

Specification for

Thermoplastics waste pipe and fittings

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Plastics Standards Policy Committee (PLM/-) to Technical Committee PLM/9, upon which the following bodies were represented:

- British Gas plc
- British Plastics Federation
- British Plumbing Fittings Manufacturers' Association
- British Valve and Actuator Manufacturers' Association
- Department of the Environment (Construction Industries Directorate)
- Department of the Environment (Property Services Agency)
- Department of Transport
- Electricity Supply Industry in England and Wales
- Engineering Equipment and Materials Users Association
- Health and Safety Executive
- Institution of Civil Engineers
- Institution of Gas Engineers
- Institution of Production Engineers
- Institution of Water and Environmental Management (IWEM)
- National Association of Plumbing, Heating and Mechanical Services Contractors
- Plastics and Rubber Institute
- Plastics Land Drainage Manufacturers' Association
- Royal Institute of Public Health and Hygiene
- Water Authorities Association
- Water Companies Association
- Water Research Centre

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

- British Adhesives and Sealants Association
- British Board of Agrément
- Heating and Ventilating Contractors' Association
- Institute of Plumbing
- Land Drainage Contractors Association
- Ministry of Agriculture, Fisheries and Food

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Definitions	1
3 Materials	1
4 Appearance	2
5 Dimensions	2
6 Physical properties	9
7 Performance	10
8 Marking	10
Appendix A Method of test for resistance to elevated temperature cycling	12
Appendix B Method of test for stress relief behaviour of assembled fittings	13
Appendix C Guidance on quality control testing	14
Figure 1 — Pipe lengths	3
Figure 2 — Socket dimensions for fittings	5
Figure 3 — Bends and equal branches	6
Figure 4 — Unequal branches	7
Figure 5 — Reducers	7
Figure 6 — Straight coupling (with or without register)	8
Figure 7 — Socket plugs (with or without access cap)	8
Figure 8 — Adaptors	8
Figure 9 — Expansion fittings (solvent joint systems)	9
Figure 10 — Typical caulking bush	9
Figure 11 — Typical installation and test assembly for elevated temperature cycling test	12
Table 1 — Dimensions of pipes and fittings of ABS, MUPVC and PP	3
Table 2 — Dimensions of pipes and fittings of PE and of ring seal sockets for use with PE pipe	3
Table 3 — Dimensions of joint sockets for use with pipes complying with the dimensions given in Table 1	4
Table 4 — Longitudinal reversion of pipes	9
Table 5 — Applicability of requirements and test methods	14
Publications referred to	Inside back cover

Foreword

This British Standard has been prepared under the direction of the Plastics Standards Policy Committee.

It is a revision of BS 5255:1976 which is now withdrawn.

Requirements are given for waste pipes and fittings manufactured from several different thermoplastics materials and intended to convey normal domestic effluent.

This specification is applicable to pipes and fittings in nominal sizes of 1¼/32, 1½/40 and 2/50. The corresponding requirements for diameters and wall thicknesses have been set to ensure that the minimum bores are correspondingly 1¼ in, 1½ in and 2 in (31.75 mm, 38.1 mm and 50.8 mm), for alignment with BS 5572 and approved document H of the Building Regulations, whilst being more practicable than bore measurements for monitoring and verification.

Consideration has been given to the work of Technical Committee 138 of the International Organization for Standardization (ISO) in preparing a variety of specifications related to individual materials of construction, but retention of a specification with rationalized performance requirements is preferred.

Attention is drawn to BS 4514, which specifies requirements for unplasticized PVC soil pipes, fittings and accessories for use in above ground drainage systems intended for normal domestic effluents. The waste pipes and fittings specified in this standard have higher softening temperatures and thus allow the use of thinner walled sections and/or conveyance of hotter discharges.

Attention is drawn to BS 5572 which gives guidance on storage, handling and installation. In addition, if pipes or fittings complying with BS 5255 are to be used externally, those made of ABS, polypropylene or polyethylene materials may require protection by painting or some other means and the manufacturer's guidance should be followed accordingly.

Attention is drawn to BS 5254, in which polypropylene pipes are specified with slightly smaller bores than in this standard.

The major changes between this revision and the previous edition are as follows.

- a) The document has been restructured so that requirements for components made of different materials are grouped in respect of the property or performance specified.
- b) The dimensions of PE pipes and fittings and of joint sockets for use therewith have been changed.
- c) Where possible reference has been made to the methods of test described in BS 2782.
- d) Components made of modified unplasticized PVC are more clearly distinguished and are now also subject to specified minimum Vicat softening temperatures.
- e) The use of 90° knuckle bends has been incorporated.
- f) Information is necessary on whether or how the pipe or fittings may be suitable for exterior use.
- g) References to other standards have been updated and the terminology and symbols used have been aligned with those given in BS 1755-1 and ISO 1043-1 as applicable.

Product certification. Users of this British Standard are advised to consider the desirability of third party certification of product conformity with this British Standard based on testing and continuing surveillance, which may be coupled with assessment of a supplier's quality systems against the appropriate Part of BS 5750.

Enquiries as to the availability of third party certification schemes will be forwarded by BSI to the Association of Certification Bodies. If a third party certification scheme does not already exist, users should consider approaching an appropriate body from the list of Association members.

Attention is drawn to the provisions of the Health and Safety at Work etc. Act 1974 and the need to ensure that appropriate precautions are taken to ensure the safety of personnel when carrying out methods of test required by this standard.

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 to iv, pages 1 to 14, 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 requirements for thermoplastics waste pipes and fittings intended to convey domestic effluent and made from the following plastics:

- a) acrylonitrile-butadiene-styrene [ABS];
- b) modified unplasticized polyvinyl chloride [MUPVC] (see 2.1);
- c) polypropylene [see 2.2 and 3.1 c)] or propylene plastics [see 2.3 and 3.1 c)];
- d) polyethylene [PE].

It is applicable to waste pipes and fittings with nominal sizes of 1¼/32, 1½/40 and 2/50 which may be used internally or, if suitably compounded or protected (see 3.1 and clause 8) externally. It includes requirements for jointing materials and seals for use with such waste pipes and fittings. Methods of test are given in a Appendix A and Appendix B. Guidance on quality control testing in the manufacture of such pipes and fittings is given in Appendix C.

NOTE 1 As this standard gives requirements for pipes and fittings manufactured from materials which have different coefficients of expansion and design features, it is essential that the manufacturer's fixing instructions are followed.

NOTE 2 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard, the definitions given in BS 1755-1, BS 4118, BS 4778-1; BS 4778-2 and BS 5572 apply together with the following.

2.1

modified unplasticized polyvinyl chloride [MUPVC] plastic

a vinyl chloride plastic (1.1.107¹⁾) modified by inclusion of one or more other polymers and made without addition of a plasticizer, the vinyl chloride being in the greatest amount by mass

NOTE The symbol "MUPVC" has been retained for consistency with terminology and marking requirements and equipment established by the previous edition of BS 5255 and used in BS 5572. It is not in conflict with BS 1755 and it is not to be taken to imply that "M" signifies "modified" in any other symbol for polymers or their characteristics, or that the sequence of letters "UPVC" should be used to represent "unplasticized polyvinyl chloride" in any other context.

2.2

polypropylene [polypropene] [PP] plastic (1.1.76¹⁾)

a propylene [propene] plastic based on polymers made with propylene [propene] as essentially the sole monomer

2.3

propylene [propene] plastic (1.1.95¹⁾)

a plastic based on polymers of propylene [propene] or copolymers of propylene [propene] with other monomers, the propylene [propene] being in the greatest amount by mass

NOTE For the purposes of this standard the symbol PP is used to represent materials comprising or items made from propylene plastics, i.e. including but not restricted to polypropylene plastics.

3 Materials

3.1 Pipes and fittings

Except for seal-retaining components (see 3.2), the material from which the pipe or fitting is produced shall comprise one of the following plastics incorporating or blended with other ingredients as necessary to enable manufacture of a pipe or fitting complying with the other requirements of this standard as applicable:

- a) acrylonitrile-butadiene-styrene [ABS] plastic (1.1.4¹⁾), to be specified in accordance with BS 4935 including the designation applicable to the method of processing to be used for the manufacture of the pipe or fitting and in respect of other ingredients and/or properties as appropriate (see note 1);
- b) modified unplasticized polyvinyl chloride [MUPVC] plastic (see 2.1), to be specified in respect of processing characteristics and other ingredients and/or properties as appropriate (see note 2);
- c) polypropylene plastic (see 2.2) or propylene plastic (see 2.3), to be specified in accordance with BS 5139 including the designation applicable to the method of processing to be used for the manufacture of the pipe or fitting and in respect of other ingredients and/or properties as appropriate (see note 1);
- d) polyethylene [PE] plastic (1.1.65¹⁾), to be specified in accordance with BS 3412 including the designation applicable to the method of processing to be used for the manufacture of the pipe or fitting and in respect of other ingredients and/or properties as appropriate (see note 1).

The manufacturer of the pipe or fitting shall establish whether and how the material should be modified and/or the pipe or fitting otherwise protected for external use (see clause 8).

¹⁾ Term defined in BS 1755-1:1982.