

Specification for

Roofing felts

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee B/546 Flexible sheets for water and water vapour control, to Subcommittee B/546/1 Bituminous roofing felts, upon which the following bodies were represented:

- Association of British Roofing Felt Manufacturers
- Association of Building Component Manufacturers
- British Flat Roofing Council
- Builders Merchants Federation
- Department of the Environment (Building Research Establishment)
- Flat Roofing Contractors Advisory Board
- Local Authority Organizations
- London Chamber of Commerce Incorporated
- National Federation of Roofing Contractors
- PSA Projects Ltd.
- Society of Chemical Industry

This British Standard, having been prepared under the direction of the Technical Committee B/546, was published under the authority of the Standards Board and comes into effect on 15 March 1994

© BSI 01-1999

First published July 1937
Second edition September 1952
Third edition August 1961
Fourth edition June 1968
Fifth edition, as BS 747-2, October 1970
Sixth edition, as BS 747, January 1977
Seventh edition March 1994

The following BSI references relate to the work on this standard:
Committee reference B/546/1
Draft for comment 92/12642 DC

ISBN 0 580 22651 4

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 References	1
3 Class 1. Bitumen felts (fibre base)	1
4 Class 3. Bitumen felts (glass fibre base)	2
5 Class 4. Sheathing felts and hair felts	4
6 Class 5. Bitumen felts (polyester base) with oxidized bitumen coating	5
Annex A Procedure for sampling and selection of specimens of roofing felts and methods of determining the masses of constituent materials	9
Annex B Procedure for the selection and testing of samples of base material	9
Annex C Procedures for testing bitumen polyester felt	10
Table 1 — Masses per unit area of components and lengths of rolls of class 1 bitumen felts (fibre base)	1
Table 2 — Masses per unit area of components and lengths of rolls of class 3 bitumen felts (glass fibre base)	4
Table 3 — Nominal masses of class 4 sheathing felts and hair felts	5
Table 4 — Composition of polyester base by mass	5
Table 5 — Physical test requirements of polyester base	7
Table 6 — Masses per unit area of components and lengths of rolls of class 5 bitumen polyester felts	8
Table 7 — Physical test requirements for class 5 bitumen polyester felts	8
List of references	Inside back cover

Foreword

This edition of BS 747 has been prepared under the direction of Technical Committee B/546 Flexible sheets for water and water vapour control. It supersedes BS 747:1977 which is withdrawn.

The standard was first issued in 1937, revised in 1952, 1961 and 1968, and a metric version (published as Part 2 of this standard) of the 1968 edition issued in 1970. A revision of the metric version was published in 1977 and the 1968 imperial version withdrawn.

This edition incorporates amendment 1:1981, amendment 2:1985 and amendment 3:1986. It also introduces further technical changes but it does not reflect a full review or revision of the standard since it is likely to be superseded by European Standards currently in preparation. These further technical changes withdraw class 2 asbestos base felts and class 1 fibre base felts, with the exception of type 1F reinforced felts (underslating material). A summary of the effect of all the changes in the new edition is as follows.

Summary of changes

The following table summarizes the types of preformed base roofing felt covered in this edition of BS 747, all others of this type having been deleted. The type B felts are renamed fine granule surfaced bitumen felts. A new class 5 covering polyester base felts has been added.

NOTE For class 4 felts, see below.

	Fibre base	Asbestos base	Glass fibre base	Polyester base
<i>Types included in this revision</i>				
Fine granule surfaced felt	—	—	3B	5B and 5U
Mineral surfaced felt	—	—	3E	5E
Reinforced felt	1F	—	—	—
Venting base layer	—	—	3G	—

Colour coding

A system of colour coding is introduced to distinguish among classes 1, 3 and 5 felts and to provide a means of identification of the fibre based felts which are suitable for built-up roofing.

The colour coding is provided by application of coloured surfacing along one edge of the felt.

The colours used are as follows:

- class 1 (fibre base) — white
- class 3 (glass base) — red
- class 5 (polyester base) — blue

For the purpose of distinguishing among the numerous types classified in this standard, a brief outline follows of the component materials, manufacturing procedures and uses.

A roofing felt consists essentially of a sheet of matted fibre rendered partially or completely impervious to water by treatment with bituminous materials. According to the purpose and type of roofing felt required the fibres may be derived from various sources, namely vegetable (e.g. cotton, jute, flax, wood pulp), animal (e.g. hair, wool), or mineral (e.g. glass), or may be mixtures of those fibres. The unproofed sheets are made in various thicknesses, or weights, textures and mechanical strengths, depending partly upon the physical nature of the fibre. While some are close-textured and tough, others are of open texture and low strength, although treatment with the proofing always increases the mechanical strength. The types of proofing materials, blended to give the required properties, include bitumens derived from petroleum oil, as well as certain wood tars and pitches.

With class 1 felts, the untreated base is first passed through a tank containing the saturating material which is maintained in a hot fluid condition, the surplus being removed from the saturated felt during passage between rollers. It is then coated, as a continuous process, with more highly weather resisting material. In the case of class 3 material, the untreated glass fibre base is passed through the coating process only.

The surface of the coated felts so produced is then covered with surfacing material, appropriate to the type of felt, which prevents sticking in the roll and, in some cases, provides a decorative and protective finish.

Class 4 sheathing felts and hair felts are not manufactured from a preformed base as with classes 1 and 3. They are manufactured from comparatively long staple fibres which are formed as a loose open batt on the machine.

This batt is immediately treated with the impregnating material derived from petroleum oils or certain wood pitches and resins which bond the fibres together. These felts are mainly used as underlays for other roofing materials such as mastic asphalt and metal roof coverings.

Class 5 polyester base felts have improved performance capability which is derived from the enhancement of the reinforcing properties and greater mechanical strength involved in the make-up of polyester base. The final performance of the bitumen polyester felt is related to the mass/area ratio of the membrane, the composition of the base (polyester fibre/binder content) and the method of production.

The particular technical benefits conferred by bitumen polyester roofings are:

- a) an improvement in the capability of the build-up roof covering to accommodate deformations;
- b) an increase in the puncture and general mechanical damage resistances of the covering;
- c) a higher nail holding or nail anchorage capability by virtue of the increased tear resistance of the polyester reinforcement.

These felts are made from a base consisting of polyester fibres which are needled and chemically bonded (method 1) or, alternatively, spun bonded (method 2) to form a strong reinforcing carrier for the bituminous roofing.

Method 1: Needling system

Separate staple fibres are formed into a loose batt which is compounded by progress through a number of separate in-line needling stations to give a high degree of fibre entanglement so as to provide good inherent mechanical properties, prior to arrival at the next in-line process of binder impregnation, and heat stabilization.

Method 2: Spun bonded system

Continuous filament polyester fibres, spun at the start of the in-line process, are randomly overlaid in sufficient mass to give the required end-weight and thickness. The loose mat thus produced may be lightly needled and, as a continuous process, impregnated with a binder and subjected to heat stabilization.

Two distinct types of felt are covered in class 5. The main strength and performance requirements of the top layer are provided by the use of a 350 g/m² polyester base, the properties of which are fully detailed in Table 5. Also covered is a special light weight underlayer of improved strength achieved by the use of a 125 g/m² base.

In the manufacturing process, the untreated 350 g/m² base is first passed through a tank containing bitumen which is maintained in a hot fluid condition, the surplus being removed from the treated felt during passage between rollers. Treatment of the 125 g/m² base is optional. The base is then coated, as a continuous process, with a weather resisting coating material.

The surface of the coated felts so produced is then covered with surfacing material, appropriate to the type of felt, which prevents sticking in the roll and, in some cases, provides a decorative and protective finish.

Recommendations for the application of these felts are given in the following codes of practice:

BS 5534-1, CP 143, CP 144.

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 12, 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.