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TEST METHOD FOR METALLIC FIBRE CONCRETE - MEASURING THE FLEXURAL TENSILE STRENGTH (LIMIT OF PROPORTIONALITY (LOP), RESIDUAL)

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English Version

Test method for metallic fibre concrete - Measuring the flexural tensile strength (limit of proportionality (LOP), residual)

Méthode d'essai du béton de fibres métalliques - Mesurage de la résistance à la traction par flexion (limite de proportionnalité (LOP), résistance résiduelle)

Prüfverfahren für Beton mit metallischen Fasern - Bestimmung der Biegezugfestigkeit (Proportionalitätsgrenze, residuelle Biegezugfestigkeit)

This European Standard was approved by CEN on 3 April 2005 and includes Amendment 1 approved by CEN on 16 August 2007.

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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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 14651:2005+A1:2007) has been prepared by Technical Committee CEN/TC 229 “Precast concrete products”, the secretariat of which is held by AFNOR.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2008 and conflicting national standards shall be withdrawn at the latest by March 2008.

This document includes Amendment 1, approved by CEN on 2007-08-16.

This document supersedes EN 14651:2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

This standard is one of a series concerned with testing metallic fibered 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, Bulgaria, 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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1 Scope

This European Standard specifies a method of measuring the flexural tensile strength of metallic fibered concrete on moulded test specimen. The method provides for the determination of the limit of proportionality (*LOP*) and of a set of residual flexural tensile strength values.

This testing method is intended for metallic fibres no longer than 60 mm. The method can also be used for a combination of metallic fibres and, a combination of metallic fibres with other fibres.

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 12350-1, *Testing fresh concrete – Part 1: Sampling*.

EN 12390-1, *Testing hardened concrete – Part 1: Shape, dimensions and other requirements for specimens and moulds*.

EN 12390-2, *Testing hardened concrete – Part 2: Making and curing specimens for strength tests*.

EN 12390-4, *Testing hardened concrete – Part 4: Compressive strength – Specification for testing machines*.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
crack mouth opening displacement
linear displacement measured by a transducer installed as specified in 7.1 and illustrated in Figure 4, on a prism subjected to a centre-point load F

3.2
deflection
linear displacement measured by a transducer installed as specified in 7.1 and illustrated in Figure 5, on a prism subjected to a centre-point load F

3.3
limit of proportionality
stress at the tip of the notch which is assumed to act in an uncracked mid-span section, with linear stress distribution, of a prism subjected to the centre-point load F_L defined in 8.2

3.4
residual flexural tensile strength
fictitious stress at the tip of the notch which is assumed to act in an uncracked mid-span section, with linear stress distribution, of a prism subjected to the centre-point load F_j corresponding to $CMOD_j$ where $CMOD_j > CMOD_{F_L}$ or to δ_j where $\delta_j > \delta_{F_L}$ (j = 1,2,3,4)

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