

Polytetrafluoroethylene (PTFE) materials and products —

Part 3: Specification for E glass fibre filled polytetrafluoroethylene

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Committees responsible for this British Standard

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- British Fluoropolymer Processors' Group
- British Plastics Federation
- British Valve and Actuator Manufacturers' Association
- Engineering Equipment and Materials Users' Association
- Ministry of Defence

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Foreword

This Part of BS 6564 has been prepared under the direction of the Plastics Standards Policy Committee.

This Part provides the composition and physical property requirements for E glass fibre filled polytetrafluoroethylene fabricated products. The style of the designation follows closely the designation introduced into BS 6564-2 for unfilled products.

In this Part of BS 6564, the requirements are specified in three grades of product which are designated grade G5, G15 and G25 containing a nominal 5 %, 15 % and 25 % of E glass fibre filler.

Requirements are also specified for three subgrades of product which are designated subgrade A1, subgrade A and subgrade B (subgrade A1 denoting the highest quality and subgrade B the lowest quality specified in this Part of BS 6564).

The products are also designated as being one of two types, depending on the degree of dimensional stability: type 1 products are designated as those which meet the requirements for dimensional stability given in Table 2; type 2 products, usually products which are described as “as fabricated”, do not necessarily meet these requirements.

This Part of BS 6564 does not include any detailed information on machining tolerances but it should be noted that some difficulty in achieving closely controlled dimensions may be experienced when working with PTFE. The British Fluoropolymer Processors' Association has published a document¹⁾ which gives guidance on this subject.

CAUTION. Care should be exercised when specifying extruded materials for machining into components which are required to conform to close tolerances as the release of locked-in stress may occur in the components after machining.

It is intended to introduce a wear test in the future when a satisfactory test has been identified.

Various requirements and methods of test, which are not specified in this Part of BS 6564 but which may need to be agreed between the purchaser and the supplier, are listed in Appendix A.

Other Parts and Sections of BS 6564 are as follows.

- *Part 1: Polytetrafluoroethylene powders for moulding and extrusion;*
- *Section 1.1: Specification;*
- *Section 1.2: Method of specifying;*
- *Part 2: Specification for fabricated unfilled polytetrafluoroethylene products.*

NOTE 1 In Part 2 of this standard, the first element of the designation for fabricated unfilled PTFE products will be the letter “U”. The remainder of the designation will correspond to that specified for glass fibre filled PTFE fabricated products in this Part of BS 6564 (see clause 2).

WARNING. It is essential that tobacco products are kept well away from areas where they could be contaminated by PTFE dust. The smoking of tobacco products contaminated by PTFE can result in a temporary, flu-like condition, known as “polymer fume fever”. This condition is the only adverse effect observed in humans to date. The symptoms do not ordinarily occur until several hours after inhalation of the fumes and pass off within 36 h to 48 h even in the absence of treatment. Observations indicate that these attacks have no lasting effects and that the effects are not cumulative.

¹⁾ Publication No. 284/1, *Code of practice for machining tolerances for components machined from PTFE*, which may be purchased from the British Fluoropolymer Processors' Association, 5 Belgrave Square, London SW1X 8PH.

When heated above 260 °C, PTFE will begin to degrade and the rate of degradation will increase with increasing temperature. The gases produced during degradation will vary according to the temperature and other conditions but will invariably contain toxic components and good ventilation is therefore essential.

NOTE 2 It is strongly recommended that users of this standard refer to BFPA Publication No. 254/1²⁾ for further information.

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 6, 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.

²⁾ Publication No. 254/1, *Industrial health and safety for PTFE polymers*, which may be purchased from the British Fluoropolymer Processors' Association, 5 Belgrave Square, London SW1X 8PH.