

Varnished fabrics for electrical purposes —

Part 2: Methods of test

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Cooperating organizations

The General Electrotechnical Engineering Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

- Associated Offices Technical Committee
- British Approvals Service for Electric Cables Ltd.
- British Electrical and Allied Manufacturers' Association (BEAMA)
- British Radio Equipment Manufacturers' Association
- British Steel Corporation
- Department of Energy (Electricity)
- Electric Cable Makers' Confederation
- Electrical Contractors' Association
- Electrical Contractors' Association of Scotland
- Electrical, Electronic, Telecommunications and Plumbing Union
- Electrical Research Association*
- Electricity Supply Industry in England and Wales*
- Electronic Components Industry Federation*
- Engineering Equipment Users' Association
- Health and Safety Executive
- Home Office
- Institution of Electrical Engineers
- Ministry of Defence*
- National Coal Board
- Oil Companies' Materials Association
- Post Office*
- Telecommunication Engineering and Manufacturing Association (TEMA)

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- Adhesive Tape Manufacturers' Association
- British Paper and Board Industry Federation (PIF)
- British Plastics Federation
- Department of Industry (British Calibration Service)
- Department of Industry (National Physical Laboratory)
- Electrical and Electronic and Insulation Association (BEAMA)
- Rotating Electrical Machines Association (BEAMA)
- Transmission and Distribution Association (BEAMA)

This British Standard, having been prepared under the direction of the General Electrotechnical Engineering Standards Committee, was published under the authority of the Executive Board on 31 January 1979

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National foreword

This British Standard is identical with IEC Publications 394-2 “*Specification for varnished fabrics for electrical purposes*” — Part 2 “*Methods of test*” published in 1972 by the International Electrotechnical Commission (IEC). It is published under the direction of the General Electrotechnical Engineering Standards Committee.

Other Parts of this standard are:

- *Part 1: Definitions and general requirements;*
- *Part 3: Specifications for individual materials (in course of preparation).*

It is the intention that this standard will ultimately replace BS 419:1966 “*Varnished fabrics and tapes for electrical purposes*”. A decision on withdrawal of this standard will be taken when the specification sheets for the respective individual materials have been issued in Part 3 of this standard.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication without deviation, as a British Standard. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

Where the word “recommendation” appears, referring to this standard, it should be interpreted as “British Standard”. In the second paragraph of the “Introduction”, the word “series” should be interpreted as “British Standard”.

NOTE It should be noted that the preferred SI unit for pressure is the pascal. Therefore in 2.1.1 “10 N/cm² to 20 N/cm²” should be interpreted as “100 kPa to 200 kPa”, and in 2.1.2 “10 N/cm²” should be interpreted as “100 kPa”.

In 9.3.5 the unit symbols in the title should be read as if printed in upright type.

Cross-references

International Standard ^a	Corresponding British Standard
IEC 212:1971	BS 2844:1972 <i>Memorandum on conditioning of solid electrical insulating materials prior to and during testing</i> (Technically equivalent)
IEC 296:1969	BS 148:1972 <i>Insulating oil for transformers and switchgear</i> (Technically equivalent)

^a Not dated in the text.

NOTE At present there is no corresponding British Standard for IEC Publication 243. Although BS 2918 is a related standard, it differs in many respects.

Additional information. For the purposes of the British Standard the following Scope is applicable:

Scope

This Part of this British Standard contains the methods of test for varnished fabrics for electrical purposes.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Introduction

This recommendation is one of a series that includes varnished fabrics comprising bases woven from cotton, natural silk, or synthetic fibres (including glass) supplied in the form of full width rolls, sheets, or tapes slit to various widths.

The series will have three parts describing:

- 1) Definitions and general requirements;
- 2) Methods of test;
- 3) Specifications for individual materials.

1 General notes on tests

1.1 Select test specimens which are representative of the bulk of the material.

1.2 The test specimens, after being cut, shall be conditioned for 24 h at 23 ± 2 °C and 50 ± 5 % r.h. If the test is not conducted in this standard atmosphere, the test shall be made within 5 minutes after removal from the standard atmosphere.

2 Thickness

2.1 Test apparatus

2.1.1 An external screw type micrometer having measuring faces of 6 mm to 8 mm diameter. The measuring faces shall be flat within 0.001 mm and parallel to within 0.003 mm. The pitch of the screw shall be 0.5 mm and the graduations shall be 50 divisions of 0.01 mm, enabling readings to be estimated to 0.002 mm. The pressure exerted on the specimens shall be 10 N/cm² to 20 N/cm².

2.1.2 A dead weight dial-type micrometer having two ground and lapped concentric circular surfaces flat to within 0.001 mm and parallel to within 0.003 mm. The upper surface shall be 6 mm to 8 mm in diameter. The lower surface shall be larger than the upper one. The upper surface shall move on the axis perpendicular to the surfaces. The dial shall be graduated to read directly to 0.002 mm. The frame of the micrometer shall be of such rigidity that a force of 15 N applied to the dial housing, out of contact with either the weight or the presser foot spindle, will produce a deflection of the frame not greater than 0.002 mm as indicated on the micrometer dial. The pressure exerted on the specimen shall be 10 N/cm².

2.1.3 The setting gauge used to check the instruments shall be accurate to within ± 0.001 mm of nominal size.

The indicated thickness of the instruments shall not differ by more than 0.005 mm from the gauge block. In case of dispute, the dead weight micrometer shall be employed.

2.2 Test specimens

2.2.1 Full width material

One specimen 25 mm wide and with its length equal to the width of the roll shall be cut across the entire width of the roll.

2.2.2 Slit material

One specimen 1 m long shall be cut from the roll.

2.3 Procedure

Measure the thickness of the material, when not constrained in any way, at 9 points spaced not less than 75 mm apart along the length of the test specimens. All joins or selvages shall be excluded from the area of the test.

2.4 Results

The values of the 9 measurements are to be recorded. The central value is the thickness of the material.

3 Resistance against hydrolysis

3.1 Test specimens

A piece of varnished fabric, approximately 125 mm $\times$ 50 mm, or an equivalent area of narrower material.