

Insulating and sheathing materials of electric cables —

**Part 99: Test methods used in the
United Kingdom but not specified in
BS EN 60811 —**

Section 99.1 Non-electrical tests

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Cables and Insulation Standards Policy Committee (CIL/-) to Technical Committee CIL/20, upon which the following bodies were represented:

Aluminium Federation
 Association of Consulting Engineers
 Association of Manufacturers of Domestic Electrical Appliances
 British Approvals Service for Cables
 British Cable Makers Confederation
 British Plastics Federation
 British Steel Industry
 British Telecommunications plc
 Department of the Environment (Property Services Agency)
 Department of Trade and Industry (Consumer Safety Unit, CA Division)
 Electricity Association
 Engineering Equipment and Materials Users' Association
 Institution of Electrical Engineers
 London Regional Transport

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

British Railways Board
 British Rubber Manufacturers' Association Ltd.
 ERA Technology Ltd.
 GAMBICA (BEAMA Ltd.)
 Institution of Incorporated Executive Engineers
 London Underground Ltd.
 Queen Mary and Westfield College
 Telecommunications Cables Group of BCMC

This British Standard, having been prepared under the direction of the Cables and Insulation Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 August 1992

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The following BSI references relate to the work on this standard:
 Committee reference CIL/20
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Amendments issued since publication

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8106	April 1994	
9221	March 1997	
16085	January 2006	Change to Part title Deletion of Clauses 8, 11 and 13
17319 Corrigendum No. 1	31 August 2007	Correction to list of tests in Scope clause

Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Test values	1
3 Applicability	1
4 Type tests and other tests	1
5 Sampling	1
6 Pre-conditioning and test temperature	1
7 Definitions	1
8 <i>Clause deleted</i>	1
9 Test for tear resistance	1
10 Hot deformation test	2
11 <i>Clause deleted</i>	4
12 Determination of linear swell after ageing in oil	4
13 <i>Clause deleted</i>	4
14 Water immersion test on sheath	4
15 Determination of UV stability of MDPE sheath	4
16 Measurement of thickness of non-metallic sheaths from flat cables	5
Figure 1 — <i>Figure deleted</i>	2
Figure 2 — Test piece for tear resistance test	2
Figure 3 — Typical apparatus for hot deformation test	3
Figure 4 — <i>Figure deleted</i>	6
Figure 5 — Positions for measurements of sheath thickness (flat twinned sheathed cables)	6
Figure 6 — Positions for measurement of sheath thickness (flat twin sheathed cables with protective conductor)	6
Figure 7 — Positions for measurement of sheath thickness (flat 3-core sheathed cables)	6
Figure 8 — Positions for measurement of sheath thickness (flat 3-core sheathed cables with protective conductor)	7
Figure 9 — Positions for measurement of sheath thickness (sheathed flat cables with n cores)	7
Figure 10 — Positions for measurement of sheath thickness (sheathed flat cables with n units)	7
Figure 11 — Positions for measurement of sheath thickness (sheathed flat cables with n multicore units)	8
Figure 12 — Positions for measurement of sheath thickness (sheathed flat cables, other cases)	8
Figure 13 — Positions for measurement of sheath thickness (flat single sheathed cables with protective conductor)	8
List of references	9

Foreword

This Section of BS 6469 has been prepared by Technical Committee GEL/20, *Electric cables* (formerly CIL/20).

BS 6469 describes methods of test, but does not specify requirements for products or materials. These are specified in the relevant cable standards or cable material standards.

Most Sections of BS 6469 inclusive have been superseded by the corresponding Sections of BS EN 60811. BS 6469-4.2 and BS 6469-5.1 implement corresponding Sections of CENELEC Harmonization Document HD 505, which were derived from corresponding Sections of IEC 811.

BS 6469-99 describes test methods having national applicability only. Section 99.1 details the non-electrical tests which have not been included in CENELEC HD 505 or BS EN 60811. These tests are called up in various electric cable specifications for non-harmonized national types.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified people, for whose use it has been produced.

WARNING. The methods of test described in this British Standard do not necessarily detail all precautions necessary to meet the requirements of the Health and Safety at Work etc. Act 1974. Attention should be paid to any appropriate safety precautions and the tests should be carried out only by trained personnel.

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 9 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.

1 Scope

BS 6469 specifies the test methods to be used for testing polymeric insulating and sheathing materials of electric cables.

This Section of BS 6469 gives methods for non-electrical tests not included in the CENELEC Harmonization Document HD 505 or European Standard EN 60811, and hence not given in BS EN 60811-1-1 to BS EN 60811-4-1.

The methods of test described in this Section of BS 6469 are as follows:

- a) a test for tear resistance;
- b) a hot deformation test;
- c) a test for determination of linear swell after ageing in oil;
- d) water immersion test on sheath;
- e) a test for determination of the UV stability of MDPE sheath;
- f) a test for measurement of thickness of non-metallic sheaths from flat cables.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Test values

Full test conditions (such as temperatures and durations) and full test requirements are not specified in this standard; it is intended that they should be specified by the standard dealing with the relevant type of cable.

Any test requirements which are given in this standard may be modified by the relevant cable standard to suit the needs of a particular type of cable.

3 Applicability

Conditioning values and testing parameters are specified for the most common types of insulating and sheathing compounds and of cables, wires and cords.

4 Type tests and other tests

The test methods described in this standard are suitable to be used for type tests. In certain tests, where there are essential differences between the conditions for type tests and those for more frequent tests, such as routine tests, these differences are indicated.

5 Sampling

For multicore cables and cords, not more than three cores (of different colours, if any) shall be tested unless otherwise specified in the relevant cable standard.

6 Pre-conditioning and test temperature

All the tests shall be carried out not less than 16 h after the extrusion or vulcanization (or cross-linking), if any, of the insulating or sheathing compounds.

Unless otherwise specified, tests shall be made at room temperature.

NOTE In the UK room temperature is defined as $(20 \pm 5) ^\circ\text{C}$.

7 Definitions

For the purposes of this Section of BS 6469, the definitions given in BS 4727-2:Group 08 apply.

8 Clause deleted

Figure 1 *Figure deleted*

9 Test for tear resistance

9.1 General

This test method is to determine the tear resistance of sheathing materials.

9.2 Preparation of test pieces

Prepare six test pieces having dimensions as shown in Figure 2, with a thickness not greater than 4.0 mm and not less than 1.0 mm. Cut these, preferably along the direction of the cable axis, by means of a sharp knife or die from portions of the sheath from which all irregularities or corrugations, if present, have been removed by grinding or cutting. Make a central longitudinal cut, perpendicular to the width of the test piece, with a sharp razor to a point 3.8 mm from the wider end.

9.3 Conditioning of test pieces

Before the start of the test, keep the test pieces for at least 3 h at the ambient temperature at which the test is to be carried out, which shall be $(20 \pm 5) ^\circ\text{C}$, and commence testing within 5 min of removal from the conditioning chamber.