This is a free page sample. Access the full version online.

National Standards Authority of Ireland

IRISH STANDARD

I.S. CEN/TS 1007-7:2006

ICS 81.060.30

ADVANCED TECHNICAL CERAMICS - CERAMIC COMPOSITES. METHODS OF TEST FOR REINFORCEMENTS - PART 7: DETERMINATION OF THE DISTRIBUTION OF TENSILE STRENGTH AND OF TENSILE STRAIN TO FAILURE OF FILAMENTS WITHIN A MULTIFILAMENT TOW AT HIGH TEMPERATURE

National Standards Authority of Ireland
Glasnevin, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
http://www.nsai.ie

Sales
http://www.standards.ie

This Irish Standard was published under the authority of the National Standards Authority of Ireland and comes into effect on:
17 October 2006

NO COPYING WITHOUT NSAI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

© NSAI 2006

Price Code I

Údarás um Chaighdeáin Náisiúnta na hÉireann

This is a free page sample. Access the full version online.

This is a free page sample. Access the full version online.

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 1007-7

September 2006

ICS 81.060.30

English Version

Advanced technical ceramics - Ceramic composites. Methods of test for reinforcements - Part 7: Determination of the distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at high temperature

Céramiques techniques avancées - Céramiques composites - Méthodes d'essai pour renforts - Partie 7 : Détermination de la distribution de la résistance en traction et de la déformation de traction à la rupture des filaments dans un fil à haute température

Hochleistungskeramik - Keramische Verbundwerkstoffe - Verfahren zur Prüfung von Verstärkungen - Teil 7: Bestimmung der Verteilung von Zugfestigkeit und Zugdehnung von Fasern im Faserbündel bei hoher Temperatur

This Technical Specification (CEN/TS) was approved by CEN on 17 July 2006 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2006 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. CEN/TS 1007-7:2006: E

This is a free page sample. Access the full version online.

Contents

Page

Foreword 3
1 Scope 4
2 Normative references 4
3 Terms and definitions 5
4 Symbols and abbreviations 7
5 Principle 7
6 Significance and use 8
7 Apparatus 8
7.1 Test machine 8
7.2 Load train 8
7.3 Adhesive 8
7.4 Test chamber 9
7.5 Set-up for heating 9
7.6 Temperature measurement 9
7.7 Data recording system 9
8 Test procedure 9
8.1 Test specimens 9
8.2 Test specimen preparation 10
8.3 Number of test specimens 12
8.4 Test Procedure 13
8.5 Calculation of results 16
Annex A (informative) Derivation of the Young's modulus of the hot part of the tow 25
Bibliography 26

This is a free page sample. Access the full version online.

Foreword

This document (CEN/TS 1007-7:2006) has been prepared by Technical Committee CEN/TC 184 “Advanced technical ceramics”, the secretariat of which is held by BSI.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EN 1007 *Advanced technical ceramics — Ceramic composites. Methods of test for reinforcements* has been prepared in 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 tensile strain to failure of filaments within a multifilament tow at high temperature*

At the time of publication of this Technical Specification, Part 6 was available as a European Prestandard.

This is a free page sample. Access the full version online.

1 Scope

This Technical Specification 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 high temperature in air, vacuum or a controlled inert atmosphere.

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

Two methods are proposed depending on the temperature of the ends of the tow:

a) hot end method;

NOTE 1 The application of the hot end method is restricted by ceramic glues with sufficient shear strengths at the test temperature. Current experience with this technique is limited to 1 300 °C, because of the maximum application temperature of ceramic glues.

b) cold end method.

NOTE 2 The cold-end method is limited to 1 700 °C in air and 2 000 °C in inert atmosphere because of the limits of furnaces.

Both methods allow for a failure rate in the determination of distribution of tensile strain and tensile strength.

2 Normative references

This Technical Specification 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 Technical Specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

ENV 843-5, *Advanced technical ceramics — Monolithic ceramics. Mechanical tests at room temperature — Statistical analysis*

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

EN 60584-1, *Thermocouples — Part 1: reference tables (IEC 60584-1:1995)*

EN 60584-2, *Thermocouples — Part 2: tolerances (IEC 60584-2:1982 + A1:1989)*

EN ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension compression testing machines — Verification and calibration of the force-measuring system (ISO 7500-1:2004)*

ENV 13233:1998, *Advanced technical ceramics — Ceramic composites — Notations and symbols*

ISO 10119, *Carbon fibre — Determination of density*

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation