



SLOVENSKI STANDARD

SIST EN 2743:2004

01-maj-2004

Aerospace series - Fibre reinforced plastics - Standard procedures for conditioning prior to testing unaged materials

Aerospace series - Fibre reinforced plastics - Standard procedures for conditioning prior to testing unaged materials

Luft- und Raumfahrt - Faserverstärkte Kunststoffe - Standardverfahren für Vorbehandlung vor der Prüfung von nicht gealterten Werkstoffen

Série aérospatiale - Plastiques renforcés de fibres - Procédures normalisées pour le conditionnement avant essais sur matériaux non vieillis

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Ta slovenski standard je istoveten z: EN 2743:2001

ICS:

49.025.40 Guma in polimerni materiali Rubber and plastics

SIST EN 2743:2004

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2743

December 2001

ICS 49.025.40

English version

Aerospace series - Fibre reinforced plastics - Standard procedures for conditioning prior to testing unaged materials

Série aérospatiale - Plastiques renforcés de fibres -
Procédures normalisées pour le conditionnement avant
essais sur matériaux non vieillis

Luft- und Raumfahrt - Faserverstärkte Kunststoffe -
Standardverfahren für Vorbehandlung vor der Prüfung von
nicht gealterten Werkstoffen

This European Standard was approved by CEN on 2 May 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: 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 June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the standard procedures for conditioning prior to testing unaged fibre reinforced plastic materials including reinforcing fibres and cured resin systems for aerospace applications.

NOTE In the case of uncured preimpregnate materials, requirements for conditioning before testing are specified in the relevant technical specification or test method.

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 3615 Aerospace series - Fibre reinforced plastics - Procedure for the determination of the conditions of exposure to humid atmosphere and the determination of moisture absorption¹⁾

3 Definitions

For the purposes of this standard, the following definitions apply.

3.1 Conditioning

The whole series of operations intended to bring a sample or specimens into a state of equilibrium with regard to temperature or temperature and humidity.

3.2 As-cured condition

The condition of a specimen or sample directly after manufacture, the water content of which has never exceeded 10 % of the maximum moisture absorption at a relative humidity of 85 %.

4 Principle

Exposure of an unaged material in a conditioning atmosphere which allows it to be maintained in the as-cured condition or restored as near to the as-cured condition as possible.

5 Apparatus

5.1 Climatic chamber capable of maintaining the specified temperature and relative humidity, if required.

5.2 Sealed container such as metallized polyethylene bag or airtight metal box

5.3 Desiccant salt bags such as phosphorus pentoxide

5.4 Clean and dry absorbent cloth or filter paper

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

EN 2743:2001 (E)

6 Standard atmospheres

The atmospheric pressure shall be between 86 kPa and 106 kPa.

6.1 Nominal temperature and humidity

6.1.1 Where the control of both temperature and humidity is necessary: 23 °C, 50 % relative humidity

6.1.2 Where only the control of temperature is necessary: 23 °C, ambient humidity

6.1.3 Where no control of temperature and humidity is necessary: ambient atmosphere

6.2 Tolerances

6.2.1 Temperature

Standard tolerance: ± 2 °C (no code).

Close tolerance: ± 1 °C (code T).

6.2.2 Relative humidity

Standard tolerance: ± 5 % (no code).

Close tolerance: ± 2 % (code H).

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7 Choice of conditioning types SIST EN 2743:2004

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See table 1.

Table 1

| Material | Fibre reinforced plastics and cured resin systems | | Reinforcing fibres | |
|---------------------------------------------------|---------------------------------------------------|-------------------------------------------------|--------------------|----------|
| | A | B | C | D |
| Code of conditioning type | | | | |
| Temperature °C | Ambient | 23 | 23 | Ambient |
| Relative humidity % | | 50 | Ambient | |
| Tolerance code | No code | See 6.2.1 and 6.2.2 | See 6.2.1 | No code |
| Duration h | ≤ 168 | ^a | ≥ 2 | ≥ 2 |
| Remarks | As cured condition (see 3.2) | Condition to be used unless otherwise specified | – | – |
| ^a See test method or product standard. | | | | |

8 Procedure

The procedure for handling specimens or samples shall be conducted so that the moisture absorption:

- is sufficiently low to have a negligible effect on the characteristics;

or

- remains constant to allow reproducibility of the tests.

8.1 Conditioning type A

All panels and specimens shall be stored in the sealed container containing desiccant salt bags.

The total cumulative time that the panel remains outside the sealed container, for machining or other operations, shall not exceed 8 h. In cases where wet machining is used, the specimens shall be cleaned and wiped dry immediately on completion.

Specimens in the as-cured condition shall be tested within 168 h from the demoulding operation. If this time is exceeded, the moisture absorption shall be confirmed as being less than 10 % of the maximum moisture absorption achieved during exposure at 85 % relative humidity.

The maximum moisture absorption is obtained at equilibrium according to EN 3615.

Where the specimens have exceeded 10 % of the maximum moisture absorption, the as-cured condition shall be restored by drying in accordance with EN3615B. This operation is only allowed once.

8.2 Conditioning type B

See table 1.

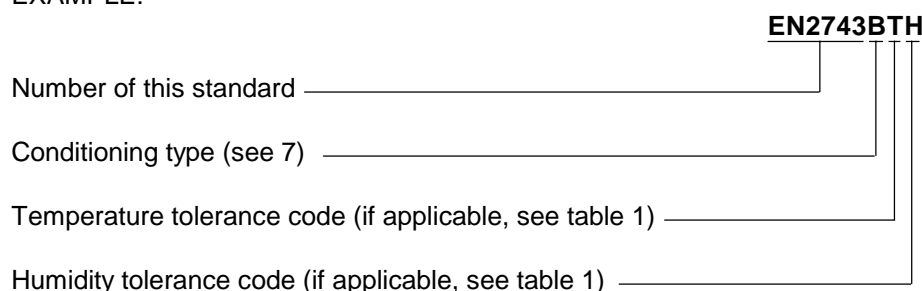
8.3 Conditioning types C and D

See table 1.

The specimens shall be supported in such a way to ensure maximum exposure during conditioning.

9 Designation

EXAMPLE:



10 Report

It shall include the following:

- designation (see 9);
- all data ensuring the traceability of the material (trade mark, identification marking, date of receipt, batch number, etc.);
- conditioning time (if applicable);
- maximum moisture absorption measured to EN 3615, at 85 % of relative humidity (if applicable);
- full description of the drying in accordance with EN3615B (if applicable) and results;
- any incident which may have affected the results.

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