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Specification for laminated pressboard –

Part 2:
Methods of test

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR LAMINATED PRESSBOARD –

Part 2: Methods of test

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60763-2 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This second edition cancels and replaces the first edition published in 1991 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition.

a) The standard has generally been revised editorially and brought into line with IEC 60641-2.
b) The test method for the determination of the internal ply strength has been replaced with an alternative method.
c) The test method for the determination of the thermal resistance has been enlarged in its scope.

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

FDIS	Report on voting
15/360/FDIS	15/373/RVD

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

The list of all parts of the IEC 60763 series, under the general title *Specification for laminated pressboard*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This International Standard deals with laminated pressboard as defined in Clause 2 of IEC 60763-1.

IEC 60641 applies to pressboard which is not laminated, and the material covered by this International Standard is made from sheets conforming to the requirements of that publication.

SPECIFICATION FOR LAMINATED PRESSBOARD –

Part 2: Methods of test

1 Scope

This part of IEC 60763 gives methods of test applicable for the material classified in IEC 60763-1.

2 Normative references

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

IEC 60243-1:1998, *Electrical strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60247:2004, *Insulating liquids – Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity*

IEC 60250:1969, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths.*

IEC 60296:2003, *Fluids for electrotechnical applications – Unused mineral insulating oils for transformers and switchgear*

IEC 60641-2:2004, *Pressboard and presspaper for electrical purposes – Part 2: Methods of tests*

IEC 60763-1:1983, *Specification for laminated pressboard – Part 1: Definitions, classification and general requirements*

IEC 61125:1992, *Unused hydrocarbon-based insulating liquids – Test methods for evaluating the oxidation stability*

IEC 62021-1:2003, *Insulating liquids – Determination of acidity – Part 1: Automatic potentiometric titration*

ISO 287:1985, *Paper and board – Determination of moisture content – Oven-drying method*

ISO 2144:1997, *Paper, board and pulps – Determination of residue (ash) on ignition at 900 degrees C*

3 Conditioning of test specimens

Since the conditioning of laminated pressboard is very time-consuming, the material is tested either as received or dried. Only in case of dispute shall the material be conditioned according to the following procedure.

The conditioning shall be made at 23 °C ± 2 K and (50 ± 5) % relative humidity until the moisture content of the specimen reaches 5,5 % to 8 %. The conditioning shall be approached from the dry side after drying at 70 °C ± 5 K for a period sufficient to ensure that the conditioning atmosphere produces a mass increase in the specimen.

4 Drying of test specimens

4.1 Method A (preferable)

The test specimens shall be dried at 105 °C ± 2 K for (24 ± 1) h in an oven with forced air circulation and subsequently at 105 °C ± 2 K for (48 ± 2) h in a vacuum chamber at a residual pressure of not more than 1 kPa. The specimens shall then be removed and allowed to cool in a desiccator before the test.

4.2 Method B

Test specimens shall be dried in a ventilated oven at 105 °C ± 2 K for (168 ± 8) h at atmospheric pressure. When test pieces of the specified size are dried according to method B, test results similar to the test results obtained after drying according to method A may be expected.

5 Dimensions

5.1 Thickness

5.1.1 Test apparatus

An external screw-type micrometer having measuring faces of 6 mm to 8 mm diameter shall be used for testing. The measuring faces shall be flat to within 0,001 mm and parallel to within 0,003 mm. The micrometer shall be graduated in divisions of 0,01 mm and have an accuracy of ± 0,005 mm. The pressure exerted on the specimens shall be 0,1 MPa to 0,3 MPa.

5.1.2 Procedure

The thickness of the laminated pressboard sheet shall be measured to the nearest 0,01 mm in the as-received condition at eight points, two along each edge, but not less than 20 mm from the edge.

In case of dispute, a strip (40 ± 1) mm wide shall be cut across the full width of the sheet and, from this strip, at eight equally spaced positions eight test specimens shall be cut, each not less than 40 mm long. The test specimens shall be conditioned in accordance with Clause 3 and the thickness of each measured at a point near the centre of each test specimen.

5.1.3 Result

The central value of the eight measurements shall be taken as the result, and the minimum and maximum values obtained shall be reported.