



# SLOVENSKI STANDARD

## SIST EN 14187-1:2017

01-september-2017

Nadomešča:

SIST EN 14187-1:2004

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**Hladno nanosljive tesnilne mase za stike - Preskusne metode - 1. del: Ugotavljanje stopnje strditve**

Cold applied joint sealants - Test methods - Part 1: Determination of rate of cure

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

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

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**Ta slovenski standard je istoveten z: EN 14187-1:2017**

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**ICS:**

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

**SIST EN 14187-1:2017**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 14187-1**

June 2017

ICS 93.080.20

Supersedes EN 14187-1:2003

English Version

**Cold applied joint sealants - Test methods - Part 1:  
Determination of rate of cure**

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

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

This European Standard was approved by CEN on 17 April 2017.

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 14187-1:2017) 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 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14187-1:2003.

Apart from editorial changes no major changes have been made in this revision.

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

EN 14187-1, *Cold applied joint sealants — Test methods — Part 1: Determination of rate of cure.*

EN 14187-2, *Cold applied joint sealants — Test methods — Part 2: Determination of tack free time.*

EN 14187-3, *Cold applied joint sealants — Test methods — Part 3: Determination of self-levelling properties.*

EN 14187-4, *Cold applied joint sealants — Test methods — Part 4: Determination of the change in mass and volume after immersion in test fuels and liquid chemicals.*

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

EN 14187-6, *Cold applied joint sealants — Test methods — Part 6: Determination of the adhesion/cohesion properties after immersion in test fuels and liquid chemicals.*

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

EN 14187-8, *Cold applied joint sealants — Test methods — Part 8: Determination of the resistance to artificial weathering by UV-irradiation.*

EN 14187-9, *Cold applied joint sealants — Test methods — Part 9: Function testing of joint sealants.*

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**EN 14187-1:2017 (E)****1 Scope**

This European Standard describes 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**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13880-12, *Hot applied joint sealants — Part 12: Test method for the manufacture of concrete test blocks for bond testing (recipe methods)*

EN ISO 6927, *Buildings and civil engineering works — Sealants — Vocabulary (ISO 6927)*

EN ISO 8340, *Building construction — Sealants — Determination of tensile properties at maintained extension (ISO 8340)*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN ISO 6927 apply.

**4 Principle**

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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**

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**5.1** Concrete supports in accordance with EN 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, (Figure 1) of dimensions 12 mm × 12 mm × 12,5 mm (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 capable of extending the test specimens at a rate of  $(5,5 \pm 0,5)$  mm/min.

**6 Preparation of test specimens**

**6.1** Assemble two concrete supports (5.1) and two spacers (see 5.2) in accordance with Figure 1 and set up on the anti-adherent substrate (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.

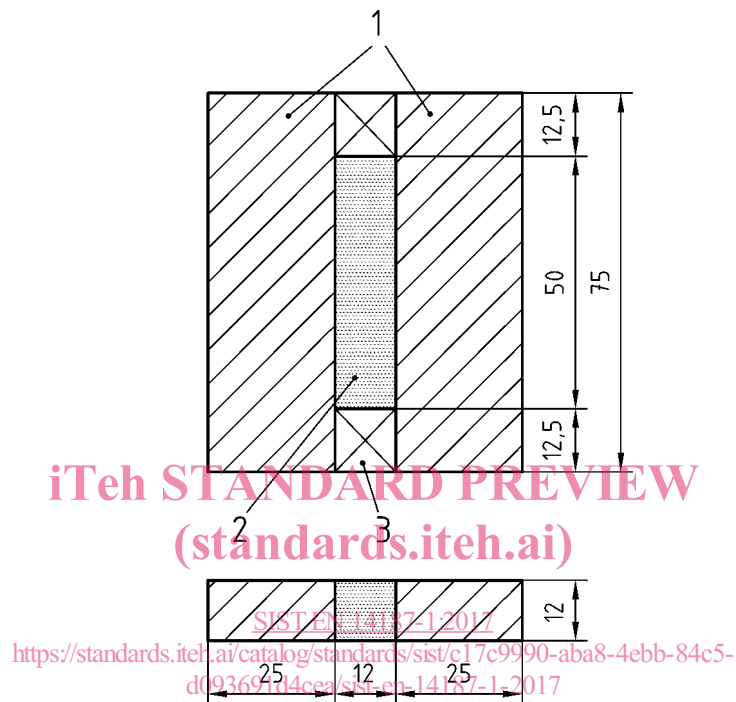
**6.3** Condition the concrete supports, the spacers and the sealant for 4 h at  $(23 \pm 2)$  °C. Fill the volume between the concrete supports and spacers with sealant.

**6.4** For multi-component cold applied joint sealants, thoroughly mix appropriate quantities of base component with curing agent following the manufacturer's 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

Figure 1 — Test specimen

## 7 Procedure

From the six test specimens three are conditioned in accordance with either method A or B of EN ISO 8340 (reference test specimens), see Table 1.

Three of the test specimens are kept at the temperature of  $(23 \pm 2) ^\circ\text{C}$  and  $(50 \pm 5) \%$  relative humidity, see Table 1.

Table 1 — Conditioning methods for specimens

	Test specimens	Reference test specimens
Conditioning method	$(23 \pm 2) ^\circ\text{C}$	EN ISO 8340, method A or B
	$(50 \pm 5) \%$ r. h	
Number of test specimens	3	3

**EN 14187-1:2017 (E)**

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  $(5,5 \pm 0,5)$  mm/min.

Record a force/strain diagram.

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  $(23 \pm 2)$  °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 newtons per square millimetre (N/mm<sup>2</sup>);
- $M_2$  is the arithmetic mean of the tensile modulus (100 % extension) of the reference test specimen after complete cure, expressed in newtons per square millimetre (N/mm<sup>2</sup>).

**9 Test report**

The test report shall include the following information:

- a) reference to this European Standard;
- b) name and type of the cold applied joint sealant;
- 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.