

INTERNATIONAL STANDARD



Material declaration for products of and for the electrotechnical industry



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INTERNATIONAL STANDARD



Material declaration for products of and for the electrotechnical industry

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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AND FOR THE ELECTROTECHNICAL INDUSTRY****FOREWORD**

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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

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- withdrawn,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

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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.

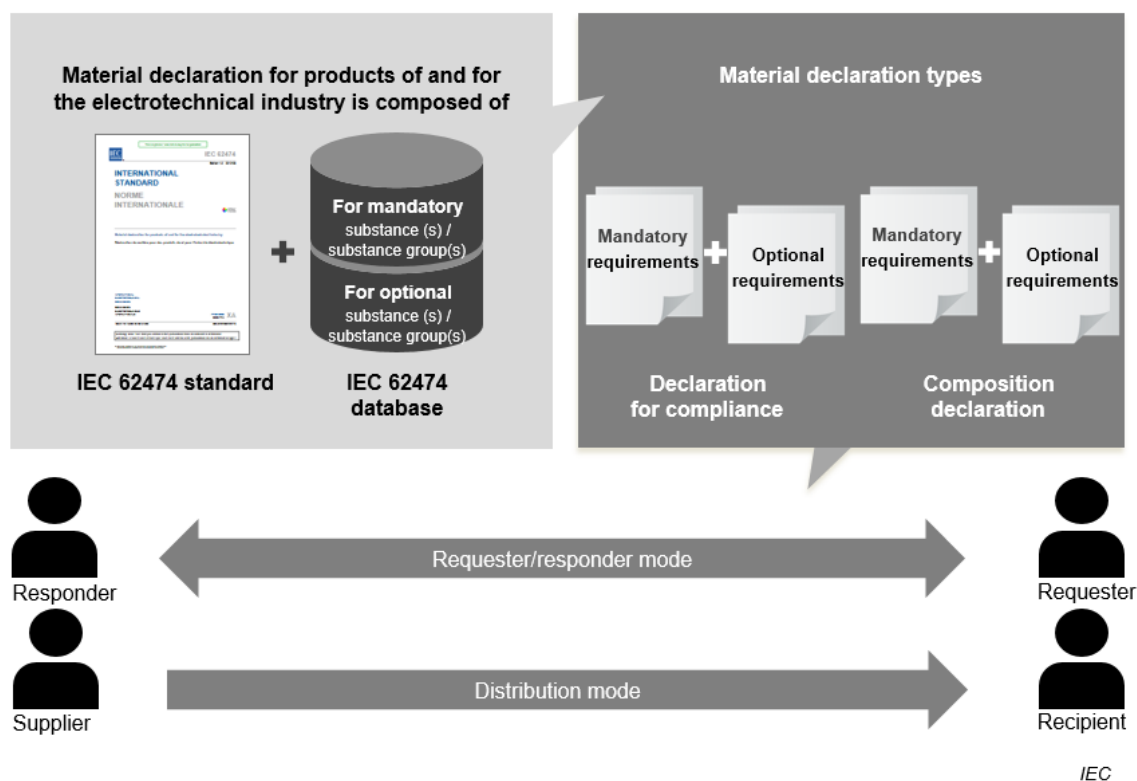


Figure 1 – IEC 62474 principles

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.

~~3.13~~ 3.15

material

substance or mixture of substances within a product or product part

~~3.23~~ 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.

~~3.33~~ 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.

~~3.43~~ 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. 3.4.22015~~, 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.

~~3.53~~ 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.

3.63.21**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.

3.73.22**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.

3.83.24**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.

3.93.25**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.

3.103.28**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~~ **Documents**



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):20032017, Chapter 1.2, Definitions and Abbreviations]

3.113.29

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

3.123.30

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.~~

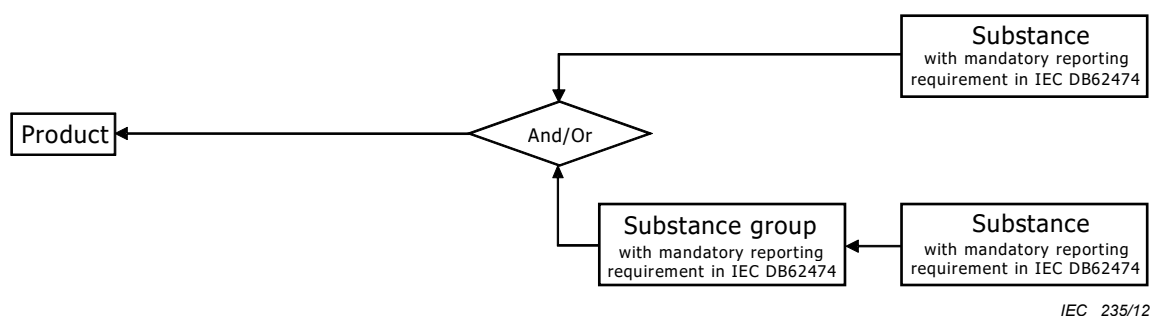
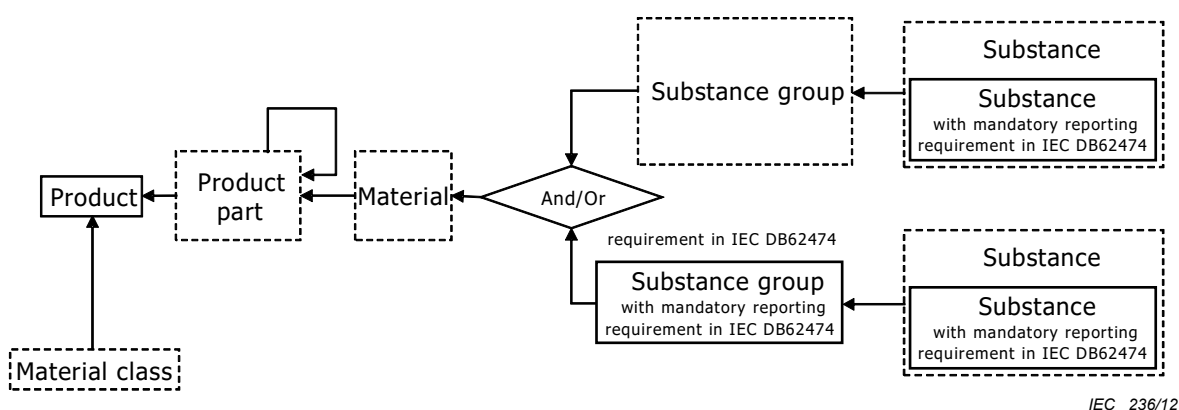


Figure 1 – Conceptual diagram for base requirements



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.

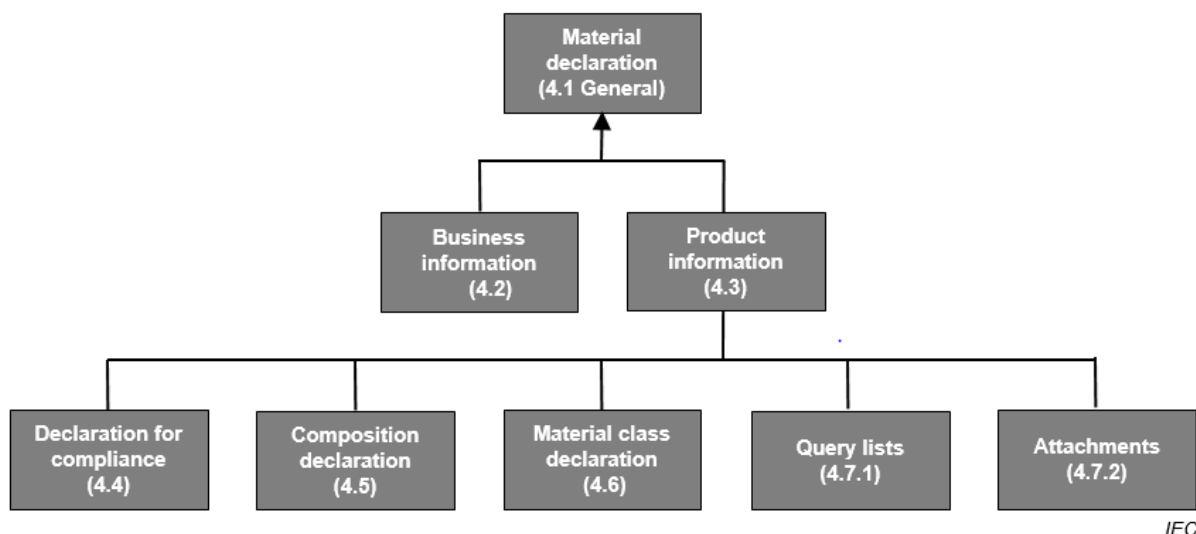


Figure 2 – Material declaration capabilities

- 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.

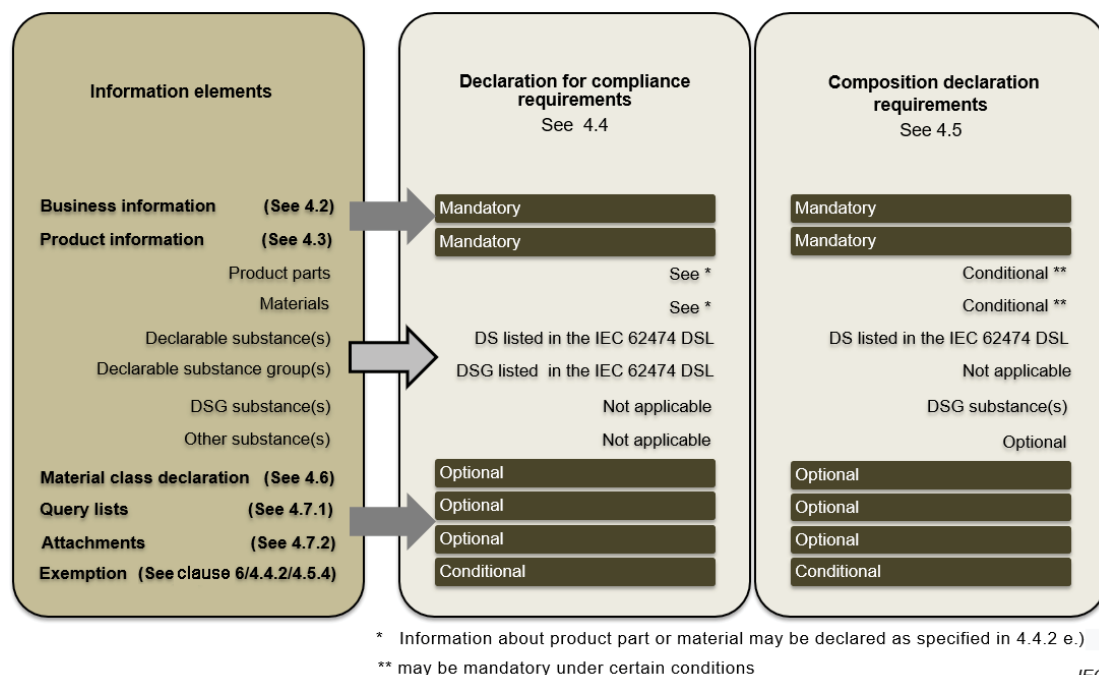


Figure 3 – Material declaration structure

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.

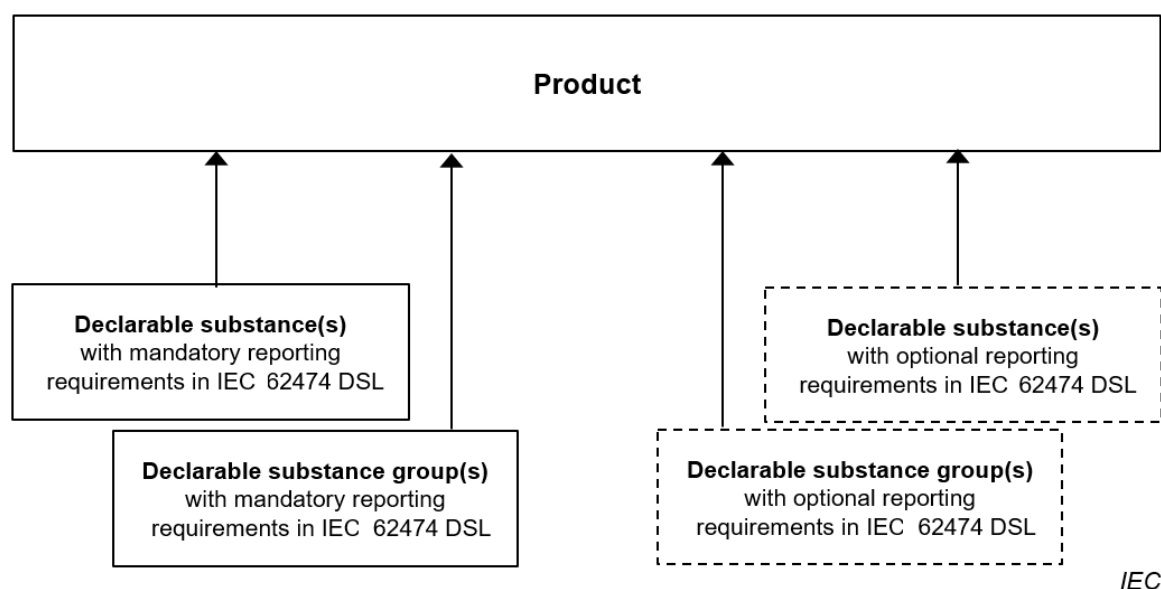
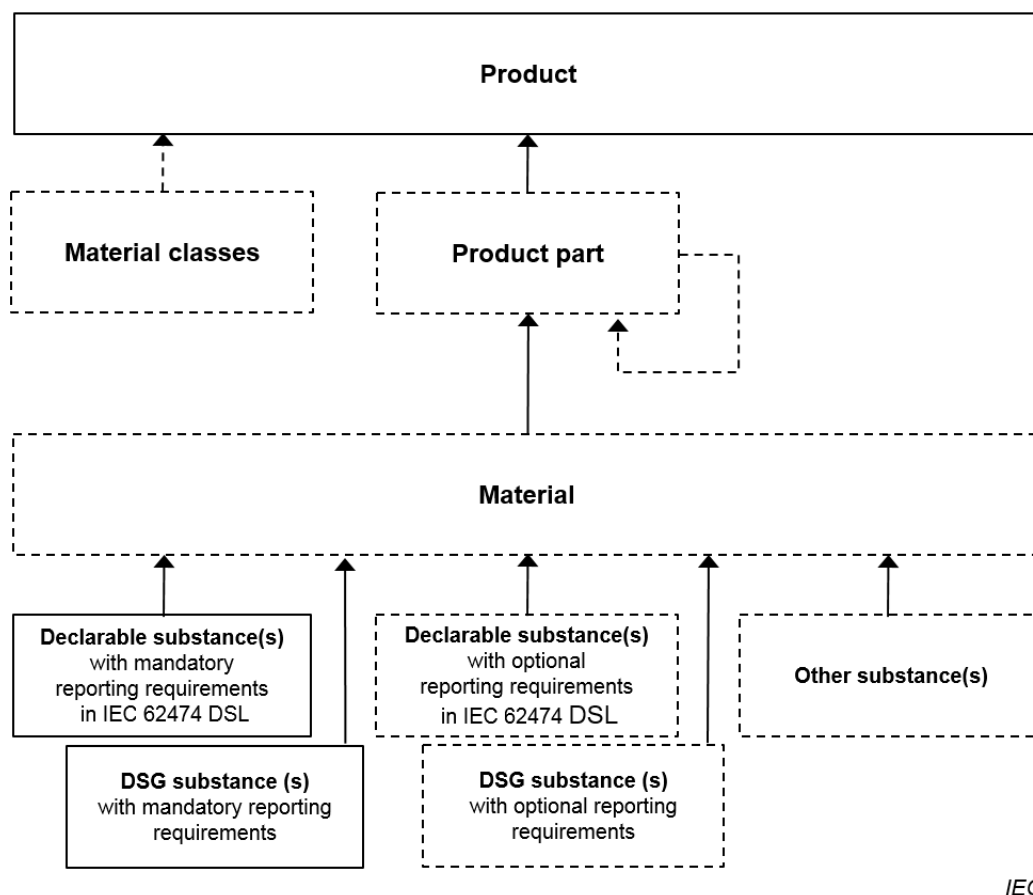


Figure 4 – Data model for a declaration for compliance

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).



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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 43 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 ~~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

6.3.17.3.1 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.

6.3.27.3.2 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.

6.3.37.3.3 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.

6.3.47.3.4 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.

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.

~~7.4~~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.

7.28.3 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.

7.38.5 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 %	Mass ^d g	Material mass ^d %
Active part	-	6-50	Ceramics	-	100	-	-	-	-	Mn ₂ O ₄	64
						-	-	-	-	NiO	17
						-	-	-	-	Co ₂ O ₄	15
Termination	-	73-50	Metal/ Plating Glass	-	0-65	-	-	-	-	Ag	100
						-	-	-	-	SiO ₂	90
						Lead/Lead Compounds	-	-	9-3	RoHS exemption 6 lead in glass of electronic components	10
Encapsulation		20-100	Metal/sol- der	-	1-36	Lead/Lead Compounds	-	-	97-0	RoHS exemption 7a Lead in high melting temperature type solders	97
			Metal/ Leads	-	97-96		-	-			4
Encapsulation		20-100	Organic Polymer		100		-	-			4

^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 e) 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	Material Mass ^c %
Body	372,6	-		-	-		-	-	-	-	-	-	-
Stop/selection button	2,1	-		-	-		-	-	-	-	-	-	-
Base pan	210	-		-	-		-	-	-	-	-	-	-
Top cover plate	466	-		-	-	nickel	45-	-	-	-	nickel	45	-
Heat-shield	83,5	-		-	-		-	-	-	-	-	-	-
Power cord	82	-		-	-	shortchain chlorinated paraffins (C10—C13) phthalates	4	-	-	-			-
Spring	46	-		-	-		-	-	-	-	Di(2-ethylhexyl) phthalate (DEHP)	7	-
Heating tube	24	-		-	-		-	-	-	-	-	-	-
Heating tube fixing	45	-		-	-		-	-	-	-	-	-	-
Body (internal part)	534,5	-		-	-		-	-	-	-	-	-	-
Printed Circuit Board	48,6	-		-	-	beryllium/beryllium compounds lead/lead Compounds	2	-	-	-	-	-	-
									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- titanate		75		
												Bismuth titanium-oxide		11		
												Silver		3		
												Palladium		1		
												Gold		2		
												Nickel		3		
												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.