

Specification for

Elastomeric seals for joints in pipework and pipelines

ICS 23.040.80

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- British Plastics Federation
- British Precast Concrete Federation Ltd.
- British Rubber Manufacturers' Association
- British Steel Industry
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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Designation	1
3 General	1
4 <i>Text deleted</i>	3
5 <i>Text deleted</i>	3
6 Seals of type T (above ground drainage)	3
7 Seals of type G (gas and hydrocarbon fluids)	3
8 <i>Text deleted</i>	3
Appendix A Method of tensile testing for spliced joints	7
Appendix B <i>Text deleted</i>	7
Appendix C Alternative tensile test piece	7
Appendix D Method for measurement of low temperature hardness change	7
Appendix E Method for determining resistance to liquid immersion and desorption	8
Appendix F Method for assessing the integrity of moulded seals of type T	8
Appendix G Recommendations for storage of seals	8
Figure 1 — Mould lay out for sample plates	6
Figure 4 — Dimensions of alternative dumb-bell	7
Table 1 — Designation of elastomeric joint seals by type and application	2
Table 2 — Flash size	2
Table 5 — Physical properties for seals of type T (thermoplastic elastomers for above ground use only)	4
Table 6 — Physical properties for seals of type G (gas and hydrocarbon fluids)	5
Table 8 — Sustained extension for splice joints	7
Publications referred to	Inside back cover

Foreword

This British Standard has been prepared under the direction of the Rubber Standards Policy Committee and supersedes BS 2494:1986, which is withdrawn. BS EN 681-1 contains requirements that supersede those for types W, D, H and S in BS 2494:1990.

BS EN 681-2, to be published shortly, will supersede requirements for Type T. BS EN 682, when published, will supersede requirements for Type G.

NOTE The manner in which seals are stored between manufacture and use is most important and it is recommended that the advice given in Appendix G is followed.

It has been assumed in the drafting of this British Standard that the execution of its provisions is entrusted to appropriately qualified and experienced personnel.

To assure themselves that products claimed to comply with BS 2494 consistently achieve the required level of quality, purchasers ordering to this standard are advised to specify in their purchasing contract that the supplier operates a quality system in compliance with BS 5750-2.

WARNING. This standard calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken.

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 8, 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.

1 Scope

This British Standard specifies performance requirements and gives methods of test for one type of elastomeric joint seal made of thermosetting elastomeric compounds and one type of joint seal made of thermoplastic elastomeric compounds (see clause 2) and the compounds from which they are manufactured. It is applicable to elastomeric components of composite or non-composite rings, seals, jointing gaskets, and similar components used to seal fluids in pipes and fittings.

Other requirements for the performance of the finished joint seals, particularly functional tests for the performance of the actual sealing systems used with particular pipeline materials, are specified in appropriate British Standards. Methods of test are given in Appendix A and Appendix C to Appendix F. Recommendations for the storage of seals are given in Appendix G.

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

2 Designation

Elastomeric joint seals shall be designated according to their intended application as given in Table 1.

3 General

3.1 Materials

Seals of thermosetting elastomers shall be manufactured from compounds that are free from reclaimed rubber, vegetable oils, factice and vulcanized waste. Seals of type T shall be manufactured from material that consists substantially of thermoplastic elastomers to which may be added only those additives necessary for their manufacture and processing into sound durable mouldings. These seals may also contain the manufacturer's own clean rework material resulting from the manufacture of seals to this standard. No other rework material shall be used.

3.2 Hardness

Seals shall be classified in two different hardness ranges, as given in Table 5 and Table 6.

When measured in accordance with the microtest described in BS 903-A26, the hardness shall not differ by more than 3 IRHD from the specified nominal value.

NOTE 1 It is common commercial practice for the seal hardness to be specified by the purchaser.

NOTE 2 Although BS 903-A26 states that the microtest is preferably for use in the hardness range 30 IRHD to 85 IRHD, for application to joint seals it is considered to be suitable for measurements up to 91 IRHD.

3.3 Appearance and finish

The seals shall be smooth and free from air marks and other blemishes.

The elastomeric material forming the seals shall be homogeneous and free from porosity, as judged without magnification, on the surface or on any cut section.

If a seal exhibits flash, it shall not impair the sealing properties of the seal. Flash shall be kept to a minimum and neither the thickness nor the width of the flash shall exceed the values given in Table 2 relative to the nominal dimension of the seal section.

3.4 Dimensional tolerances

The tolerances on dimensions of finished seals shall be in accordance with class M2 of BS 3734 for moulded products and class E1 of BS 3734 for extruded products.

The tolerance on the diameter of seals made from cut and jointed lengths of vulcanized material shall be in accordance with class M2 of BS 3734.

3.5 Splice joined seals

3.5.1 Materials. Any materials used to assist in making splice joints shall not detract from the performance of the seal type concerned.

3.5.2 Strength. There shall be no visible separation in the area of the splice when a jointed seal or linear test piece is tested as described in Appendix A.

3.6 Moulding integrity (weld lines and gatemarks)

When tested in accordance with Appendix F injection moulded seals of the type T, gated so as to produce a weld line, shall not exhibit damage resulting from the elongation when examined in good light, without magnification.

3.7 Composite seals

Each elastomeric component of a composite seal shall comply with all the other requirements of this standard for the corresponding type of seal designated in Table 1, except for those components that will not be exposed to the contents of the pipeline or pipework.

NOTE Different elastomeric components of a composite seal may be selected from different hardness ranges.