

**Products and systems for the
protection and repair of concrete
structures - Test methods -
Determination of thermal compatibility -
Part 5: Resistance to temperature shock**

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of concrete structures - Test methods -
Determination of thermal compatibility - Part 5:
Resistance to temperature shock

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13687-5:2002 sisaldab Euroopa standardi EN 13687-5:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 16.05.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13687-5:2002 consists of the English text of the European standard EN 13687-5:2002.</p> <p>This document is endorsed on 16.05.2002 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:</p> <p>This European Standard is the fifth of five parts to assess the thermal compatibility of repair products and systems for the repair and protection of concrete. This part is relevant only to surface protection systems, and specifies a method for determining the resistance of surface protection systems to high temperature shock.</p>	<p>Scope:</p> <p>This European Standard is the fifth of five parts to assess the thermal compatibility of repair products and systems for the repair and protection of concrete. This part is relevant only to surface protection systems, and specifies a method for determining the resistance of surface protection systems to high temperature shock.</p>
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Võtmesõnad: concrete components, concretes, protection, protective equipment, reinforcing steels, repair, resistance, structures, surface protection, temperature behaviour, temperature shock, testing, thermal test

ICS 91.080.40

English version

**Products and systems for the protection and repair of concrete
structures - Test methods - Determination of thermal
compatibility - Part 5: Resistance to temperature shock**

Produits et systèmes pour la protection et la réparation des
structures en béton - Méthodes d'essai - Détermination de
la compatibilité thermique - Partie 5: Résistance au choc de
température

Produkte und Systeme für den Schutz und die
Instandsetzung von Betontragwerken - Prüfverfahren -
Bestimmung der Temperaturwechselverträglichkeit - Teil 5:
Widerstand gegen Temperaturwechselverträglichkeit

This European Standard was approved by CEN on 21 December 2001.

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
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document EN 13687-5:2002 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 August 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

It has been elaborated by Subcommittee 8 "Products and systems for the protection and repair of concrete structures", the secretariat of which is held by AFNOR.

This Part of this European Standard is one of a series of inter-related parts dealing with the thermal compatibility of products and systems for the repair and protection of concrete. This part is relevant only to surface protection systems. The other parts of this standard are :

EN 13687-1, *Products and systems for the protection and repair of concrete structures - Test methods - Determination of thermal compatibility - Part 1: Freeze-thaw cycling with de-icing salt immersion.*

EN 13687-2, *Products and systems for the protection and repair of concrete structures - Test methods - Determination of thermal compatibility - Part 2: Thunder-shower cycling (thermal shock).*

EN 13687-3, *Products and systems for the protection and repair of concrete structures - Test methods - Determination of thermal compatibility - Part 3: Thermal cycling without de-icing salt impact.*

EN 13687-4, *Products and systems for the protection and repair of concrete structures - Test methods - Determination of thermal compatibility - Part 4: Dry thermal cycling.*

Annex A is normative. Annex B is informative.

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 is the fifth of a series of five parts to assess the thermal compatibility of products and systems for the repair and protection of concrete. This part is relevant only to surface protection systems, and specifies a method for determining the resistance of surface protection systems to high temperature shock.

This test method is also suitable for testing the resistance of surface protection systems against hot chemicals.

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 - Determination of strength*.

EN 1542, *Products and systems for the protection and repair of concrete structures - Test methods - Measurement of bond strength by pull-off*.

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

ISO 4628-4, *Paints and varnishes - Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common types of defect – Part 4: Designation of degree of cracking*.

ISO 4628-5, *Paints and varnishes - Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common types of defect – Part 4: Designation of degree of flaking*.

3 Principle

The principle of the test method consists of applying a layer of the surface protection system to a reference concrete slab (prepared according to EN 1766). After curing, the test specimen is subjected to a temperature shock, which is achieved by applying hot asphalt or bitumen or chemicals. After the thermal load, visible defects are recorded and the adhesion of the surface protection system is determined by pull-off test (according to EN 1542).

4 Apparatus

4.1 Laboratory

Maintained at the temperature of $(21 \pm 2) ^\circ\text{C}$ and a relative humidity of $(60 \pm 10) \%$.

4.2 Usual accessories

to apply the coating material to the concrete substrate.

4.3 Two concrete slabs 400 mm x 400 mm x 50 mm

Using a concrete MC (0,40) according to EN 1766 as substrate for the coating.