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Standard Recommendation
S.R. CEN/TS 15880:2009

Advanced technical ceramics - Ceramic composites - Determination of the fibre/matrix interfacial frictional shear stress at room temperature by a single fibre push-out method

S.R. CEN/TS 15880:2009

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English Version

**Advanced technical ceramics - Ceramic composites -
Determination of the fibre/matrix interfacial frictional shear stress
at room temperature by a single fibre push-out method**

Céramiques techniques avancées - Céramiques
composites - Détermination de la contrainte de frottement
en cisaillement à l'interface fibre/matrice à température
ambiante - Méthode d'extraction d'une fibre par indentation

Hochleistungskeramik - Keramische Verbundwerkstoffe -
Bestimmung der Reibschubspannung an der Grenzfläche
Faser/Matrix bei Raumtemperatur mit Hilfe des Einzelfaser-
Push-out-Verfahrens

This Technical Specification (CEN/TS) was approved by CEN on 27 March 2009 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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Foreword

This document (CEN/TS 15880:2009) has been prepared by Technical Committee CEN/TC 184 “Advanced technical ceramics”, the secretariat of which is held by BSI.

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1 Scope

This CEN Technical Specification specifies a single fibre push-out method to determine the fibre-matrix bonding characteristics of ceramic matrix composite materials at room temperature, by the measurement of the interfacial frictional shear stress.

This standard applies to all continuous fibre-reinforced ceramic matrix composites whatever the type of reinforcement: unidirectional (1D), bidirectional (2D) and tridirectional (xD, with $2 < x \leq 3$).

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.

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

ISO 3611, *Micrometer callipers for external measurements*

3 Terms, definitions and symbols

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

3.1

fibre perimeter

p

perimeter of the fibre

3.2

length of the fibre

L_f

embedded length of the fibre which is equal to the local thickness of the test specimen

3.3

compressive force

F

compressive force on the fibre

3.4

compressive plateau force

$F_{plateau}$

compressive force on the fibre determined at point "d" of the curve

3.5

interfacial frictional shear stress

τ_f

shear stress during fibre sliding through the matrix

3.6

fibre top displacement

δ

displacement of the top of the fibre during the test

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