

**Products and systems for the
protection and repair of concrete
structures - Test methods -
Determination of stiffening time**

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of concrete structures - Test methods -
Determination of stiffening time

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13294:2002 sisaldab Euroopa standardi EN 13294:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13294:2002 consists of the English text of the European standard EN 13294:2002.</p> <p>This document is endorsed on 18.10.2002 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>Käsitlusala: This European Standard specifies a method for determining the stiffening time of repair products and systems specified in prEN 1504-3 1 comprising hydraulic based mortar and concrete (CC), including those modified by the addition of polymers (PCC).</p>	<p>Scope: This European Standard specifies a method for determining the stiffening time of repair products and systems specified in prEN 1504-3 1 comprising hydraulic based mortar and concrete (CC), including those modified by the addition of polymers (PCC).</p>
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Võtmesõnad: binders, composite steel construction, concrete structure, concrete structures, concretes, construction, construction materials, materials, measurement, processibility, protection, protection systems, repair, repairs, structures, testing, time, workability time

ICS 91.080.40

English version

Products and systems for the protection and repair of concrete structures - Test methods - Determination of stiffening time

Produits et systèmes de protection et de réparation des structures en béton - Méthodes d'essai - Temps de raidissement

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Prüfverfahren - Bestimmung der Verarbeitbarkeitszeit

This European Standard was approved by CEN on 4 January 2002.

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

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document EN 13294:2002 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 November 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

It has been prepared by sub-committee 8 "Products and systems for the protection and repair of concrete structures", the secretariat of which is held by AFNOR.

This European Standard is one of a series dealing with products and systems for the protection and repair of concrete structures. It describes a method of test determining the stiffening time of grout, mortar or concrete repair products and systems, making allowance for the presence of coarse aggregate.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for determining the stiffening time of repair products and systems specified in prEN 1504-3¹ comprising hydraulic based mortar and concrete (CC), including those modified by the addition of polymers (PCC).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 196-1, *Methods of testing cement - Part 1: Determination of strength*.

EN 480-2, *Admixtures for concrete, mortar and grout - Test methods - Part 2: Determination of setting time*.

EN 933-1, *Tests for geometric properties of aggregates - Part 1: Determination of particle size distribution – Sieving method*.

EN 1015-7, *Methods of test for mortar for masonry - Part 7: Determination of air content of fresh mortar*.

EN 1766, *Products and systems for the protection and repair of concrete structures - Test methods - Reference concretes for testing*.

3 Principle

The method shall be based on EN 480-2. A sample of freshly-mixed repair product is placed into a container set on a weigh balance. Periodically, a penetration rod is pressed into the mortar to a defined depth and the penetration resistance calculated from the mass reading on the scale. As the mortar stiffens due to hydration of the cementitious components, the resistance to penetration will increase and by recording the penetration resistance with time, the stiffening time can be determined.

The stiffening time is the period from completion of mixing of the grout, mortar or concrete until a resistance to penetration of 0,5 N/mm² (initial) and 3,5 N/mm² (final) is achieved.

For mixes of a repair product with a particle size in excess of 5 mm, the wet mix is first sieved to separate and collect the mortar component, on which the test is performed.

4 Apparatus

The following apparatus is required.

4.1 Full tolerance 5 mm perforated plate test sieve complying with the requirements of EN 933-1.

4.2 Self-indicating platform scale preferably with a tare device, reading to at least 15 kg with graduations not greater than 100 g.

¹ Under preparation.