Irish Standard
I.S. EN 1007-5:2010

Advanced technical ceramics - Ceramic composites - Methods of test for reinforcements - Part 5: Determination of distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at ambient temperature

I.S. EN 1007-5:2010

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Advanced technical ceramics - Ceramic composites - Methods of test for reinforcements - Part 5: Determination of distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at ambient temperature

Céramiques techniques avancées - Céramiques composites - Méthodes d'essais pour renforts - Partie 5: Détermination de la distribution de la résistance en traction et de la déformation de traction à la rupture des filaments dans un fil à température ambiante

Hochleistungskeramik - Keramische Verbundwerkstoffe - Verfahren zur Prüfung der Faserverstärkungen - Teil 5: Bestimmung der Verteilung von Zugfestigkeit und Zugdehnung von Fasern im Faserbündel bei Raumtemperatur

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Foreword

This document (EN 1007-5:2010) has been prepared by Technical Committee CEN/TC 184 “Advanced technical ceramics”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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.

This document supersedes EN 1007-5:2003.

EN 1007 *Advanced technical ceramics — Ceramic composites — Methods of test for reinforcements* has 7 parts:

— Part 1: *Determination of size content*

— Part 2: *Determination of linear density*

— Part 3: *Determination of filament diameter and cross-section area*

— Part 4: *Determination of tensile properties of filaments at ambient temperature*

— Part 5: *Determination of distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at ambient temperature*

— Part 6: *Determination of tensile properties of filaments at high temperature*

— Part 7: *Determination of the distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at high temperature*

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1 Scope

This European Standard specifies the conditions, apparatus and procedure for determining the distribution of tensile strength and tensile strain to failure of ceramic filaments in multifilament tows at ambient temperature.

This European Standard applies to tows of continuous ceramic filaments, which are assumed to act freely and independently under loading, and behave linearly elastic up to failure.

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 1007-2, *Advanced technical ceramics — Ceramic composites — Methods of test for reinforcement — Part 2: Determination of linear density*

CEN/TR 13233:2007, *Advanced technical ceramics — Notations and symbols*

ISO 10119, *Carbon fibre — Determination of density*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TR 13233:2007 and the following apply.

3.1
gauge length
L_0
initial distance between two reference points on the tow

NOTE Usually the gauge length is taken as the distance between the gripped ends of the tow.

3.2
initial cross sectional area
A_0
sum of the cross sectional areas of all the filaments in the tow

3.3
tow elongation
ΔL
increase of the gauge length between the two reference points on the tow

3.4
tow strain
ε
ratio of the tow elongation ΔL to the gauge length L_o

3.5
tow maximum tensile force
F_{tow}
highest recorded tensile force on the test specimen when tested to failure