
Aeronavtika - Toplotno utrjeni predimpregnirani materiali (prepregi) s steklenimi vlakni - Tehnična specifikacija - 005. del: Prepregi iz steklenih vlaken in fenolne smole

Aerospace series - Glass fibre thermosetting preimpregnates - Technical specification - Part 005: Glass fabric/phenolic resin preimpregnate

Luft- und Raumfahrt - Warmhärtbare Glasfaser - Prepregs - Technische Lieferbedingungen - Teil 005: Gewebe - Prepregs aus Glasfaser und Phenolharz

Série aérospatiale - Préimprégnés de verre textile/résine thermodurcissable - Spécification technique - Partie 005 : Verre textile/résine phénolique préimprégnés

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Ta slovenski standard je istoveten z: EN 2833-005:2013

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49.025.99 Drugi materiali Other materials

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EUROPEAN STANDARD

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Aerospace series - Glass fibre thermosetting preimpregnates - Technical specification - Part 005: Glass fabric/phenolic resin preimpregnate

Série aérospatiale - Préimprégnés de verre textile/résine
thermodurcissable - Spécification technique - Partie 005 :
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Luft- und Raumfahrt - Warmhärtbare Glasfaser - Prepregs -
Technische Lieferbedingungen - Teil 005: Gewebe -
Prepregs aus Glasfaser und Phenolharz

This European Standard was approved by CEN on 8 May 2013.

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Foreword

This document (EN 2833-005:2013) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries 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 ASD, 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of an identical text or by endorsement, at the latest by February 2014, and conflicting national standards shall be withdrawn at the latest by February 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 2833-005:2013 (E)**1 Scope**

This standard specifies the requirements for glass fabric/phenolic resin preimpregnates.

It shall be used together with EN 2833-1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2155-12 *Aerospace series — Test methods for transparent materials for aircraft glazing — Part 12: Determination of linear thermal expansion*

EN 2377 *Aerospace series — Glass fibre reinforced plastics — Test method — Determination of apparent interlaminar shear strength*

EN 2379 *Aerospace series — Fluids for assessment of non-metallic materials*

EN 2489 *Aerospace series — Fibre reinforced plastics — Determination of the action of test fluids*

EN 2743 *Aerospace series — Fibre reinforced plastics — Standard procedures for conditioning prior to testing unaged materials*

EN 2824 *Aerospace series — Burning behaviour of non-metallic materials under the influence of radiating heat and flames — Determination of smoke density and gas components in the smoke of materials — Test equipment, apparatus and media*

EN 2825 *Aerospace series — Burning behaviour of non-metallic materials under the influence of radiating heat and flames — Determination of smoke density*

EN 2826 *Aerospace series — Burning behaviour of non-metallic materials under the influence of radiating heat and flames — Determination of gas components in the smoke*

EN 3783 *Aerospace series — Fibre composite materials — Normalization of fibre dominated mechanical properties*

EN 3844-1 *Aerospace series — Flammability of non-metallic materials — Part 1: Small burner test, vertical — Determination of the vertical flame propagation*

EN 38344-2 *Aerospace series — Flammability of non-metallic materials — Part 2: Small burner test, horizontal — Determination of the horizontal flame propagation*¹⁾

EN 3844-3 *Aerospace series — Flammability of non-metallic materials — Part 3: Small burner test, 45 — Determination of the resistance of material to flame and glow propagation and to flame penetration*

ISO 1183-2 *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method*

ISO 1889 *Reinforcement yarns — Determination of linear density*

ISO 3572 *Textiles — Weaves — Definitions of general terms and basic weaves*

prEN 2823 *Aerospace series — Fibre reinforced plastics — Determination of the effect of exposure to humid atmosphere on physical and mechanical characteristics*¹⁾

prEN 2833-1 *Aerospace series — Glass fibre thermosetting preimpregnates — Technical specification — Part 1: General requirements*¹⁾

prEN 3615 *Aerospace series — Fibre reinforced plastics — Determination of the conditions of exposure to humid atmosphere and of moisture absorption*¹⁾

prEN 3703 *Aerospace series — Heat release rate for materials and products under the influence of radiating heat and flames — Test method*¹⁾

prEN 6032 *Aerospace series — Fibre reinforced plastics — Test method — Determination of the glass transition temperatures*¹⁾

prEN 6037 *Aerospace series — Fibre reinforced plastics — Test method — Determination of bearing strength*¹⁾

prEN 7000-1 *Aerospace series — Non-metallic materials — Rules for the drafting and presentation of material standards — Part 1: General rules*¹⁾

ASTM D-2520 *Standard Test Methods for Complex Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials at Microwave Frequencies and Temperatures to 1 650 °C*²⁾

3 Definitions, abbreviations

Not applicable.

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4 Material description **(standards.iteh.ai)**

See table 1.

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Table 1 – Description of preimpregnate material

| Parameter | | Type |
|---------------|-------|------------------------------------|
| Resin | Type | Phenolic |
| | Grade | Flame resistant |
| Reinforcement | Fibre | “E” glass |
| | Form | Fabric in accordance with ISO 3572 |

¹⁾ Published as ASD-STAN Prestandard at the date of publication of this standard

²⁾ Published by: American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103, USA.

EN 2833-005:2013 (E)**5 Testing****5.1 Screening**

Screening shall be carried out in accordance with prEN 2833-1 and tables 2, 3 and 5 of this standard.

5.2 Qualification

Qualification shall be carried out in accordance with prEN 2833-1 and tables 2, 3, 4 and 5 of this specification.

5.3 Batch release

Batch release shall be carried out in accordance with prEN 2833-1 and tables 2 and 3 of this specification.

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Table 2 – Physical properties – Screening, qualification and batch release

| Test No. | prEN 7000-1 Characteristic No. | Characteristic | Test method prEN 2833-1 &/or | No. of batches required for | | | Remarks |
|--|--------------------------------|--|------------------------------|-----------------------------|----------------|----------------|--|
| | | | | S ^a | Q ^b | B ^c | |
| Delivery condition | | | | | | | |
| 1 | 301 | Preimpregnate mass/unit area | – | 1 | 3 | + | |
| 2 | 301 | Fibre mass/unit area | – | 1 | 3 | + | |
| 3 | 301 | Density (fibre) | ISO 1889 | – | 3 | – | Fibre density may be obtained from the fibre manufacturers certificate |
| 4 | 104 | Volatiles | – | 1 | 3 | + | |
| 5 | 104 | Resin content | – | 1 | 3 | + | |
| 6 | 102 | Physico-chemical tests as defined in prEN 2833-1 | Infra-red | – | 1 | 3 | – |
| | 103 | | HPLC | – | 1 | 3 | + |
| | 104 | | DSC | – | 1 | 3 | + |
| | 107 | | Gel time/viscosity | – | 1 | 3 | + |
| 7 | 107 | Resin flow | – | 1 | 3 | + | |
| 8 | 106 | Tack | – | 1 | 3 | + | |
| Processed condition | | | | | | | |
| 9 | 301 | Density (resin) | ISO 1183-2 Method A | 1 | 1 | – | The manufacturer shall ensure that the resin block is cured to a standard cure without exotherm, and is void free. |
| 10 | 104 | Fibre content | – | – | 1 | – | |
| 11 | 110 | Thickness/ply | – | 1 | 1 | – | |
| 12 | 108 | Coefficient of thermal expansion | EN 2155-12 | – | 1 | – | Warp & weft direction |
| 13 | 105 | Glass transition temperature | prEN 6032 Method B | 1 | 3 | 1 | To be measured in the dry condition. Also wet after reaching equilibrium at θ °C/85 % RH ^{d,e} |
| 14 | 112 | RF Measurement | ASTM D-2520 | 1 | 5 | – | |
| <p>a S: Screening;</p> <p>b Q: Qualification;</p> <p>c B: Batch release; : required for batch release;</p> <p>d Equilibrium conditions to be in accordance with prEN 2823;</p> <p>e Immersion temperature shall be determined experimentally in accordance with prEN 3615.</p> | | | | | | | |