

## **Test methods for fibres in concrete - Part 2: Effect on concrete**

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on concrete

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14845-2:2006 sisaldab Euroopa standardi EN 14845-2:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 20.09.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14845-2:2006 consists of the English text of the European standard EN 14845-2:2006.</p> <p>This document is endorsed on 20.09.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This European Standard specifies a method for determining the effect of fibres, steel or polymer, on the residual flexural strength of a reference concrete.</p>	<p><b>Scope:</b> This European Standard specifies a method for determining the effect of fibres, steel or polymer, on the residual flexural strength of a reference concrete.</p>
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**ICS** 91.100.30

**Võtmesõnad:**

ICS 91.100.30

English Version

## Test methods for fibres in concrete - Part 2: Effect on concrete

Méthodes d'essai des fibres du béton - Partie 2: Influence  
sur la résistancePrüfverfahren für Fasern in Beton - Teil 2: Einfluss auf den  
Beton

This European Standard was approved by CEN on 26 June 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.

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## Foreword

This document (EN 14845-2:2006) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

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 May 2008.

This document has been drafted by working group 11 "Fibres for concrete", the Secretariat of which is held by BSI.

This European Standard is one of a series dealing with test methods for assessing the performance of Fibres, either steel or polymer, in concrete.

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 a method for determining the effect of fibres, steel or polymer, on the residual flexural strength of a reference concrete.

## 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 14651, *Test method for metallic fibered concrete — Measuring the flexural tensile strength (limit of proportionality (LOP), residual)*

prEN 14845-1, *Test methods for fibres in concrete — Part 1: Reference concretes*

EN 14889-1, *Fibres for concrete — Part 1: Steel fibres — Definitions, specifications and conformity*

EN 14889-2, *Fibres for concrete — Part 2: Polymer fibres — Definitions, specifications and conformity*

ISO 5725-2:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

## 3 Principle

Fibres are tested in one or more reference concretes (as specified in prEN 14845-1) to determine the fibre content required to meet specified values of residual flexural strength at particular deformation levels.

## 4 Test method

Twelve notched 550 mm x 150 mm x 150 mm beams, made from a reference concrete according to prEN14845-1 and incorporating fibres, shall be tested at 28 days in centre-point loading on a 500 mm span in accordance with the test method for metallic fibre concrete of EN 14651.

A series of concrete mixes shall be made and tested with different fibre contents until the strength performance specified in clause 5 is achieved.

## 5 Procedure

The content of fibres shall be determined that achieves an average residual flexural strength of at least 1,5 MPa at 0,5 mm CMOD (equivalent to 0,47 mm central deflection) and an average residual flexural strength of at least 1 MPa at 3,5 mm CMOD (equivalent to 3,02 mm central deflection).

When calculating the average performance of the twelve beams, the effect of any outlier (unrepresentative) results should be excluded. Outliers should be identified by the Grubb test according to ISO 5725-2:1994 for a probability of 5 %.

NOTE Statistically with an assumed variation of 25%, the mean value of a test series of twelve beams will not deviate more than 10% from the real mean value with a confidence level of 90%.