SLOVENSKI STANDARD
SIST EN 60672-1:1998

01-junij-1998

Ceramic and glass insulating materials - Part 1: Definitions and classification (IEC 60672-1:1995)

Ceramic and glass insulating materials -- Part 1: Definitions and classification

Keramik- und Glas-Isolierstoffe -- Teil 1: Begriffe und Gruppeneinteilung

Matériaux isolants à base de céramique ou de verre -- Partie 1: Définitions et classification

Ta slovenski standard je istoveten z: EN 60672-1:1995

ICS:

29.035.30	Keramični in stekleni izolacijski materiali	Ceramic and glass insulating materials

SIST EN 60672-1:1998 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60672-1

July 1995

ICS 01.040.29; 29.040.20

Supersedes HD 426.1 S1:1983

Descriptors: Ceramic and glass insulants, classification, properties, definitions

English version

Ceramic and glass insulating materials
Part 1: Definitions and classification
(IEC 672-1:1995)

Matériaux isolants à base de céramique ou de verre
Partie 1: Définitions et classification
(CEI 672-1:1995)

Keramik- und Glas-Isolierstoffe
Teil 1: Begriffe und Gruppeneinteilung
(IEC 672-1:1995)

This European Standard was approved by CENELEC on 1995-07-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 15C/469/DIS, future edition 2 of IEC 672-1, prepared by SC 15C, Specifications, of IEC TC 15, Insulating materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60672-1 on 1995-07-04.

This European Standard supersedes HD 426.1 S1:1983.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-04-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 672-1:1995 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 1006	1991	Methods of test for the determination of the glass transition temperature of electrical insulating materials	EN 61006	1993

INTERNATIONAL STANDARD

IEC 60672-1

Second edition
1995-07

Ceramic and glass insulating materials –

Part 1:
Definitions and classification

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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CERAMIC AND GLASS INSULATING MATERIALS –

Part 1: Definitions and classification

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 672-1 has been prepared by sub-committee 15C: Specifications, of technical committee 15: Insulating materials.

This second edition cancels and replaces the first edition IEC 672-1 (1980) and constitutes a technical revision. The intention has been to improve the instruction to the user by defining more clearly the types of material that fall into the individual classes of the classification as an aid to their effective selection and use.

The class of ceramic insulating materials that has been deleted from the first edition is Class C 830, zirconia ceramics, for the reason that there are no known applications where zirconia, with its inferior properties to those of alumina, would be used as an insulator.

Additional classes of ceramic and glass materials which are in common use for electrical insulation but which were excluded from the previous edition have been incorporated, specifically:

C 140	Lithia porcelains
C 430	Lime-based porcelains
C 440	Zircon porcelains
C 910	Aluminium nitrides
C 920	Boron nitrides
C 930	Reaction bonded silicon nitride
C 935	Dense silicon nitrides

GC 110	Glass-ceramics, bulk type
GC 120	Glass-ceramics, sintered type
GM 110	Glass-bonded mica, natural mica and glass frit
GM 120	Glass-bonded mica, glass-ceramic type
G 795	High-silica glass, > 95 % to 99 % SiO_2
G 799	High-silica glass, > 99 % SiO_2

There has been some rationalization of the class numbering for borosilicate glasses:

- the former G 200 and G 300 groups have been combined under G 200;
- the former group G 200, chemically resistant borosilicate glass, has been renumbered G 220;
- the former subgroup G 310, low loss electrically resistant glass, has been renumbered G 231;
- the former subgroup G 320, high voltage electrically resistant glass, has been renumbered G 232.

The text of this standard is based on the following documents:

DIS	Report on voting
15C/469/DIS	15C/542/RVD

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

IEC 672 consists of the following parts, under the general title *Ceramic and glass insulating materials:*

Part 1: 1995, Definitions and classification

Part 2: 1980, Methods of test

Part 3: 1984, Specifications for individual materials

CERAMIC AND GLASS INSULATING MATERIALS –

Part 1: Definitions and classification

1 Scope

This part of IEC 672 is applicable to ceramic, glass-ceramic, glass-mica and glass materials for electrical insulating purposes. This part of IEC 672 gives definitions of terms used, and provides tables classifying the various material types into groups according to compositional type, property attributes and applications.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 672. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreement based on this part of IEC 672 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid normative documents.

IEC 1006: 1991, *Methods of test for the determination of the glass-transition temperature of electrical insulating materials*

3 Definitions

For the purposes of this part of IEC 672, the following definitions apply.

3.1 **Insulating material:** A solid with negligibly low electrical conductivity, used to separate conducting parts of different electrical potentials.

3.2 **ceramic insulating material:** An inorganic material shaped before firing, of which the principal constituents usually comprise polycrystalline silicates, aluminosilicates, and simple or complex oxide compounds, e.g. titanates. The definition also covers certain non-oxide materials such as aluminium nitride.

3.3 **glass insulating material:** An inorganic material, usually a mixture of oxides produced by melting and subsequent solidification essentially without crystallization.

3.4 **annealed glass:** Glass cooled slowly from an elevated temperature so that residual stresses of thermal origin can be neglected in relation to applied stresses.

3.5 **toughened glass:** Glass prepared by pre-stressing such that all body surfaces are in a state of compression, while the interior zone is in tension and is fully protected by the compressive skin.