

BS EN 16245-1:2013



BSI Standards Publication

Fibre-reinforced plastic composites — Declaration of raw material characteristics

Part 1: General requirements

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National foreword

This British Standard is the UK implementation of EN 16245-1:2013.

The UK national committee is of the opinion that, in all parts of EN 16245, the use of the terms “guaranteed minimum value” and “guaranteed maximum value” is not appropriate within a voluntary-based standard. Furthermore, the absolute “minimum value” and “maximum value” cannot be determined practicably, so that “statistical minimum value” (defined in EN 16245-1) and “statistical maximum value” (calculated in a similar manner using maximal values) are preferred.

The UK participation in its preparation was entrusted to Technical Committee PRI/42, Fibre reinforced thermosetting plastics and prepregs.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Fibre-reinforced plastic composites - Declaration of raw material characteristics - Part 1: General requirements

Composites plastiques renforcés de fibres - Déclaration des caractéristiques des matières premières - Partie 1: Exigences générales

Faserverstärkte Verbundwerkstoffe - Angabe von Werkstoffeigenschaften - Teil 1: Allgemeine Anforderungen

This European Standard was approved by CEN on 1 March 2013.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 16245-1:2013) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

EN 16245 consists of the following parts, under the general title *Fibre-reinforced plastic composites — Declaration of raw material characteristics*:

- *Part 1: General requirements*
- *Part 2: Specific requirements for resin, curing systems, additives and modifiers*
- *Part 3: Specific requirements for fibre*
- *Part 4: Specific requirements for fabrics*
- *Part 5: Specific requirements for core materials*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the minimum general information to be declared for materials to be used for manufacturing fibre-reinforced plastic composites products.

This document includes requirements for the Certificate of Analysis (CoA). The purpose of the CoA is to verify that material properties and quality conform to the declared values.

This part of the standard is applicable to resins, curing systems, additives and modifiers, fibres, fabrics and core materials. The current version of the standard includes the following:

- the thermoset resins polyesters and vinyl esters;
- glass and carbon fibres;
- knitted/stitched fabrics;
- foam core and balsa core.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16245-2, *Fibre-reinforced plastic composites — Declaration of raw material characteristics — Part 2: Specific requirements for resin, curing systems, additives and modifiers*

EN 16245-3, *Fibre-reinforced plastic composites — Declaration of raw material characteristics — Part 3: Specific requirements for fibre*

EN 16245-4, *Fibre-reinforced plastic composites — Declaration of raw material characteristics — Part 4: Specific requirements for fabrics*

EN 16245-5, *Fibre-reinforced plastic composites — Declaration of raw material characteristics — Part 5: Specific requirements for core materials*

ISO 80000-1, *Quantities and units — Part 1: General*

3 Terms and definitions

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

- 3.1**
mean value
sum of the (population or sample) data divided by the number of values used
- 3.2**
guaranteed minimum or maximum value
value guaranteed by the supplier, such as no single sample value is below or above the declared values, respectively

3.3

manufacturer

the organisation which makes the material and/or the product in the form and condition in which it is delivered to the purchaser, either directly or through a supplier

Note 1 to entry: If a supplier modifies a material from the original manufacturer, the new material is no longer in the responsibility of the original manufacturer, and the supplier is, according to this standard, the manufacturer of the material.

Note 2 to entry: A manufacturer may also be a supplier, taking full responsibility of the original material.

[SOURCE: ISO 8591-1:1989, 2.1.9]

3.4

maximum value

value such that no single sample value is above the declared value

3.5

minimum value

value such that no single sample value is below the declared value

3.6

nominal value

supplier defined value, typically defined by the mean value derived from a historical database of the respective property

3.7

shelf life

period of time after production during which a material or product that is kept under specified conditions retains its specified properties

[SOURCE: ISO 1382:2012, 2]

3.8

statistical minimum value

mean value minus two standard deviations of a historical population, i.e. there is 97,6 % probability that the test values are above this statistically defined minimum value

Note 1 to entry: This implies that all or part of the received material can have CoA values below the statistical minimum value declared by the manufacturer. In order to avoid this, the customer can instead require guaranteed minimum value to be declared.

3.9

supplier

organisation or person that provides a product

Note 1 to entry: Adapted from ISO 10006:2003.

Note 2 to entry: The supplier may be different from the manufacturer.

Note 3 to entry: It is the responsibility of the supplier to supply all required documentation with the material.

4 Content of a declaration

A declaration shall consist of information according to Clause 5 of this part and Clause 5 of the respective parts of this standard.

Upon request, the specific declared properties according to Parts 2 to 5 of this standard shall be documented in a Certificate of Analysis (CoA).

The units used in a declaration shall be expressed in accordance with the International System of Units (SI), as specified in ISO 80000-1. Other units may be given, but only in addition to the SI units.

If required information exists in other documents, specific reference to these documents and/or sections in these documents is accepted.

Every page of a declaration document shall include the name and material number or code for identification of the material as used on the label, and shall be dated and numbered. The date indicated shall be the revision date of the material delivered. The page numbering system shall include the total number of pages or shall indicate the last page as such.

The previous revision date as well as the latest revision date shall be posted on the first page of a declaration.

The text of the declaration shall be written in a language acceptable to the recipient.

5 General information to be declared

5.1 General declaration

The following information shall be declared:

- a) reference to this part of EN 16245 (i.e. EN 16245-1);
 - 1) If the declaration deviates from this standard, these deviations shall clearly be stated in the declaration.
- b) type of material (i.e. polyester resin, glass fibre, etc.);
- c) material number or material code:
 - 1) This section shall state the identification of the material as used on the label. Material number or material code shall be a unique designation which differentiates this material from any other material. There shall exist only one declaration (set of documents) to each identity or designation.
 - 2) If a material formulation is changed so that any property or information in the original declaration is changed, the material and/or its declarations shall:
 - i) be given a new material number, code or name with a new relevant set of declaration documents; or
 - ii) be given a revision number or date that corresponds to the date of change in material formulation.
 - 3) The brand name shall be stated.
- d) manufacturer;
- e) supplier (i.e. to be stated if different from the manufacturer);
- f) location of manufacturing plant (i.e. valid for the manufacturer of the delivered material);
- g) shelf life;
- h) packaging information (i.e. packed for delivery);
- i) transportation and storage requirements.

NOTE Information about special requirements for handling and storing other than required by Material Safety Data Sheet (MSDS).

5.2 Documentation available at delivery

The documentation at delivery of a material shall include the following information:

- a) the requirements given in 5.1, b) to i);
- b) tracing information, exact code allowing for complete material traceability (i.e. batch-, lot- or disposition-number);
- c) quantity for each unit delivered and the total quantity for the delivery;

NOTE 1 The measuring unit for quantity may differ for different raw materials (i.e. barrel, volume, weight, width, meter/bobbins, kilogram/barrel, meter/roll, kilogram/roll, m³ for bulk quantity, etc.).

- d) date of production;

NOTE 2 This specifies the date at which the material is produced. This date can be given as day, month, week and year. For large batches produced over a time period, the minimum information to include is week and year.

- e) expiry date:
 - 1) The date at which the product expires when handled and stored according to the supplier's recommendation, i.e. date of production + shelf life defines this date.
 - 2) A reference to the manufacturer's documents describing recommendation and/or requirements on storage and handling shall be given.
 - 3) The supplier may give advice on the possibility of requalification of an expired product.

5.3 Labelling

The label of the material shall include the following information:

- a) the requirements given in 5.1 b), c) and d);
- b) the requirements given in 5.2 b), d) and e);
- c) other legislations and directives may be applicable and shall then be followed.

The label shall either be marked on each package and/or on the total unit of delivery. The tracing information (5.2 b)) shall be given for each delivered unit of material.

6 Certificate of Analysis (CoA)

The Certificate of Analysis (CoA) verifies that the delivered material complies with the nominal values, the mean value, the statistical minimum values or the guaranteed minimum and maximum values for the properties of the material as given in EN 16245-2, EN 16245-3, EN 16245-4 or EN 16245-5, as relevant (or as applicable).

The CoA shall be given on request. The request for the CoA shall be given no later than the date of order. The CoA shall be given in accordance with the test method standard given for the specific properties listed in Clause 5 in the respective parts of this standard.

The CoA shall contain material information and tracing information according to 5.1 c) and 5.2 b) of this standard. Each sheet of the CoA shall be clearly marked with material identification and batch number.

All the properties listed in each of the respective parts of this standard can be requested. The extent of the CoA is to be agreed between the supplier and the customer.

Bibliography

- [1] ISO 1382:2012, *Rubber — Vocabulary*
- [2] ISO 8591-1:1989, *Aerospace — Wrought aluminium and aluminium alloys — Inspection, testing and supply requirements — Part 1: General requirements*
- [3] ISO 10006:2003, *Quality management systems — Guidelines for quality management in projects*
- [4] ISO 19003, *Rubber and rubber products — Guidance on the application of statistics to physical testing*

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