



SLOVENSKI STANDARD

SIST EN 13880-7:2004

01-junij-2004

Toplo nanosljive tesnilne mase za stike – 7. del: Preskušanje funkcionalnosti tesnilne mase za stike

Hot applied joint sealants - Part 7: Function testing of joint sealants

Heiß verarbeitbare Fugenmassen - Teil 7: Funktionsprüfung von Fugenmassen

Produits de scellement de joints appliqués à chaud - Partie 7: Test fonctionnel sur scellement de joints

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Ta slovenski standard je istoveten z: **EN 13880-7:2003**

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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 13880-7

August 2003

ICS 93.080.20

English version

Hot applied joint sealants - Part 7: Function testing of joint sealants

Produits de scellement de joints appliqués à chaud - Partie
7: Test fonctionnel sur scellement de joints

Heiß verarbeitbare Fugenmassen - Teil 7:
Funktionsprüfung von Fugenmassen

This European Standard was approved by CEN on 2 May 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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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document EN 13880-7:2003 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 February 2004, and conflicting national standards shall be withdrawn at the latest by March 2005.

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.

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

EN 13880-1, *Hot applied joint sealants — Part 1: Test method for the determination of density at 25 °C.*

EN 13880-2, *Hot applied joint sealants — Part 2: Test method for the determination of cone penetration at 25 °C.*

EN 13880-3, *Hot applied joint sealants — Part 3: Test method for the determination of penetration and recovery (resilience).*

EN 13880-4, *Hot applied joint sealants — Part 4: Test method for the determination of heat resistance — Change in penetration value.*

EN 13880-5, *Hot applied joint sealants — Part 5: Test method for the determination of flow resistance.*

prEN 13880-6, *Hot applied joint sealants — Part 6: Test method for the preparation of samples for testing.*

EN 13880-7, *Hot applied joint sealants — Part 7: Function testing of joint sealants.*

EN 13880-8, *Hot applied joint sealants — Part 8: Test method for the determination of the change in weight of fuel resistance joint sealants after fuel immersion.*

EN 13880-9, *Hot applied joint sealants — Part 9: Test method for the determination of compatibility with asphalt pavements.*

EN 13880-10, *Hot applied joint sealants — Part 10: Test method for the determination of adhesion and cohesion following continuous extension and compression.*

EN 13880-11, *Hot applied joint sealants — Part 11: Test method for the preparation of asphalt test blocks used in the function test and for the determination of compatibility with asphalt pavements.*

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

EN 13880-13, *Hot applied joint sealants — Part 13: Test method for the determination of the discontinuous extension (adherence test).*

1 Scope

This European Standard describes a function test for joint sealants intended for use in construction joints as well as in spontaneously formed cracks in road and airfield pavements.

EN 13880-7:2003 (E)**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).

prEN 13880-6, *Hot applied joint sealants — Part 6: Test method for the preparation of samples for testing.*

EN 13880-11, *Hot applied joint sealants — Part 11: Test method for the preparation of asphalt test blocks used in the function test and for determination of compatibility with asphalt pavements.*

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

prEN 14188-1:2001, *Joint fillers and sealant — Part 1: Specifications for hot applied sealants.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in prEN 14188-1:2001 and the following apply.

3.1**adhesion failures**

surface area of the concrete test blocks from which the sealant is completely separated are to be evaluated for adhesive failure, calculated to the nearest 10 mm²

3.2**cohesion failures**

cohesion failure is the sum of the superficial areas of any ruptures on the faces of the material to the nearest 5 mm² and any cavity exceeding 3 mm in depth, measured normal to the face of the test specimen

4 Principle

This method is intended to serve as an accelerated test for the assessment of damage to hot applied sealants resulting from fluctuating temperatures, water-spraying and simultaneous dynamic loads.

5 Apparatus

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

The testing rig 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 specimens smoothly and linearly, so that their alignment is maintained at all times without subjecting them to torsion, bending, shock, or significant vibration;
- under the specified conditions in clause 8;

- be capable of measuring and recording the changes in force with an uncertainty of measurement of 2 % after application of the maximum tensile force to each system.

NOTE Testing may also be carried out at differing ratios of temperature, deformation and movement in accordance with the sealant manufacturer's recommendations provided that the criteria are within the capabilities of the test rig described above.

5.2 Climate chamber, capable of reducing or raising the temperature of a full complement of test specimens to the specified temperature throughout the period of examination.

The chamber shall be fitted with a time controlled device to allow the specimen to be subjected to water spraying for 20 % of the total conditioning time at the appropriate temperature as provided for in clause 7.

5.3 Temperature indicator, consisting of an electronic device capable of measuring temperatures in the range of -30 °C to 70 °C to an accuracy of $\pm 1\text{ °C}$;

6 Preparation and conditioning of test specimens

6.1 Prepare the test specimens according to prEN 13880-6.

6.2 Concrete test blocks in accordance with EN 13880-12 and asphalt test blocks in accordance with EN 13880-11 shall be used. The dimensions of the test blocks are (75 ± 1) mm length, $(25,0 \pm 0,5)$ mm width and $(12,0 \pm 0,5)$ mm height. The concrete test blocks shall have a moisture content within the limits of $(5,0 \pm 0,5)$ %.

6.3 Use a suitable mould to place two test blocks exactly opposite each other for a joint width of $(12,0 \pm 0,5)$ mm.

6.4 If a primer is used, apply it to the sawn test faces of the test blocks in accordance with the manufacturer's instructions.

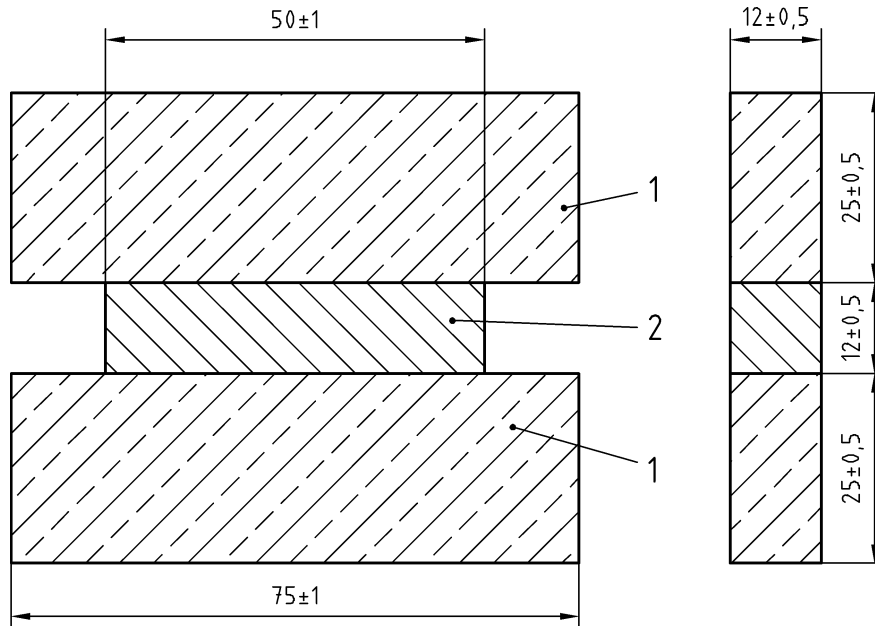
6.5 Place a top-mask on the mould so that the joint can be overfilled when the test sample is poured into it.

6.6 Any adhering of the test sample to the borders of the joint shall be avoided.

6.7 Allow the test specimens to cool at laboratory temperature for 2 h after which remove the excess test sample using a heated knife so that the test specimens are flush with the surface of the test blocks.

6.8 Three test specimens shall be prepared for each test. The test specimens shall be as described in Figures 1 and 2.

EN 13880-7:2003 (E)



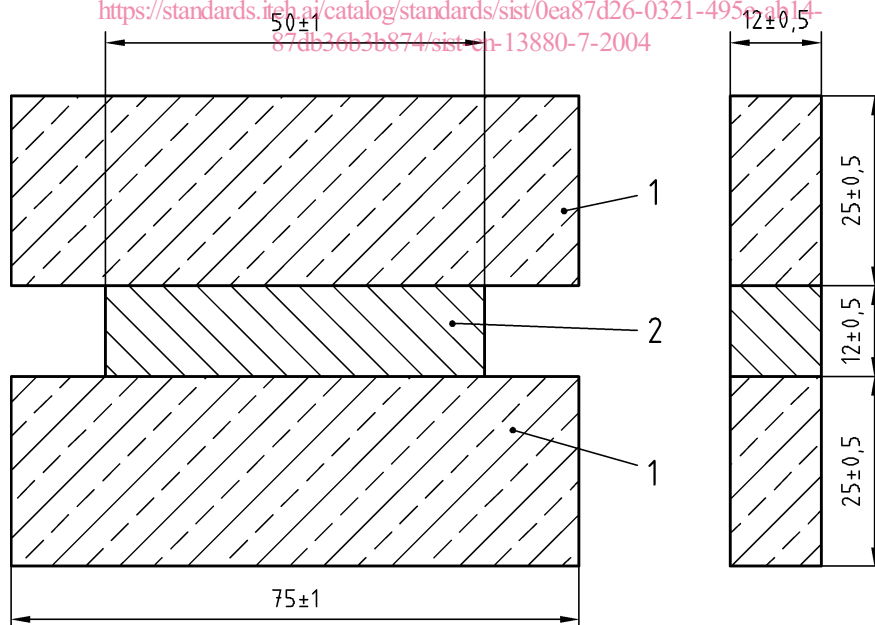
All dimensions in millimetres

Key

- 1 concrete test blocks according to EN 13880-12
- 2 hot applied joint sealant

Figure 1 — Test specimen of concrete test blocks

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Key

- 1 asphalt blocks according to EN 13880-11
- 2 hot applied joint sealant

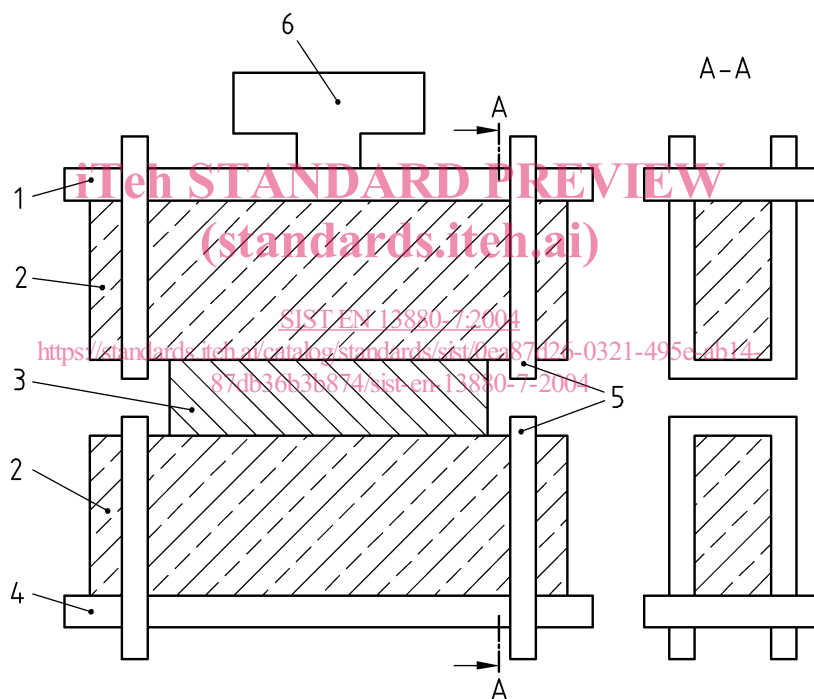
Figure 2 — Test specimen of asphalt test blocks

7 Procedure

7.1 Conditioning

The test specimens can be mounted on the tensile test rig as shown in Figure 3, for example. The test specimens shall then be subjected to a conditioning cycle (see Figure 3) as described below:

- temperature cycling: from $(15 \pm 1) ^\circ\text{C}$ up to $(20 \pm 1) ^\circ\text{C}$;
- rate of deformation: $(0,010 \pm 0,002) \text{ mm/min}$;
- movement:
 - compression $(0,10 \pm 0,02) \text{ mm}$;
 - elongation $(0,40 \pm 0,02) \text{ mm}$;
- water spraying: 20 % of total time (1 min water spraying, 4 min pause).



Key

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

Figure 3 — Test specimen mounted in the tensile test rig