in Annex A.

The XML description below represents the material declaration of Example 1 reporting "base data requirements" shown in A.2.2:

```
<?xml version="1.0" encoding="UTF-8"?>
<Main xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="www.iec.org/62474/cdv1"
schemaDatabaseVersion="cdv1"
substanceDatabaseVersion="cdv1">
  <BusinessInfo fieldLock="false" mode="Distribute">
    <Response date="2010-02-19" docID="001">
      <Contact email="john.doe@supco.com" name="John Doe" phone="301-555-2345"
title="Quality Assurance Manager"/>
      <SupplyCompany name="Supco"/>
    </Response>
  </BusinessInfo>
  <Product unitType="each">
    <ProductID effectiveDate="2009-11-23" identifier="ABC4523" name="">
      <Mass mass="0.12" unitOfMeasure="g"/>
    </ProductID>
        <SubstanceGroup name="Lead/Lead Compounds">
          <MatMassPercent massPercent="9.3"/>
        </SubstanceGroup>
        <SubstanceGroup name="Lead/Lead Compounds">
          <MatMassPercent massPercent="97.0"/>
        </SubstanceGroup>
  </Product>
</Main>
```

The XML description below represents the material declaration of Example 1 reporting "additional Information" shown in A.2.3:

```
<?xml version="1.0" encoding="utf-8"?>
<Main xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="www.iec.org/62474/cdv1" schemaDatabaseVersion="cdv1"
substanceDatabaseVersion="cdv1">
 <BusinessInfo fieldLock="false" mode="Distribute">
  <Response date="2010-02-19" docID="001">
   <Contact email="john.doe@supco.com" name="John Doe" phone="301-555-2345"
title="Quality Assurance Manager" />
   <SupplyCompany name="Supco" />
  </Response>
 </BusinessInfo>
 <Product unitType="each">
  <ProductID effectiveDate="2009-11-23" identifier="ABC4523" name="">
   <Mass mass="0.12" unitOfMeasure="g" />
  </ProductID>
  <MaterialClass id="M-004" name="Copper and its alloys">
   <MassPercent massPercent="72.0" />
  </MaterialClass>
  <MaterialClass id="M-008" name="Precious metals">
   <MassPercent massPercent="0.5" />
  </MaterialClass>
```

```
  <MaterialClass id="M-009" name="Other non-ferrous metals and alloys">
    <MassPercent massPercent="1.0" />
  </MaterialClass>
  <MaterialClass id="M-010" name="Ceramics / Glass">
    <MassPercent massPercent="6.5" />
  </MaterialClass>
  <MaterialClass id="M-014" name="Other Plastics and Rubber">
    <MassPercent massPercent="20.0" />
  </MaterialClass>
  <ProductPart numberOfUnits="1">
    <ProductID name="Active part">
      <MassPercent massPercent="6.5" />
    </ProductID>
    <Material materialClassID="M-010" name="Ceramics">
      <Substance name="Mn3O4">
        <MassPercent massPercent="64" />
      </Substance>
      <Substance name="NiO">
        <MatMassPercent massPercent="17" />
      </Substance>
      <Substance name="Co3O4">
        <MassPercent massPercent="15" />
      </Substance>
      <MassPercent massPercent="100" />
    </Material>
  </ProductPart>
  <ProductPart numberOfUnits="1">
    <ProductID name="Termination">
      <MassPercent massPercent="73.5" />
    </ProductID>
    <Material materialClassID="M-008" name="Metal/Plating">
      <Substance name="Ag">
        <MassPercent massPercent="100" />
      </Substance>
      <MassPercent massPercent="0.65" />
    </Material>
    <Material materialClassID="M-010" name="Glass">
      <SubstanceGroup name="Lead/Lead Compounds">
        <Substance name="PbO">
          <MassPercent massPercent="10" />
        </Substance>
        <MatMassPercent massPercent="9.3" />
        <Exemptions>
          <Exemption description="Lead in glass of electronic components" identity="5" />
          <UniqueID authority="EU" identity="RoHS" />
        </Exemptions>
      </SubstanceGroup>
      <Substance name="SiO2">
        <MassPercent massPercent="90" />
      </Substance>
      <MassPercent massPercent="0.03" />
    </Material>
    <Material materialClassID="M-009" name="Metal/solder">
      <SubstanceGroup name="Lead/Lead Compounds">
        <Substance name="Pb">
          <MassPercent massPercent="97.0" />
        </Substance>
        <MatMassPercent massPercent="97.0" />
        <Exemptions>
          <Exemption description="Lead in high melting temperature type solders" identity="7a"
/>
          <UniqueID authority="EU" identity="RoHS" />
        </Exemptions>
      </SubstanceGroup>
      <Substance name="Ag">
        <MassPercent massPercent="2" />
      </Substance>
      <Substance name="Sn">
        <MassPercent massPercent="1" />
```

```
      </Substance>
      <MassPercent massPercent="1.36" />
    </Material>
    <Material materialClassID="M-009" name="Metal/Leads">
      <Substance name="Sn">
        <MassPercent massPercent="4" />
      </Substance>
      <Substance name="Cu">
        <MassPercent massPercent="96" />
      </Substance>
      <MassPercent massPercent="97.96" />
    </Material>
  </ProductPart>
  <ProductPart numberOfUnits="1">
    <ProductID name="Encapsulation">
      <MassPercent massPercent="20" />
    </ProductID>
    <Material materialClassID="M-014" name="Organic Polymer">
      <Substance name="Epoxy Resin">
        <MassPercent massPercent="100" />
      </Substance>
      <MassPercent massPercent="100" />
    </Material>
  </ProductPart>
 </Product>
</Main>
```

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2 Under preparation. Stage at the time of publication IEC CDV IEC 62430:2018.

3 Withdrawn.

4 Withdrawn.

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ISO 14040:2006, *Environmental management – Life cycle assessment – Principles and framework*

ISO TR 14062:2002, *Environmental management – Integrating environmental aspects into product design and development*

The International System of Units (SI)

EN 10027-1, *Designation systems for steels – Part 1: Steel names*

~~*Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances*~~

~~*Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations*~~

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

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~~Joint Industry Guide (JIG) – JIG 101:2011, *Material Composition Declaration for Electronic Products*~~

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IEC 62474

Edition 2.0 2018-11

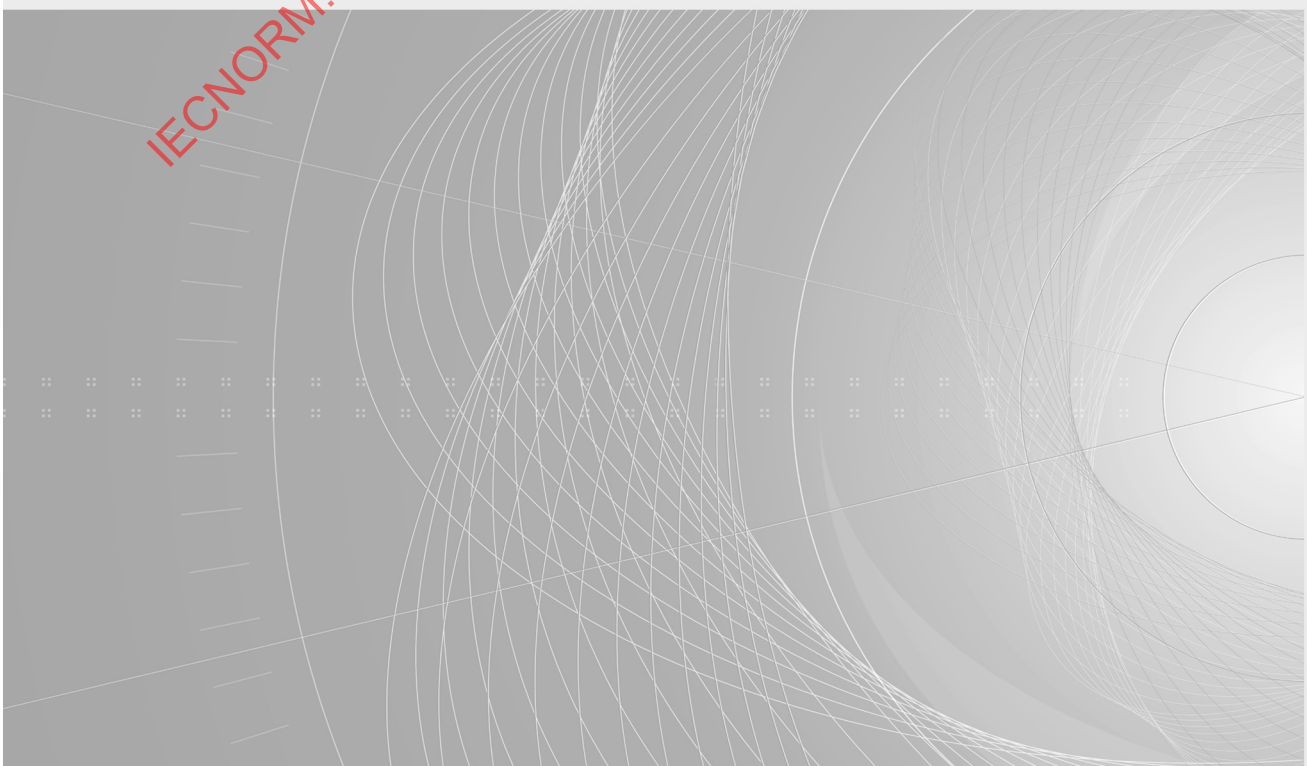
INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Material declaration for products of and for the electrotechnical industry

Déclaration de matières pour des produits de et pour l'industrie électrotechnique



IEC 62474:2018-11(en-fr)

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MATERIAL DECLARATION FOR PRODUCTS OF AND FOR THE ELECTROTECHNICAL INDUSTRY

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62474 has been prepared by IEC Technical Committee 111: Environmental standardization for electrical and electronic products and systems.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The material classes and exemption lists capabilities have been improved.
b) The introduction and scope have new diagrams and information to give a better overview of the standard and identify what information is mandatory, optional or conditionally mandatory.
c) Definitions have been added. Minimum requirements to be in conformance with the IEC 62474 standard are defined, including XML format as the officially accepted format. By defining an authority, list identity and list version, the standard format could be used for lists other than the IEC 62474 database.

d) Terms have been aligned for consistency throughout the document. For example, the “IEC 62474 database” was previously referred to as “IEC 62474 database”, “IEC 62474”, “IEC 62474 Database”, “IEC 62474 DB”.

e) The annexes have been removed as they are now contained within documents managed by the validation team 62474 (VT 62474). Annex A (Annex B in the previous edition) is provided for non-XML users as a reference only.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
111/498/FDIS	111/503/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62474 series, published under the general title *Material declaration for products of and for the electrotechnical industry*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This document benefits the electrotechnical industry by establishing requirements for reporting of material declaration data, standardizing protocols, and facilitating the transfer and processing of data. Material declarations are used by the electrotechnical industry to track and declare specific product information used for compliance and/or environmentally conscious design (ECD) considerations. To simplify requirements across the supply chain and to improve economic efficiencies, it is important to standardize the exchange of product, product part, material and substance data, and provide requirements within material declarations.

IEC 62474 is made of two parts: this document, which contains requirements for material declarations and a database containing information such as a declarable substance list (DSL), exemption list and data exchange format (see Clause 8).

This document defines the two most common types of material declarations and their requirements:

1) Declaration for compliance – is always at a product level in reference to the list of declarable substances and declarable substance groups within the IEC 62474 declarable substance list (DSL).
2) Composition declaration – is the much more detailed product part level reporting down to individual substances contained within the IEC 62474 DSL.

The IEC 62474 database is maintained by the validation team (VT 62474) which updates information in the IEC 62474 database based on requirements specified in the IEC 62474 standard (see Clause 8).

By fulfilling the requirements of the IEC 62474 standard and based on the information from the IEC 62474 database, two types of declaration can be created as shown in Figure 1 below.

- a declaration for compliance which is the information required to determine product compliance with substance regulations and market needs (see 4.4);
- a composition declaration that is the information required to assess where declarable substances above threshold are contained in the product (see 4.5).

The transmission of information in the supply chain can be done in two modes:

- Distribution mode: The supplier provides material declaration data about their product(s) to a recipient.
- Requester/responder mode: The requester determines the type of material declaration(s) the responder will provide.

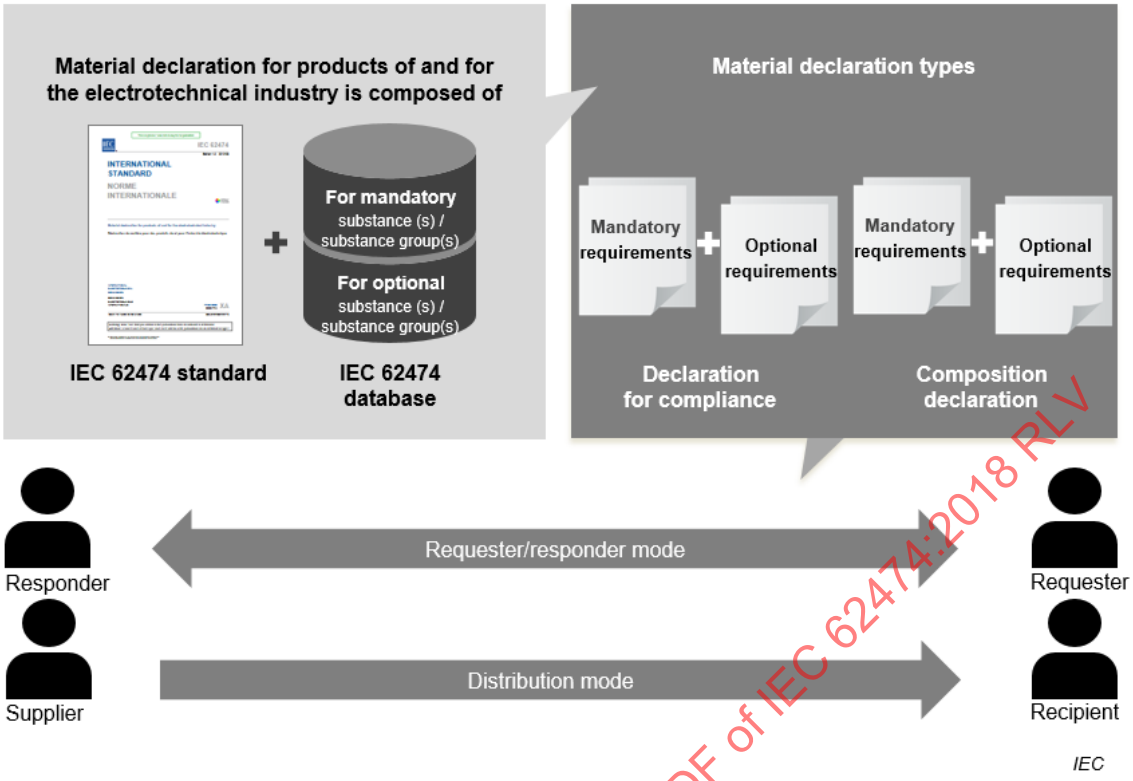

Figure 1 – IEC 62474 principles

The IEC 62474 principles are determined in the following clauses:

- Clause 4 specifies requirements for material declarations.
- Clause 5 specifies the criteria and thresholds for declarable substances (DSs), declarable substance groups (DSGs) and material classes in the IEC 62474 database.
- Clause 6 specifies the criteria for exemption lists in the IEC 62474 database.
- Clause 7 specifies the IEC 62474 database data format and exchange requirements with further information in Annex A (informative).
- Clause 8 specifies the IEC 62474 database maintenance process.

MATERIAL DECLARATION FOR PRODUCTS OF AND FOR THE ELECTROTECHNICAL INDUSTRY

1 Scope

This document specifies the procedure, content, and form relating to material declarations for products and accessories of organizations operating in and supplying to the electrotechnical industry. Process chemicals, emissions during product use and product packaging material are not in the scope of this document.

The main intended use of this document is to provide data up and down the supply chain that:

- allows organizations to assess products against substance compliance requirements,
- allows organizations to use this information in their environmentally conscious design process and across all product life cycle phases.

This document specifies mandatory declaration requirements and also provides optional declaration requirements.

This document does not suggest any specific method or process to capture material declaration data in the supply chain. However, it provides a data format used to transfer information within the supply chain. Organizations have the flexibility to determine the most appropriate method to capture material declaration data without compromising data utility and quality. This document is intended to allow reporting based on engineering judgement, supplier material declarations, and/or sampling and testing.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61360-1, *Standard data element types with associated classification scheme – Part 1: Definitions – Principles and methods*

IEC 61360-2, *Standard data element types with associated classification scheme for electric components – Part 2: EXPRESS dictionary schema*

ISO/IEC Directives, IEC Supplement, *Procedures specific to IEC*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
article
object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition

[SOURCE: EU REACH Regulation (EC) No.1907/2006, Article 3]

3.2
composition declaration
quantitative declaration of substances contained within a product, product part, or material as applicable

3.3
data exchange format
data elements and attributes specified in an XML schema and developer's table to support a material declaration exchange

3.4
declaration for compliance
declaration regarding the presence or absence of declarable substances and declarable substance groups with mandatory reporting requirements in the IEC 62474 declarable substance list relative to a reporting threshold level for a defined reportable application

3.5
declarable substance
DS
substance that meets specified criteria for reporting

Note 1 to entry: Criteria for declarable substances within the IEC 62474 DSL are specified in Clause 5.

Note 2 to entry: This note applies to the French language only.

3.6
declarable substance group
DSG
substance group that meets specified criteria for reporting

EXAMPLE Chromium (VI) compounds.

Note 1 to entry: Criteria for declarable substance groups within the IEC 62474 DSL are specified in Clause 5.

Note 2 to entry: This note applies to the French language only.

3.7
declarable substance group substance(s)
DSG substance(s)
substance(s) that belongs to a declarable substance group

3.8
declarable substance list
DSL
list of declarable substances and/or declarable substance groups each with a reporting threshold for a reportable application(s) which has a mandatory or optional reporting requirement when contained at or above its maximum threshold value within a product, product part or material

Note 1 to entry: This note applies to the French language only.

3.9
declaration hierarchy
tree-like structure containing one or more branches that represents the relationship between product, product part(s), material(s) and/or substance(s) within a material declaration

Note 1 to entry: Figure 5 demonstrates a declaration hierarchy with a single branch

3.10
exemption
allowance for the use of regulated declarable substances or declarable substance groups above their threshold(s) as defined in laws or regulations

3.11
list authority
designated owner of a list

Note 1 to entry: The list authority is used in conjunction with the list identity and list version.

3.12
list entry identity
parameter used to identify a specific entry within a defined list

Note 1 to entry: The IEC 62474 DSL entry identity would be used to identify a specific declarable substance or declarable substance group within its list.

3.13
list identity
parameter used to identify a specific list

Note 1 to entry: The list identity is used in conjunction with the list authority and list version.

3.14
list version
parameter used to identify a specific version of a list

Note 1 to entry: The list version is used in conjunction with the list authority and list identity.

3.15
material
substance or mixture of substances within a product or product part

3.16
material class
defined classification of materials that are established in the referenced IEC 62474 database for purposes of inventorying aspects of a product, such that no two classes contain the same materials

Note 1 to entry: If a material falls under multiple material classes, such as copper zinc alloy which can fall under copper and its alloys or zinc and its alloys, the substance with the largest mass within the material should take precedence.

3.17
material declaration
declaration of certain substances and/or substance groups contained within a product, product part, or material as applicable

Note 1 to entry: The declaration might be a composition declaration, where the amount of the declared substance or substance group is provided or it might be a declaration for compliance, where only the presence or absence of the declared substance or substance group is provided.

3.18
mixture
composite or solution composed of two or more substances in which they do not react

Note 1 to entry: An alloy is treated as a mixture.

3.19
product
any goods or service

Note 1 to entry: This general definition of product is, in the context of this document, limited to any product of the product category “hardware” according to ISO 9000:2015, 3.7.6 of and for the electrotechnical and electronic industry (E&E).

Note 2 to entry: This general definition of product(s) used in Clause 4 specifies any goods or service of the responder.

3.20
product family
group of products each of which contains the same substances or material at a similar concentration level

Note 1 to entry: A common case would be an electrical component supplier having many products of the same substance content that have different electrical values, such as a capacitor, resistor, inductor or an integrated circuit.

3.21
product part
sub-unit of a product

Note 1 to entry: A product part can be a sub-unit of another product part.

Note 2 to entry: If a standard product part e.g. a cable of 1 m length is declared as product part, only portions of it might be physically present in the product.

3.22
reference substance
individual substance entry within the reference substance list

3.23
reference substance list
RSL
list of substances belonging to declarable substance groups in the declarable substance list

Note 1 to entry: The list of substances in the RSL for a DSG may or may not be a complete or exhaustive list.

Note 2 to entry: This note applies to the French language only.

3.24
reportable application
intended use of a declarable substance or declarable substance group which determines its relevance for disclosure

Note 1 to entry: The use of reportable applications may be applicable to declarable substances, declarable substance groups, product parts and materials. Examples of product parts and materials are batteries, textiles and wood.

Note 2 to entry: As legislations have different scopes for some declarable substances, declarable substance groups, product parts or materials, more than one reportable applications are provided in the IEC 62474 database. This information supports the downstream manufacturer in the assessment against declarable substance compliance requirements.

3.25
reporting threshold level
concentration limit at or above which the presence of a declarable substance in a material, product part or product is declared

3.26
requester
organization or individual that requests a material declaration

Note 1 to entry: The requester is sometimes referred to as the manufacturer.

3.27
responder
organization or individual that provides a material declaration

Note 1 to entry: The responder is sometimes referred to as the supplier.

3.28
substance
chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities 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: Globally Harmonized System of Classification and Labelling (GHS):2017, Chapter 1.2, Definitions and Abbreviations]

3.29
substance group
two or more substances, that share at least one chemical sub-structure, or chemical or physical property under a generic name

3.30
validation team 62474
VT 62474
validation team for maintenance of the IEC 62474 database

Note 1 to entry: The validation team (VT 62474) is a permanent, “executive” group of experts appointed by and acting as delegates on behalf of their National Committees to validate proposed items and vote for their release as part of a database standard.

Note 2 to entry: See ISO/IEC Directives, IEC Supplement.

Note 3 to entry: This note applies to the French language only.

4 Requirements for material declarations

4.1 General

4.1.1 Overview

Clause 4 describes the requirements for material declarations as specified in 4.1 through 4.7. Figure 2 below shows the concept of material declaration capabilities. Some subclauses, such as business information, are required while other subclauses, such as material classes, are optional. The material declaration shall include a declaration for compliance (4.4) or a composition declaration (4.5). It may also include both.

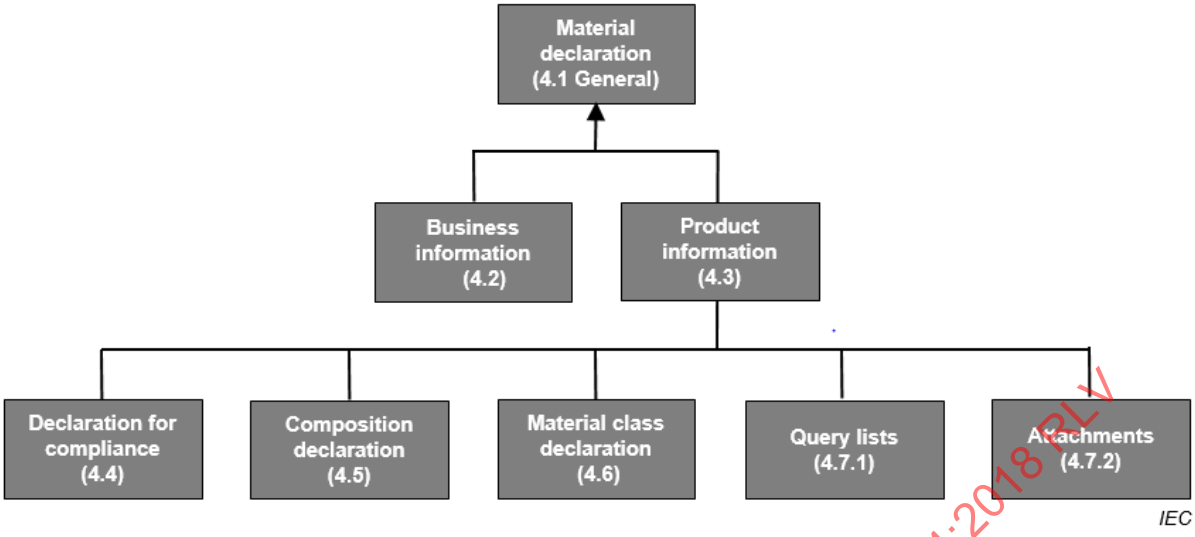

Figure 2 – Material declaration capabilities

- Material declaration: specifies the basic rules for a material declaration (4.1).
- Business information: specifies the business information, such as company name and contact information (4.2).
- Product information: specifies the product and its attributes associated with the material declaration (4.3).
- Declaration for compliance: specifies the information required to assess product compliance (4.4).
- Composition declaration: specifies the information about substances, materials, and/or product parts contained in the product (4.5).
- Material class declaration: specifies the information required for an optional material class declaration (4.6).
- Query list: specifies a list of statements with true/false responses (4.7.1).
- Attachments: specifies the capability to include supporting documents within a material declaration (4.7.2).

Figure 3 summarizes what elements are mandatory, optional, or conditional in a declaration for compliance and a composition declaration.

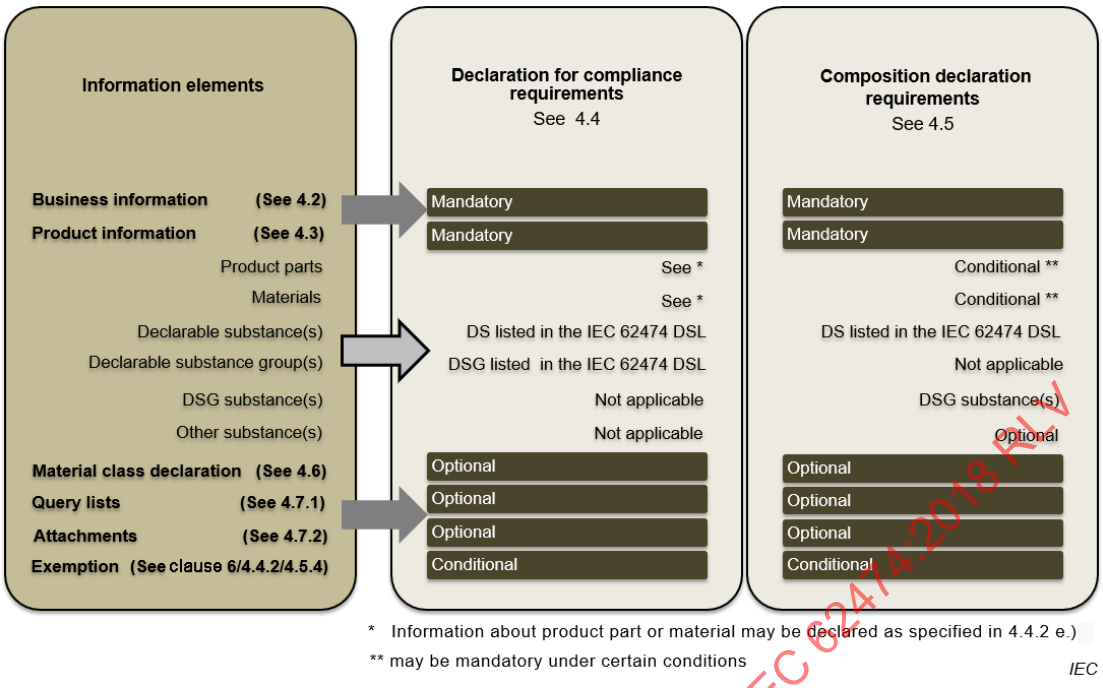

Figure 3 – Material declaration structure

The conceptual diagrams (see Figure 4 and Figure 5) are high level views of the declaration for compliance (Figure 4) and composition declaration models (Figure 5). In both figures, required information is shown with solid boxes and arrows. Optional information is shown within dotted boxes.

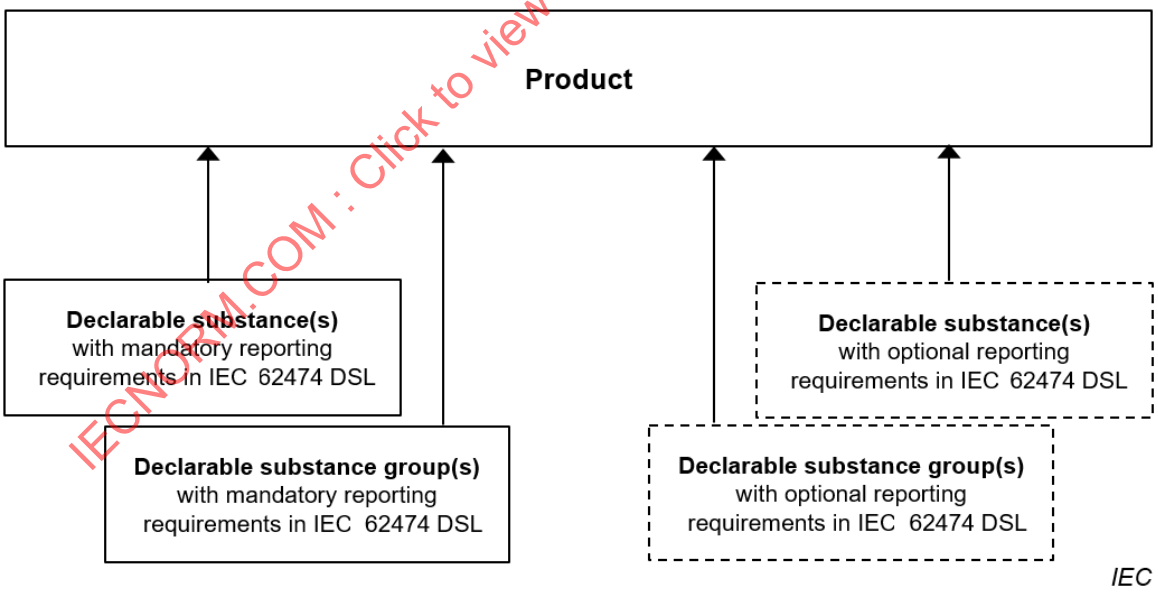

Figure 4 – Data model for a declaration for compliance

A declaration for compliance provides data at the product level. Product, DSs and DSGs with mandatory reporting requirements in the IEC 62474 DSL are mandatory objects in the declaration for compliance (see 4.4 and Figure 4).

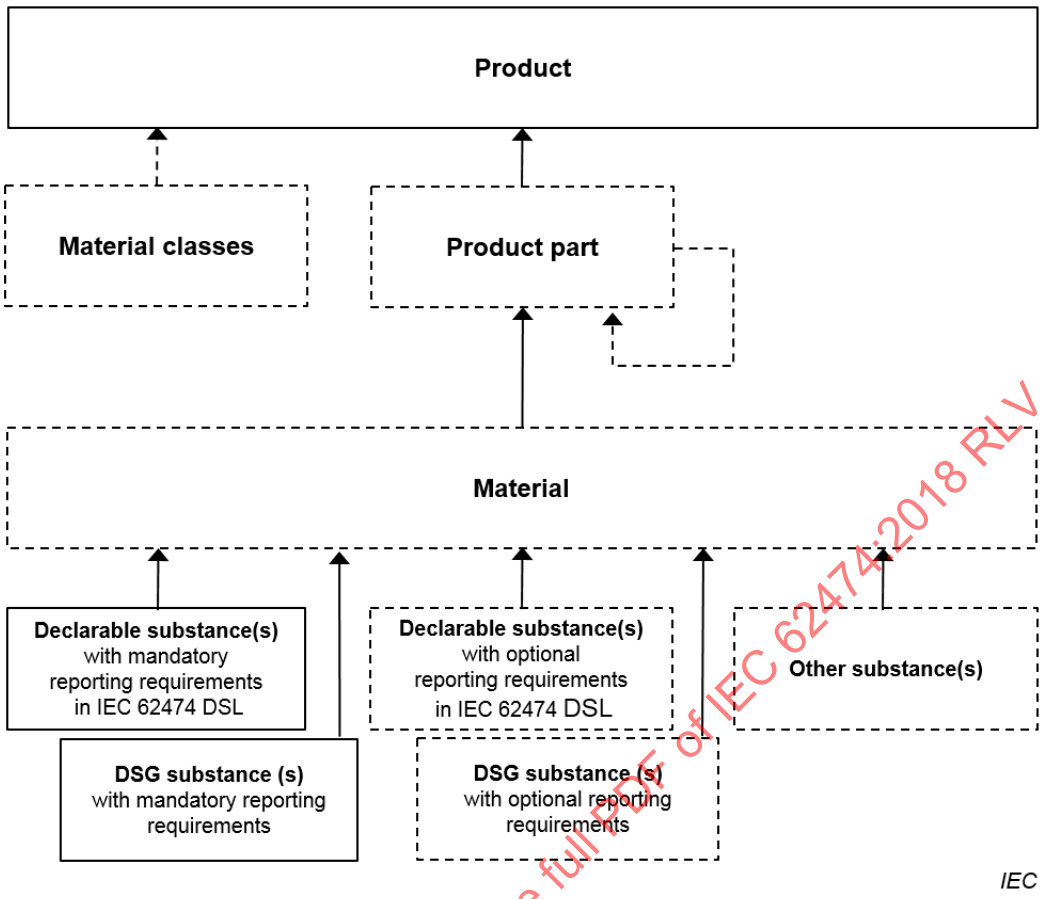

Figure 5 – Data model for a composition declaration

A composition declaration provides substance data at a material and/or product part and/or product level. This data can also be used to verify compliance of a product.

For simplicity, not all of the mandatory requirements are displayed in the diagrams (e.g. mass or mass percent information or mandatory declaration of certain product parts or materials in the composition declaration when the reporting threshold level refers to such product parts or materials and the reporting threshold level is exceeded) (see 4.5 for details).

The developer's table within the IEC 62474 database contains a full description of mandatory and optional requirements. Annex A provides an informative reference for mandatory and optional information. However, if there is a discrepancy between the IEC 62474 database and Annex A, the IEC 62474 database shall take precedence.

4.1.2 Conformity to the IEC 62474 standard

For a material declaration to conform to the IEC 62474 standard, it shall utilize the IEC 62474 database consisting of the DSL, material class list and the data exchange format and meet the requirements specified in this document. The material declaration shall specify the declarable substance list authority as "IEC62474" and the list identity and list version as specified within the IEC 62474 database.

This document enables the declaration against other lists. If a list contains, at minimum, the IEC 62474 DSL, utilizes the IEC 62474 data exchange format, and meets the requirements specified in the standard, it is in conformity with the standard. If other lists are used, they shall contain a list authority, list identity and list version and should be based on industry standard requirements. If a list does not contain at minimum the IEC 62474 DSL, it is not in conformity with this document.

4.1.3 General requirements

a) In the case where the requester requests more than the mandatory requirements of a material declaration as specified in this document and the IEC 62474 database, the contracting parties should agree to details, such as safeguards protecting supplier trade secrets at the request of the supplier.

b) The International System of Units (SI) shall be used.

4.2 Business information

Business information shall include company information, contact information and date, as well as other data specified in the data exchange format in the IEC 62474 database. The transfer of material declaration information uses either the distribution mode, where only the responder's business information shall be provided or the requester/responder mode, where both the requester's and the responder's business information shall be provided.

4.3 Product information

The following requirements shall apply to products:

a) A declaration for compliance or a composition declaration shall be provided for a product or product family.

NOTE 1 Only the supplier is likely to know the appropriate product family groupings for material declaration purposes based on their technical knowledge of product material content.

b) The product shall have an identification and a mass assigned. In the case of a product family, the identification and mass of each product within the product family shall be specified.

NOTE 2 When each product in the product family has the same mass, it is sufficient to provide this mass just once.

c) If a product contains a DS or DSG substance(s) that:

- has a reporting threshold level based on 'article',
- is present at or above the reporting threshold level for a reportable application, and
- is within the declaration of the product,

then the product shall be identified as an article.

4.4 Declaration for compliance requirements

4.4.1 General information

A declaration for compliance provides information about the presence or absence of DSs and DSGs as listed in the DSL for a product. Each DS and DSG entry within the DSL requires a positive ("true") or negative ("false") response. This information allows the requester to assess their product compliance with substance regulations and market needs at a product level.

4.4.2 DSs and DSGs with mandatory reporting requirements

DSs or DSGs with a mandatory reporting requirement in the IEC 62474 DSL shall be reported. When reporting DSs or DSGs with a mandatory reporting requirement, the following requirements apply:

a) The DSs and DSGs listed in the IEC 62474 DSL shall be assigned to the product.

b) Each such DS and DSG shall be named as given in the IEC 62474 DSL and shall include the reportable application and the reporting threshold level. The DSL entry identity associated with the DS or DSG entry in the DSL should be declared. Other identity(s) such as the CAS Registry Number may also be declared.

c) A declaration on the presence of DSs and DSGs at or above the reporting threshold level for an applicable reportable application provided in the IEC 62474 DSL shall have a positive ("true") response for all such DSs or DSGs.

d) A declaration on the absence of DSs and DSGs shall have a negative (“false”) response for DSs or DSGs provided in the IEC 62474 DSL that are:

   – not present, or

   – present below the reporting threshold level for an applicable reportable application, or

   – present and the reportable application is not applicable.

e) The presence of DSs or DSGs shall be quantified if they are present in the product at or above the reporting threshold level for an applicable reportable application given in the IEC 62474 DSL.

   – The mass percent of each DS or DSG within the product shall be provided.

   – The mass percent shall be calculated based on the reporting threshold relative to the reporting threshold level (e.g. product part or material) as specified in mass information requirements in the IEC 62474 DSL.

      • If such DSs or DSGs have reporting threshold levels specified in the IEC 62474 DSL referring to the product part, the declaration of the DS or DSG shall include the mass percent of the product part.

      • If DSs or DSGs have reporting threshold levels specified in the IEC 62474 DSL that refer to the material, the declaration of the DS or DSG shall include the material mass percent. The material mass percent is the percentage of the DS or DSG in the material.

      • If the mass percent of a DS and/or DSG can occur within a range of values, then the maximum (worst case) value shall be declared.

      NOTE 1 If the mass percent of a declarable substance can range from 1,1 % to 1,2 %, then a value of 1,2 % is declared.

      NOTE 2 The IEC 62474 DSL lists some DSs and DSGs that require reporting as percentage of the material mass.

      NOTE 3 The reporting requirement as percentage of the material mass can differ, e.g. the numerator for this percentage can be the sum of the masses of all DSs belonging to this DSG present or just the mass of a specific element. Details are given in the IEC 62474 DSL.

   – If the DSs or DSGs have a mass reporting requirement specified in the mass information requirements field of the IEC 62474 DSL, then the mass of the DSs or DSGs shall be declared.

      NOTE 4 The declaration of mass is in addition to the requirements specified to declare mass percent.

      NOTE 5 The mass of DSs and/or DSGs in the product is sometimes necessary to meet regulatory requirements and can be used to assess recyclability of a product.

   – If the responder (supplier) is uncertain on the applicability of the reportable application to the product, then the DSs or DSGs shall be declared if they are present at or above the reporting threshold level in the supplied product.

   – If the declaration of a DS or DSG includes a mass percent, identification of the material, product part or product that represents the denominator of such mass percent may be provided and included in the material declaration that is passed through the supply chain.

f) In general, if there is more than one occurrence of a DS or DSG within a reportable application that is present at or above the reporting threshold within the product, the occurrence with the highest mass percent above the reporting threshold within the product shall be declared. Additional occurrences below the highest mass percent may be declared.

   – When exemptions are reported for a DS or DSG, at least one occurrence shall be declared for each different exemption. The occurrence with the highest mass percent (or material mass percent as required) shall be declared for each such exemption. If such information is provided, it shall be included in the material declaration that is passed through the supply chain.

- If there is an occurrence of a DS or DSG within a reportable application that is present at or above the reporting threshold within the product that does not have an applicable exemption, the highest mass percent shall be declared.
- When reporting of mass is required by the DS and/or DSG entry(s) within the IEC 62474 DSL, then the total mass of all such occurrences of the DS or DSG shall be reported.

g) If an exemption is declared, the exemption list (list authority, list identity and list version) and exemption identification shall be declared.

- If the exemption being declared is included in the IEC 62474 database, then the exemption identification (including identity (ID) and description) from the IEC 62474 database should be reported.
- If the exemption is from a list that is not included in the IEC 62474 database, then the list authority, list identity and list version with a description of the exemption shall be reported. An exemption identity should be reported.

4.4.3 DSs and DSGs with optional reporting requirements

DSs or DSGs with an optional reporting requirement in the IEC 62474 DSL may be declared. When reporting, the requirements of 4.4.2 shall be followed.

NOTE DSs and DSGs listed as criteria 3 in the IEC 62474 DSL are examples of DSs and DSGs with optional reporting requirements.

4.5 Composition declaration requirements

4.5.1 General requirements

a) A composition declaration provides information on the presence of substances used within a product. Examples of how composition declaration information are used include:

- assessing where DSs and DSG substances at or above threshold are contained in the product;
- detailing substance data for assessing product compliance with substance regulations and market needs;
- allowing reporting substances with optional reporting requirements or substances not contained in the IEC 62474 DSL;
- providing up to a "full" material declaration of all substances contained in a product and where they are located within the product.

b) Mass information shall include mass or mass percent, but not both.

NOTE 1 In a composition declaration it is always possible to calculate mass from mass percent or to calculate mass percent from mass. It is not necessary to provide both. Providing both has the potential to create inconsistency between the numbers.

c) The reporting requirements of the DSG shall apply to all DSG substance(s) that belong to this DSG.

NOTE 2 If a DSG has a mandatory reporting requirement, the DSG substance(s) will inherit this mandatory reporting requirement.

4.5.2 Product parts

Product parts shall be declared if a DS or DSG substance(s) with a mandatory reporting requirement referring to the product part, is present at or above the reporting threshold level in the product part. Any other product part(s) contained in the product may also be declared.

NOTE 1 The list of DSG substances within the IEC 62474 RSL may or may not be a complete or exhaustive list.

NOTE 2 Example of such a mandatory declaration of a product part is a battery incorporated into a printed circuit board assembly.

If a product part contains a DS or DSG substance(s) that:

- has a reporting threshold level based on ‘article’,
- is present at or above the reporting threshold level for a reportable application, and
- is within the declaration hierarchy of the product part,

then the product part shall be identified as an article.

For traceability, the product/product part(s) within the declaration hierarchy above the product part(s) should be identified as containing an article.

When product part(s) are declared, the following requirements shall apply:

a) Product parts shall be assigned to another product part (if a higher level product part is declared) or otherwise to the product.

b) An identification shall be assigned to each product part.

NOTE 3 An identification can be a product part name, number, or other identification relevant to the responder.

c) For identical product parts occurring multiple times, the information may be declared only once. In this case, the number of identical product parts shall be reported as the number of units (NoU). A decimal number shall be used to declare the number of units (NoU).

NOTE 4 The number of units information allows for the declaration of single or multiple instances of a product part (e.g. 2,0 for 2 instances of a product part) as well as fractions of a unit of measure, such as wire, which can be greater or smaller than a metre (e.g. 0,1 for a wire that is 0,1 m in length and declared based on a 1,0 m unit of measure).

d) Product parts shall include either the mass of the product part or the mass percent but not both. If mass percent is declared, then the percentage shall be the mass of the product part within another product part (if a higher level product part is declared) or otherwise the mass percent of the product.

NOTE 5 In a composition declaration it is always possible to calculate mass from mass percent or to calculate mass percent from mass. It is not necessary to provide both. Providing both has the potential to create inconsistency between the numbers.

4.5.3 Materials

Materials shall be declared if a DS or DSG substance(s), with a mandatory reporting requirement referring to the material, is present at or above the reporting threshold level in the material.

Materials should be declared when substances contained in the materials are declared.

Any other materials contained in the product may be declared.

The following requirements apply to materials when declared.

a) Materials shall be assigned to the product part containing the material (if the product part is declared) or otherwise to the product.

b) If a material contains a DS or DSG substance(s) that:
   - has a reporting threshold level based on ‘article’,
   - is present at or above the reporting threshold level for a reportable application, and
   - is within the declaration hierarchy of the material,

   then the material shall be identified as an article.

   For traceability, the product/product part(s) within the branch of the declaration hierarchy of the material(s) should be identified as containing an article.

c) Materials should be characterized by names as defined in a standard (e.g. ISO 1043, Parts 1 through 4 for plastics) or by internationally recognized names.

d) Materials shall include either the mass of the material or the mass percent. If mass percent is declared, then the percentage shall be the mass of the material with respect to the mass of the product part that contains the material (if the product part is declared) or otherwise the mass percent of the product.

e) Each material should include an identification of the corresponding material class.

NOTE The definitions to use when determining the material class applicable to a specific material are contained in the material class list.

4.5.4 DSs and DSG substance(s) with mandatory reporting requirements

The following substances shall be declared:

- DSs listed in the DSL with a mandatory reporting requirement, if they are present in the product at or above the reporting threshold level and if the reportable application is applicable.
- DSG substances with a mandatory reporting requirement, if the substances are collectively present in the product at or above the reporting threshold level for the DSG and if the reportable application is applicable.

Such substances may be declared if they are present in the product below the reporting threshold level or if the reportable application is not applicable for that DS or DSG.

NOTE 1 When such DSs are not declared in a material declaration, they are not present over the specified reporting threshold level, but could be present below this threshold or the reportable application as listed in the DSL is not applicable.

The following requirements apply to such DSs or DSG substance(s) when declared:

a) Such substances shall be assigned to the material (if material is declared), to the product part (if material is not declared and product part is declared) or otherwise to the product (if neither material nor product parts are declared).

b) Such substances shall be named as given in the DSL or RSL if the substance(s) are listed in the DSL or RSL. These substances shall be identified using the CAS Registry Number (if assigned), EC Commission Number (if assigned) or other identifier such as a DSL entry identity.

NOTE 2 The CAS Registry Number is a unique numeric identifier assigned by the Chemical Abstracts Service, a division of the American Chemical Society.

NOTE 3 The European Commission Number (also referred to as EC Number, EC-No and EC#) is a unique numeric identifier assigned by the Commission of the European Union to substances that are commercially available within the European Union.

c) In general the declaration for such substances shall include either the mass or mass percent. If mass percent is declared, then the percentage shall be the mass of the substance with respect to the mass of the material (if the material is declared) or otherwise the mass of the product part (if the product part is declared) or otherwise the mass of the product.

NOTE 4 The reporting requirement as a percentage of the material mass can differ e.g. the numerator for this percentage can be the sum of the masses of all DSG substances belonging to a DSG present or just the mass of a specific element. Details are given in the DSL

Such DS or DSG substance(s) within different materials or different product parts shall be declared separately for each occurrence at or above the threshold in the product.

d) If a DS or DSG substance(s) has a reporting threshold that refers to an element or compound, the mass percent of the element or compound shall be used to determine if the substance is at or above threshold

– If more than one substance in a DSG is present, then the contribution of all such substances shall be summed to determine if the reporting threshold has been reached.

e) Such substances may have information on applicable exemptions pertaining to the allowed use. If such information is provided, it shall be included in the material declaration that is passed through the supply chain.

f) If a substance is known to belong to a DSG but the substance name is either unknown or confidential business information (CBI) then:

   – the DSG name and identity may be used as the substance name and substance identity and/or

   – a declaration for compliance may be provided to ensure accurate reporting of the DSG.

g) If a DSG substance that refers to a specific metal (e.g. lead/lead compounds) but the substance name is unknown or CBI, the mass or mass percent of only the metal shall be declared.

h) If the responder is uncertain whether or not a reportable application applies to their product, then the presence of the DS or DSG substance shall be declared if it exceeds the reporting threshold level in the supplied product.

i) The value of a mass or mass percent specified in the composition declaration shall be for each DS and/or DSG substance occurrence exceeding its reporting threshold.

4.5.5 DSs and DSG substance(s) with optional reporting requirements

DSs or DSG substances with an optional reporting requirement in the IEC 62474 DSL may be declared. When reporting, the requirements of 4.5.4 shall be followed.

4.5.6 Other substance(s)

Substances not listed in the IEC 62474 DSL may be declared. When reporting, the requirements of 4.5.4 a) and 4.5.4 c) shall be followed.

A practical reporting threshold for such substances may be at or above 0,1 mass percent of the mass of the material, product part or product, whichever is the lowest product unit (e.g. material, product part or product) that the declaration requires.

If substances not listed in the IEC 62474 DSL are declared, they should be identified by an internationally recognized name (e.g. IUPAC name) and should be identified with a CAS Registry Number, EC Commission Number, etc. when these are available.

NOTE The IUPAC (International Union of Pure and Applied Chemistry) name is a name assigned to a chemical compound according to recommendations by IUPAC Nomenclature of Organic (or Inorganic) Chemistry.

4.6 Material class declaration

This subclause specifies the requirements for the material classes that are present in the product. Material classes provide for the classification of materials into material types. This classification provides some of the information that the requester may use to conduct a life cycle assessment, to calculate recyclability or for other ECD purposes.

NOTE In addition, each material in the composition declaration can be assigned a material class that allows the requester to roll-up the total amount of each material class in the product if the responder has declared all materials in the product.

The following requirements apply to material classes when declared:

a) Material classes shall be named according to a material class list.

b) The list authority, list identity and list version of the material class list shall be declared. If material class lists are used other than the material classes specified in the IEC 62474 database, the material class list should be based on industry standard requirements and contain a list authority, list identity and list version.

c) The material class declaration shall be directly linked to the product.

d) The declaration of each material class shall include the mass or mass percent within the product.

e) The sum of the mass or mass percent of the declared material classes should represent at least 90 % of the product mass.

4.7 Other information

4.7.1 Query lists

A query list shall contain statement(s) created by the requester or responder using a text string with a corresponding true/false response for each statement. An example query statement could be: “The product contains a battery", with a response being either “true” or “false”.

4.7.2 Attachments

Supporting documents, such as a test report or certificate of compliance, may be provided with the material declaration.

4.7.3 Requester/responder mode

In the requester/responder mode, the requester may specify if the responder is to provide a declaration for compliance or a composition declaration or both.

The requester may also specify that the responder provides the following:

1) material class declaration,
2) query list response,
3) supporting document(s) as attachment(s).

4.7.4 Distribution mode

The supplier shall provide to the recipient either a declaration for compliance or a composition declaration, or both a declaration for compliance and a composition declaration. In distribution mode, the recipient is not identified.

The supplier may also provide the following:

1) material class declaration,
2) query list response,
3) attachment(s).

5 Criteria and thresholds for DSs, DSGs and material classes in the IEC 62474 database

5.1 General

Clause 5 describes the criteria used to determine the DSs, DSGs, and material classes to be included in the IEC 62474 database. Clause 5 also specifies how reporting threshold levels and reportable applications shown in the IEC 62474 database are determined.

IEC National Committees shall use these criteria when submitting change requests for modifying the IEC 62474 database and the VT 62474 shall assess these requests as described in Clause 8.

5.2 DSs and DSGs criteria

The criteria to be used by the VT 62474 for determining inclusion of DSs and DSGs in the IEC 62474 DSL are provided in Table 1. Before applying the criteria, the VT 62474 shall determine if the DSs and/or DSGs may be contained in electrotechnical products and that the reason for inclusion is related to a possible environmental aspect or impact. The process for the VT 62474 to remove or reclassify DSs and DSGs is described in 8.3.

Table 1 – DSs and DSGs criteria

Category	Description
Criteria 1 “currently regulated”	A) A DS or DSG shall be added to the IEC 62474 DSL with a "mandatory” reporting requirement if: 1. it is explicitly included within an existing national law or regulation in an IEC member country; and 2. the law or regulation is applicable to electrotechnical products; and 3. the law or regulation either prohibits or restricts the presence of it in electrotechnical products; or due to its presence within electrotechnical products the law or regulation: – requires reporting or – requires labelling, and 4. the law or regulation cites a specific effective date (which may be in the future) for the requirements under statement 3 above for that DS or DSG. B) Additionally, a DS or DSG shall be considered for addition to the IEC 62474 DSL if it is included within an existing IEC member country sub-national law or regulation that has significant impact on the global market place and meets statements A) 2, A) 3 and A) 4 above. NOTE 1 A sub-national law or regulation is considered to be any existing law or regulation at a level of government below the national level of government. C) A law or regulation that restricts the levels of these DSs or DSGs in leachate (or extract) or emissions from products shall not be used as a basis for including DSs or DSGs in the IEC 62474 DSL with a “mandatory” reporting requirement.
Criteria 2 “for assessment”	A) A DS or DSG shall be considered for addition to the IEC 62474 DSL with a “mandatory” reporting requirement if: 1. the DS or DSG meets all the criteria 1 “currently regulated” requirements in A) 1, 2 and 3 above, except 4 and 2. the law or regulation does not cite a specific effective date for the requirements under criteria 1 statement 3 above for that DS or DSG. B) Additionally, a DS or DSG shall be considered for addition to the IEC 62474 DSL if it is included within an existing IEC Member country sub-national law or regulation that has significant impact on the global market place and meets criteria 2 A) above. NOTE 2 A sub-national law or regulation is considered to be any existing law or regulation at a level of government below the national level of government. C) A law or regulation that restricts the levels of these DSs or DSGs in leachate (or extract) or emissions from products shall not be used as a basis for including DSs or DSGs in the IEC 62474 DSL with a “mandatory” reporting requirement.
Criteria 3 “for information only”	A) A DS or DSG shall be considered for addition to the IEC 62474 DSL with an “optional” reporting requirement if: 1. the DS or DSG is not included under the criteria 1 “currently regulated” or criteria 2 “for assessment”; and 2. there is a recognized industry-wide common market requirement for reporting this DS and DSG in electrotechnical products. When making a decision, the following considerations should be taken into account: – available scientific evidence on adverse environmental impacts, – information on potential environmental benefits, – widely adopted industry agreements or standards, – product design material content requirements, – opportunities to enable circular economy (e.g. end of life impacts, scarcity). NOTE 3 Criteria 3 “for information only” are not intended to provide a competitive advantage or compromise trade secrets.

5.3 Material class criteria

To support environmentally conscious design, the material classes contained in the IEC 62474 database shall be uniquely identified in order to effectively and efficiently describe products from a material perspective.

NOTE 1 IEC 62430 provides additional information on environmentally conscious design.

The material classes shall provide enough product information needed to help determine recyclability, recoverability rates and for life cycle assessment.

NOTE 2 IEC TR 62635 provides guidelines for end-of-life information of electrical and electronic products for recyclability and recoverability rates calculation.

5.4 Reporting threshold levels and reportable applications for DSs and DSGs

For criteria 1 and 2 DSs and DSGs, the reporting threshold value shall be based on the lowest applicable regulatory limit where it exists. Where different limits exist for different reportable applications, multiple reporting thresholds may be established for the different reportable applications. Reporting threshold levels and reportable applications, reporting level, and mass information requirements are specified in the IEC 62474 DSL. If applicable for the DS or DSG entry, substance clarification shall also be specified in the DSL to clarify or elaborate on the scope of the substance(s) included in the entry.

A default reporting threshold of 0,1 % of the product mass should be used for criteria 3 DSs and DSGs. The VT 62474 may select a different value if needed to meet stakeholder requirements.

5.5 Threshold levels for material classes

Material class reporting thresholds are not established for any individual material class.

5.6 Reference substances in the IEC 62474 database

For DSGs listed in the IEC 62474 DSL, the database provides examples of individual substances belonging to those groups designated as “reference” on a separate list named “reference substances”. The reference substances for a DSG are not intended to be an exhaustive list, unless this is otherwise stated in the IEC 62474 RSL.

When reporting individual reference substances, thresholds shall be sufficient to conform to the reporting threshold level for the DSG as specified in the IEC 62474 DSL. However, explicit reporting threshold levels for individual reference substances are not provided in the IEC 62474 DSL.

6 Criteria for exemption lists in the IEC 62474 database

Exemptions listed in the IEC 62474 database shall be organized into exemption lists that are specific to a single law or regulation. Exemptions lists shall consist of one or more exemptions that are specified in the law or regulation.

Each exemption in an exemption list shall specify an identity and a description. The exemption identity and description should be consistent, when possible, with an exemption identifier and description provided in the law or regulation. The VT 62474 shall ensure that exemptions can be clearly and uniquely identified by users of this document, particularly when exemptions are updated by regulators.

The exemptions should specify DSs or DSGs, applications, thresholds, and any other specified conditions for which the DS or DSG is permitted under the applicable regulation.

7 IEC 62474 database data format and exchange

7.1 General

Clause 7 describes the specifics of how material declaration data is required to be formatted and exchanged, to support information transfer through the supply chain. Although hardcopy exchange may be used, this document specifies criteria for the electronic exchange of

material declarations by eXtensible Markup Language (XML). Clause 7 provides instructions to users, but it is mainly focused to provide requirements to software developers. It is not intended to promote a specific software application.

7.2 Data exchange format

The data exchange format shall support the requirements for DSs, DSGs, materials and material classes, as specified in Clause 4. The lists of DSs, DSGs, and material classes as described in Clause 5 are specified in the IEC 62474 database. The IEC 62474 data exchange format shall conform to the requirements of IEC 61360-1 and IEC 61360-2.

Material declaration data shall be in XML and will be formatted using the W3C (World Wide Web Consortium) XML schema as provided in the IEC 62474 database. See 8.1 for the IEC 62474 database update process. This XML schema specifies the data elements (type of data and constraints) and structure (relationship between data) of a material declaration data file. Conforming XML files shall be the primary mechanism for exchanging data between parties in the supply chain. See Annex A for a description of major data exchange elements and examples of data element types in a material declaration.

If there is a discrepancy between the IEC 62474 database and Annex A, the IEC 62474 database shall take precedence.

Software solutions providing material declaration tools conforming to the IEC 62474 standard shall support the IEC 62474 data exchange format as specified by the IEC 62474 XML schema, the developers table, and the requirements specified in Clause 4. The XML schema and the corresponding developer's table may be revised from time to time as specified in Clause 8. When declaring conformity to the IEC 62474 standard, solution providers shall indicate the latest schema database version of the standard that their software supports.

Solution providers may require a transition time to adopt changes to the data exchange format and not all material declarations will be immediately updated to reflect the new format. Therefore, solution providers should support the import of material declarations that are formatted according to previous data exchange formats when possible (this document does not specify the number of previous versions that should be supported, but the solution provider should consider market needs to determine its own transition schedule and backward compatibility). To remain in conformity with IEC 62474, it is recommended that the software solution supports the changes to the data exchange format within 12 to 18 months of its release.

7.3 Data exchange

7.3.1 Two-way and one-way data exchange

The data exchange schema shall support two-way and one-way electronic data exchange. In the two-way scenario, the requester initiates an electronic data request; the responder then replies to the requester with the requested data. In the one-way scenario, the responder initiates the electronic data exchange.

7.3.2 Data exchange specification in the IEC 62474 database

The following requirements are applicable to data exchange specifications included in the IEC 62474 database:

a) The data exchange format in the IEC 62474 database shall support the declaration for compliance, the composition declaration, the material class declaration and other information specified in Clause 4.

b) The IEC 62474 database shall include a table that specifies the data elements, attributes and multiplicities to support material declaration data exchange.

NOTE Users can refer to Annex A for a summary representation of the data exchange specification. For the actual description of mandatory and optional requirements refer to the data exchange format within the IEC 62474 database. If there is a discrepancy between Annex A and the IEC 62474 database, the IEC 62474 database takes precedence.

c) The IEC 62474 database shall include the XML schema required to support the material declaration data exchange format.

7.3.3 Additional data exchange requirements

The data exchange format shall allow for the inclusion of supporting information and a text field for additional freeform comments or information, and shall provide for the attachment of supporting files.

7.3.4 XML file

An IEC 62474 material declaration XML file that conforms to the IEC 62474 standard shall meet the requirements specified in the data exchange format and Clause 4. Given that the data exchange format and the DSL are periodically updated, the material declaration shall declare which version of the data exchange format and which version of the DSL was used to create the material declaration. An XML schema (as defined by W3C XML Schema Part 0,1,2) provides a set of rules to which an XML file shall conform in order to be considered correct or valid.

7.4 Criteria for the IEC 62474 database maintenance of data exchange format

The criteria to be used by the VT 62474 for determining changes to the data format are provided below.

A change to the data format as specified in the IEC 62474 database “developer table” and “XML schema” (including data elements, relationships, and multiplicities) shall be considered if there is an industry-wide purpose for modifying data elements, relationships, multiplicities or schema to meet common stakeholder requirements. Changes shall not conflict with the requirements specified in Clauses 4, 5 and 6. Changes may be based on revised regulatory requirements. The VT 62474 should consider whether or not a change is backward compatible. Changes that preserve compatibility should be implemented whenever possible.

8 IEC 62474 database maintenance

8.1 General

The IEC 62474 database is available at http://std.iec.ch/iec62474 and shall contain:

- DSs and DSGs;
- reference substances;
- material classes;
- XML schema for data exchange format and the accompanying developer table;
- exemptions;
- other useful information identified by the VT 62474.

8.2 IEC 62474 database update process

The IEC 62474 database shall be controlled and maintained according to the procedures for the maintenance of the IEC standards in database format specified in the ISO/IEC Directives, IEC Supplement. The voting requirements are also specified in these procedures. The IEC 62474 database shall be reviewed at least annually and updated as appropriate. National Committees can request the VT 62474 to conduct an out-of-cycle review for an urgent request (e.g. errors in the IEC 62474 database that prevent the exchange of data as intended by this document).

P-members in the IEC Technical Committee 111 may designate persons to the Material Declaration VT 62474. VT 62474 members representing a National Committee (NC) have a single vote regardless of how many members the National Committee designates to the VT 62474. VT 62474 members are expected to have the necessary expertise regarding chemical content in electronic industry products and/or information technology to effectively evaluate the change requests. If the VT 62474 members do not have the appropriate expertise, they shall consult with the appropriate experts to evaluate the technical aspects of the change requests.

NOTE A P-member is a full member of the NC who has access to all technical and managerial activities and functions, at all levels of the IEC, including voting rights in Council.

A change request form is used in order to provide the VT 62474 with sufficient information to make its determinations. The IEC 62474 database update process is included in the IEC 62474 database.

8.3 Reclassification and removal of DSs and DSGs from the IEC 62474 DSL

The VT 62474 is responsible for developing the screening methodology for DS and/or DSG applicability to electrotechnical products.

A criteria 2 “for assessment” DS or DSG shall be reclassified as criteria 1 “currently regulated” once the effective date of a regulatory requirement is specified.

A criteria 3 “for information only” DS or DSG shall be reclassified as criteria 1 or criteria 2 if one of those criteria becomes applicable.

If a DS or DSG is included in the IEC 62474 DSL under criteria 1 or 2, and the applicable law or regulation is withdrawn, the VT 62474 shall remove listing according to criteria 1 or 2 and shall consider if criteria 3 applies. If criteria 3 does not apply, such DS or DSG shall be removed from the IEC 62474 DSL.

If a DS or DSG is included in the IEC 62474 DSL under criteria 3, and the recognized industry-wide common market requirement is no longer applicable, such DS or DSG shall be removed from the IEC 62474 DSL.

8.4 Maintenance of exemption lists in the IEC 62474 database

The VT 62474 shall develop a process to maintain the exemption lists that are listed on the IEC 62474 database to reflect any changes in the applicable law or regulation.

The VT 62474 shall evaluate change requests for addition, deletion and modifications to exemption lists in the IEC 62474 database.

A change request to update an exemption list within the IEC 62474 database is expected to be entered and considered after notice that a law or regulation is modified or removed. The change request shall be approved if the exemption(s) specified in the exemption list are:

- explicitly included within an existing law or regulation that meets criteria 1 or 2 as specified in 5.2,
- relevant to DSs or DSGs that are already listed in the IEC 62474 database or are being concurrently reviewed for listing in the IEC 62474 database, and
- relevant to electrotechnical products.

8.5 Maintenance of data exchange format

The VT 62474 is responsible for developing a methodology to consider requests for changes to the data exchange format. Change requests involving the data exchange information and format shall be handled according to the expedited or standard process as described below.

a) Expedited processing

Change requests intended to solve critical problems or limitations in the data exchange shall be processed through the change request system as soon as they are entered into the system rather than waiting for the next scheduled update.

b) Standard processing

Change requests suggesting improvement of the data exchange model and format and that are in line with the intended function of the data exchange shall be considered by the VT 62474 for compilation and consideration for future upgrades.

Annex A
(informative)

Simplified representation of data exchange format

Table A.1 describes what mandatory, optional and conditional data elements may be in material declarations at the time of publication of this document. It should be noted that data exchange requirements may change and that the official requirements are those included in the IEC 62474 database as maintained by the VT 62474.

NOTE Conditional could become mandatory such as, mass becoming mandatory when mass percent is not provided in a composition declaration or a requester requires certain information.

The data elements in Table A.1 represent a simplified view of the data fields in the XML schema. This provides a useful overview for the declaration user. For implementation or development purposes, refer to the IEC 62474 database, which contains the full description of mandatory and optional requirements (e.g. data fields and XML schema).

Data elements are grouped into categories that correspond to the boxes in the conceptual diagrams (Figures 4 and 5), with the addition of business information (4.2). The description provided for each category in Table A.1 indicates whether or not the declaration of the category is mandatory (included in the declaration) or optional. For example, at the time of publication of this document, 'Business information' and 'Product' are categories required to be declared in a completed material declaration. The declaration of product parts, material classes and materials is usually optional.

For each category that is present in a completed materials declaration, the "Obligation" column in Table A.1 indicates which data elements are mandatory (data provided in the category declaration), which data elements are optional and which data elements are conditional. Note that some data elements are conditional based on reporting requirements and on information provided in other data elements. For example, generally only one of the data elements mass or mass percent needs to be completed.

The following additional notes apply to Table A.1:

- Each data element type contains one or more pieces of data. For example, the data element "SupplyCompany" contains multiple data such as company name, company address and company ID.
- Links between objects are defined in the conceptual diagrams (see Figures 4 and 5) and are not included as data elements in Table A.1.
- When "homogeneous material" is used in this document, it is referring to the definition within the EU RoHS Directive (EC) No. 2011/65, Article 3 20.

In a completed material declaration, the data elements are organized in a hierarchy containing the data of the actual declaration. The top level of the declaration includes "BusinessInfo", "Product" (referred to as product or product family in Table A.1), and "DatabaseVersion", the version of the IEC 62474 database on which the XML schema is based.

Table A.1 – Data element types of a material declaration

Category	Data element type		Obligation	Description
Main (top level object to be included in every material declaration)	schemaDatabaseVersion		Mandatory	Version of the IEC database which contains the XML schema on which the declaration is based.
	ToolNameVersionID		Optional	Unique tool name and its version number used for material declaration data exchange compliant with IEC 62474 requirements.
	Signature		Optional	Digital signature.
	Include		Mandatory	Contents of the declaration Declaration for compliance, composition declaration, declaration for compliance and composition declaration, material class, lists, etc.
	declarationComplete		Optional	Status declaration indicating the XML data file is complete or is in process of file-creation.
	charaLocal		Conditional	The language character set as defined by ISO 639-1:2002 specifies the local language that is used in the elements with postfix "Local" (for example, 'nameLocal').
	BusinessInfo		Mandatory	Company information and company contact information.
	Product		Mandatory	Product being declared.
Business information (this category is mandatory in every material declaration)	Response	SupplyCompany	Mandatory	Name, identifier and address of the supplier company.
		Contact	Mandatory	Name, title, phone, email of the supplier contact person.
		Authorizer	Mandatory	Name, title, phone, email of the supplier person authorizing the accuracy of this material declaration.
		date	Mandatory	Date the response is returned to the requester by the responder in response/responder mode or the date the distributed form is completed in distribution mode.
		docID	Optional	Identification code for declaration. In requester/responder mode, the responder defines the identification code. In distribution mode, the declaring company defines the identification code.
		comment	Optional	Comment field for any additional information regarding the supplier.
	Request	RequestCompany	Mandatory	Name, identifier and address of the supplier company.
		Contact	Mandatory	Name, title, phone, email of the supplier contact person.
		date	Mandatory	Date the request is made by the requesting company.
		docID	Optional	Identification code for the request as specified by the requester.
		internalSupplierID	Optional	Identifier for the responder assigned by the requester.
		comment	Optional	Comment field for any additional information corresponding to the requester.

Category	Data element type		Obligation	Description
		respondByDate	Optional	Date when the responder is expected to respond to the request.
		RequestContent	Optional	Contents of the requests. Declaration for compliance, composition declaration, declaration for compliance and composition declaration, material class, lists, etc.
	Attachment		Optional	Supplementary file added to the declaration, requester response. It should be embedded in the XML file.
	mode		Mandatory	An indicator that conveys whether the declaration is a requester/responder mode or a distribution mode.
Product (this category is mandatory in every material declaration)	ProductID	name	Optional	Product name used by the supplier.
		identifier	Mandatory	An identifier (list authority, list identity and list version) for the product defined by the supplier.
		manufacturingSite	Optional	Manufacturing site of the product.
		effectiveDate	Mandatory	Date that the material declaration is applicable and valid.
		version	Optional	Product version (if applicable).
		requesterName	Optional	Product name used by the requesting company.
		requesterIdentifier	Optional	An identifier (list authority, list identity and list version) for the product defined by the requester.
		Mass	Mandatory	The total mass of the product and its unit of measure for the mass.
		InstanceID	Optional	Identification of a specific product instance or a range of instances that are applicable to this declaration.
	productFamilyName		Optional	Name of product family being declared.
	QueryList		Optional	A query list provides the ability to declare true/false responses to statements that may be specified by either the requester or responder.
	unitType		Mandatory	A unit type describes the units used to measure a product or product family. (e.g. each, g, kg, cm^2, m^2, cm^3, m^3, cm, m, l).
	comment		Optional	Comment field for any additional information regarding the product.
	Exemptions		Conditional	Exemptions being declared at the product level.
	Attachment		Optional	Supplementary file added to the product. It should be embedded in the XML file.
	Compliance		Conditional	Contents of declaration for compliance.
	Composition		Conditional	Contents of composition declaration.
	MaterialClassDeclaration		Optional	Contents of material class.
	isArticle		Conditional	'article flag' for product regarded as article.
Compliance	DeclarableSubstanceList		Mandatory	An identifier (list authority, list identity

Category	Data element type		Obligation	Description
				and list version) of a compliance substance list for the declaration for compliance.
	Declarable Substance or Declarable Substance Group	name	Mandatory	The name of the DS or DSG.
		UniqueID	Conditional	The unique ID (list authority, list identity and list version) of the DS or DSG.
		Mass	Conditional	Mass of the DS or DSG substance within a product, product part or material.
		MassPercent	Conditional	Percentage mass of the DS or DSG substance within a product, product part or material
		MatMassPercent	Conditional	DS or DSG substance concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
		Threshold	Mandatory	The threshold is determined by the reportable application for any particular DS or DSG. If the DS or DSG is at or above the threshold of the reportable application, the response would be “True”. If the DS or DSG is at or below the threshold, the response would be “False”.
		Exemptions	Conditional	Exemptions applicable to a DS or DSG substance and identifier of the exemption list.
		comment	Optional	Comment field for any additional information regarding the DS or DSG.
		descriptionOfUse	Optional	Location information where the substance is used in the product. It can be a product, product part(s) or material(s).
Composition	DeclarableSubstanceList		Mandatory	An identifier (list authority, list identity and list version) for the reference declarable substance list in the composition declaration. (Only if present).
	ProductPart		Conditional	Sub-unit of a product or another (product) part. A product part can be decomposed into other product parts.
	Material		Conditional	Material and its properties which is being reported for the product family, product, or product part.
	Substance	name	Mandatory	The name of the substance.
		UniqueID	Conditional	Name of the declarable substance corresponding to the DSL defined as SubstanceList.
		Mass	Conditional	The unique identifier (list authority, list identity and list version) of the substance.
		MassPercent	Conditional	The mass of the substance within a product, product part or material and its unit of measure for the mass.
		MatMassPercent	Conditional	The mass percent of the mass.

Category	Data element type		Obligation	Description
		reportingThreshold	Optional	Substance concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
		Exemptions	Conditional	Concentration limit at or above which the presence of a DS or DSG substance in a material or product is declared.
		comment	Optional	Exemptions applicable to the declared substance and identifier of the exemption list.
		descriptionOfUse	Optional	Comment field for any additional information regarding the substance.
MaterialClassDeclaration (this category is optional in every material declaration)	MaterialClassList		Mandatory	An identifier (list authority, list identity and list version) for the material class list.
	MaterialClass	name	Mandatory	Name of the material class.
		id	Mandatory	A unique identifier (list authority, list identity and list version) of the material class.
		MassPercent	Conditional	The nominal mass percent of the material class relative to the product.
		Mass	Conditional	The mass of the material class and its unit of measure.
		comment	Optional	Comment field for any additional information regarding the material class.
ProductPart (this category is conditional)	ProductID	name	Optional	The name of the product part.
		identifier	Optional	The identifier of the product part.
		manufacturingSite	Optional	Manufacturing site of the product part.
		effectiveDate	Conditional	Date that the material declaration is applicable and valid.
		version	Optional	Product part version (if applicable).
		requesterName	Optional	Product part name used by the requesting company.
		requesterIdentifier	Optional	Product part identifier used by the requesting company.
		Mass	Conditional	The mass of the product part and its unit of measure for the mass.
		MassPercent	Conditional	The mass percent of the product part to the product.
		InstanceID	Optional	Identification of a specific product instance or a range of instances that are applicable to this declaration.
	numberOfUnits		Mandatory	Number of identical instances of a product part in a declared product.
	comment		Optional	Comment field for any additional information regarding the product part.
	Material		Conditional	Material and its properties which are being reported for the product family, product, or product part.
	isArticle		Conditional	'article flag' for product part regarded as article.

Category	Data element type	Obligation	Description
Material (this category is conditional)	name	Mandatory	Name of the material within the product or product part.
	UniqueID	Optional	A unique identifier (list authority, list identity and list version) of the material.
	MassPercent	Conditional	The nominal mass percent of the material relative to the product or product part.
	Mass	Conditional	The mass of the material and its unit of measure.
	MaterialClassDeclaration	Optional	The name, list authority, list identity, list version, use of the material class with which the material is classified. The material class shall correspond to the MaterialClassList included under Composition class.
	comment	Optional	Comment field for any additional information regarding the material.
	isArticle	Conditional	'article flag' for material regarded as article
	Substance	Conditional	Substance information as defined in the IEC 62474 database.
NOTE 1 Table A.1 is for informational purposes only and indicates the data structure at the time the second edition of this document was developed. For more detailed and up to date information, refer to the database. NOTE 2 The data element types 'Mass' and 'Mass Percent' in Table A.1 include optional data fields for the responder to specify the tolerance in the mass or mass percent. Positive tolerance and negative tolerance could be individually specified.			

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2 Withdrawn.

3 Withdrawn.

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SOMMAIRE

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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DÉCLARATION DE MATIÈRES POUR DES PRODUITS DE ET POUR L'INDUSTRIE ÉLECTROTECHNIQUE

AVANT-PROPOS

1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
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6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
7) Aucune responsabilité ne doit être imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou au crédit qui lui est accordé.
8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La Norme internationale IEC 62474 a été établie par le comité d'études 111 de l'IEC: Normalisation environnementale pour les produits et les systèmes électriques et électroniques.

Cette deuxième édition annule et remplace la première édition parue en 2012. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) Les possibilités des classes de matières et listes d'exemptions ont été améliorées.
b) L'introduction et le domaine d'application comportent de nouveaux schémas et de nouvelles informations permettant de donner un meilleur aperçu de la norme et d'identifier les informations obligatoires, facultatives ou obligatoires sous conditions.
c) Des définitions ont été ajoutées. Des exigences minimales devant être conformes à la norme IEC 62474 sont définies. Elles comprennent le format XML, considéré comme le

format officiellement reconnu. En définissant une autorité, un identifiant et une version de liste, le format de la norme peut être utilisé pour des listes autres que celles de la base de données de l'IEC 62474.

d) Le document a été amélioré dans un souci d'homogénéisation des termes utilisés. Par exemple, la "base de données de l'IEC 62474" était référencée de différentes manières telles que "base de données de l'IEC 62474", "IEC 62474", "Base de données de l'IEC 62474", "BD IEC 62474".

e) Les annexes ont été supprimées car elles sont contenues dans des documents gérés par l'équipe de validation 62474 (VT 62474). L'Annexe A (Annexe B de l'édition précédente) est destinée aux utilisateurs non XML, comme référence seulement.

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
111/498/FDIS	111/503/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 62474, publiées sous le titre général *Déclaration de matières pour des produits de et pour l'industrie électrotechnique*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "http://webstore.iec.ch" dans les données relatives au document recherché. A cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

IMPORTANT – Le logo *"colour inside"* qui se trouve sur la page de couverture de cette publication indique qu'elle contient des couleurs qui sont considérées comme utiles à une bonne compréhension de son contenu. Les utilisateurs devraient, par conséquent, imprimer cette publication en utilisant une imprimante couleur.

INTRODUCTION

Le présent document apporte à l'industrie électrotechnique des avantages certains, en établissant les exigences de compte-rendu des données de déclaration de matières, en normalisant les protocoles et en facilitant le transfert et le traitement de données. Les déclarations de matières sont utilisées par l'industrie électrotechnique pour assurer le suivi et publier les informations spécifiques au produit en matière de conformité et/ou d'écoconception. Pour simplifier les exigences applicables à la chaîne logistique d'approvisionnement et améliorer l'efficacité économique du processus, il est important de normaliser l'échange des données concernant des produits, des parties de produits, des matières et des substances, et de préciser les exigences dans les déclarations de matières.

L'IEC 62474 est constitué de deux parties: le présent document, qui comprend les exigences en matière de déclarations de matières, et une base de données comprenant des informations telles qu'une liste des substances déclarables (DSL), une liste des exemptions et le format d'échange de données (voir l'Article 8).

Le présent document définit les deux types les plus courants de déclarations de matières et leurs exigences:

1) La déclaration pour conformité – se situe toujours au niveau du produit en référence à la liste de substances déclarables et de groupes de substances déclarables dans la liste de substances déclarables (DSL) de l'IEC 62474.
2) La déclaration de composition – est bien plus détaillée au niveau de la déclaration de la partie de produit et des substances individuelles contenues dans la DSL de l'IEC 62474.

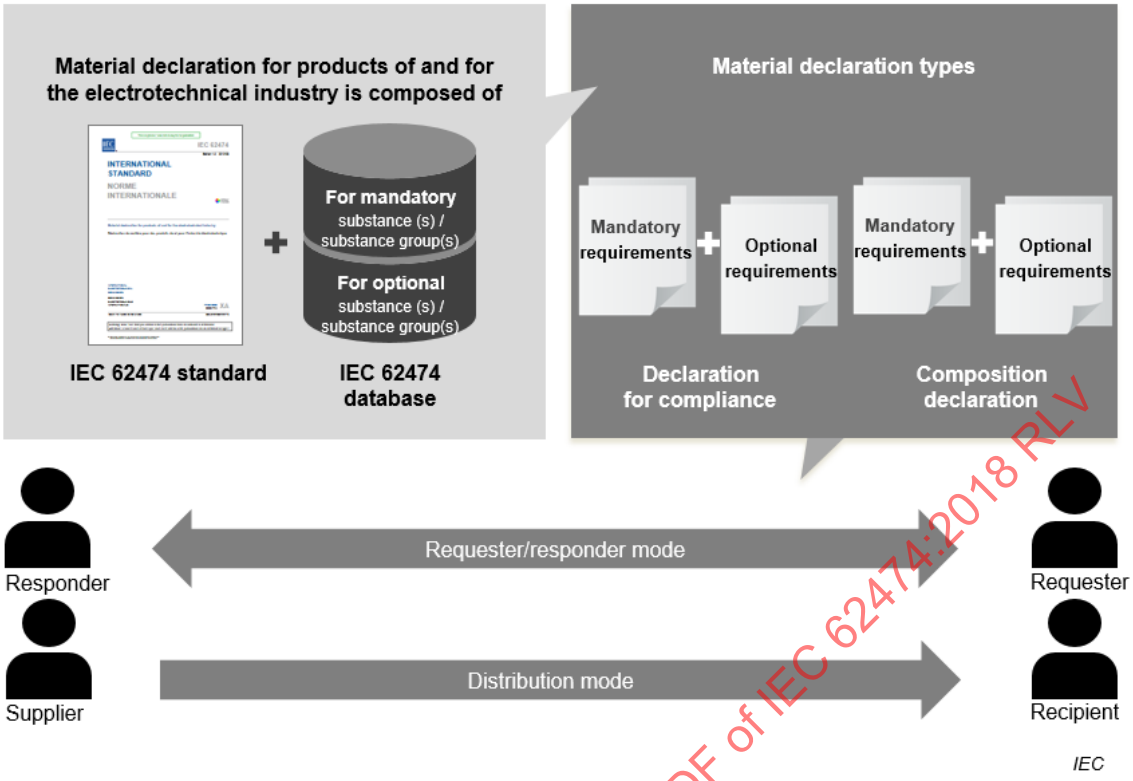
La base de données de l'IEC 62474 est tenue à jour par l'équipe de validation VT 62474 (VT – *validation team*) qui met à jour les informations de la base de données de l'IEC 62474 selon les exigences spécifiées dans la norme IEC 62474 (voir l'Article 8).

En suivant les exigences de la norme IEC 62474, et selon les informations de la base de données de l'IEC 62474, deux types de déclarations peuvent être créés comme représenté à la Figure 1 ci-après.

- une déclaration pour conformité qui comprend les informations exigées pour déterminer la conformité du produit eu égard à la réglementation des substances et aux besoins du marché (voir 4.4);
- une déclaration de composition qui comprend les informations exigées pour l'évaluation des substances déclarables au-dessus du seuil de déclaration et leur localisation dans le produit (voir 4.5).

Les informations peuvent être transmises dans la chaîne logistique d'approvisionnement selon deux modes différents:

- Mode diffusion: Le fournisseur fournit des données de déclaration de matières relatives à son ou ses produits à un destinataire.
- Mode demandeur/déclarant: Le demandeur détermine le type de déclaration(s) de matière que le déclarant fournit.



Anglais	Français
Material declaration for products of and for the electrotechnical industry is composed of	La déclaration de matières pour des produits de et pour l'industrie électrotechnique est composée de
IEC 62474 standard	Norme IEC 62474
For mandatory substance(s)/substance group(s)	Pour le(s) substance(s)/groupe(s) de substances obligatoire(s)
For optional substance(s)/substance group(s)	Pour le(s) substance(s)/groupe(s) de substances facultative(s)
IEC 62474 database	Base de données de l'IEC 62474
Material declaration types	Types de déclarations de matières
Mandatory requirements	Exigences obligatoires
Declaration for compliance	Déclaration pour conformité
Optional requirements	Exigences facultatives
Composition declaration	Déclaration de composition
Responder	Déclarant
Supplier	Fournisseur
Distribution mode	Mode diffusion
Requester/responder mode	Mode demandeur/déclarant
Requester	Demandeur
Recipient	Destinataire

Figure 1 – Principes de l'IEC 62474

Les principes de l'IEC 62474 sont établis dans les articles suivants:

- L'Article 4 spécifie les exigences applicables aux déclarations de matières.
- L'Article 5 spécifie les critères et les seuils pour les substances déclarables (DS), les groupes de substances déclarables (DSG) et les classes de matières dans la base de données de l'IEC 62474.

- L'Article 6 spécifie les critères pour les listes d'exemptions dans la base de données de l'IEC 62474.
- L'Article 7 spécifie les exigences de format et d'échange de données de la base de données de l'IEC 62474, des informations supplémentaires sont disponibles à l'Annexe A (informative).
- L'Article 8 spécifie le processus de maintenance de la base de données de l'IEC 62474.

DÉCLARATION DE MATIÈRES POUR DES PRODUITS DE ET POUR L'INDUSTRIE ÉLECTROTECHNIQUE

1 Domaine d'application

Le présent document décrit la procédure, le contenu et la forme des déclarations de matières pour les produits et les accessoires des organisations et des fournisseurs de l'industrie électrotechnique. Les processus chimiques, les émissions lors de l'utilisation du produit et les matières de conditionnement du produit ne relèvent pas du domaine d'application du présent document.

Le principal objectif du présent document est de fournir en amont et en aval de la chaîne logistique d'approvisionnement des données qui:

- permettent aux organisations d'évaluer des produits au vu des exigences de conformité des substances,
- peuvent être utilisées par les organisations dans le cadre de leur processus d'écoconception et dans toutes les phases du cycle de vie du produit.

Le présent document spécifie les exigences obligatoires et facultatives applicables aux déclarations de matières.

Le présent document ne propose aucune méthode ou aucun processus spécifique concernant la collecte des données des déclarations de matières dans la chaîne logistique d'approvisionnement. Il fournit toutefois un format de données utilisé pour communiquer les informations au sein de la chaîne logistique d'approvisionnement. Les organisations ont l'entière liberté de déterminer la méthode la plus appropriée de collecte des données des déclarations de matières pourvu que l'utilité et la qualité des données ne soient pas compromises. Il est prévu que le présent document permette l'élaboration de rapports fondés sur un jugement technique, des déclarations de matières de fournisseurs, et/ou des prélèvements et des essais.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 61360-1, *Types normalisés d'éléments de données avec plan de classification – Partie 1: Définitions – Principes et méthodes*

IEC 61360-2, *Types normalisés d'éléments de données avec plan de classification pour composants électriques – Partie 2: Schéma d'un dictionnaire EXPRESS*

ISO/IEC Directives, IEC Supplement, *Procedures specific to IEC* (disponible en anglais seulement)

3 Termes et définitions

Pour les besoins du présent document, les termes et définitions suivants s'appliquent.

L'ISO et l'IEC tiennent à jour des bases de données terminologiques destinées à être utilisées en normalisation, consultables aux adresses suivantes:

- IEC Electropedia: disponible à l'adresse http://www.electropedia.org/
- ISO Online browsing platform: disponible à l'adresse http://www.iso.org/obp

3.1
article
objet dont la fonction est déterminée dans une plus grande mesure par sa forme, sa surface ou sa conception particulière, que par sa composition chimique

[SOURCE: RÈGLEMENT REACH UE (CE) No 1907/2006, Article 3]

3.2
déclaration de composition
déclaration quantitative des substances contenues dans un produit, dans une partie de produit ou dans une matière selon le cas

3.3
format d'échange de données
types de données et attributs spécifiés dans un schéma XML et dans un tableau pour développeur afin de prendre en charge l'échange de déclaration de matières

3.4
déclaration pour conformité
déclaration concernant la présence ou l'absence de substances déclarables et de groupes de substances déclarables avec exigence de déclaration obligatoire dans la liste des substances déclarables de l'IEC 62474 par rapport à un niveau de seuil de déclaration pour une application à déclarer définie

3.5
substance déclarable
DS
substance qui satisfait aux critères de déclaration spécifiés

Note 1 à l'article: Les critères relatifs aux substances déclarables dans la DSL de l'IEC 62474 sont spécifiés à l'Article 5.

Note 2 à l'article: L'abréviation "DS" est dérivée du terme anglais développé correspondant "declarable substance".

3.6
groupe de substances déclarables
DSG
groupe de substances qui satisfait aux critères de déclaration spécifiés

EXEMPLE Composés d'oxyde de chrome.

Note 1 à l'article: Les critères relatifs aux groupes de substances déclarables dans la DSL de l'IEC 62474 sont spécifiés à l'Article 5.

Note 2 à l'article: L'abréviation "DSG" est dérivée du terme anglais développé correspondant "declarable substance group".

3.7
substances(s) de DSG
substance(s) appartenant à un groupe de substances déclarables

3.8
liste de substances déclarables
DSL
liste des substances déclarables et/ou des groupes de substances déclarables, avec leur niveau de seuil de déclaration pour une ou des applications à déclarer, dont l'exigence de déclaration est obligatoire ou facultative s'ils atteignent ou dépassent leur niveau maximal de seuil de déclaration dans un produit, une partie de produit ou une matière

Note 1 à l'article: L'abréviation "DSL" est dérivée du terme anglais développé correspondant "declarable substance list".

3.9
hiérarchie de déclaration
structure arborescente contenant une ou plusieurs branches représentant les relations entre le produit, les parties de produit, les matières et/ou les substances dans une déclaration de matières

Note 1 à l'article: La Figure 5 représente une hiérarchie de déclaration dans une branche.

3.10
exemption
permission d'utilisation des substances déclarables ou des groupes de substances déclarables réglementées ayant dépassé leur(s) niveau(x) de seuil de déclaration tel que défini dans les législations ou réglementations

3.11
autorité de liste
propriétaire désigné d'une liste

Note 1 à l'article: L'autorité de liste est utilisée conjointement avec l'identifiant de liste et la version de liste.

3.12
identifiant d'entrée de liste
paramètre utilisé pour identifier une entrée spécifique dans une liste définie

Note 1 à l'article: L'identifiant d'entrée de la DSL de l'IEC 62474 est utilisé pour identifier une substance déclarable ou un groupe de substances déclarables spécifique dans leur liste respective.

3.13
identifiant de liste
paramètre utilisé pour identifier une liste spécifique

Note 1 à l'article: L'identifiant de liste est utilisé conjointement avec l'autorité de liste et la version de liste.

3.14
version de liste
paramètre utilisé pour identifier une version spécifique de liste

Note 1 à l'article: La version de liste est utilisée conjointement avec l'autorité de liste et l'identifiant de liste.

3.15
matière
substance ou mélange de substances dans un produit ou partie de produit

3.16
classe de matières
classification définie de matières qui sont établies dans la base de données de l'IEC 62474 référencée afin de répertorier un produit donné de sorte que la même matière ne peut être incluse que dans une seule classe

Note 1 à l'article: Si une matière relève de plusieurs classes de matières, comme l'alliage de cuivre et de zinc qui peut relever du cuivre et de ses alliages ou du zinc et de ses alliages, il convient que la substance ayant la masse la plus grande dans la matière prévale.

3.17
déclaration de matières
déclaration de certaines substances et/ou groupes de substances contenues dans un produit, une partie de produit ou une matière selon le cas

Note 1 à l'article: La déclaration peut être une déclaration de composition dans laquelle la quantité de la substance ou du groupe de substances déclaré est fournie ou une déclaration pour conformité dans laquelle seule la présence ou l'absence de la substance ou du groupe de substances déclaré est fournie.

3.18
mélange
composite ou solution constitué(e) de deux ou plusieurs substances qui ne réagissent pas en son sein

Note 1 à l'article: Un alliage est traité comme un mélange.

3.19
produit
tout bien ou service

Note 1 à l'article: Cette définition générale du terme produit se limite, dans le contexte du présent document, à tout produit de la catégorie produit "matériel", conformément à la définition 3.7.6 de l'ISO 9000:2015 et au sens qui lui est donné dans l'industrie de l'électrotechnique et de l'électronique (E&E).

Note 2 à l'article: Cette définition générale d'un produit utilisée à l'Article 4 spécifie tout bien ou service du déclarant.

3.20
famille de produits
groupe de produits, chacun d'entre eux contenant les mêmes substances ou matières à un niveau de concentration similaire

Note 1 à l'article: Un exemple classique serait un fournisseur de composants électriques ayant de nombreux produits de même teneur en substances et de valeurs électriques différentes, tels qu'un condensateur, une résistance, une bobine d'induction ou un circuit intégré.

3.21
partie de produit
sous-ensemble d'un produit

Note 1 à l'article: Une partie de produit peut être un sous-ensemble d'une autre partie de produit.

Note 2 à l'article: Si une partie de produit normalisée, par exemple un câble d'un mètre de longueur, est déclarée comme une partie de produit, seules des portions dudit câble pourraient être physiquement présentes dans le produit.

3.22
substance de référence
entrée d'une substance individuelle dans la liste de substances de référence

3.23
liste de substances de référence
RSL
liste de substances appartenant à des groupes de substances déclarables de la liste des substances déclarables

Note 1 à l'article: La liste des substances dans la RSL pour un DSG peut ou peut ne pas être complète ou exhaustive.

Note 2 à l'article: L'abréviation "RSL" est dérivée du terme anglais développé correspondant "reference substance list".