Spetsiaalne tehniline keraamika. Monoliitkeraamika. Mehaanilised omadused toatemperatuuril. Osa 1: Paindetugevuse määramine

Advanced technical ceramics - Monolithic ceramics - Mechanical properties at room temperature - Part 1: Determination of flexural strength

EESTI STANDARDI EESSÕNA

Käesolev Eesti standard EVS-EN 843-1:2007 sisaldab Euroopa standardi EN 843-1:2006 ingliskeelset teksti. Käesolev dokument on jõustatud 29.01.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 843-1:2007 consists of the English text of the European standard EN 843-1:2006. This document is endorsed on 29.01.2007 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

NATIONAL FOREWORD

Käsitlusala: See standardi EN 843 osa kirjeldab meetodeid spetsiaalse tehnilise monoliitkeraamika materjali nominaalse paindetugevuse määramiseks välistemperatuuril.	**Scope:** This part of EN 843 specifies methods for determining the nominal flexural strength of advanced monolithic technical ceramic materials at ambient temperature. The available loading geometries are three- and four-point flexure, using rectangular section test pieces of two prescribed geometries: 20 mm support span (A) and 40 mm support span (B).

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Võtmesõnad: keraamika, keskkonnakatsed, mehaanilised omadused, määramine, paindetugevus

EUROPEAN STANDARD

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English Version

Advanced technical ceramics - Mechanical properties of monolithic ceramics at room temperature - Part 1: Determination of flexural strength

Céramiques techniques avancées - Propriétés mécaniques des céramiques monolithiques à température ambiante - Partie 1: Détermination de la résistance en flexion

Hochleistungskeramik - Mechanische Eigenschaften monolithischer Keramik bei Raumtemperatur - Teil 1: Bestimmung der Biegefestigkeit

This European Standard was approved by CEN on 11 November 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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Contents

Page

Foreword

This document (EN 843-1:2006) 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 June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

This document supersedes EN 843-1:1995.

EN 843 *Advanced technical ceramics — Mechanical properties of monolithic ceramics at room temperature* comprises six parts:

Part 1: *Determination of flexural strength*

Part 2: *Determination of Young’s modulus, shear modulus and Poisson’s ratio*

Part 3: *Determination of subcritical crack growth parameters from constant stressing rate flexural strength tests*

Part 4: *Vickers, Knoop and Rockwell superficial hardness*

Part 5: *Statistical analysis*

Part 6: *Guidance for fractographic investigation*

At the time of publication of this Revision of Part 1, Part 6 was available as a Technical Specification.

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 part of EN 843 specifies methods for determining the nominal flexural strength of advanced monolithic technical ceramic materials at ambient temperature. The available loading geometries are three- and four-point flexure, using rectangular section test pieces of two prescribed geometries: 20 mm support span (A) and 40 mm support span (B).

NOTE This part of EN 843 differs from ISO 14704 (see Bibliography) in respect of span A (not included in the ISO version), the absence of the 30 mm span option, and the required use of a fully articulating test jig.

The test applies to materials with grain size less than 200 µm.

The test prescribes four categories of surface finish applied to the test pieces:

I: as-fired or annealed after machining;

II: standard finishing by grinding;

III: standard finishing by lapping/polishing;

IV: machined using agreed grinding procedures and material removal rates.

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 623-4, *Advanced technical ceramics — Monolithic ceramics — General and textural properties — Part 4: Determination of surface roughness*

EN 843-5, *Advanced technical ceramics — Mechanical properties of monolithic ceramics at room temperature — Part 5: Statistical analysis*

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/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

ISO 3611, *Micrometer callipers for external measurement*

ISO 4677-1, *Atmospheres for conditioning and testing — Determination of relative humidity — Part 1: Aspirated psychrometer method*

ISO 4677-2, *Atmospheres for conditioning and testing — Determination of relative humidity — Part 2: Whirling psychrometer method*