SLOVENSKI STANDARD
SIST EN 2558:2001

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Aerospace series - Carbon fibre preimpregnates - Determination of the volatile content

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Luft- und Raumfahrt - Kohlenstoffaser-Prepregs - Bestimmung des Anteils an flüchtigen Bestandteilen

Série aérospatiale - Préimprégnés de fibres de carbone - Détermination de la teneur en matieres volatiles

Ta slovenski standard je istoveten z: **EN 2558:1997**

ICS:

49.025.40 Guma in polimerni materiali Rubber and plastics

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English version

Aerospace series - Carbon fibre preimpregnates - Determination of the volatile content

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Luft- und Raumfahrt - Kohlenstoffaser-Prepregs - Bestimmung des Anteils an flüchtigen Bestandteilen

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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

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

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

Foreword

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

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has 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of an identical text or by endorsement, at the latest by July 1997, and conflicting national standards shall be withdrawn at the latest by July 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of 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 the United Kingdom.

1 Scope

This standard specifies a method for determining the volatile content in carbon fibre preimpregnates for aerospace use.

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 testing [1)]

3 Principle

Measurement of the loss in mass due to exposure of a specimen to an elevated temperature for a specified time. This loss is expressed as a percentage of the initial mass.

4 Apparatus

4.1 Balance with an accuracy of 0,1 mg

4.2 Template of standard specimen

4.3 Ancillary items such as a sharp knife and tweezers

4.4 Specimen support (tray) of suitable material, e.g. metal or ceramic, to retain any resin that may drip during the test.

4.5 Air circulating oven capable of maintaining a temperature to an accuracy of ± 5 °C.

4.6 Dessiccator containing a suitable drying agent (for example, silica gel, calcium chloride, phosphorus pentoxide).

5 Specimens

5.1 Shape and dimensions

The specimen shall be square and have sides of (100 ± 1) mm.

Other specimens may be used, subject to agreement between the user and manufacturer on condition that they have an area of 100 cm^2 with a tolerance of ± 2 %.

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

5.2 Number and distribution

A minimum of three specimens shall be used.

They shall :

- be evenly distributed across the width of the sample ;
- have their centres positioned along a straight line.

See figure 1 for wide woven fabrics, figure 2 for narrow woven fabrics and figure 3 for unidirectional sheet or tape.

Dimensions in millimetres

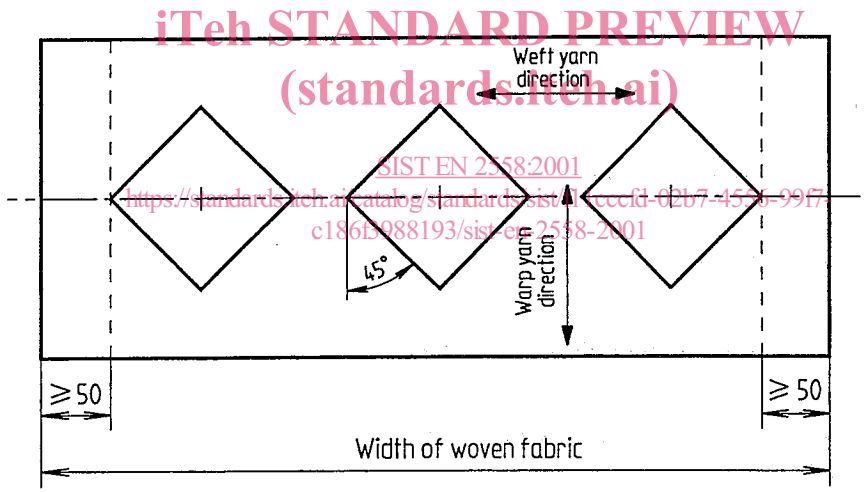

Figure 1
Example of positioning of specimens on woven carbon fibre fabrics sample across the width

Dimensions in millimetres

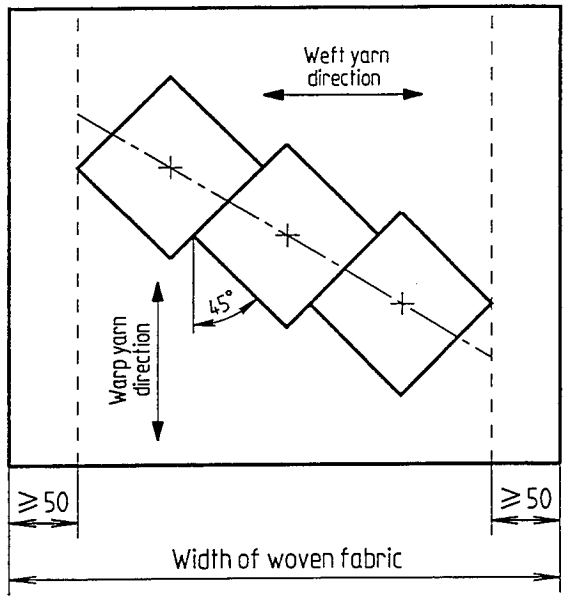

Figure 2

Example of positioning of specimens on woven carbon fibre fabric sample along an axis inclined at an angle as close as possible to the weft direction

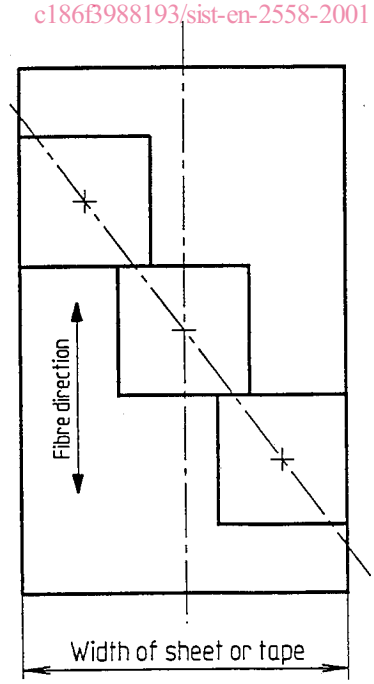

Figure 3

Example of positioning of specimens on carbon fibre unidirectional sheet or tape sample

6 Procedure

6.1 Conditioning

6.1.1 Preimpregnates stored at ambient temperature

The amount of preimpregnate required for testing shall be sampled and then conditioned in the test atmosphere (see 6.2) for a minimum of 2 h, unless otherwise specified.

6.1.2 Preimpregnates stored below ambient temperature

The preimpregnate, 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 depending on its mass. This time shall not be less than 8 h.

When the material has reached ambient temperature, the amount required for testing shall be sampled and then conditioned in the test atmosphere (see 6.2) for a minimum of 2 h, unless otherwise specified.

6.2 Atmosphere for testing

EN 2743, condition class B.

6.3 Time interval between conditioning and testing

After conditioning, the sample shall be maintained in the test atmosphere. Unless otherwise specified, tests shall be carried out within 6 h.

6.4 Tests

6.4.1 Cut the specimens.

6.4.2 Weigh the tray (m_3) after bringing it to constant mass by successive heating operations, to the nearest milligram.

6.4.3 Remove the protective films from the specimen.

6.4.4 Weigh the specimen with its tray to the nearest milligram (m_1).

6.4.5 Place the specimen with its tray in the oven maintained at the temperature specified in the material standard and ensure that the hot air circulates well around the specimen.

6.4.6 After the time specified in the material standard remove the specimen and tray from the oven.

6.4.7 Allow it to cool-down to room temperature in the desiccator.

6.4.8 Weigh the specimen with its tray to the nearest milligram (m_2).