

ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

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National Foreword

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EUROPEAN STANDARD ILNAS-EN 15158:2006 **EN 15158**
NORME EUROPÉENNE
EUROPÄISCHE NORM

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English Version

**Advanced technical ceramics - Mechanical properties of ceramic
composites at high temperature under inert atmosphere -
Determination of fatigue properties at constant amplitude**

Céramiques techniques avancées - Propriétés mécaniques
des céramiques composites à haute température sous
atmosphère inerte - Détermination des propriétés de
fatigue à amplitude constante

Hochleistungskeramik - Mechanische Eigenschaften von
keramischen Verbundwerkstoffen bei hoher Temperatur in
inertter Atmosphäre - Bestimmung der
Dauerschwingeigenschaften bei Belastung mit konstanter
Amplitude

This European Standard was approved by CEN on 14 July 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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.



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Foreword

This document (EN 15158:2006) 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of an identical text or by endorsement, at the latest by February 2007, and conflicting national standards shall be withdrawn at the latest by February 2007.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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 European Standard specifies the conditions for the determination of constant-amplitude of load or strain in uniaxial tension/tension or in uniaxial tension/compression cyclic fatigue properties of ceramic matrix composite materials (CMCs) with fibre reinforcement for temperature up to 2 000 °C under vacuum or a gas atmosphere which is inert to the material under test.

NOTE Test environments are specified which are intended to prevent the material under test from chemically reacting with them.

This European Standard applies to all ceramic matrix composites with fibre reinforcement, unidirectional (1D), bi-directional (2D), and tri-directional (xD, where $2 < x \leq 3$).

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 658-1, *Advanced technical ceramics — Mechanical properties of ceramic composites at room temperature — Part 1: Determination of tensile properties*

EN 1892, *Advanced technical ceramics — Mechanical properties of ceramic composites at high temperature under inert atmosphere — Determination of tensile properties*

EN 1893, *Advanced technical ceramics — Mechanical properties of ceramic composites at high temperature in air at atmospheric pressure — Determination of tensile properties*

EN 12291, *Advanced technical ceramics — Mechanical properties of ceramic composites at high temperature in air at atmospheric pressure — Determination of compression properties*

prCEN/TR 13233:2007¹, *Advanced technical ceramics — 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)*

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)*

EN ISO 9513, *Metallic materials — Calibration of extensometers used in uniaxial testing (ISO 9513:1999)*

ISO 3611, *Micrometer callipers for external measurement*

¹ To be published in 2007