National Standards Authority of Ireland

IRISH STANDARD

I.S. CEN/TS 15365:2006

ICS 81.060.30

ADVANCED TECHNICAL CERAMICS - MECHANICAL PROPERTIES OF CERAMIC FIBRES AT HIGH TEMPERATURE IN A NON-REACTIVE ENVIRONMENT - DETERMINATION OF CREEP BEHAVIOUR BY THE COLD END METHOD

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TECHNICAL SPECIFICATION

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English Version

Advanced technical ceramics - Mechanical properties of ceramic fibres at high temperature in a non-reactive environment - Determination of creep behaviour by the cold end method

Céramiques techniques avancées - Propriétés mécaniques des fibres céramiques à haute température sous environnement non-réactif - Détermination du comportement au fluage par la méthode des mors froids

Hochleistungskeramik - Mechanische Eigenschaften von Keramikfasern bei hohen Temperaturen in einer reaktionsfreien Umgebung - Bestimmung des Kriechverhaltens im Kaltverbindungsverfahren

This Technical Specification (CEN/TS) was approved by CEN on 30 January 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.

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Contents

Page

Foreword

This Technical Specification (CEN/TS 15365:2006) 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 CEN 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.

1 Scope

This Technical Specification specifies the conditions for the determination of the tensile creep deformation and failure behaviour of single filaments of ceramic fibres at high temperature and under test conditions that prevent changes to the material as a result of chemical reaction with the test environment.

This Technical Specification applies to continuous ceramic filaments taken from tows, yarns, braids and knittings, which have strains to fracture less than or equal to 5 %.

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.

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

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)*

3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in ENV 13233:1998 and the following apply.

3.1
creep
time-dependent increase of gauge length starting from the time when the constant specified level of force is reached

3.2
creep threshold temperature, T_t
minimum temperature at which creep is detected

3.3
specimen temperature, T
temperature which varies along the fibre length in the cold grips case (see 8.2)

3.4
difference in temperature between the different furnace zones, ΔT
set by the operator

3.5
specimen temperature in the zone, T_i
temperature defined as: $T_t \leq T_i \leq T_t + i\,\Delta T$

3.6
total length, L
total length of the ceramic filament between the grips

3.7
length, L_i
length of the ceramic filament at temperature T_i