

389 Chiswick High Road
London W4 4AL
Tel: +44 (0) 20 8996 9000
Fax: +44 (0) 20 8996 7400
www.bsigroup.com

Committee Ref: SDS/003/05

Date: 2018/11/07

Direct details:

Telephone: 0208 996 7558
E-mail: christina.allen@bsigroup.com

Dear Member,

DOCUMENT FOR FINAL VOTE AND APPROVAL TO PUBLISH

DEFAULT UK VOTE: Approval
COMMENTS TO christina.allen@bsigroup.com BEFORE 2018/11/28

Please find attached: FINAL DRAFT FprEN 45558, General method to declare the use of critical raw materials in energy-related products

This document is circulated to National Committees for approval to progress to publication.

- If the UK votes yes or abstains, it is BSI's policy to implement this document as a British Standard with no further input from the Committee.
- If the UK votes no, we have to provide a technical justification at this stage and this will form the basis of additional information in the National Foreword of any resulting British Standard implementation.
- Additional texts to the National Foreword or National Annex will require endorsement from your Committee Chairman.

Note 1) Only technical comments accompanying a negative vote can be submitted at this stage and they have to be submitted on the correct [comment template](#). If you have any queries on how to use the template then please do not hesitate to contact your Committee Secretary.

Note 2) We are obliged to implement all European Standards and our policy is to implement as full a package of International Standards as possible.

Note 3) If you do not consider an International Standard suitable as a British Standard please discuss with your Committee Secretary.

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

- i) has any issues related to 3rd party IPR, patent or copyright,
- ii) affects other national standard(s),
- iii) requires additional national guidance or information.

If we do not hear from you by the above date we shall submit a vote of approval to CEN on behalf of the UK committee.

Yours sincerely

Christina Allen
Secretary to SDS/003/05

November 2018

ICS 13.020.30; 29.020; 31.020

English Version

General method to declare the use of critical raw materials in energy-related products

Méthode générale de déclaration de l'utilisation de matières
premières critiques dans les produits liés à l'énergie

Allgemeines Verfahren zur Deklaration der Verwendung
kritischer Rohstoffe in energieverbrauchsrelevanten
Produkten

This draft European Standard is submitted to CENELEC members for formal vote. Deadline for CENELEC: 2018-12-28.

It has been drawn up by the Technical Committee CEN/CLC/JTC 10. If this draft becomes a European Standard, CEN and 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.

This draft European Standard was established by CEN and CENELEC in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN and CENELEC members are the national standards bodies and national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom

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

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

1	Contents	Page
2	European foreword	3
3	Introduction	4
4	1 Scope	5
5	2 Normative references	5
6	3 Terms, definitions and abbreviations	5
7	3.1 Terms and definitions	5
8	3.2 Abbreviations	8
9	4 The IEC 62474 standard	8
10	4.1 Material declaration according to IEC 62474	8
11	4.2 Maintenance of IEC 62474 substances list	9
12	5 Assessing and declaring the use of CRMs	9
13	5.1 Regulated CRMs	9
14	5.2 Non-regulated CRMs	9
15	5.3 Considerations on compliance	10
16	6 Reporting the Use of CRMs	10
17	6.1 General	10
18	6.2 Elements of the Material Declaration	10
19	Annex A (informative) Introduction to the IEC 62474 standard	12
20	Annex B (informative) Considerations on the declaration of non-regulated CRMs	18
21	Annex C (informative) Additional information on the background of this document	20
22	Bibliography	31

23 European foreword

24 This document [FprEN 45558:2018] has been prepared by CEN/CLC/JTC 10 "Energy-related products -
25 Material Efficiency Aspects for Ecodesign".

26 This document is currently submitted to the Formal Vote.

27 The following dates are proposed:

- latest date by which the existence of this (doa) dor + 6 months
document has to be announced at national
level
- latest date by which this document has to be (dop) dor + 12 months
implemented at national level by publication of
an identical national standard or by
endorsement
- latest date by which the national standards (dow) dor + 36 months
conflicting with this document have to be (to be confirmed or
withdrawn modified when voting)

28 This document has been prepared under a standardization request given to CEN and CENELEC by the
29 European Commission and the European Free Trade Association

30 The dual logo CEN-CENELEC standardization deliverables, in the numerical range of 45550 – 45559, have
31 been developed under standardization request M/543 of the European Commission and are intended to
32 potentially apply to any product within the scope of the Directive 2009/125/EC concerning energy-related
33 products (ErP).

34 Topics covered in the above standardization request are linked to the following material efficiency aspects:

- 35 a) Extending product lifetime;
- 36 b) Ability to re-use components or recycle materials from products at end-of-life;
- 37 c) Use of re-used components and/or recycled materials in products.

38 These standards are general in nature and describe or define fundamental principles, concepts, terminology or
39 technical characteristics. They can be cited together with other product-specific, or product-group, standards
40 e.g. developed by product technical committees.

41 However, this document is intended to be used by manufacturers for assessing products but can also be used
42 by product technical committees when producing horizontal, generic, product-specific, or product-group,
43 standards.

44 Introduction

45 Raw materials are at the core of concepts such as resource efficiency and circular economy, which are crucial
 46 to the European economy and essential to maintaining and improving the quality of life. Securing reliable and
 47 unhindered access to certain raw materials is a growing concern within the European Union (EU) and across
 48 the globe. To address this challenge, the European Commission has created a list of critical raw materials
 49 (CRMs). CRMs combine a high economic importance to the EU with a high risk associated with their supply,
 50 both which are determined according to an objective methodology [1]. The list of CRMs is regularly updated [2].
 51 The list current at the time of publication is provided in Annex C (C.1).

52 The availability of information on the use of CRMs in energy-related products (ErP) is intended to improve the
 53 exchange of information e.g. for recycling of these materials.

54 CRMs are identified as a priority area of the European Commission's Circular Economy Action Plan [3].
 55 Altogether, the list of CRMs and related initiatives (including this one) are expected to:

- 56 • Contribute to the implementation of the EU industrial policy and strengthen industrial competitiveness;
- 57 • Stimulate production of CRMs (including from secondary sources) and the launch of new mining activities
 58 in the EU;
- 59 • Monitor issues on CRMs to identify priority actions (related for example to trade, research and innovation,
 60 circular economy).

61 As information on the use of CRMs in energy-related products by Member States and industry is still very scarce,
 62 efforts need to be made to acquire such knowledge. The objective of this document is to provide general
 63 methodology for declaration of the use of CRMs in energy-related products in support of the implementation of
 64 the Ecodesign Directive (2009/125/EC) [4] in product-specific measures. Additionally, this document supports
 65 the implementation of the Raw Materials Initiative by the EU [5].

66 This document specifies a method for the declaration of CRMs, based on IEC 62474. Therefore, it will be
 67 essential in supporting manufacturers of energy-related products to obtain information and report on the use of
 68 certain CRMs needed to comply with specific requirements in product-specific legislations in the future.

69 This document is linked to two other standards, prEN 45555 [6] and FprEN 45559. In relation to the first,
 70 "*General methods for assessing the recyclability and recoverability of energy-related products*", the information
 71 to be gathered on CRMs, with the support of this document, can be used during recycling and recovery
 72 processes. In respect to the second, "*Methods for providing information relating to material efficiency aspects*
 73 *of energy-related products*", methods are provided that can be applied in the provision of information on material
 74 efficiency aspects, including CRMs.

75 In view of the complexity of the matters dealt with in this document, additional background information is
 76 provided in Annex C. It is, therefore, strongly recommended for clarity, that users refer to this Annex whilst using
 77 this document.

1 Scope

The main intended use of this document is to provide a means for information on the use of CRMs to be exchanged up and down the supply chain and with other relevant stakeholders.

Potential users of this document are any public, private or social enterprises involved in the production of ErP, such as manufacturers of energy-related products (including SMEs) and other organisations in the product supply chain. It is also relevant to European market surveillance and trade authorities as well as European policy makers.

This document is horizontal in nature, and can be applied directly to any type of energy-related product.

This document proposes a standardized format for reporting use of CRMs in energy-related products by applying the IEC 62474 materials declaration standard. However, this document does not provide or determine any specific method or tool to collect CRM data.

Process chemicals, emissions during product manufacturing and packaging are not in scope of this document.

NOTE IEC 62474 is currently under revision and a pre-release version (IEC 62474:2018 PRV) is available to the public at the IEC site (<https://webstore.iec.ch/publication/63827>). In this document, when referring to IEC 62474, it is meant the pre release version. In the likely event that Edition 2 of IEC 62474 is published before the publication of this document, its reference will be corrected and this note will be deleted. The current (2012) version of EN 62474 is identical to the (2012) version of IEC 62474 and so it is expected that the document will be published as EN IEC 62474.

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.

EN 45559,¹ *Methods for providing information relating to material efficiency aspects of energy-related products*

IEC 62474,² *Material declaration for products of and for the electrotechnical industry*

3 Terms, definitions and abbreviations

3.1 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>

NOTE See CEN-CLC/TR 45550 [7] for additional definitions related to material efficiency of ErP.

3.1.1

critical raw material

CRM

materials which, according to a defined classification methodology, are economically important, and have a high-risk associated with their supply

Note 1 to entry: for the purpose of this document, CRMs are the ones listed in annex 1 of {COM(2017) 490 final} [2]. Future updates to this list will apply and replace former versions of this list.

¹ Under preparation. Stage at the time of publication: FprEN 45559:2018.

² Under preparation. Stage at the time of publication: IEC 62474:2018 PRV, (Pre release version), (FprEN IEC 62474:2018).

115	3.1.2
116	regulated critical raw material
117	regulated CRM
118	critical raw material for which specific regulatory requirement has been set
119	Note 1 to entry: CRMs could be regulated for example by implementing measures under the Ecodesign Directive,
120	2009/125/EC, or subsequent amendments or revisions.
121	3.1.3
122	non-regulated critical raw material
123	non-regulated CRM
124	critical raw material for which no specific regulatory requirements have been set
125	3.1.4
126	material
127	substance or mixture of substances within a product or product part
128	[SOURCE: IEC 62474:2018 PRV, definition 3.15]
129	3.1.5
130	material declaration
131	declaration of certain substances and/or substance groups contained within a product, product part, or material
132	as applicable
133	Note 1 to entry: The declaration might be a composition declaration, where the amount of the declared substance or
134	substance group is provided or it might be a declaration for compliance, where only the presence or absence of the declared
135	substance or substance group is provided.
136	[SOURCE: IEC 62474:2018 PRV, definition 3.17]
137	3.1.6
138	product part
139	sub-unit of a product
140	Note 1 to entry: A product part can be a sub-unit of another product part.
141	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
142	physically present in the product.
143	Note 3 to entry: In certain legislations, a product part may be called component.
144	[SOURCE: IEC 62474:2018 PRV, definition 3.21]
145	3.1.7
146	reporting threshold level
147	concentration limit at or above which the presence of a declarable substance in a material, product part or
148	product is declared
149	[SOURCE: IEC 62474:2018 PRV, definition 3.25]

3.1.8**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: GHS:2017, Chapter 1.2, [8]modified by replacing may by can]

3.1.9**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 62474:2018 PRV, definition 3.29]

3.1.10**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 of IEC 62474:2018 PRV.

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

[SOURCE: IEC 62474:2018 PRV, definition 3.5]

3.1.11**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 of IEC 62474:2018 PRV.

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

[SOURCE: IEC 62474:2018 PRV, definition 3.6]

3.1.12**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

[SOURCE: IEC 62474:2018 PRV, definition 3.8]

3.2 Abbreviations

The following abbreviations have been used in this document:

CAS	Chemical Abstracts Service
CRM	Critical Raw Material
DSL	Declarable Substance List
DS	Declarable Substance
DSG	Declarable Substance Group
EEE	Electrical and Electronic Equipment
ErP	Energy-related Product
EU	European Union
IEC	International Electrotechnical Commission
IUPAC	International Union of Pure and Applied Chemistry
VT	Validation Team

4 The IEC 62474 standard

4.1 Material declaration according to IEC 62474

The process of tracking substances or groups of substances like CRMs used in products can be complex, especially for products with many product parts and long supply chains. Significant issues around the exchange of the information along the supply chain can be expected in cases where there is no uniform way to provide such information.

To facilitate the collection and declaration of information on the use of substances in products and product parts, IEC developed the standard IEC 62474 on material declaration. This document contains:

- a standardized list of declarable substances with standardized names to avoid misspelling (declarable substances list, DSL) and;
- a standardized format for declaration to ensure that declarations from different suppliers can easily be understood and exchanged.

IEC 62474 is developed to be applied to Electrical and Electronic Equipment including a list of substances used in EEE. The format and rules prescribed by IEC 62474 are generic and can be applied to any substance list, provided that these formats and rules are followed strictly. Therefore, substances used in any type of products, including non-electrical and non-electronics ErPs (e.g. insulation material, windows, gas heaters), can be declared using IEC 62474.

IEC 62474 is not specifically linked to the reporting of hazardous substances. Rather, it is developed to manage declaration of regulated substances, independent of the reason for them being regulated. Therefore, IEC 62474 is able to manage CRMs, which are critical from an economic and supply risk perspective, but are not necessarily hazardous.

The flexibility of the IEC 62474 declaration format enables the supply chain to effectively associate the CRM to both the product and to a specific part of that product. For instance, one can declare a personal computer (product) with a motherboard (product part 1) with a coin cell battery (part of product part 1) that contains a CRM. This flexibility allows users to report on different or multiple levels of the product (part).

Consequently, this document uses IEC 62474 to specify the rules and format for sharing information on the use of CRMs in energy-related products.

NOTE 1 IEC 62474 is used as basis for this document because it is an international standard, with global and European recognition. In Europe, IEC 62474 successfully followed a process called “parallel vote”, and now carries a dual logo from

217 CENELEC and IEC, namely “EN IEC 62474”. Despite being developed for electrical and electronic equipment, it can be
 218 adapted to any type of industry, as long as the substance list and the data exchange format follow the requirements stipulated
 219 in IEC 62474.

220 NOTE 2 The data to be reported is often likely to be based on engineering judgment, supplier material declarations,
 221 and/or sampling and testing.

222 Further details on IEC 62474 are provided in Annex A. See also the IEC guide IEC/TR 62474-1 [9] and IEC
 223 62474 online database [10].

224 **4.2 Maintenance of IEC 62474 substances list**

225 The IEC 62474 declarable substances list mostly includes regulated substances, but may also include non-
 226 regulated substances. More details on the process for inclusion of substances or substance groups in the
 227 IEC 62474 DSL is presented in Annex A (A1 and A2). The IEC 62474 DSL is maintained by the IEC VT 62474
 228 (validation team). This team updates information in the database based on rules specified in IEC 62474,
 229 generally triggered by updates in legislation. If a new CRM is regulated or if requirements of existing legislation
 230 are updated, it will be assessed and VT will decide whether or not it should be included into the IEC 62474 DSL.

231 The process for inclusion of a non-regulated substance in the list is more complex, and requires formal approval
 232 of the National Committees members of the IEC VT 62474 team.

233 **5 Assessing and declaring the use of CRMs**

234 **5.1 Regulated CRMs**

235 For regulated CRMs, a material declaration shall be provided. It should be prepared as specified in applicable
 236 legislation.

237 The material declaration content shall meet the requirements specified in IEC 62474 for the applicable CRMs.

238 The declaration of regulated CRMs should be carried out according to the requirements and thresholds specified
 239 in legislation. Typical requirements are:

- 240 • reporting of the name of the substance or substance group, as described in legislation;
- 241 • reporting the amount of the substance or substance group, as described in legislation;
- 242 • reporting the location of the substance in the product, if described by legislation;
- 243 • exemptions, if applicable.

244 NOTE The use of standards for such declarations helps ensure consistent and cost-effective flow of information
 245 throughout the supply chain.

246 **5.2 Non-regulated CRMs**

247 The provision of material declaration for non-regulated CRMs is voluntary. Therefore, for non-regulated CRMs,
 248 a material declaration may be provided.

249 Companies may still need to collect data on a CRM even if it is not regulated. IEC 62474 can also be used to
 250 collect this type of information. However, as non-regulated CRMs are not automatically included in the IEC
 251 Declarable Substance List, the manufacturers will need to create their own substance list.

252 The level of detail of voluntarily collected information can vary. When collecting information on non-regulated
 253 CRMs, it is up to the manufacturer to decide what kind of information they want to collect and determine the
 254 minimum requirements for the information, for instance:

- 255 • list of CRMs covered;
- 256 • threshold of reported substances;

- 257 • information on product or product part level.
- 258 Manufacturers should create and assess the minimum requirements in order to make sure that the collected
259 data is sufficient to fulfil their needs.
- 260 Relevant information that could be collected and assessed on CRMs in order to support activities such as
261 recycling or substitution of technology or material are:
- 262 • business information (e.g. name, address, responsible person and other administrative details of the party
263 preparing the declaration);
- 264 • product information (e.g. product ID, name, category, weight);
- 265 • name of the substance or substance group;
- 266 • definition of a reporting threshold for the reporting of the substance or substance group;
- 267 • amount of the substance or substance group;
- 268 • location(s) of the substance in the product if appropriate.
- 269 If tools are used to facilitate collection of information on non-regulated CRMs, the manufacturer should ensure
270 that the selected tool is able to deal with all defined requirements.
- 271 Further details and considerations on the declaration of non-regulated CRMs are provided in Annex B.

272 **5.3 Considerations on compliance**

273 Material declarations, as described in this document, are one of the methods manufacturers may use in order
274 to demonstrate compliance with applicable legislation concerning the use of substances; another method may
275 be testing. However, due to the complex structure of most energy-related products, it is often impractical for
276 manufacturers of products to undertake testing of all substances contained in the final assembled product, also
277 there may not be appropriate test methods available to test them. Instead, in most cases, the only practical way
278 to assess the presence of substances/substance groups in the product is for manufacturers to work with their
279 suppliers to manage compliance and compile technical documentation as evidence of compliance [11].

280 **6 Reporting the Use of CRMs**

281 **6.1 General**

- 282 The declaration of the use of CRMs shall be documented.
- 283 The need to report use of CRMs to the different target audience(s) shall be determined, and the data shall be
284 classified within the different sensitivity levels 1, 2, and 3 in accordance with FprEN 45559, or as specified in
285 legislation.
- 286 Depending on the specific target audience for whom CRMs will be reported, a suitable communication approach
287 will be defined in accordance with FprEN 45559.

288 **6.2 Elements of the Material Declaration**

289 The principles of the IEC 62474 material declaration shall be applied. See examples in Annex C (C.27).

290 **A. General aspects (business information)**

- 291 1. Company name and address, authoriser name and details, date of the report
- 292 2. List of standards applied in this declaration (e.g. IEC 62474, FprEN 45559)
- 293 3. Date of documentation

- 294 B. Other relevant information for the declaration (product, material and substance information)
- 295 4. Product description (type or group)
- 296 5. Illustration or description (e.g. list of relevant product parts) of location of the CRMs in products
- 297 6. A list of the CRMs to be declared with reference to legislation if applicable
- 298 7. Thresholds in which the CRMs are to be declared
- 299 C. Declaration on the use of CRMs in product type/group
- 300 Information to be provided (per CRM reported) as specified in legislation or, for example:
- 301 8. Name of the CRM substance(s) or otherwise substance group(s)
- 302 9. CAS number for the CRM substances
- 303 10. The amount (or ranges, or presence) in the reported or product part
- 304 11. If applicable, location of the CRM in the product or product part

Annex A (informative)

Introduction to the IEC 62474 standard

A.1 IEC 62474 introduction

The International standard IEC 62474 is implemented in two parts (the standard and a database) supported by a guidance document:

- IEC 62474, *Material declaration for products of and for the electrotechnical industry* (IEC 62474:2018 PRV);
- IEC 62474 database. Available online at <http://std.iec.ch/IEC62474> [10];
- IEC/TR 62474.1, *Material declaration for products of and for the electrotechnical industry – Part 1: Guidance for the implementation of IEC 62474* [9].

IEC 62474 includes a material declaration procedure (rules) and an XML schema for data exchange. By using this document, it can be ensured that both the supplier creating a material declaration and the customer receiving the declaration are using the same data format.

The IEC 62464 database is located on the IEC website and its information is updated periodically (Declarable Substance List and XML Schema). There are four types of information provided in IEC 62474 database:

- Declarable substance groups and declarable substances;
- Reference Substances;
- Material classes;
- XML schema for materials declaration.

The Declarable Substance List (DSL) specifies which substances and substance groups need to be included in the material declaration. Each substance or substance group entry in the list is completed with the reportable application and a reporting threshold level.

There are three different criteria used to classify declarable substances, declarable substance groups, and material classes in IEC 62474:

- Criteria 1: substance or substance group that is regulated and subject to a “mandatory” reporting requirement;
- Criteria 2: substance or substance group currently under assessment to be regulated and subject to a “mandatory” reporting requirement;
- Criteria 3: substance or substance group currently not regulated but with recognized industry-wide interest. Criteria 3 substances are “for information only” with “an optional” reporting requirement.

NOTE 1 Once the effective date of the regulatory requirement is specified, a criteria 2 substance (group) is reclassified as criteria 1.

NOTE 2 A criteria 3 “for information only” declarable substance or substance group is to be reclassified in criteria 1 or criteria 2 if one of these criteria becomes applicable. The reclassification will be performed by the IEC VT 62474.

The information in the IEC 62474 database (including the DSL) is updated as needed, but at a minimum of once per year. This is done by the IEC Validation Team (IEC VT 62474). The validation team 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.

There are many commercially and privately available tools to support material declaration collection based on the IEC 62474 XML schema. Companies can also develop their own “interface” tool to support their own list of substances and declarations. Guidance how to build a tool is provided in IEC/TR 62474-1 [9].

A.2 Considerations on the inclusion of DSG or DS into the IEC 62474 database

A declarable substance or a declarable substance group (DS or DSG) is added to the IEC 62474 DSL with a “mandatory” reporting requirement (criteria 1 for “currently regulated” or category 2 for “assessment”) if it is explicitly included within an existing national law or regulation in an IEC member country and that law or regulation is applicable to electrotechnical products (for the exact assessment requirements, IEC 62474 is referenced).

A DS or DSG is considered for addition to the IEC 62474 DSL with an “optional” reporting requirement (criteria 3 “for information only”) if the DS or DSG is not included under the criteria 1 “currently regulated” or criteria 2 “for assessment” and there is a recognized industry-wide common market requirement for reporting this DS or DSG in electrotechnical products.

To be included in IEC 62474, the legal requirements on CRM should contain:

- A unique name of the substance or substance group and its CAS number;
- For a substance group, the complete list of substances included in the group;
- A threshold should be associated with each substance. If the presence of the substance is above the threshold then it is declared by the users;
- In case of a group of substances, it should be indicated if the threshold applies to a single substance of the group, or to the total amount of substances in the group;
- If exemptions apply, then they should be indicated.

A.3 Example of data element types of a material declaration

Table A.1 shows a few selected snapshots of data element types of a material declaration according to IEC 62474. These data elements represent a simplified view of the data fields in the XML schema.

NOTE 1 Table A.1 is for reference purpose only and it does not contain all element types of a material declaration. For the complete overview, refer to the IEC 62474:2018 PRV, Annex A. The parts where the original text were left out are indicated with “[original text omitted/left out]”.

NOTE 2 For the actual description of mandatory and optional requirements, the data exchange format within the IEC 62474 database is referred to. If there is a discrepancy between Table A.1 and the IEC 62474 database, the IEC 62474 database takes precedence.

Table A.1 — Data element types of an IEC 62474 material declaration

Category	Data element type		Obligation	Description
Business information (this category is mandatory in every material declaration)	Response	SupplyCompany	Mandatory	Name, identifier and address of the supplier company.
		Contact	Mandatory	Name, title, phone, email of the supplier contact person.
		Authorizer	Mandatory	Name, title, phone, email of the supplier person authorizing the accuracy of this material declaration.

Category	Data element type		Obligation	Description
		date	Mandatory	Date the response is returned to the requester by the responder in response/responder mode or the date the distributed form is completed in distribution mode.
		docID	Optional	Identification code for declaration. In requester/responder mode, the responder defines the identification code. In distribution mode, the declaring company defines the identification code.
		comment	Optional	Comment field for any additional information regarding the supplier.
	Request	RequestCompany	Mandatory	Name, identifier and address of the supplier company.
		Contact	Mandatory	Name, title, phone, email of the supplier contact person.
		date	Mandatory	Date the request is made by the requesting company.
		docID	Optional	Identification code for the request as specified by the requester.
		internalSupplierID	Optional	Identifier for the responder assigned by the requester.
		comment	Optional	Comment field for any additional information corresponding to the requester.
		respondByDate	Optional	Date when the responder is expected to respond to the request.
[original text omitted/left out]				
Product (this category is mandatory in every material declaration)	ProductID	name	Optional	Product name used by the supplier.
		identifier	Mandatory	An identifier (list authority, list identity and list version) for the product defined by the supplier.
		manufacturingSite	Optional	Manufacturing site of the product.
		effectiveDate	Mandatory	Date that the material declaration is applicable and valid.

Category	Data element type		Obligation	Description
		version	Optional	Product version (if applicable).
		requesterName	Optional	Product name used by the requesting company.
		requesterIdentifier	Optional	An identifier (list authority, list identity and list version) for the product defined by the requester.
		Mass	Mandatory	The total mass of the product and its unit of measure for the mass.
		InstanceID	Optional	Identification of a specific product instance or a range of instances that are applicable to this declaration.
	productFamilyName		Optional	Name of product family being declared.
	QueryList		Optional	A query list provides the ability to declare true/false responses to statements that may be specified by either the requester or responder.
	unitType		Mandatory	A unit type describes the units used to measure a product or product family. Eg. each, g, kg, cm ² , m ² , cm ³ , m ³ , cm,m,l
	comment		Optional	Comment field for any additional information regarding the product.
	Exemptions		Conditional	Exemptions being declared at the product level.
Attachment		Optional	Supplementary file added to the product. It should be embedded in the XML file.	
[original text omitted/left out]				
Compliance	DeclarableSubstanceList		Mandatory	An identifier (list authority, list identity and list version) of a compliance substance list for the declaration for compliance
	Declarable Substance or Declarable Substance Group	name	Mandatory	The name of the DS or DSG.
		UniqueID	Conditional	The unique ID (list authority, list identity and list version) of the DS or DSG.
		Mass	Conditional	Mass of the DS or DSG substance within a product, product part or material.

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

Category	Data element type		Obligation	Description
				or material and its unit of measure for the mass.
		MatMassPercent	Conditional	The mass percent of the mass.
		reportingThreshold	Optional	Substance concentration in mass percent of the homogeneous material mass. The mass percent is calculated as specified in the IEC 62474 database if a reporting requirement is provided.
		Exemptions	Conditional	Concentration limit at or above which the presence of a DS or DSG substance in a material or product is declared.
		comment	Optional	Exemptions applicable to the declared substance and identifier of the exemption list.
		descriptionOfUse	Optional	Comment field for any additional information regarding the substance.
		[original text omitted/left out]		

Annex B (informative)

Considerations on the declaration of non-regulated CRMs

B.1 Name of the substance / substance group

Declaration of CRMs can be done either at substance or substance group level. If the declaration is required at substance level, the list of all the specific substances needs to be generated. IUPAC [12] or CAS rules for naming should be used and every substance should be accompanied with unique CAS number [13].

NOTE 1 Example of substance and substance groups: the listed CRM "light rare earth elements" is a common name for several substance groups, for example Neodymium and its compounds, Praseodymium and its compounds, Lanthanum and its compounds. Taking Neodymium and its compounds as example, the substance groups of Neodymium could be e.g. Neodymium Oxide, Neodymium Fluoride, Neodymium Chloride, and Neodymium Bromide. An example of a substance within this substance group is e.g. Neodymium (III) chloride with CAS number 10024-93-8.

NOTE 2 Often it is only specific CRM substances that are used in some ErP. In such cases it is adequate to require information on these relevant CRM substances only.

NOTE 3 CRMs can be used in very different applications. Therefore, properties and used amounts may vary based on the technology/application. In such cases it may be preferable to request information at the substance rather than at the substance group level.

B.2 Location of the CRM in the product

Information on the location of CRMs can support recycling, product design, traceability, etc. Such information is product and application specific. The ability to obtain it will depend on the specific information requirements, as defined by its purpose.

CRMs can be located in one specific product part or they can be located within several product parts. When relevant (e.g. recycling or design purposes), the location where the substance can be found in the product should be identified.

Complex products consist of a number of often specialized product parts that differ due to their function and their (material) composition. As such, CRMs can be concentrated in certain product parts. Likewise, certain product parts can be either product specific or suitable for a wide range of products. In case of the latter, the same CRMs can be found in the same product parts used across product types (e.g. PCBAs).

B.3 Amount of the substance / substance group

Following IEC 62474, the amount of the substance(s) is to be specified in the declaration in either mass or mass percent, but not both. If both the mass percent and the mass are declared, but due to errors the calculation does not correspond to the reported mass, then the receiver of the material declaration will not know which number is the correct one to use.

If multiple suppliers supply the same product part and the CRM amount varies between suppliers, a range (x_1 - x_2 % or y_1 - y_2 mass) should be declared.

NOTE 1 Specific product parts such as a wire, can be declared in "metre" or "square metre" units of measurement (or a fraction thereof).

When reporting families of components in one declaration, manufacturers should report them using mass percent. When reporting assemblies or finished goods when a single product is declared, mass should be used. Reporting concentrations (mass percent) for product groups provides sufficient data for the receiver of the

declaration to correctly calculate the mass of each product in the group with their material declaration software tool, while aligning the number of material declarations to be exchanged between the two companies.

When declaring, it should be ensured that mass percent always refers to the next higher level in the product hierarchy that is declared. For example, the mass % of the CRM in a material could be declared with respect to a component, or the CRM mass % in a product part could be declared with respect to the finished product. This means that mass % can refer to the material, to the product part or to the product. It is up to the manufacturer to define the product hierarchy.

NOTE 2 See IEC/TR 62474.1 [10] for more details on declaration amounts.

NOTE 3 The IEC 62474 developers table [9] includes optional data fields associated to 'Mass' and 'Mass Percent' for the responder to specify tolerance in the mass or mass percent. Positive tolerance and negative tolerance could be individually specified.

B.4 Reporting threshold

The reporting threshold is a pre-defined minimum amount at which a substance or substance group should be reported. For regulated CRMs, thresholds are expected to be specified in legislation. For non-regulated CRMs, however, they should be specified by the manufacturer.

In general, declarable substance and declarable substance group entries have a reporting threshold based on the mass percent of the product, product part or material being reported. The threshold may also be based on absolute mass value (e.g. the amount, if present, above which the content needs to be reported).

The threshold for declaration of non-regulated CRMs should be set to meet the information needs of each user of this document, e.g. for recycling purposes is likely to be higher than in case of design or traceability.

In some cases it is sufficient to report the presence or absence of a substance above certain mass/mass percent.

In cases where threshold for declaration is not known, an option could be to set the reporting limit to "intentionally added".

Annex C (informative)

Additional information on the background of this document

C.1 What are CRMs? What are listed CRMs?

CRMs are raw materials which have a high economic importance to the EU, but have a high risk associated with their supply. They are normally not hazardous (although there might be exceptions), but instead, they are critical in relation to their supply, normally from outside Europe. That is why they have been named “Critical Raw Materials”.

Currently, 27 raw materials are classified (listed) as CRMs [2]. The CRMs list is updated approximately every three years. According to the current list, the following raw materials are listed as CRMs:

— Antimony	— Germanium	— Phosphorus
— Baryte	— Hafnium	— Scandium
— Beryllium	— Helium	— Silicon metal
— Bismuth	— Indium	— Tantalum
— Borate	— Magnesium	— Tungsten
— Cobalt	— Natural graphite	— Vanadium
— Coking coal	— Natural rubber	— Platinum Group Metals
— Fluorspar	— Niobium	— Heavy Rare Earth Elements
— Gallium	— Phosphate rock	— Light Rare Earth Elements

Source: <https://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-490-F1-EN-MAIN-PART-1.PDF>.

C.2 Are all listed CRMs used in ErP products?

No, not all CRMs are known to be used in ErP products. For instance coking coal, fluorspar (fluorite), magnesite and phosphate rock are not known to be used in ErP products. However, some ErPs may contain CRMs coming from other sources. For example, washing machines may contain phosphates at the end of life, which come from the washing powders used.

Before asking suppliers to provide information on all possible CRMs it is suggested that manufacturers exclude those that are known not to be used in a particular ErP, so as to avoid unnecessary extra burden to the supply chain.

C.3 The EU CRM list refers for example to heavy and light rare-earth materials. What are rare-earth materials? What substances are included?

The two rare-earth materials listed in the EU list are in fact a group of seventeen rare-earth elements (REE). They are composed of fifteen elements of the group of lanthanides, plus scandium and yttrium. Scandium and yttrium are considered rare-earth elements because they tend to occur in the same ore deposits as the lanthanides and exhibit similar chemical properties. The *Light* rare-earth elements group (LREE) and *Heavy* rare-earth elements group (HREE) are composed by the following elements:

- Light rare-earth elements (also known as the cerium group): Sc (Scandium), La (Lanthanum), Ce (Cerium), Pr (Praseodymium), Nd (Neodymium), Pm (Promethium), Sm (Samarium) and Eu (Europium);
- Heavy rare-earth elements (also known as the yttrium group): Y (Yttrium), Gd (Gadolinium), Tb (Terbium), Dy (Dysprosium), Ho (Holmium), Er (Erbium), Tm (Thulium), Yb (Ytterbium), and Lu (Lutetium).

C.4 If CRMs are referred to as materials, why does IEC 62474 deal with substance or substance group?

For simplification CRMs are listed by the generic term “materials”, but in practice, they are a combination of element groups, substance groups, and substances.

Some of the names included in the CRM list are not unique materials, but can in fact be composed of numerous substance groups and substances. For example the Light rare earth elements group consist of 8 elements or substance groups.

The element/substance group “Neodymium” is normally not used in products as such, but appears in combination with other elements forming alloys, halides, oxides, nitrates, sulfides, borates, etc. In this way, these 8 substance group can be further split into a large number of individual substances. This is exemplified here below:

Material Group	Element or Substance Groups	Substances / Substances Groups	Substances
Light Rare Earth Elements	Neodymium and its compounds Skandium and its compounds Lantanum and its compounds Cerium and its compounds Praseodymium and compounds Prometium and its compounds Samarium and its compounds Europium and its compounds	Neodymium Sulfides Neodymium Chlorides Neodymium Oxides Neodymium Nitrides Neodymium Nitrates Neodymium Sulfates Neodymium Bromides Etc.	Neodymium (II) sulfide (NdS) (CAS 12035-22-2) Neodymium (III) sulfide (Nd₂S₃) (CAS 12035-32-4) Neodymium (III) chloride (NdCl₃) (CAS 10024-93-8) Neodymium (III) chloride Hexahydrate (NdCl₃•6H₂O) (CAS 13477-89-9) Etc.

The IEC database handles both substance groups and substances. Substances should be preferably identified by a CAS number or EU number (or, if not available, another international identification code) [12, 13].

C.5 Can the CRM list of the EU be used as such for declaration?

No, to declare a substance one needs some precise information about it: a precise name, not only a generic name covering a non-exhaustive list of substances, a threshold indicating the level above which the substance needs to be declared, and other information that the EU CRM list does not provide today.

Also, for simplification CRMs are listed by the generic term “materials”, but in practice, they are a combination of element groups, substance groups, and substances. This means that the “level of granularity” is too diverse to obtain useful information. Although it is possible to declare any level, the obtained information would have limited application.

Therefore, in order to have the EU list of CRMs declared to a level that is meaningful, it needs to be “translated” into substance group and (preferably) at substance level.

C.6 Why is a distinction made between regulated and non-regulated CRMs in the standard?

At the time of writing this standard there were discussions underway to possibly regulate CRMs, but no such laws were in force. However, organisations may wish to voluntarily make a declaration concerning their use of CRMs and this standard provides them with a tool for doing so. Therefore, addressing all CRMs via a mandatory declaration approach would be a burden (time, costs, complexity and relevance) and may be disproportionate to the benefits of having them declared.

Taking into account the fact that currently a declaration of all CRMs isn’t mandatory, a distinction has been made between regulated CRMs (that must be declared, as specified in legislation) and non-regulated CRMs (that may be declared if a manufacture so wishes). In the case of regulated CRMs, it will be the law that specifies

what materials or substances have to be declared; conversely, for non-regulated CRM it is for the organization requesting the declaration to identify the CRMs to be declared.

C.7 What is the difference between regulated and non-regulated CRMs?

Regulated CRMs are CRMs for which a specific piece of legislation applying to energy-related products exists. Non-regulated CRMs are those CRMs that an organization wishes to make a declaration on, but for which there is no legislative requirement for it.

Note that the CRM list itself is not legislation - it does not contain any requirements in relation substance declaration and it is in fact a "communication" rather than a regulation. Therefore substances listed as CRM in the official list of the European Commission cannot be considered as regulated CRM within the context of this document. See also question C.1.

C.8 Is there an example of a regulated CRM?

At the time of publishing this standard there are no regulations associated with CRMs. However, there are some legislative documents under preparation that propose to regulate some CRMs. An example of such legislation currently under preparation is the "EU Implementing Measure with regard to Ecodesign requirements for Servers". Clause 3.3. (a) of Annex II of 2018 draft requires provision of information on "cobalt" and "neodymium", which are CRMs, as follows:

[COMMISSION REGULATION (EU) .../... of XXX implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for servers and data storage products and amending Commission Regulation (EU) No 617/2013]:

(ANNEX II), Clause 3.3. From 1 March 2020, the following product information on servers and online data storage products shall be made available free of charge by manufacturers, their authorised representatives and importers to third parties dealing with maintenance, repair, reuse, recycling and upgrading of servers (including brokers, spare parts repairers, spare parts providers, recyclers and third party maintenance) upon registration by the interested third party on a website provided:

(a) weight range (less than 5g, between 5g and 25g, above 25g) at component level, of the following critical raw materials:

(a) Cobalt in the batteries;

(b) Neodymium in the HDDs;

C.9 Can the standard manage other legislation than Ecodesign?

IEC 62474 that is used in this standard covers all environment-related regulations relevant for electrical and electronic equipment (EEE). The standardization request, M/543, for which this document was written, was itself produced to support the Ecodesign directive (2009/125/EC), but the standard could be suitable to handle any other CRM-related regulatory requirements.

C.10 Does IEC 62474 apply to all ErP products?

The scope of IEC 62474 is electrical and electronic product (EEE). This means that substance legislations that are applicable to EEE will be accessed and, if applicable, substances will be automatically included in the IEC 62474 declarable substance list.

Nevertheless, the methodology in IEC 62474 can be applied to non-electrical and non-electronic products and their substance list(s), provided that such a list is prepared according to the IEC 62474 formats and rules. Hence, an ErP product that is non-EEE could still use IEC 62474 but should ensure to prepare a substances list following the IEC 62474 formats and rules.

Manufacturers of both EEE and non-EEE products could, if they wish, engage with a commercial software or create their own software to have the substances declared along the supply chain.

C.11 Why is there a reference to legislation in this document?

The standard does not refer to any specific legislation, but to legislation in general, in broad terms. This is necessary as materials covered by legislative requirements are treated differently under the IEC standard.

C.12 Why is there a clause covering non-regulated CRMs included in the standard?

Although, at the time of publishing this standard, there are no legislative requirements for CRMs (as a group or individually), sometimes there are business-specific reasons for companies to gather information about one of more CRMs. Reasons could be:

- to be proactive in preparation for upcoming legislation;
- to facilitate recycling;
- to design out a certain CRM from the product due to its supply criticality;
- when it is required by some environmental performance scheme.

The provisions concerning non-regulated CRMs are not normative but are optional. In the case that companies want to obtain information on CRMs from their suppliers, it is advised that they use IEC 62474, where the rules and formats are already formalized. However, in the case that manufacturers would prefer to declare their non-regulated CRM content in a different manner, some considerations on important aspects are included in Annex B.

C.13 What information needs to be provided on regulated CRMs (is it all the possible information that could be included in the IEC 62474 database)?

This would be defined by the regulation. Only information required in legislation is mandatory. Companies may ask for more information but these requests are handled in the same way as non-regulated requirements, e.g. by using company-specific lists and, if considered appropriate, by contractual terms.

C.14 What information needs to be provided on non-regulated CRMs? Why isn't a list of all CRMs with thresholds and other details provided?

The level of detail of information on non-regulated CRMs would be defined by each respective company. Companies could have different reasons to request information. The intended use of the information will determine the type and level of detail of the information to be requested. Companies should make sure that they align both. As information needs can vary greatly depending on the intended use for the information and the substance type, generic CRM lists are not likely to provide useful input either.

For example if the objective of the company is to investigate recyclability aspects of a certain CRM, it would be a burden to ask suppliers for information on such CRM at PPB (part per billion) level. More suitable amounts are likely to be grams or kilograms, depending on the application.

Likewise, if the objective is to design-out a CRM from very small product parts, asking the information to be provided in grams is not likely to generate a sufficiently accurate response.

C.15 Does a CRM need to be declared across all product types when it is regulated?

Substance declaration legislation can be product (group) specific or refer to a complete category (e.g. ErP). It is necessary to provide information on the presence of the specific CRMs in products only about products that are within the scope of such legislation. See also question C.8.

C.16 What type of requirements are normally requested, and which format?

For regulated CRMs, the requirements come from the legislation. Once the legislation is formally published, such requirements will be implemented in the IEC 62474 database. The IEC 62474 XML schema will then set rules and formats (boundaries) how the specific information will be exchanged across the supply chain.

For non-regulated CRMs, it is the manufacturer that defines the requirements. Such requirements will not be implemented in the IEC 62474 database, unless there is an industry-wide interest to have such a requirement implemented.

Annex B in the standard cover examples of typical aspects to be requested.

C.17 What is the process for regulated CRMs to be included in the IEC 62474 database?

When there is legislation requesting the declaration of one or more CRM in EEE, the IEC VT 62474 group will automatically evaluate the requirements in that piece of legislation, including product scope and application, and, as relevant, it will add such CRMs and the specific requirements into IEC 62474 database, following the IEC rules.

Regulated substances will appear as Category 1 in the DSL (declarable substances list), meaning that declaration for the specific product (group) or application will be mandatory.

C.18 What is the process for non-regulated CRMs to be included in the IEC 62474 database?

Non-regulated substances are not included in the DSL automatically. Any National Committee member of the IEC VT 62474 group is allowed to make a proposal for the inclusion of one or more substances or group of substances into the DSL (declarable substance list). The members of the IEC VT 62474 will then evaluate and approve (or reject) the proposal by applying the specific IEC 62474 rules.

Non-regulated substances can only enter to IEC 62474 DSL list as “criteria 3” substances, where declaration is optional (not mandatory).

C.19 Can companies add their own list of CRMs to the IEC 62474 database?

Companies can set their own company-specific list of substances, but these cannot be included in the IEC 62474 database. Instead, the company should have that list implemented in a declaration tool that operates according to IEC 62474 and that is capable of tracking company-specific requirements.

Another option is for the company to define their requirements and reach out directly to their suppliers asking for the declaration of a company-specific CRM list. In this case, care has to be taken by the company to set up strict formats for the declaration, to ensure that the data can be processed effectively. Some considerations are described in Chapter 5 and Annex B.

C.20 How can a company-specific substance list containing non-regulated CRMs be developed and how can it be combined with the applicable IEC list?

First of all the company should define the list of CRMs that they want to collect information on. Preferably the company should list the name and the CAS number of each desired substance, or if not possible, at least the substance group name. They should also define thresholds for reporting, accuracy of reporting and form of reporting (amount of substance, or otherwise absence or presence). The company should also define the scope of the requirement (all products/product parts or only some types/models). After creating this list the company can communicate it to relevant suppliers. Sometimes it is easiest to use software tools, which are able to support company specific lists. In most cases the company can implement their list into their chosen tool and collect information in the same way as indicated IEC 62474 database.

C.21 How to use the IEC 62474 database to obtain information on substances from my suppliers?

IEC 62474 is not a tool and cannot be used to gather information from suppliers. IEC 62474 sets the format and rules for communication and offers a list of declarable substances (DSL). These can then be used by a software tool developer to build a material declaration tool that can support the communication and transfer of data from responder to requester. Alternatively a company could develop its own material declaration tool, based on the IEC 62474 formats and rules.

C.22 Is it sufficient to ask for information at the level of substance groups only? Why is the substance level also referred to?

For Regulated CRMs it is sufficient to declare what it is defined in the legislation. For non-regulated CRMs, in order to have clarity regarding the presence of an element in a product, it is necessary to request information at the level of the substance(s) or substance group(s) containing this element. For example, from a practical point of view, in order to get information on the existence of Beryllium, companies should ask for information on Beryllium and its many compounds.

Substances have very different properties, and depending on the purpose of the information being collected it may not be sufficient to know which substance group is used in a product, but rather it may be necessary to know which specific substance is used. For example if one substance within the group is hazardous, it may be the case that information is only required on this substance (as it may be the only one that is regulated). On the other hand, if a complete group has similar properties and is of equal interest, it may be sufficient simply to know if that substance group is present or not.

C.23 What type of material declaration software tool is the standard referring to?

There are commercial tools available that have been designed to support the collection of data from suppliers by manufacturers. Normally they will be based on a set of rules on how to provide the data as set in e.g. IEC 62474. A company can also decide to create its own tool by using the IEC 62474 XML schema. Guidance how to create such a tool is given in the IEC/TR 62474-1 [9].

C.24 What are the different reporting threshold approaches?

A threshold is the minimum limit for reporting a substance:

- if the substance is not present or is present below the threshold, there is no need to report it;
- if the substance is present at or above the threshold, it needs to be reported.

When the reporting threshold is achieved, the reporting itself could be done on the basis of:

- absence/presence (YES or NO for its presence) or,
- absence (NO) or based on the exact amount (e.g. there are X g of substance Y in the product (part)) if present.

The threshold to trigger reporting could also be set on the level of “intentionally added”. In this case, it would only be necessary to report a substance if it was intentionally added to the product. In cases where it appears in the material as natural contaminant, then there would be no need to report it.

C.25 Is there guidance on accuracy and thresholds?

For most of the declarable substances and declarable substance group entries in the IEC 62474 database, the reporting threshold is based on the mass percent of the product. This is represented by a reporting threshold that is listed as “0,1 mass percent”.

However, there are declarable substances and declarable substance groups that have a reporting threshold with a different calculation basis, for instances in respect to the homogeneous material. If the reporting threshold refers to something other than the product itself (such as a material or a product part like a battery), this is indicated in the IEC 62474 database. If IEC 62474 is not used, this must be set up by the company itself.

When declaring a substance or substance group, the accuracy of the declared amount should be appropriate to the use. For example, if it is a hazardous substance, the amount declared needs to represent the worst case (maximum possible content), while if it is for recycling purposes it can, for instance, be expressed in terms of average amounts.

C.26 What is the difference between component and product part? Why does IEC 62474 refer to product part instead of component?

It is very difficult to define a “component” for the sake of material declaration. In the material declaration examples in item C.27 we show for example a circuit board assembly (a product part) that contains a battery (that is normally seen as a product). This example shows that it is very difficult to refer to components without making mistakes or confusion. Referring to product part, without specifying the level is a safer approach.

C.27 Are there examples of material declaration according to the IEC 62474 rules?

The information provided below is as specified in Edition 1 of IEC 62474 (IEC 62474:2012). The examples were inspired by IEC/TR 62474-1 [9].

Table C.1 — Material Declaration Example (1)

Business Information	
BusinessInfo	Business information
Authoriser name	Jan Smit
Authoriser title	Quality Assurance Manager
Authoriser phone	+31 40 1234567
Authoriser email	jan.smit@dutchy.com
Contact name	Fred Jansen
Contact title	QA and Data management Assistant
Contact phone	301–555–2345
Contact email	fred.jansen@dutchy.com
SupplyCompany name	Dutchy
SupplyCompany UniqueID authority	DUNS
SupplyCompany UniqueID identity	987654321
Product Information	
ProductID	Product information
ProductID.identifier	ABC4523
ProductID name	Electronic component
ProductID effectiveDate	2013–06–06
ProductID.Mass	0,02 g
unitType	Each

Declarable Material, Substance Group and Substances Information											
Material				Substance Group				Substance			
Name	Class ID	Mass (g)	Mass (%)	Name	Mass (g)	Mass (%)	Material Mass (%)	Name	CAS	Mass (g)	Mass (%)
Glass	M-010		19	Lead/Lead Compounds			52,9	Lead Monoxide (PbO)	1317–36–8		57
NOTE Declaration of other declarable substance group (e.g. Cadmium/ Cadmium Compounds) does not appear in the declaration as this substance group is not found in the material.											

682

Table C.2 — Material Declaration Example (2): an electronic component

Business Information							
BusinessInfo				Business information			
Authoriser name				Jan Smit			
Authoriser title				Quality Assurance Manager			
Authoriser phone				+31 40 1234567			
Authoriser email				jan.smit@dutchy.com			
Contact name				Fred Jansen			
Contact title				QA and Data management Assistant			
Contact phone				301–555–2345			
Contact email				fred.jansen@dutchy.com			
SupplyCompany name				Dutchy			
SupplyCompany UniqueID authority				DUNS			
SupplyCompany UniqueID identity				987654321			
Product Information							
ProductID				Product information			
ProductID.identifier				DBA4523			
ProductID name				Electronic component			
ProductID effectiveDate				2016–06–06			
ProductID.Mass				0,12 g			
unitType				Each			
Material and Substances Information (reporting in Mass %)							
Material				Substance			
Name	Class ID	Mass (g)	Mass (%)	Name	CAS	Mass (g)	Mass (%)
Ceramic	M-010		86	Barium titanate	12047–27–7		87
				Bismuth titanium oxide	11115–71–2		13

Electrodes	M-008		4	Silver	7440-22-4		75
				Palladium	7440-05-3		25
Termination	M-008		2	Gold	7440-57-5		100
Nickel plating	M-006		3	Nickel	7440-02-0		100
Tin plating	M-009		5	Tin	7440-31-5		100
Material and Substances Information (reporting in Mass (g))							
Material				Substance			
Name	Class ID	Mass (g)	Mass (%)	Name	CAS	Mass (g)	Mass (%)
Ceramic	M-010	0,103 2		Barium titanate	12047-27-7	0,089 8	
				Bismuth titanium oxide	11115-71-2	0,013 4	
Electrodes	M-008	0,004 8		Silver	7440-22-4	0,003 6	
				Palladium	7440-05-3	0,001 2	
Termination	M-008	0,002 4		Gold	7440-57-5	0,002 4	
Nickel plating	M-006	0,003 6		Nickel	7440-02-0	0,003 6	
Tin plating	M-009	0,006 0		Tin	7440-31-5	0,006 0	
NOTE In this example a declaration of 100 % of material composition is shown. Note that this not a requirement. Only substance groups or substances with mandatory reporting requirements shall be reported and the reporting of all other substance groups or substances is optional.							

683

Table C.3 — Material Declaration Example (3): a circuit board and battery assembly

Business Information	
BusinessInfo	Business information
Authoriser name	Jan Smit
Authoriser title	Quality Assurance Manager
Authoriser phone	+31 40 1234567
Authoriser email	jan.smit@dutchy.com
Contact name	Fred Jansen
Contact title	QA and Data management Assistant
Contact phone	301-555-2345
Contact email	fred.jansen@dutchy.com
SupplyCompany name	Dutchy
SupplyCompany UniqueID authority	DUNS
SupplyCompany UniqueID identity	987654321

Product Assembly Information						
ProductID			Product information			
ProductID.identifier			ASS-XYZ			
ProductID name			Assembly			
ProductID effectiveDate			2017–01–10			
ProductID.Mass			6,3 g			
unitType			Each			
Product Part (1) Information						
ProductID.identifier			CIRC-FR0			
ProductID name			Circuit board			
ProductID effectiveDate			2017–01–10			
ProductID.Mass			4 g			
Number of Units			1			
Product Part (2) Information						
ProductID.identifier			BATT-S111			
ProductID name			Battery			
ProductID effectiveDate			2017–01–10			
ProductID.Mass			2,3 g			
Number of Units			1			
Product Part and Substance Group Information						
Product Part			Substance Group			
Name	Mass (g)	Mass (%)	Name	Mass (g)	Mass (%)	Material Mass (%)
Battery	2,3		Mercury/Mercury Compounds		0,296	
			Lead/Lead Compounds		0,004 8	
NOTE 1 The Battery and Circuit Board are reported as product part.						
NOTE 2 The battery contains declarable substances that exceed threshold and should be declared.						

Table C.4 — Material Declaration Example (4): a circuit board and battery assembly (cont.)

Product Part, Material, Substance Group, and Substance Information (100 % of the mass of the assembly is declared)														
Product Part			Material				Substance Group				Substance			
Name	Mass (g)	Mass (%)	Name	Class ID	Mass (g)	Mass (%)	Name	Mass (g)	Mass (%)	Material Mass (%)	Name	CAS	Mass (g)	Mass (%)
Circuit board	4		Laminate			100	Brominated Flame Retardant (BFR)			21,8	Tetrabromobisphenol A diglycidylether-Tetrabromobisphenol A copolymer	33294–14–3		40,86
											Silicon Oxide (SiO ₂)	7631–86–9		54,5
											Copper	7440–50–8		4,34
											Tin	7440–31–5		0,3
Battery	2,3		Positive electrode	M-011		21,3					Silver oxide (Ag ₂ O)	20667–12–3		17,84
											Manganese oxide (MnO ₂)	1313–13–9		82,16
			Negative electrode	M-007		10,5					Zinc	7440–66–6		97,131
							Mercury/Mercury Compounds		2,818 7		Mercury	7439–97–6		2,818 7
							Cadmium/Cadmium Compounds		0,003 79		Cadmium	7440–43–9		0,003 79
							Lead/Lead Compounds		0,045 71		Lead	7439–92–1		0,045 71
			Electrolyte	M-011		3,5					Potassium Hydroxide (KOH)	1310–58–3		10
			Casing steel	M-001		64,7					Iron	7439–89–6		99,12
											Carbon	7439–89–6		0,15
											Manganese	7439–96–5		0,60
											Phosphorus	7723–14–0		0,10
											Sulfur	7704–34–9		0,03
NOTE All materials, substance groups and substances are declared (to 100 % of the mass of the product parts) although this is not a requirement. Only when threshold levels are exceeded, the substance groups or substances with mandatory reporting requirements are reported and the reporting of all other substance groups or substances is optional.														

687

Bibliography

- 688 [1] Blengini, G.A., Blagoeva, D., Dewulf, J., Torres de Matos, C., Nita, V., Vidal-Legaz, B., Latunussa,
689 C.E.L., Kayam, Y., Talens Peirò, L., Baranzelli, C., Manfredi, S., Mancini, L., Nuss, P., Marmier, A.,
690 Alves-Dias, P., Pavel, C., Tzimas, E., Mathieux, F., Pennington, D. and Ciupagea, C. *Assessment of the*
691 *Methodology for Establishing the EU List of Critical Raw Materials*, Publications Office of the European
692 Union, Luxemburg, 2017, 978-92-79-69612-1, doi:10.2760/73303, JRC106997.
- 693 [2] {COM(2017) 490 final}: COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
694 PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE
695 COMMITTEE OF THE REGIONS on the 2017 list of Critical Raw Materials for the EU.
- 696 [3] {COM(2015) 614 final}: COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
697 PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE
698 COMMITTEE OF THE REGIONS on the Closing the loop - An EU action plan for the Circular
699 Economy.
- 700 [4] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing
701 a framework for the setting of Ecodesign requirements for energy-related products.
- 702 [5] {SWD(2014) 171 final}: COMMISSION STAFF WORKING DOCUMENT on the implementation of the
703 Raw Materials Initiative Accompanying the document Communication from the Commission to the
704 European Parliament, The Council, The European Economic and Social Committee and the Committee
705 of the Regions on the review of the list of critical raw materials for the EU and the implementation of the
706 Raw Materials Initiative.
- 707 [6] EN 45555,³ *General methods for assessing the recyclability and recoverability of energy-related*
708 *products*
- 709 [7] CEN-CLC/TR 45550,⁴ *Definitions related to material efficiency*
- 710 [8] GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING (GHS). *Definitions and Abbreviations*.
711 Chapter 1.2. 2017
- 712 [9] IEC/TR 62474-1, *Material declaration for products of and for the electrotechnical industry – Part 1:*
713 *Guidance for the implementation of IEC 62474*
- 714 [10] IEC 62474, [online database], *Material declaration for products of and for the electrotechnical industry*
715 [viewed 2018-09-15], Available at <http://std.iec.ch/iec62474>
- 716 [11] IEC 63000, *Technical documentation for the assessment of electrical and electronic products with*
717 *respect to the restriction of hazardous substances*
- 718 [12] INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY. (1998). *Compendium of Analytical*
719 *Nomenclature (definitive rules 1997, 3rd. ed.)*. Oxford: Blackwell Science. ISBN 0-86542-6155.
- 720 [13] American Chemical Society. "CAS REGISTRY and CAS Registry Number".

³ Under preparation. Stage at the time of publication: CEN-CLC/prEN 45555:2018

⁴ Under preparation. Stage at the time of publication: CEN-CLC/prTR 45550:2018