SLOVENSKI STANDARD
SIST EN 14187-9:2019

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Nadomešča:
SIST EN 14187-9:2006

Hladno nanosljive tesnilne mase za stike - Preskusne metode - 9. del: Preskušanje funkcionalnosti tesnilnih mas za stike

Cold applied joint sealants - Test methods - Part 9: Function testing of joint sealants

Kalt verarbeitbare Fugenmassen - Prüfverfahren - Teil 9: Funktionsprüfung von Fugenmassen

Produits de scellement de joints appliqués à froid - Méthodes d'essais - Partie 9 : Test fonctionnel sur scellement de joints

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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 14187-9:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 14187-9

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ICS 93.080.20

Supersedes EN 14187-9:2006

English Version

Cold applied joint sealants - Test methods - Part 9: Function testing of joint sealants

Produits de scellement de joints appliqués à froid - Méthodes d'essais - Partie 9 : Test fonctionnel sur scellement de joints

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

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European foreword

This document (EN 14187-9:2019) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

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

This document supersedes EN 14187-9:2006.

This document 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 method — 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 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 organisations of the following countries are bound to implement this document: 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.

1 Scope

This document specifies a function test for cold applied joint sealants intended for use in joints in roads and airfield pavements in cold climate areas where the total joint movement can be greater than 35 % and the temperature can go below –25°C.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13880-12, *Hot applied joint sealants — Part 12: Test method for the manufacture of concrete test blocks for bond testing (recipe methods)*

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

EN ISO 6927:2012, *Buildings and civil engineering works — Sealants — Vocabulary (ISO 6927:2012)*

EN ISO 7390, *Building construction - Jointing products — Determination of resistance to flow of sealants (ISO 7390)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 6927:2012 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Principle

This method describes an accelerated test for the assessment of damage of the cold applied sealants arising from the influence of fluctuating temperatures, water-spraying and simultaneous dynamic load.

5 Apparatus and materials

5.1 Concrete test blocks

Concrete supports in accordance with EN 13880-12, for the preparation of the test specimens, of dimensions as shown in Figure 1. Two supports are required for each test specimen.

5.2 Tensile/compression test rig

Apparatus which allows specimens to be inserted into holding clamps, conveniently and without disturbing the specimens before, during or after removal shall be used. The apparatus shall be capable of testing a number of test specimens simultaneously and shall not be significantly affected by the failure of one or more specimens.

The apparatus shall have the following characteristics:

— be motor driven through positive drives without slip or significant backlash, so that cycles of extension and compression are carried out steadily and automatically;

— be capable of moving the test blocks and specimens smoothly and linearly, so that their alignment is maintained at all times without subjecting them to torsion, bending, shock, or significant vibration;

— be capable of exerting on each specimen an appropriate tensile/compression force and extending the specimen uniformly under the specified conditions according to 7.2 and 7.4;

— be capable of measuring and recording the force with an uncertainty of maximum 2 % after application of the force to each system;

— the tolerance of the movement shall not exceed 0,01 mm.

5.3 Climate chamber

Climate chamber shall be capable of reducing the temperature of the specimens to the specified temperature in the range from –30 °C to 30 °C drop/rise throughout the period of examination.

The chamber shall be fitted with a time controlled device to allow the specimen to be subjected to spraying with distilled or demineralized water for 20 % of the total conditioning time at the fixed temperatures as provided in 7.4.

5.4 Temperature indicator

The temperature indicator shall consist of an electronic device capable of measuring temperatures in the range of –40 °C to 50 °C to an accuracy of ±1 °C.

6 Preparation of the test specimens

For each test, at least three test specimens shall be prepared.

Prepare the test specimens in accordance with the manufacturer's instructions including the application of a primer, etc. where stipulated. The test specimens shall be as shown in Figure 1.

Prior to conditioning, the gelation time of the sealant shall be determined in the following way.

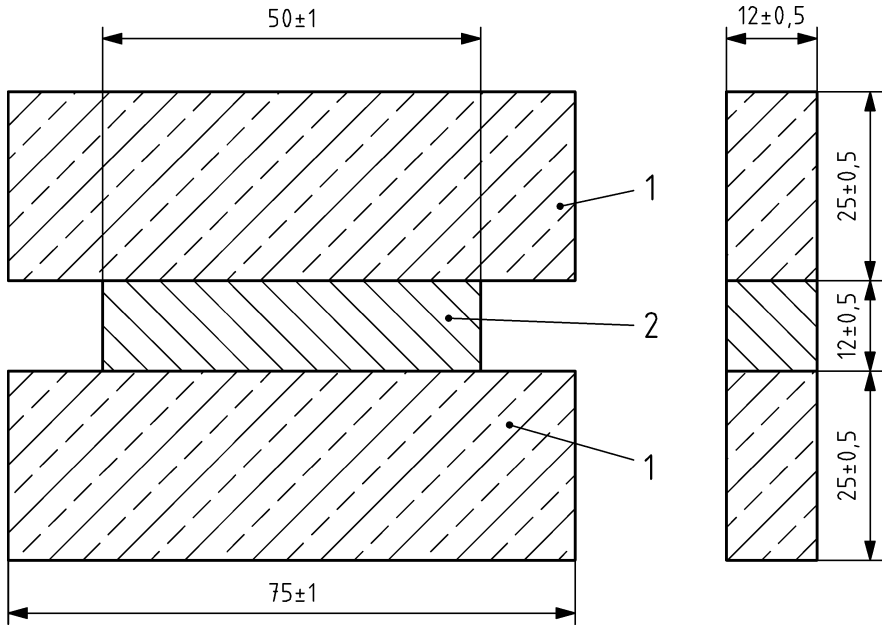
Measure tack free time in accordance with EN 14187-2. Thereafter, prepare test specimens in accordance with EN ISO 7390.

After the preparation, place test specimens in standard conditions ((23 ± 2) °C, (50 ± 5) % r. h.).

Examine the first test specimen as described in EN ISO 7390, procedure B after the time equal to the tack free time. If no flow is observed, the gelation time is equal to the tack free time. In other cases, the examination shall be repeated in steps of additional 10 % of the tack free time until no flow is observed.

Prepare the test specimens and immediately after the sealant has gelled carefully mount them in the tensile test rig.

Dimensions in millimetres



Key

1 concrete test blocks

2 sealant

Figure 1 — Test specimen mounted between the concrete test blocks

7 Procedure

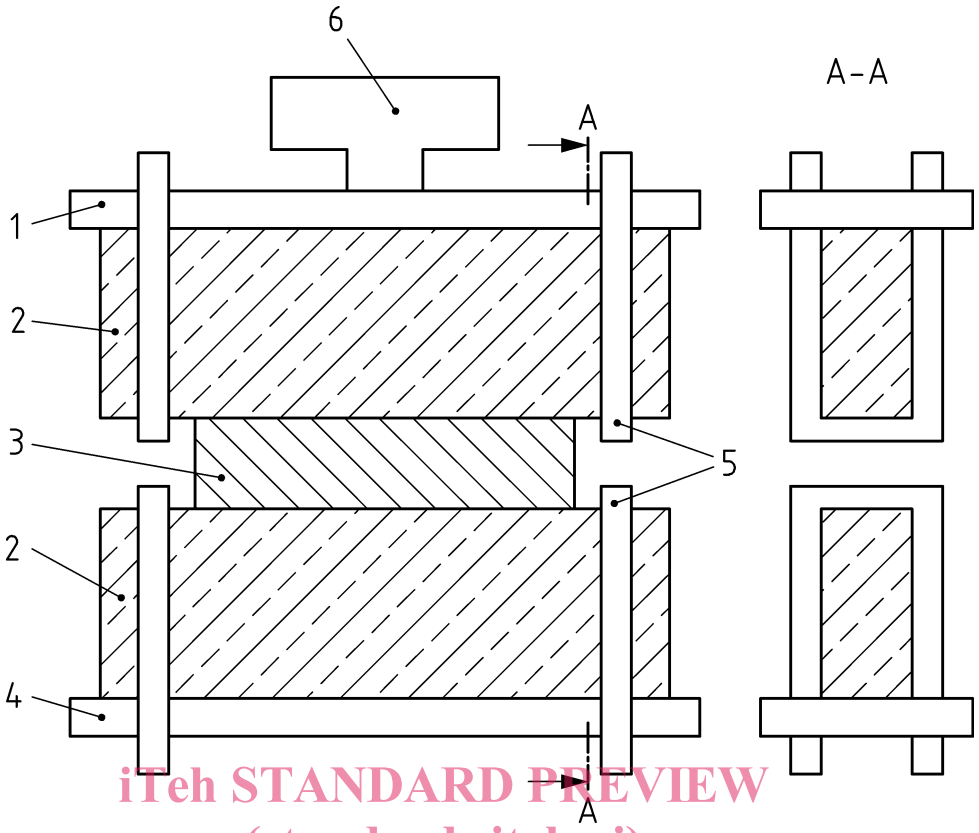
7.1 Conditioning cycle

Prior to testing, the test specimens shall be subjected to the conditioning procedure described below.

Mount the test specimens on a tensile test rig in the climate chamber as shown in Figure 2.

Subject the test specimens to the following conditioning cycle shown in Figure 3.

Temperature cycling:	minimum temperature	(10 ± 1) °C,	
	maximum temperature	(25 ± 1) °C.	
Rate of deformation:	(0,010 ± 0,002) mm/min.		
Movement:	Extension	(0,40 ± 0,03) mm	(3,33 ± 0,25) %,
	Compression	(0,10 ± 0,03) mm	(0,83 ± 0,25) %.
Water spraying:	20 % of total time (1 min water spraying, 4 min pause),		
	Water temperature	10 °C to 20 °C.	



Key

1 stationary beam
2 concrete test blocks according to EN 13880-12
3 sealant
4 moveable beam
5 grips
6 load cell

Figure 2 — Test specimen mounted in the test rig