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Responsible committee: GEL/111 Electrotechnical environment committee

Interested committees:

Title: BS EN IEC 82474-1 Material declaration – Part 1: General requirements

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

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- iii) requires additional national guidance or information

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



111/706/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 82474-1 ED1

DATE OF CIRCULATION:

2023-07-14

CLOSING DATE FOR VOTING:

2023-10-06

SUPERSEDES DOCUMENTS:

111/670/CD, 111/704/CC

IEC TC 111 : ENVIRONMENTAL STANDARDIZATION FOR ELECTRICAL AND ELECTRONIC PRODUCTS AND SYSTEMS

SECRETARIAT:

Italy

SECRETARY:

Mr Alfonso Sturchio

OF INTEREST TO THE FOLLOWING COMMITTEES:

TC 2,TC 9,TC 18,TC 20,TC 21,TC 23,TC 34,SC 34D,TC 59,TC 62,SC 65B,TC 80,TC 82,TC 88,TC 100,TC 110,TC 121,TC 124,TC 125,ACEA

PROPOSED HORIZONTAL STANDARD:

☒

Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☒ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING

☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Material declaration – Part 1: General requirements

PROPOSED STABILITY DATE: 2029

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MATERIAL DECLARATION
PART 1: General requirements****FOREWORD**

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- ISO/IEC 82474-1 has been prepared by IEC Technical Committee 111, Environmental standardization for electrical and electronic products and systems, and Subcommittee 1: Environmental management systems, of ISO Technical Committee 207: Environmental management. It is an International Standard.
- This first edition leverages previous work done in IEC 62474 (Material declaration for products of and for the electrotechnical industry), extending the application of the material declaration standard across all products of any industry sector that falls under the ISO and IEC scopes.
- This edition includes the following technical changes with respect to the IEC 62474 edition 2:
- a) Definitions were sharpened to fulfil needs from sectors other than electrical and electronic products and systems and new terms have been added that support new topics introduced such as webservice methods, material efficiency and product circularity, and new reference list types.
 - b) A new subclause covering process chemicals declaration was included. This subclause covers requirements related to the information required about substances and applicable processes where they are used in the product life cycle.

c) A new clause covering webservices on material declaration was included. This clause covers requirements related to topics such as machine-machine communication, authentication service, and data representation.

d) Requirements and guidance for the development of reference lists such as query list (QL), and application/exemption lists (AL/EL) were included.

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.

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

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

INTRODUCTION

This document benefits all industries by establishing requirements for reporting of

- substances and materials in products,
- material efficiency and product circularity data,
- substances used for manufacturing and other product life cycle stages,

and by standardizing protocols, and facilitating the transfer, and processing of such data.

Material declarations are used by many industries to track and declare specific product information used for compliance, the preparation of product (digital) passports 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 (including material efficiency and product circularity) and provide requirements within material declarations.

The standard ISO/IEC 82474-1 is made of two parts: this document, which contains requirements for material declarations and a collection of standardized items managed in a database (standard as database (SDB)) containing the schema for data exchange format and the accompanying developer's table plus other useful information.

This document defines the requirements for material declarations:

- 1) Declaration for compliance – is a summary declaration with reference to the list of declarable substances and declarable substance groups within the declarable substance list (DSL). The declaration is always at a product level.
- 2) Composition declaration – it is a detailed declaration of individual materials and substances contained in the product and product parts.
- 3) Material class declaration – is a declaration of the types of materials (material classes) that are present in a product.
- 4) Process chemical declaration – is a declaration of substances within a declarable substance list used in processes during manufacture or other product life cycle stage.
- 5) Query list declaration – is a declaration providing predetermined statements (queries) with responses that are picked up from a pre-defined set of choices (e.g., "True" and "False").

NOTE: For the purpose of this document, product is the object of the declaration and may be a substance, material, mixture, article or combination thereof.

The standard also contains requirements and guidance for the format of reference lists, such as declarable substances lists.

The standard ISO/IEC 82474-1 allows lists from different authorities to be used with the ISO/IEC 82474 data exchange format.

EXAMPLE: IEC 62474 DSL, automotive GADSL, aerospace AD-DSL

The ISO/IEC 82474 SDB is maintained by a database maintenance team (SDB team 82474) which updates information in the ISO/IEC 82474 SDB based on requirements specified in the ISO/IEC 82474-1 standard. Other list authorities may have their own maintenance teams, based on the rules of the specific list authority.

By fulfilling the requirements of the ISO/IEC 82474-1 standard and based on the information from the ISO/IEC 82474 SDB, five types of declaration can be created as mentioned above and as shown in Figure 1.

The transmission of information in the supply chain can be done in two modes (see Figure 1).

- Requester/responder mode: The requester's specific product information needs to be included before the material declaration request is sent to the responder. Requester determines the type of material declaration(s) the responder will provide.
- Distribution mode: The responder provides material declaration data about their product(s) to a recipient.

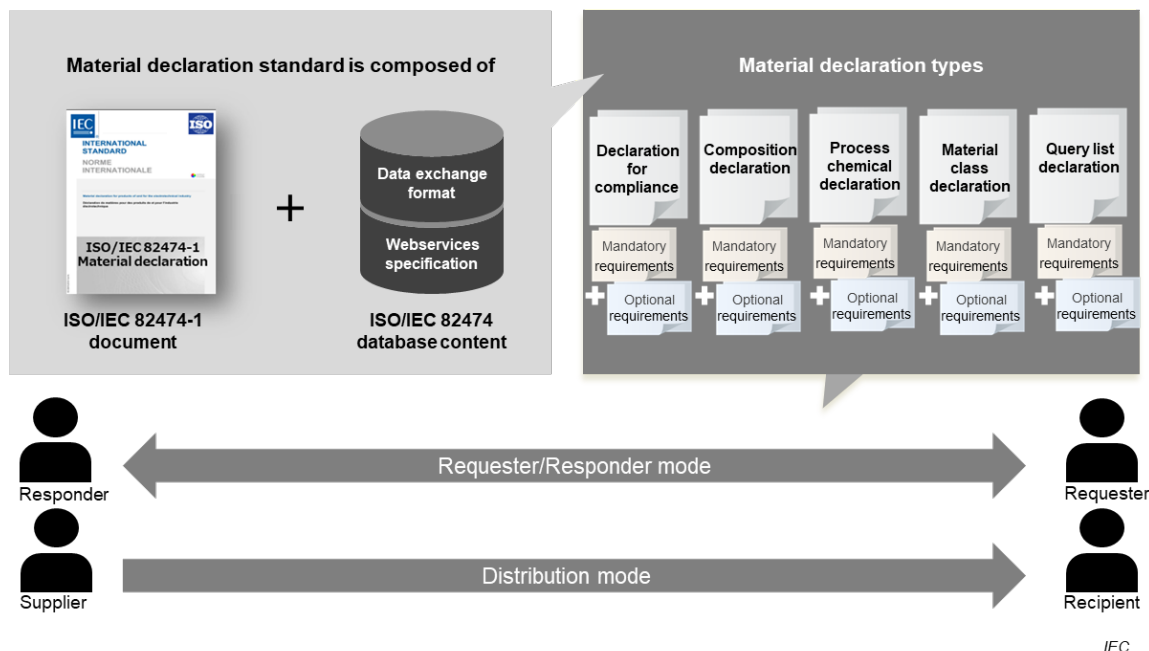


Figure 1 – ISO/IEC 82474 material declaration structure and process

The ISO/IEC 82474-1 declaration requirements and guidance are described in the following clauses:

- Clause 4 specifies requirements for material declarations.
- Clause 5 together with ISO/IEC 82474 SDB specify the material declaration data exchange format and requirements.
- Clause 6 specifies requirements and provides guidance for developing reference lists. Additional specifications are given in Annex A.
- Clause 7 specifies requirements and provides guidance for developing cross-sector material class list (MCL).
- Clause 8 specifies the web services on material declarations with additional specifications in ISO/IEC 82474 SDB.
- Clause 9 specifies the ISO/IEC 82474 SDB maintenance process with additional information on CDD updates in Annex C.

MATERIAL DECLARATION

PART 1: General requirements

1 Scope

This document specifies the requirements and guidance for the content, format and exchange relating to material declarations for products.

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

- allows organizations to assess products against material and substance requirements,
- allows organizations to assess substances used in manufacturing and other product life cycle stages,
- allows organizations to use this information in their activities related to environmentally conscious design process and across all product life cycle stages,
- allows organisations to obtain information about material efficiency and product circularity of their products.

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

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

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviations

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 Terms and definitions relating to MATERIAL, PRODUCT and PROCESS

3.1.1 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.]

3.1.2

exemption

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

3.1.3

formulation

mixture of ingredients prepared according to a formula and used for a specific purpose

3.1.4

homogenous 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

[SOURCE: EU RoHS Directive 2011/65/EU, Article 3.]

3.1.5

intentional added substances

substance used in one or more product life cycle stage(s) intended to give a particular property, reaction or quality

Note 1 to entry: This does not include impurities, or unreacted residual substances.

3.1.6

intermediates

substance produced during the conversion of reactant to product

Note 1 to entry: an intermediate can be manufactured for and consumed in or used for chemical reaction to be transformed into another substance.

3.1.7

material

(physical) matter composed by one or more substances

3.1.8

material class

defined classification of materials that are established 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.

3.1.9

mixture

combination of two or more substances

[SOURCE: ISO/TS 23303:2020, 3.2.20 – modified: the term “different” was removed from the definition.]

3.1.10

process chemical

chemical used in one or more product life cycle stage(s)

Note 1 to entry: Process chemicals can be monomers, intermediates, mixtures, or formulations.

Note 2 to entry: Chemicals used for non-product processes such as facility maintenance are not considered as process chemicals.

341 Note 3 to entry: Examples of product life cycle stage(s) are manufacturing, product use, installation or commissioning,
342 repair, maintenance, overhaul.

343 3.1.11

344 **process chemical substance**

345 substance or substances contained in a process chemical

346 3.1.12

347 **process name**

348 name of a process within one or more product life cycle stage that uses the declared process
349 chemical substance

350 EXAMPLE 1: Examples of processes are cleaning, lubrication, corrosion protection treatment, etc.

351 EXAMPLE 2: Examples of a process used in multiple product life cycle stages is cleaning in manufacturing or repair
352 process.

353 Note 1 to entry: Process names vary for different sectors or locations. Any applicable sector-specific terminology
354 may be used.

355 3.1.13

356 **product**

357 any goods or service

358 Note 1 to entry: For the purpose of this document, product is the object of the declaration and may be a substance,
359 material, mixture, article or combination thereof.

360 [SOURCE: ISO 14050:2020, 3.5.12, modified – Note 1 to entry has been included.]

361 3.1.14

362 **product family**

363 group of products each of which contains the same substances or materials at a similar
364 concentration level

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

367 3.1.15

368 **product part**

369 sub-unit of a product

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

371 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
372 might be physically present in the product.

373 3.1.16

374 **substance**

375 chemical elements and their compounds in the natural state or obtained by any production
376 process, including any additive necessary to preserve the stability of the product and any
377 impurities deriving from the process used, but excluding any solvent which may be separated
378 without affecting the stability of the substance or changing its composition

379 [SOURCE: Globally Harmonized System of Classification and Labelling (GHS):2017, Chapter
380 1.2, definitions and abbreviations]

381 3.1.17

382 **substance group**

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

3.2 Terms and definitions relating to MATERIAL DECLARATION

3.2.1

composition declaration

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

3.2.2

declarable product part

product part that contains a DS or DSG for which a requirement exists to identify the product part in which it is contained

3.2.3

declarable substance

DS

substance that meets specified criteria for reporting

Note 1 to entry: An example of criteria for declarable substances is specified in IEC 62474 Clause 5.

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

3.2.4

declarable substance group

DSG

substance group that meets specified criteria for reporting

EXAMPLE Chromium (VI) compounds.

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

3.2.5

DSG substance(s)

substance(s) that belongs to a declarable substance group

3.2.6

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.

3.2.7

declaration for compliance

declaration regarding the presence or absence of declarable substances and declarable substance groups with mandatory reporting requirements in the declarable substance list

Note 1 to entry: The declaration is relative to a reporting threshold level for a defined reportable application.

3.2.8

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.

3.2.9

DSG substance list

list of substances belonging to DSGs in the declarable substance list

Note 1 to entry: The list of substances in the DSG substance list 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.

3.2.10

full material declaration

FMD

composition declaration whereby all materials are declared, and all substances are declared or otherwise represented by an anonymous identification

Note 1 to entry: Substances that are anonymously identified may be proprietary substances the supplier retains as confidential business information (CBI). The mass of all substances including those that are identified as anonymous adds up to 100% of the mass of the product.

3.2.11

full substance declaration

FSD

composition declaration whereby all substances and materials are declared and identified

Note 1 to entry: FSD is an FMD that does not include any anonymous identification of substances in the declaration.

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.

3.2.12

list entry identity

parameter used to identify a specific entry within a defined list

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

3.2.13

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.

3.2.14

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.

3.2.15

material declaration

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

3.2.16

reportable application

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

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

Note 2 to entry: As legislations have different scopes for some declarable substances, declarable substance groups, product parts or materials, more than one reportable application may be provided in the DSL

3.2.17

reporting threshold level

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

3.3 Terms and definitions relating to DATA FORMAT and DATABASE

3.3.1

data exchange format

DXF

data elements and attributes specified in a digital format represented by a schema and developer's table to support a material declaration exchange

Note 1 to entry: Examples of digital formats are XML (defined by W3C), and JSON (specified in IETF RFC 7159).

3.3.2

data dictionary

set of terms with respective identifiers formulated in a canonical syntax and with commonly accepted definitions designed to yield a lexical or taxonomical framework for knowledge representation in a computer interpretable form, which can be shared by different information systems and communities

[SOURCE: IEC 62656-1:2014, 3.10.]

3.3.3

SDB

standard as database

standard for which a valid form of publication is a database

Note 1 to entry: A standard as database can contain, in addition to the concepts (SK.3.1.2), non-normative equivalent terms and translations (where provided by appropriate national bodies).

Note 2 to entry: The term "database-based standard" previously used for this concept in the IEC Supplement to the ISO/IEC Directives, Part 1, Annex SL, is obsolete.

Note 3 to entry: The SDB management and the SDB content procedures (SK.3.2.2 and SK.3.2.3) are normally considered to be part of the SDB.

[SOURCE: ISO/IEC Directives Supplement, 2022, Ed. 16, SK.3.1.5, modified – The abbreviation is made the preferred term in this standard.]

3.3.4

SDB team

permanent group of experts appointed by and acting as delegates on behalf of their National Bodies at the evaluation stage (SK.3.2.6) and validation stage (SK.3.2.7)

Note 1 to entry: For purposes of communication and marketing, the SDB owner committee may give the SDB team a name.

[SOURCE: ISO/IEC Directives Supplement, 2022, Ed. 16, SK.3.3.3]

3.4 Terms and definitions relating to ORGANISATION, DESIGN and CIRCULARITY

3.4.1

requester

organization or individual that requests a material declaration

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

3.4.2

responder

organization or individual that provides a material declaration

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

522 3.4.3

523 environmentally conscious design

524 ECD

525 systematic approach which considers environmental aspects in the design and development
526 with the aim to reduce adverse environmental impacts throughout the life cycle of a product

527 Note 1 to entry: Other terminology used worldwide with the same meaning includes ecodesign, design for environment
528 (DFE), green design and environmentally sustainable design.

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

530 [SOURCE: IEC 62430:2019, 3.1.1.]

531 **NOTE FROM SECRETARIAT:** For definitions 3.4.4 to 3.4.10 the NBs are asked to, additional
532 to providing comments to the individual definitions, to also express their preference whether to
533 maintain these definitions in the physical standard or if they recommend moving these
534 definitions to the ISO/IEC 82474 SDB.

535 3.4.4

536 recycled content

537 total recycled content

538 proportion, by mass, of recycled material in a product

539 Note 1 to entry: Only pre-consumer and post-consumer recycled content are considered as recycled content.

540 [SOURCE: ISO 14021:2016, 7.8.1.1.a), modified — “or packaging” was deleted.]

541 3.4.5

542 pre-consumer recycled content

543 material diverted from the waste stream during a manufacturing process

544 Note 1 to entry: Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and
545 capable of being reclaimed within the same process that generated it.

546 [SOURCE: ISO 14021:2016, 7.8.1.1a, modified — Note 1 to entry was added.]

547 3.4.6

548 post-consumer recycled content

549 material generated by households or by commercial, industrial and institutional facilities in their
550 role as end-users of the product which can no longer be used

551 Note 1 to entry: Other terminology used worldwide with the same meaning includes ecodesign, design for environment
552 (DFE), green design and environmentally sustainable design.

553 Note 2 to entry: This includes returns of material from the distribution chain.

554 [SOURCE: ISO 14021:2016, 7.8.1.1a, modified — “intended purpose” was deleted.]

555 3.4.7

556 renewable content

557 proportion, by mass, of renewable material in a product

558 3.4.8

559 renewable material

560 material that is composed of biomass that can be continually replenished

561 [SOURCE: ISO 14021:2016, 7.14.1, modified — “from a living source and” was deleted.]