BS EN IEC 82474-1:2025



BSI Standards Publication

Material declaration

Part 1: General requirements

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National foreword

This British Standard is the UK implementation of EN IEC 82474-1:2025. It is identical to IEC 82474-1:2025.

The UK participation in its preparation was entrusted to Technical Committee GEL/111, Electrotechnical environment committee.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2025

ISBN 978 0 539 16867 9

ICS 01.110; 13.020.01

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2025.

Amendments/corrigenda issued since publication

Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 82474-1

July 2025

ICS 01.110; 13.020.01

English Version

Material declaration - Part 1: General requirements (IEC 82474-1:2025)

Déclaration de matières - Partie 1 : Exigences générales (IEC 82474-1:2025)

Materialdeklaration - Teil 1: Allgemeine Anforderungen (IEC 82474-1:2025)

This European Standard was approved by CENELEC on 2025-06-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 111/778/FDIS, future edition 1 of IEC 82474-1, prepared by TC 111 "Environmental standardization for electrical and electronic products and systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 82474-1:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-07-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-07-31

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Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 82474-1:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 62430:2019	NOTE	Approved as EN IEC 62430:2019 (not modified)
IEC 62656-1:2014	NOTE	Approved as EN 62656-1:2015 (not modified)
IEC 82045-1:2001	NOTE	Approved as EN 82045-1:2001 (not modified)
IEC 82045-2:2004	NOTE	Approved as EN 82045-2:2005 (not modified)
IEC 62321-2:2021	NOTE	Approved as EN IEC 62321-2:2021 (not modified)
ISO 1043-1:2011	NOTE	Approved as EN ISO 1043-1:2011 (not modified)
ISO 1043-2:2011	NOTE	Approved as EN ISO 1043-2:2011 (not modified)
ISO 1043-3:2016	NOTE	Approved as EN ISO 1043-3:2016 (not modified)
ISO 9000:2015	NOTE	Approved as EN ISO 9000:2015 (not modified)
ISO 14020:2022	NOTE	Approved as EN ISO 14020:2023 (not modified)
ISO 14024:2018	NOTE	Approved as EN ISO 14024:2018 (not modified)
ISO 14025:2006	NOTE	Approved as EN ISO 14025:2010 (not modified)
ISO 14040:2006	NOTE	Approved as EN ISO 14040:2006 (not modified)

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC/ISO 82474 SDB	-	Standard as database	-	-
OASIS v. 1.2	-	webservice security policy	-	-
W3C XML	-	XML schema	-	-
W3C webservice	-	Webservice policy	-	-
WSDL	-	Schema	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MATERIAL DECLARATION –

Part 1: General requirements

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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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 IEC 62474:2018 (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 circularity, and new reference list types.

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b) A new subclause (4.6) covering process chemical declaration was included. This subclause covers requirements related to the information required about process chemical substances, the applicable processes where they are used, and the respective product life cycle phase(s).

c) A new clause (8) covering web services 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.

This document has been given the status of a horizontal document in accordance with ISO/IEC Directives, Part 1.

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

Draft	Report on voting
111/778/FDIS	111/807/RVD

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.

A list of all parts in the IEC 82474 series, published under the general title *Material declaration*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

This document benefits all industries by establishing requirements for reporting of

– substances and materials in products,
– material efficiency and circularity data,
– substances used in manufacturing and other stages of the product life cycle,

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, substance and process chemical data (including material efficiency and circularity) and provide requirements within material declarations.

IEC 82474-1 consists of two parts: this document, which defines requirements for material declarations, and a standard as database (SDB) which is a managed collection of information containing the schema for data exchange format, the accompanying developer's table and other useful information.

This document provides requirements and recommendations for the following material declaration types:

1) Declaration for compliance – a summary declaration with reference to the declarable substances and declarable substance groups within the declarable substance list (DSL). The declaration for compliance provides aggregated data at the product level.
2) Composition declaration – a detailed declaration of individual materials and substances contained in the product and product parts.
3) Process chemical declaration – a declaration of substances within a declarable substance list used during manufacture or other product life cycle stages.
4) Material class declaration – a declaration of the types of materials (material classes) that are present in a product.
5) Query list declaration – a declaration providing predetermined statements (queries) with responses that are selected 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 can be a substance, material, mixture, article or combination thereof.

IEC 82474-1 also contains requirements and guidance for the format of reference lists, such as declarable substances lists.

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

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

The IEC/ISO 82474 SDB is maintained by a database maintenance team or SDB team (called SDBT 82474 here) which updates information in the IEC/ISO 82474 SDB based on requirements specified in the 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 IEC 82474-1 and based on the information from the IEC/ISO 82474 SDB, five types of declarations can be created as mentioned above and as shown in Figure 1.

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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 is 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.

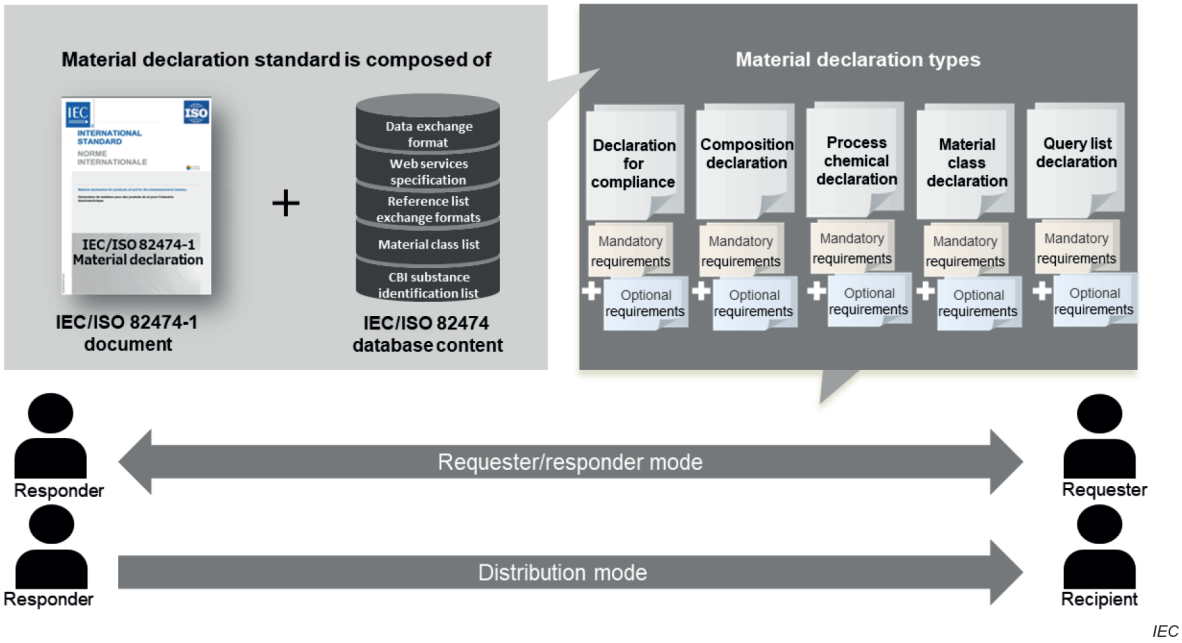


Figure 1 – IEC 82474-1 material declaration structure and process

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

– Clause 4 specifies requirements for material declarations.
– Clause 5 together with the IEC/ISO 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 the IEC/ISO 82474 SDB.
– Clause 9 specifies the IEC/ISO 82474 SDB maintenance process.

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MATERIAL DECLARATION –

Part 1: General requirements

1 Scope

This part of IEC 82474 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 process chemical substances used in manufacturing and other stages of the product life,
– allows organizations to use this information in their activities related to environmentally conscious design process and across all product life cycle stages,
– allows organizations to obtain information about material efficiency and circularity of their products.

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

This document does not suggest any specific software solution to capture material declaration data in the supply chain. However, it provides a data format used to transfer information within the supply chain. Organizations can 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, responder (supplier) material declarations, and/or sampling and testing.

This document has the status of a horizontal publication in accordance with IEC Guide 123:2025.

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/ISO 82474 SDB (standard as database)

OASIS webservice security policy (version 1.2) (http://docs.oasis-open.org/ws-sx/ws-securitypolicy/200702)

W3C XML schema (http://www.w3.org/2001/xmlschema)

W3C webservice policy (http://www.w3.org/ns/ws-policy)

WSDL schema (http://schemas.xmlsoap.org/wsdl)

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3 Terms, definitions and abbreviated terms

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

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

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

3.1 Terms and definitions relating to substance, material, product and process

3.1.1
formulation
mixture of ingredients prepared according to a formula

3.1.2
mixture
combination of two or more substances

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

3.1.3
substance
chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which can be separated without affecting the stability of the substance or changing its composition

[SOURCE: Globally Harmonized System of Classification and Labelling (GHS):2017, Chapter 1.2, definitions and abbreviations, modified – in the definition, the term "may" was replaced by "can"]

3.1.4
intentionally added substance
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.

3.1.5
substance group
two or more substances, that share at least one chemical sub-structure, or chemical or physical property under a generic name

[SOURCE: IEC 60050-904:2014, 904-02-04, modified – in the definition "one or more" has been replaced with "two or more" and "where in the case of multiple substances they" has been replaced with "that"]

3.1.6
exemption
allowance for the use of regulated declarable substances or declarable substance groups above their threshold(s) as defined in laws or regulations

3.1.7
material
matter of which an object is composed

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3.1.8
homogeneous material
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, modified – the term 'one' was removed from the definition]

3.1.9
material class
material category
defined classification of materials that are established for purposes of inventorying aspects of a product, such that no two classes contain the same material

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.

3.1.10
product
goods, service, or combination thereof

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

[SOURCE: ISO 14050:2020, 3.5.12, modified – in the definition, the term "any" was removed, the term "combination thereof" was included, and Note 1 to entry was included]

3.1.11
product part
sub-unit of a product

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

Note 2 to entry: A product part can be a cable of 1 m length.

3.1.12
product family
group of products each of which contains the same substances or materials at a similar concentration level

Note 1 to entry: A common case is products of the same material content that have different electrical values, such as a capacitor, resistor, inductor or an integrated circuit.

3.1.13
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]

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3.1.14
process chemical
chemical used in any process to make, maintain, or extend the life of a product

Note 1 to entry: Processes intended to make, maintain, or extend the life of a product include, but are not limited to, manufacturing, installation, maintenance, repair, refurbishment, remanufacturing, and decommissioning.

Note 2 to entry: Process chemicals can be, for instance, monomers, intermediates, catalysts, reactants, mixtures, or formulations.

Note 3 to entry: Chemicals used for non-product processes such as facility maintenance are not considered as process chemicals.

Note 4 to entry: Product can include product parts.

3.1.15
process chemical substance
substance or substances within a process chemical

3.1.16
process name
<process chemical> name of a process within one or more stages of the product life cycle that uses the process chemical object of the declaration

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

EXAMPLE 2 Examples of a process used in multiple product life cycle stages is cleaning in manufacturing and repair.

3.2 Terms and definitions relating to material declaration

3.2.1
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 62474:2018, Clause 5.

3.2.2
declarable substance group
DSG
substance group that meets specified criteria for reporting

EXAMPLE Chromium (VI) compounds.

3.2.3
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

3.2.4
declarable product part
product part that contains a declarable substance or declarable substance group for which a requirement exists to identify the product part in which it is contained

3.2.5
DSG substance
substance included in a declarable substance group

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3.2.6
DSG substance list
list of substances included in a declarable substance group

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

3.2.7
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

EXAMPLE Figure 5 to Figure 9 are examples of declaration hierarchy.

3.2.8
material declaration
declaration of information related to substances and/or materials contained in a product, or used in any process to make, maintain or extend the life of a product

Note 1 to entry: Processes intended to make, maintain or extend the life of a product include, but are not limited to, manufacturing, repair, maintenance, refurbishment, remanufacturing and decommissioning.

Note 2 to entry: A material declaration includes other relevant information associated with the product (e.g. product name).

Note 3 to entry: A material declaration includes information associated with the exchange of the material declaration (e.g. business information such as responder contact information).

Note 4 to entry: Product can include product parts.

3.2.9
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 anonymously identified can be proprietary substances the responder 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.

3.2.10
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.

3.2.11
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.

3.2.12
composition declaration
quantitative declaration of substances contained within a product

3.2.13
process chemical declaration
declaration of information related to process chemicals

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3.2.14
material class declaration
quantitative declaration of information about the material classes associated with materials in the product

3.2.15
query list declaration
qualitative declaration of responses to predetermined text statements in a query list

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 can 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 or declarable substance group is declared

[SOURCE: IEC 60050-904:2014, 904-02-08, modified – in the definition the term "substance" was replaced by "declarable substance or declarable substance group", and the terms "in a product or product part" and sentence "if declaration of the substance is mandatory according to the IEC 62474 database, or if it is agreed on to be declared" have been removed]

3.3 Terms and definitions relating to data, exchange and database

3.3.1
requester
organization or individual that requests a material declaration

3.3.2
responder
organization or individual that provides a material declaration

3.3.3
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]

3.3.4
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).

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3.3.5
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.

3.3.6
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.

3.3.7
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.

3.3.8
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, SK.3.1.5, modified – the abbreviation is made the preferred term in this document]

3.3.9
SDB team
permanent group of experts appointed by and acting as delegates on behalf of their National Bodies at the evaluation stage and validation stage

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

Note 2 to entry: The SDB team linked to this document is called "SDBT 82474".

[SOURCE: ISO/IEC Directives Supplement, 2022, SK.3.3.3, modified – Note 2 to entry was added]

3.4 Terms and definitions relating to design and circularity

3.4.1
environmentally conscious design
ECD
systematic approach which considers environmental aspects in the design and development with the aim to reduce adverse environmental impacts throughout the life cycle of a product

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

[SOURCE: IEC 62430:2019, 3.1.1]

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3.4.2
circularity
ability to be aligned with the principles of a circular economy

Note 1 to entry: Can refer to an organization or an item. Item can be a system, product, part or material.

Note 2 to entry: The principles of a circular economy include:

a) Eliminate waste and pollution;

b) Circulate products and materials (at their highest value);

c) Regenerate nature.

3.4.3
material efficiency
degree of performance in relation to the materials used

Note 1 to entry: Used can also refer to consumed.

Note 2 to entry: Materials used can refer to both production and use.

Note 3 to entry: Performance includes satisfaction of the needs in relation to functions, durability and material recoverability.

3.4.4
pre-consumer recycled material
material that has been reprocessed from waste material diverted from manufacturing process

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

Note 2 to entry: Pre-consumer recycled material is sometimes referred to as post-industrial recycled material.

3.4.5
pre-consumer recycled content
proportion, by mass, of pre-consumer recycled material

3.4.6
post-consumer recycled material
material that has been reprocessed from waste from end-users

Note 1 to entry: End-users can be individuals or entities such as households, or commercial, industrial and institutional facilities in their role as end-users.

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

3.4.7
post-consumer recycled content
proportion, by mass, of post-consumer recycled material

3.4.8
recycled content
proportion, by mass, of recycled material

Note 1 to entry: Recycled content should be calculated based on applicable standards.

EXAMPLE ISO 14021:2016 considers only pre-consumer and post-consumer recycled content as recycled content.

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