SLOVENSKI STANDARD

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Aeronavtika ï Elementi elektriļ nih in optiļ nih povezav ï Preskusne metode ï 515. del: Hidrolitiļ na stabilnost

Aerospace series - Elements of electrical and optical connection - Test methods - Part 515: Hydrolytic stability

Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüfverfahren - Teil 515: Hydrolytische Stabilität

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 515 : Stabilité hydrolytique

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Aerospace series - Elements of electrical and optical connection - Test methods - Part 515: Hydrolytic stability

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Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüfverfahren - Teil 515: Hydrolytische Stabilität

This European Standard was approved by CEN on 19 September 2005.

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Foreword

This European Standard (EN 2591-515:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 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of an identical text or by endorsement, at the latest by April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

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1 Scope

This standard specifies a test method for determination of the relative rate of absorption of water by plastic or composite material.

It's derived from ASTM D 570 - 98 and it shall be used together with EN 2591-100.

2 Normative references

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

EN 2591-100, *Aerospace series – Elements of electrical and optical connection – Test methods – Part 100: General.*

EN 2591-101, *Aerospace series – Elements of electrical and optical connection – Test methods – Part 101: Visual examination.*

ASTM D 570 – 98, *Standard Test Method for Water Absorption of Plastics.* [1)]

3 Preparation of specimens

According to technical specification of product.

4 Details

Method: A, B or C.

Maximum percentage increased weight and/or soluble material lost.

5 Test method

Three different test methods can be used according to the product standard requirement.

5.1 Conditioning

The specimen shall be dried in an oven for 24 h at (50 ± 3) °C, cooled in a desiccator and immediately weighed to the nearest 0,001 g.

5.2 Method A: Long-term immersion to determine the total water absorbed when substantially saturated

The conditioned specimens shall be placed in a container of distilled water maintained at temperature of (23 ± 1) °C, and shall rest on edge and be entirely immersed. At the end of 24 h they shall be removed from the water, wiped free of surface moisture with a dry cloth, weighed to the nearest 0,001 g immediately, and then replaced in the water. The weightings shall be repeated at the end of the first week and every two weeks thereafter until the increase in weight per two-week period, as shown by three consecutive weightings,

1) Published by: ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA

averages less than 1 % of the total increase in weight or 5 mg, whichever is greater, the specimen shall then be considered substantially saturated. The difference between the substantially saturated weight and the dry weight shall be considered as the water absorbed when substantially saturated.

5.3 Method B: Two hours boiling water immersion

The conditioned specimens shall be placed in a container of boiling distilled water, and shall be supported on edge and be entirely immersed. At the end of (120 ± 4) min, the specimens shall be removed from the water, and cooled in distilled water maintained at room temperature. After (15 ± 1) min, the specimens shall be removed from the water, one at a time, all surface water removed with a dry cloth, and the specimens weighed to the nearest 0,001 g immediately.

5.4 Method C: One half hour boiling water immersion

For all thickness of materials having a relatively high rate of absorption and for thin specimens of other materials which shows a significant weight increase in one half hour, the specimens shall be tested as described in 5.3, except that the time of immersion shall be reduced to (30 ± 1) min.

5.5 Reconditioning

The specimens, after immersion, shall be weighed, and then reconditioned for the same time and temperature as used in the original drying period.

They shall then be cooled in a desiccator and immediately reweighed.If the reconditioned weight is lower than the conditioned weight, the difference shall be considered as water-soluble matter lost during the immersion test. For such materials, the water-absorption value shall be taken as the sum of the increase in weight on immersion and of the weight of the water-soluble matter.

6 Requirement

The percentage of water absorbed is the sum of the values calculated below and shall be in accordance with the values specified in the product standard.

6.1 Percentage increase weight

Percentage increase in weight during immersion, calculated to the nearest 0,01 % as follows:

$$\text{Increase in weight, \%} = \frac{\text{Wet weight - conditioned weight}}{\text{Conditioned weight}} \times 100$$

6.2 Percentage soluble material lost

Percentage of soluble material lost during immersion, if determined, calculated to the nearest 0,01 % as follows:

$$\text{Soluble matter lost, \%} = \frac{\text{Conditioned weight - reconditioned weight}}{\text{Conditioned weight}} \times 100$$

7 Final measurement (if applicable)

Visual examination (see EN 2591-101).