



SLOVENSKI STANDARD
SIST EN 2329:2001

01-junij-2001

Aerospace series - Textile glass fibre preimpregnates - Test method for the determination of mass per unit area

Aerospace series - Textile glass fibre preimpregnates - Test method for the determination of mass per unit area

Luft- und Raumfahrt - Glasfilament-Prepreg - Prüfmethode zur Bestimmung der flächenbezogenen Masse

Série aérospatiale - Préimprégnés de fibres de verre textile - Méthode d'essai pour la détermination de la masse surfacique

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Ta slovenski standard je istoveten z: EN 2329:1993

ICS:

49.025.60 Tekstilije Textiles

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EUROPEAN STANDARD

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NORME EUROPÉENNE

EUROPÄISCHE NORM

March 1993

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Descriptors: Aircraft industry, glass-cloth, plastics, prepregged products, tests, determination, specific area

English version

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

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After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 1993, and conflicting national standards shall be withdrawn at the latest by September 1993.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard :

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

1.1 This standard specifies a method for determining the mass per unit area of a textile glass fibre preimpregnate, for aerospace use.

1.2 This standard does not give any directives necessary to meet the health and safety requirements. It is the responsibility of the user of this standard to adopt appropriate health and safety precautions.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 2743 Aerospace series - Reinforced plastics - Standard procedures for conditioning prior to testing¹⁾

3 Definitions

A textile glass fibre preimpregnate with a thermosetting or thermoplastic resin is a material in the form of a synthetic resin impregnated textile glass fibre unidirectional sheet, tape or woven fabric and used for the manufacture of moulded components.

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4 Principle

Weighing of specimens of known area after conditioning in a specified atmosphere.

5 Apparatus

- 5.1 Balance with an accuracy of 0,1 mg
- 5.2 Template of standard specimen
- 5.3 Ancillary items such as sharp knife and tweezers

6 Atmosphere for conditioning and testing

6.1 Conditioning

6.1.1 Conditioning of material stored at ambient temperature

For material stored at ambient temperature, the amount of material required for testing shall be sampled and conditioned in the test atmosphere (see 6.2.1) for a minimum of 2 h, unless otherwise specified.

1) Published as AECMA pre-standard at the date of publication of this standard

6.1.2 Conditioning of material stored below ambient temperature

For material stored at temperatures lower than ambient temperature, the material, suitably packed in an airtight and solvent resistant bag to prevent moisture pick-up, shall be allowed to reach ambient temperature over a period of time according to the mass of the package. This time shall not be less than 8 h and the actual time shall be recorded in the report.

When the material has reached the ambient temperature, the amount required for testing shall be sampled and conditioned in the test atmosphere (see 6.2.1) for a minimum of 2 h, unless otherwise specified.

6.2 Testing

6.2.1 Atmosphere for testing

The tests shall be carried out at temperature and relative humidity conditions in accordance with EN2743B.

6.2.2 Time interval between conditioning and testing

Unless otherwise specified, the test shall be carried out within 6 h, after conditioning, the specimen being kept in the test atmosphere until the test is carried out.

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7 Sampling and specimens

7.1 Specimen

The specimen has a square shape. The dimension of the sides shall be (100 ± 1) mm.

Other dimensions of the specimen may be used, subject to agreement between the purchaser and supplier, but shall have a surface area of 100 cm² with a tolerance of ± 2 %.

7.2 Number and distribution of specimens

At least three specimens shall be used.

These shall be evenly distributed and cut from the sample diagonally across the width or length, as shown in figures 1 and 2 for woven fabrics and in figure 3 for unidirectional sheet or tape.

8 Procedure

Cut the specimens from a representative sample of the material under test, using the appropriate template.
Weigh each specimen with its separating film(s) to the nearest mg (m_1).
Remove the separating film(s) and weigh this to the nearest mg (m_2).

9 Calculation and expression of results

The mass per unit area metre for each specimen is calculated from the formula :

$$m = (m_1 - m_2) \times 100$$

where :

- m : the mass per unit area, in g/m^2 ,
- m_1 : the mass of the specimen plus separating film(s), in g,
- m_2 : the mass of the separating film(s), in g.

Calculate the arithmetic mean of the values obtained for m , to the nearest g/m^2 .

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10 Test report

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The test report shall include the following information :

- 10.1 Reference to the type of preimpregnate, with complete description, including prepreg batch number
- 10.2 Reference to this standard
- 10.3 Description of the sampling method
- 10.4 Number of specimens used, if different from this standard
- 10.5 Dimensions of specimens, if different from this standard
- 10.6 Atmosphere used for conditioning and testing and actual time used for conditioning
- 10.7 Individual values.
- 10.8 Arithmetic mean value of the mass per unit area
- 10.9 Observations on any circumstances liable to have influenced the results

Dimensions in millimetres

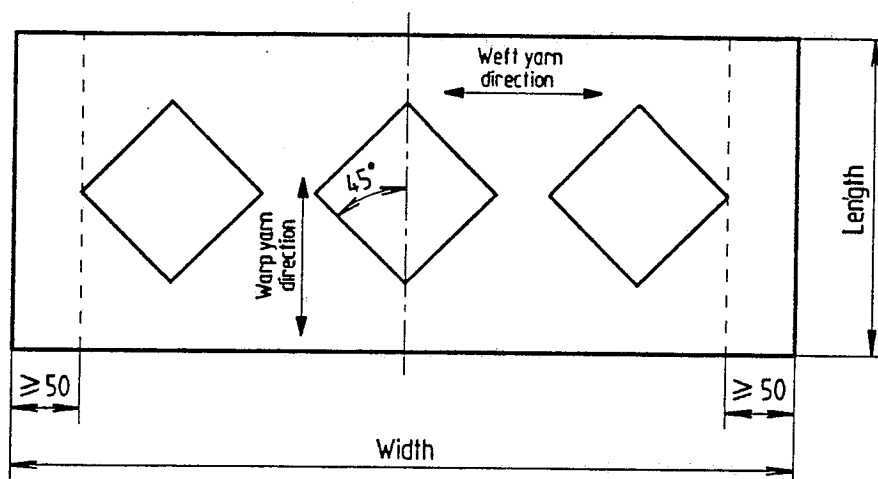


Figure 1 - Example of positioning of specimens on woven textile glass fibre fabric sample across the width

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Dimensions in millimetres

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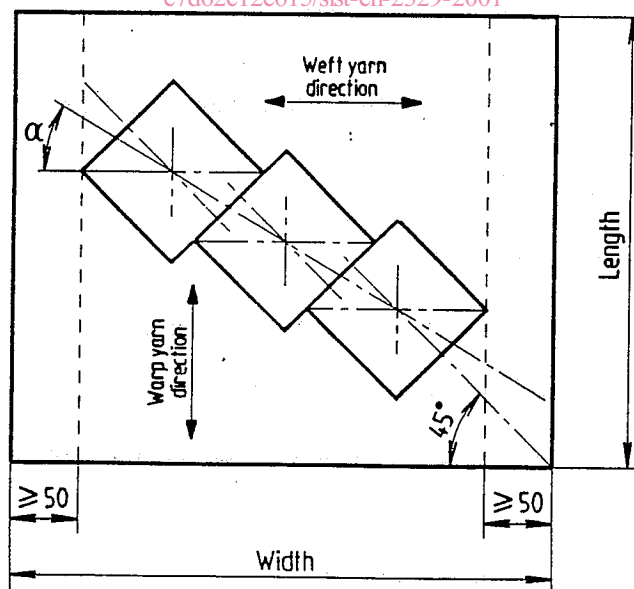


Figure 2 - Example of positioning of specimens on woven textile glass fibre fabric sample an axis inclined at an angle α as close as possible to the weft direction