



SLOVENSKI STANDARD SIST EN ISO 1172:2000

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Textile-glass-reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content - Calcination methods (ISO 1172:1996)

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Textilglasverstärkte Kunststoffe - Prepregs, Formmassen und Laminate - Bestimmung des Textilglas- und Mineralfüllstoffgehalts - Kalzinierungsverfahren (ISO 1172:1996)

[SIST EN ISO 1172:2000](https://standards.iteh.ai/catalog/standards/sist/783c1810-5711-40ef-bfba-3a1247c0f732/sist-en-iso-1172-2000)

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Plastiques renforcés de verre textile - Préimprégnés, compositions de moulage et stratifiés - Détermination des taux de verre textile et de charge minérale - Méthodes par calcination (ISO 1172:1996)

Ta slovenski standard je istoveten z: EN ISO 1172:1998

ICS:

83.120 Ube a] [|ã ^iã Reinforced plastics

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EUROPEAN STANDARD

EN ISO 1172

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1998

ICS 83.120

Supersedes EN 60:1977

Descriptors: see ISO document

English version

Textile-glass-reinforced plastics - Prepregs, moulding
compounds and laminates - Determination of the textile-glass
and mineral-filler content - Calcination methods (ISO 1172:1996)

Plastiques renforcés de verre textile - Préimprégnés,
compositions de moulage et stratifiés - Détermination des
taux de verre textile et de charge minérale - Méthodes par
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Textilglasverstärkte Kunststoffe - Prepregs, Formmassen
und Lamine - Bestimmung des Textilglas- und
Mineralfüllstoffgehalts - Kalzinierungsverfahren (ISO
1172:1996)

This European Standard was approved by CEN on 3 August 1998.

CEN 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 Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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EN ISO 1172:1998

Foreword

The text of the International Standard from Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

This European Standard replaces EN 60:1977.

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 February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 1172:1996 has been approved by CEN as a European Standard without any modification.

[SIST EN ISO 1172:2000](https://standards.iteh.ai/catalog/standards/sist/783c1810-5711-40ef-bfba-2ad3d7c24762/sist-en-iso-1172-2000)

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INTERNATIONAL STANDARD

**ISO
1172**

Second edition
1996-12-15

Textile-glass-reinforced plastics — Prepregs, moulding compounds and laminates — Determination of the textile- glass and mineral-filler content — Calcination methods

SIST EN ISO 1172:2000

<https://standards.iteh.ai/catalog/standards/sist/783c1810-5711-40ef-bffa-2ad3d1c24762/sist-en-iso-1172-2000>

Plastiques renforcés de verre textile — Préimprégnés, compositions de moulage et stratifiés — Détermination des taux de verre textile et de charge minérale — Méthodes par calcination



Reference number
ISO 1172:1996(E)

ISO 1172:1996(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 1172 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

This second edition cancels and replaces the first edition (ISO 1172:1975), which has been technically revised (an additional method, method B, has been included and the annex, which concerned the estimation of the standard deviation, has been replaced by annex A describing an alternative method of separating chopped glass fibre from mineral filler).

Annex A of this International Standard is for information only.

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International Organization for Standardization
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Textile-glass-reinforced plastics — Prepregs, moulding compounds and laminates — Determination of the textile-glass and mineral-filler content — Calcination methods

WARNING — This International Standard does not give details of the precautions that should be taken to meet health and safety requirements. The test methods described require the use of high temperatures and concentrated acids. It is the responsibility of the user of this International Standard to follow the appropriate health and safety procedures.

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1 Scope

This International Standard specifies two calcination methods for the determination of the textile-glass and mineral-filler content of glass-reinforced plastics. <https://standards.iteh.ai/catalog/standards/sist/783c1810-5711-40ef-bfba-2ad3d7c24762/sist-en-iso-1172-2000>

Method A: for the determination of the textile-glass content when no mineral fillers are present.

Method B: for the determination of the textile-glass and mineral-filler content when both components are present.

This International Standard is applicable to the following types of material:

- prepregs made from yarns, rovings, tapes or fabrics;
- SMC, BMC and DMC moulding compounds;
- textile-glass-reinforced thermoplastic moulding materials and granules;
- filled or unfilled textile-glass laminates made with thermosetting or thermoplastic resins.

The methods are not applicable to the following types of reinforced plastic:

- those containing reinforcements other than textile glass;
- those containing materials which do not completely burn off at the test temperature (for example, those based on silicone resin);
- those containing mineral fillers which degrade at temperatures below the minimum calcination temperature.

For these materials, ISO 11667, *Fibre-reinforced plastics — Moulding compounds and prepregs — Determination of resin, reinforcement-fibre and mineral-filler content — Dissolution method*, may be used.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 472:1988, *Plastics — Vocabulary*.

ISO 4793:1980, *Laboratory sintered (fritted) filters — Porosity grading, classification and designation*.

ISO 8604:1988, *Plastics — Prepregs — Definitions of terms and symbols for designations*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 472 and ISO 8604 apply.

4 Principle

A test specimen is weighed and subsequently calcinated at a defined temperature. The specimen is then reweighed and the non-combustible matter content (glass + filler) obtained by determining the difference in mass of a test specimen before and after calcination in one of the following ways:

- a) In the case of materials containing no fillers the glass content is calculated directly from the difference in mass (method A);
- b) In the case of materials containing both glass and filler, the glass and filler remaining after calcination are separated by dissolution of the filler in hydrochloric acid. The difference between the mass of the specimen before calcination and the mass of the dried specimen after reaction with acid is used to measure the glass content. The filler content is obtained by calculating the difference between the mass of the specimen after calcination and the mass of the dried specimen after reaction with acid (method B).

The test method requires that all weighings be made at constant mass after repeated calcination and/or drying. In those cases where known materials are being tested regularly, a minimum time for the calcination and drying stages may be determined by experiment to ensure that constant mass has been reached.

NOTES

- 1 If the material tested contains a resin which is combustible under the test conditions and/or fillers which do not degrade by calcination, then the loss on ignition is equal to the resin content. It should be noted that the resin content calculated in this way includes the combustible part of the other components in the composition (glass size, pigments, etc.) but this is usually small compared to the resin content.
- 2 In those cases where fillers are present that are degraded at the test temperature, it is not possible to obtain an accurate determination of the glass, resin or filler content.

5 Sampling

5.1 The determination of the glass and filler contents shall be carried out in parallel on two specimens which are as near identical as possible. The result of the test is the average of the measurements on the two specimens, provided that the difference between the two measurements is less than 5 %. If this is not the case, a third specimen shall be tested which is as near identical to the other two as possible. The three values shall then be used to calculate the test result.

5.2 In order to carry out an evaluation test the result of which is as representative as possible of the glass and filler content of the elementary unit or laboratory sample, this test procedure may need to be repeated a certain number of times, at specific locations in the elementary unit examined. The number of times and the actual

locations will be defined either in the product specification or by the person requesting the analysis. In the latter case, the number and location will be decided by experience or as the result of previous work.

5.3 For all tests other than those on elementary units, take specimens that are as representative of the material under test as circumstances allow.

6 Preparation of test specimens

The test specimens shall be fully representative of the piece or batch examined. They shall be obtained in accordance with clause 5.

Unless otherwise specified, it is recommended that the specimens be cut out in a shape which allows them to fit into a silica boat or porcelain crucible.

The mass of each specimen shall be within the range

2 g to 20 g for prepregs and moulding compounds;

2 g to 10 g for laminates.

For each test result, use a minimum of two specimens (see 5.1).

In the case of prepregs and moulding compounds which contain solvents or free monomer, care shall be taken to avoid loss of volatile matter. For SMC, the protective release film shall not be removed from the laboratory sample or the test specimen until just before commencing the test procedure. All prepreg and moulding-compound laboratory samples, including SMC, shall be sealed in a vapourproof plastic bag immediately after the laboratory sample has been taken.

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7 Determination

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The choice of method used to determine the glass and filler content will depend on the presence or absence of filler. The methods described in this International Standard are

Method A: for the determination of the glass content when no fillers are present.

Method B: for the determination of the glass and filler content when both components are present.

7.1 Method A

7.1.1 Reagents

No reagents are required for method A.

7.1.2 Apparatus

Normal laboratory apparatus, plus the following:

7.1.2.1 Balance, graduated to 0,1 mg.

7.1.2.2 Silica boat or porcelain crucible, of a suitable size to contain a specimen.

7.1.2.3 Muffle furnace, located under a ventilated hood and capable of maintaining the chosen temperature (see 7.1.3.2) to within ± 20 °C.

7.1.2.4 Desiccator, containing a suitable drying agent (e.g. silica gel).