

BRITISH STANDARD 4243 : 1967

UDC 621-762 : 676.48-41 : 674.83

SPECIFICATION FOR CORK/PAPER JOINTING

BRITISH STANDARDS INSTITUTION

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BS 4243 : 1967

~~Price 7/- net~~

BRITISH STANDARDS INSTITUTION

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THIS BRITISH STANDARD, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 20th December, 1967.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 4000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 15s. The BS Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

- BS 1610. Methods for the load verification of testing machines.
- BS 1647. pH scale.
- BS 1832. Oil resistant compressed asbestos fibre jointing.
- BS 2087. Chemical requirements for textiles treated by certain preservative processes.
- BS 2623. Technical glycerol.
- BS 3266. The determination of conductivity, pH, water-soluble matter, chloride and sulphate in aqueous extracts of textile materials.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

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CO-OPERATING ORGANIZATIONS

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

- Associated Offices' Technical Committee
- *Association of Consulting Engineers
- Association of Mining Electrical and Mechanical Engineers
- Board of Trade
- British Chemical Plant Manufacturers' Association
- British Compressed Air Society
- British Electrical and Allied Manufacturers' Association
- British Gear Manufacturers' Association
- British Internal Combustion Engine Manufacturers' Association
- British Iron and Steel Federation
- British Mechanical Engineering Federation
- British Pump Manufacturers' Association
- Crown Agents for Oversea Governments and Administrations
- *Electricity Council, the Central Electricity Generating Board and the Area Boards in England and Wales
- *Engineering Equipment Users' Association
- Gas Council
- *Institute of Marine Engineers
- Institution of Civil Engineers
- Institution of Gas Engineers
- Institution of Heating and Ventilating Engineers
- Institution of Mechanical Engineers
- Institution of Mechanical Engineers (Automobile Division)
- Institution of Production Engineers
- Locomotive and Allied Manufacturers' Association of Great Britain
- London Transport Board
- Machine Tool Trades Association
- Ministry of Defence
- Ministry of Labour (H.M. Factory Inspectorate)
- Ministry of Power
- Ministry of Public Building and Works
- Ministry of Technology—National Engineering Laboratory
- Ministry of Technology—National Physical Laboratory
- Ministry of Transport
- National Coal Board
- Radio Industry Council
- Royal Institute of British Architects

The Government departments and scientific and industrial 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 standard:

- British Lead Manufacturers' Association
- Council of British Manufacturers of Petroleum Equipment
- Institution of Water Engineers
- Liquefied Petroleum Gas Industry Technical Committee
- Metropolitan Water Board
- Ministry of Defence, Army Department
- Ministry of Defence, Navy Department
- Ministry of Technology
- Post Office
- Society of British Gas Industries
- Society of Motor Manufacturers and Traders Ltd.
- Technical Section of the British Paper and Board Makers' Association
- Individual manufacturers

BRITISH STANDARD SPECIFICATION FOR CORK/PAPER JOINTING

FOREWORD

This British Standard, which has been prepared under the authority of the Mechanical Engineering Industry Standards Committee, is one of a series of British Standards for jointing materials of various types.

Attention is drawn to Appendix J which gives conversion factors from British to metric units.

SPECIFICATION

1. SCOPE

This British Standard specifies requirements for compressible sheet jointing material composed of an intimate mixture of cork granules and cellulosic fibres, from which gaskets can be cut or stamped.

The material is suitable for use at temperatures not exceeding 120°C in systems involving contact with mineral or di-ester type lubricating oil, mineral oil type hydraulic fluid and petroleum fuel. It is not recommended for use with water-based fluids.

The material is normally supplied in rolls 36 inches or 42 inches (914 mm or 1067 mm) wide.

Grade A jointing meets the requirements of the Services, including resistance to mould growth, but is not suitable where compatibility with explosives is involved. Grade B jointing is suitable for commercial use.

2. INFORMATION TO BE SUPPLIED BY THE PURCHASER

The purchaser shall state clearly in his order the thickness, width, length and the grade of the jointing required.

3. MATERIALS AND MANUFACTURE

3.1 Grade A jointing. The finished material shall consist of one or more plies of paper made from cork and wood pulp free from mechanical wood, impregnated with plasticized gelatine which is subsequently rendered insoluble with formaldehyde. The plasticizer shall be glycerine, or a mixture of glycerine and sorbitol containing not more than 50% sorbitol. The glycerine shall be pale straw quality complying with BS 2623*.

* BS 2623, 'Technical glycerol'.

At some stage during manufacture, a suitable fungicide shall be incorporated to render the finished material resistant to mould growth. The composition of the fungicide shall be declared to, and be acceptable to, the purchaser.

3.2 Grade B jointing. The composition shall be to the discretion of the manufacturer, who shall ensure that the material complies with the requirements of this standard.

3.3 Grades A and B jointing. The material shall be capable of being cut or punched without cracking, tearing or separation of the plies.

4. SURFACE FINISH

The material shall be uniform in texture and colour and free from obvious defects.

5. PHYSICAL REQUIREMENTS AND TESTING

5.1 Thickness. The material shall be supplied in the following nominal thickness only:

Thickness		Tolerance	
in	mm	in	mm
$\frac{1}{16}$	0.4	+0.003	+0.08
		-0.001	-0.02
$\frac{3}{32}$	0.8	+0.007	+0.18
$\frac{1}{8}$	1.6	-0.003	-0.08
$\frac{1}{4}$	3.2	± 0.010	± 0.25

The thickness at any point determined as described in Appendix A, shall be within the relevant tolerances specified above.

5.2 Flexibility. The flexibility of the material shall be such that when tested by the method described in Appendix B, the test piece shall not crack, or separate into layers.

5.3 Tensile strength. The tensile strength of the material, determined as described in Appendix C, shall be not less than 800 lbf/in² (5.5 MN/m²) in either the machine or the cross direction.

5.4 Compressibility and compression set. The compressibility and compression set values of the material, determined by the method described in Appendix D, shall be:

Compressibility: 25% minimum, 35% maximum.
 Compression set: 12½% maximum.

5.5 Oil absorption. When the material is tested as described in Appendix E, the height to which the oil rises in any test piece shall be not more than 2.0 inches (51 mm).

5.6 Freedom from corrosive impurities

5.6.1 The pH value of water extract of the material, determined as described in Appendix F.2, shall be not less than 6 nor greater than 8.5.

5.6.2 The conductivity of a water extract of the material prepared as described in Appendix F.1 shall be not greater than 175 micromhos/cm when determined as described in Clause 6b of BS 3266 : 1960*.

5.6.3 For material which does not comply with 5.6.2 the chloride content of the material shall not exceed 0.17% sodium chloride (NaCl) and the sulphate content shall not exceed 0.15% anhydrous sodium sulphate (Na_2SO_4) when determined as described in Appendix F.3.

5.7 Resistance to mould growth (for Grade A jointing only). When the material is tested as described in Appendix G, there shall be no visible mould growth on any part of the test piece.

5.8 Dimensional stability. When tested as specified in Appendix H, the change in length shall not exceed 1.5% in either direction.

6. SAMPLING

A batch of material is defined as that length produced in one manufacturing run. The test samples shall be cut from material adjacent to a cut across the full width of the roll, this cut being at least 10 ft (3 m) distant from either the beginning or the end.

7. FREQUENCY OF TESTING

Provided that the purchaser is satisfied that no significant change is made in the basic formulation, the frequency of application of the specified tests shall be based on the following classification:

7.1 Manufacturing process control tests

Clause

- 4. Surface finish.
- 5.1 Thickness.
- 5.3 Tensile strength.
- 5.4 Compressibility and compression set.
- 5.5 Oil absorption.
- 5.6 Freedom from corrosive impurities.
- 5.8 Dimensional stability.

* BS 3266, 'The determination of conductivity, pH, water-soluble matter, chloride and sulphate in aqueous extracts of textile materials'.