

**Specification for**

# **Insulating and sheathing materials for cables —**

**Part 1: Cross-linked elastomeric insulating compounds —**

**Section 1.4: Oil resisting types**

**IMPORTANT NOTE** This section of BS 7655 is to be read in conjunction with BS 7655-0.

ICS 29.035.20

# Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee GEL/20, Electric cables, to Subcommittee GEL/20/3, Insulation and sheath, upon which the following bodies were represented:

- Association of Consulting Engineers
- British Approvals Service for Cables
- British Cables Association
- British Plastics Federation
- British Rubber Manufacturers' Association Ltd.
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Electricity Association
- ERA Technology Ltd.
- GAMBICA (BEAMA Ltd.)
- Institute of Fire Prevention Officers
- London Underground Ltd.
- Ministry of Defence
- Queen Mary and Westfield College
- Railtrack
- Warrington Fire Research Centre

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## Foreword

This section of BS 7655 has been prepared by Subcommittee GEL/20/3. It supersedes BS 7655-1.4:1993 which is withdrawn. It specifies the requirements of the oil resisting cross-linked elastomeric insulating compound OR 1.

This revision brings this section of BS 7655 fully into line with BS 7655-0:1997, including amendment 1:2000.

Test methods are specified in this section of BS 7655 by reference to the latest edition of standards in which they appear. A dated reference to the most recent edition of the relevant standard for each test method is given in BS 7655-0, which is to be read in conjunction with this section.

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### Summary of pages

This document comprises a front cover, an inside front cover pages i and ii, pages 1 to 3 and a back cover.

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## 1 Scope

This section of BS 7655 specifies the requirements for the oil resisting cross-linked elastomeric insulating compound listed in Table 1. The relevant test methods are given in BS EN 60811 and BS 6469.

This section is to be read in conjunction with BS 7655-0, which contains essential provisions for the application of this section of BS 7655.

**Table 1 — Type of cross-linked insulation**

Type	Maximum material operating temperature °C	General application
OR 1	85	Oil resisting

## 2 Normative references

For the purposes of this section of BS 7655, the requirements of BS 7655-0, **2.1** apply with regard to normative references.

The latest editions of the standards giving test methods are listed in the most recent edition of BS 7655-0.

## 3 Definitions

For the purposes of this section of BS 7655 the definitions given in BS 7655-0, clause **3** apply.

## 4 Requirements

The requirements specified for the compound listed in Table 2 shall be met when the compound is tested using the test methods listed against each particular requirement.

NOTE For cross-references to the latest editions of the test method standards see BS 7655-0, Table 2.

Table 2 — Test requirements

Test	Test method in accordance with BS EN 60811 unless otherwise stated		Requirements for compound type OR 1
	Section	Clause	
<b>Properties in the state as manufactured</b>	1-1	<b>9.1</b>	
Minimum tensile strength (N/mm <sup>2</sup> )			7
Minimum elongation at break (%)			200
<b>Properties after ageing in air oven</b>	1-2	<b>8.1</b>	
Temperature (°C)			120 ± 2
Duration (h)			7 × 24
Maximum variation for tensile strength (%)			30
Maximum variation for elongation at break (%)			40
<b>Properties after ageing in air bomb</b>	1-2	<b>8.2</b>	
Temperature (°C)			127 ± 2
Duration (h)			40
Maximum variation for tensile strength (%)			50 <sup>1)</sup>
Maximum variation for elongation at break (%)			50 <sup>1)</sup>
<b>Mineral oil immersion test</b>	2-1	<b>10</b>	
Temperature (°C)			100 ± 2
Duration (h)			24
Maximum variation for tensile strength (%)			40 <sup>1)</sup>
Maximum variation for elongation at break (%)			40 <sup>1)</sup>
<b>Insulation resistance constant</b>	BS 6469-99.2, clause 8		
Temperature (°C)			20 ± 2
Minimum <i>K</i> value (MΩ·km)			10
<b>Water absorption determined by the capacitance method</b>	BS 6469-99.2, clause 10		
Maximum increase in capacitance <sup>2)</sup>			
1 to 14 days (%)			15
7 to 14 days (%)			5

<sup>1)</sup> Only a reduction in values is subject to verification.

<sup>2)</sup> This test only applies if the purchaser specifies at the time of ordering that the cable is to be used in a wet location.

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## Bibliography

See BS 7655-0, 2.2.

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