

Specification for

E glass fibre chopped strand mat for reinforcement of polyester and other liquid laminating systems

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The preparation of this British Standard was entrusted by the Plastics Standards Policy Committee (PLM/-) to Technical Committee PLM/39, upon which the following bodies were represented:

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- British Marine Industries Federation
- British Plastics Federation
- British Telecommunications plc
- ERA Technology Ltd.
- Electrical and Electronic Insulation Association (BEAMA Ltd.)
- Engineering Equipment and Materials Users' Association
- Ministry of Defence
- Process Plant Association
- Royal Institute of British Architects
- Society of British Aerospace Companies Ltd.
- Society of Motor Manufacturers and Traders Ltd.
- Standards Association of Australia (British Committees)

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

Imperial College of Science and Technology

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Foreword

This British Standard has been prepared under the direction of the Plastics Standards Policy Committee and supersedes BS 3496:1973, which is withdrawn.

In this revision the limit on strand length has been removed, the requirement to carry out a hot water extraction test by the BS 3266 method has been deleted and the field of application of the reinforcement has been widened to all thermosetting resins. The provision of selected and normal grades has been deleted, but a note has been included drawing users' attention to the availability of grades with tighter tolerances on the average mass per unit area than indicated in this standard. The definitions have been aligned with ISO 6355, published by the International Organization for Standardization (ISO). Also the requirement to test at specified frequencies has been removed (see Appendix A).

Mats are available as powder or emulsion bound mats for use in the hand lay-up process, the matched die moulding process and the mechanical production of sheeting. The physical characteristics of the mat used in each application are decided largely by customer preference, and for this reason no attempt has been made to define them in this standard. Appendix B, which gives guidance on assessing the handling characteristics of chopped strand mat and is intended to assist the user to select the most suitable material for a given application, has been augmented.

NOTE Unless the contrary is stated by the supplier, it may be presumed that the minimum storage life of the mat is one year, when stored in accordance with the manufacturer's instructions.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, 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 E glass fibre chopped strand mat, the strands being laid at random and held together with a binder, for the reinforcement of liquid resin systems in accordance with the mat supplier's instructions. The liquid resin systems include unsaturated polyesters, epoxy, phenolic, ureaformaldehyde, silicone, melamine, furane, polyurethane and vinyl, bisphenyl and acrylic esters.

NOTE 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 following definitions apply.

2.1

binder

material(s) applied to staple fibres and to strands in order to hold them in a desired arrangement, for example in chopped strand mat, continuous strand mat and surfacing mat

2.2

chopped strand mat

a mat formed of strands cut to a short length, randomly distributed, without intentional orientation, and held together by a binder

2.3 coupling agent

a substance that promotes or establishes a stronger bond at the interface of the resin matrix and the reinforcement

2.4

E glass

a glass containing not more than 1 % by mass of alkali (calculated as Na_2O) and used for the manufacture of glass fibres

2.5

filament

a single textile element of a small diameter and a very long length, considered as continuous

2.6

size

material applied to glass fibres or filaments during the course of their manufacture

NOTE The size may contain a coupling agent.

2.7

strand

an assembly of parallel filaments simultaneously produced and slightly bonded, without intentional twist

3 Manufacture

The strand shall be composed of filaments each with an average diameter within the range from 8 μm to 15 μm . The strand length shall be discontinuous and not less than 25 mm. A coupling agent shall be incorporated in the filament size.

4 Defects and impurities

The mat shall be free from discoloured areas, wet areas and oil and grease spots.

5 Property requirements

The mat shall comply with the property requirements given in Table 1 when tested by the appropriate methods, using a sample of sufficient size to provide specimens for all the tests in Table 1.

6 Packaging and marking

The mat shall be rolled on a tube and packed in a container in such a manner as to prevent free movement. Not more than three pieces shall be permitted in one roll and no piece shall be less than 5 m in length.

Each roll or its container shall be clearly marked with the following:

- the name or trade mark of the supplier;
- the nominal mass per unit area of the mat (in g/m^2);
- the supplier's identification of the mat, including the binder type and date of manufacture;
- the nominal length of the roll (in m);
- the net weight of the roll (in kg);
- the nominal width of the mat (in cm);
- the number and date of this British Standard, i.e. BS 3496:1989¹⁾.

¹⁾ Marking BS 3496:1989 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.