



SLOVENSKI STANDARD

SIST EN 14187-1:2004

01-junij-2004

Hladno nanosljive tesnilne mase za stike – 1. del: Preskusna metoda za ugotavljanje stopnje strditve

Cold applied joint sealants - Part 1: Test method for the determination of rate of cure

Kalt verarbeitbare Fugenmassen - Teil 1: Prüfverfahren zur Bestimmung des Aushärtungsgrades

Mastics pour joints appliqués a froid – Partie 1: Méthodes d'essai pour la détermination du taux de polymérisation

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Ta slovenski standard je istoveten z: EN 14187-1:2003

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ICS:

91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials
93.080.20	Materiali za gradnjo cest	Road construction materials

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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14187-1

June 2003

ICS 93.080.20

English version

Cold applied joint sealants - Part 1: Test method for the determination of rate of cure

Mastics pour joints appliqués à froid - Partie 1: Méthodes d'essai pour la détermination du taux de polymérisation

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This European Standard was approved by CEN on 25 March 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 14187-1:2003) has been prepared by Technical Committee CEN/TC 227, "Road materials", 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 December 2003, and conflicting national standards shall be withdrawn at the latest by March 2005.

This European Standard is one of a series of standards as listed below:

EN 14187-1, *Cold applied joint sealants — Part 1: Test method for the determination of the rate of cure.*

EN 14187-2, *Cold applied joint sealants — Part 2: Test method for the determination of tack free time.*

EN 14187-3, *Cold applied joint sealants — Part 3: Test method for the determination of self-levelling properties.*

EN 14187-4, *Cold applied joint sealants — Part 4: Test method for the determination of the change in mass and volume after immersion in test fuel.*

EN 14187-5, *Cold applied joint sealants — Part 5: Test method for the determination of the resistance to hydrolysis.*

EN 14187-6, *Cold applied joint sealants — Part 6: Test method for the determination of the adhesion/cohesion properties after immersion in chemical liquids.*

EN 14187-7, *Cold applied joint sealants — Part 7: Test method for the determination of the resistance to flame.*

EN 14187-8, *Cold applied joint sealants — Part 8: Test method for the determination of the artificial weathering by UV-irradiation.*

prEN 14187-9, *Cold applied joint sealants — Part 9: Function test.*¹⁾

No existing European Standard is superseded.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard applies to the determination of the rate of cure of cold applied joint sealants indicated by the build up of the tensile modulus during the cure.

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

1) In preparation.

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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 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature.*

prEN 13880-12, *Hot applied joint sealants – Test methods — Part 12: Manufacture of concrete test blocks for bond testing (recipe methods).*

EN 26927:1990, *Building construction - Jointing products - Sealants - Vocabulary (ISO 6927:1981).*

EN 28340:1990, *Building construction - Jointing products - Sealants - Determination of tensile properties at maintained extension (ISO 8340:1984).*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 26927:1990 apply.

4 Principle

The rate of cure of a cold applied joint sealant is determined as the relation between the tensile modulus at any time during cure and after complete cure of the test specimen.

5 Apparatus and materials

5.1 Concrete supports in accordance with prEN 13880-12 for the preparation of the test specimens, of dimensions as shown in Figure 1. Two concrete supports shall be used for each test specimen.

5.2 Spacers, (see Figure 1) of dimensions (12 × 12 × 12,5) mm (see Figure 1) for the preparation of test specimens. Two spacers shall be used for each test specimen.

5.3 Anti-adherent substrate for the preparation of the test specimens, on which the sealant does not adhere.

5.4 Tensile test machine conforming to EN 10002-1, capable of extending the test specimens at a rate of 5 mm/min to 6 mm/min.

6 Preparation of test specimens

6.1 Assemble two concrete supports (see 5.1) and two spacers (see 5.2) in accordance with Figure 1 and set up on the anti-adherent substrate (see 5.3). For the test six specimens are needed.

6.2 Follow the instructions of the sealant manufacturer whether a primer is to be used.

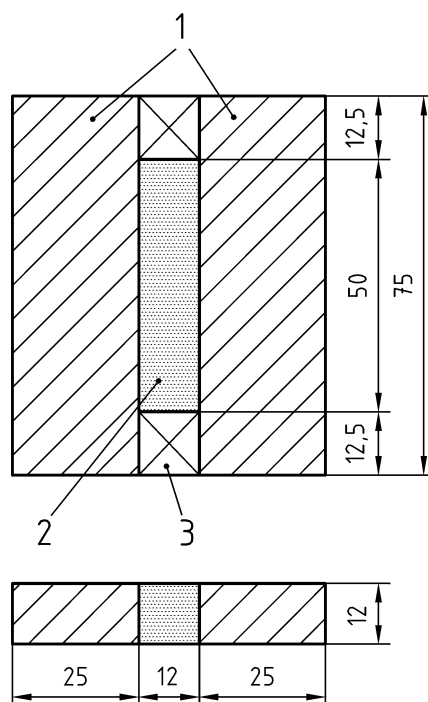
6.3 Condition the concrete supports, the spacers and the sealant for 4 h at (23 ± 2) °C. Fill the volume between the concrete supports and spacers with sealant.

6.4 For multicomponent cold applied joint sealants, thoroughly mix appropriate quantities of base component with curing agent following the manufacturers instruction. One-component joint sealants can be applied directly from the pack.

The following precautions shall be taken:

- avoid the formation of air bubbles by filling from the bottom;
- ensure that no sealant is running out at the bottom;
- trim the sealant surface so that it is flush with the faces of the support and spacers.

Dimensions in millimetres

**Key**

- 1 Concrete support
- 2 Cold applied joint sealant
- 3 Spacers

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Figure 1 — Test specimen

7 Procedure

From the six test specimens three are conditioned in accordance with either method A or B of EN 28340:1990 (reference test specimens).

Three of the test specimens are kept at the temperature of $(23 \pm 2) ^\circ\text{C}$ and $(50 \pm 5) \%$ relative humidity.

Table 1 — Conditioning methods for specimens

	Test specimens	Reference test specimens
Conditioning method	$(23 \pm 2) ^\circ\text{C}$ $(50 \pm 5) \%$ r.h	EN 28340:1990, method A or B
Number of test specimens	3	3

After any time when the rate of cure has to be determined and according during the process of cure remove the spacers of the test specimens and place them in the tensile test machine and extend them of 100 % of the original width at a rate of 5 mm/min to 6 mm/min.

Record a force/strain diagram.

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In the same way the reference test specimens are tested after completing conditioning method A or B. When method B is used, the reference test specimens will be tested after conditioning for 24 h at $(23 \pm 2) ^\circ\text{C}$ and $(50 \pm 5) \%$ relative humidity.

8 Calculation and expression of results

Calculate the rate of cure, expressed in percentage as relation of the tensile modulus at 100 % extension of the test specimens to the reference test specimens, using the following equation:

$$M = \frac{M_1}{M_2} 100$$

where

M is the rate of cure, expressed in percent (%);

M_1 is the arithmetic mean of the tensile modulus (100 % extension) of the test specimen tested at any time during cure, expressed in Newton per square millimetre (n/mm^2);

M_2 is the arithmetic mean of the tensile modulus (100 % extension) of the reference test specimen after complete cure, expressed in Newton per square millimetre (n/mm^2).

9 Test report

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The test report shall include the following information:

- a) reference to this European Standard; [SIST EN 14187-1:2004](https://standards.iteh.ai/catalog/standards/sist/d3a33da6-c906-4be2-b5eb-59e7104e4d6/sist-en-14187-1-2004)
- b) name and type of the cold applied joint sealant; <https://standards.iteh.ai/catalog/standards/sist/d3a33da6-c906-4be2-b5eb-59e7104e4d6/sist-en-14187-1-2004>
- c) batch of sealant from which the test specimens were produced;
- d) rate of cure of the cold applied joint sealant;
- e) any deviations from the specified test conditions;
- f) date of test.