



# SLOVENSKI STANDARD

## oSIST prEN 13880-5:2023

01-september-2023

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**Toplo nanosljive tesnilne mase za stike - 5. del: Preskusna metoda za ugotavljanje odpornosti proti tečenju**

Hot applied joint sealants - Part 5: Test method for the determination of flow resistance

Heiß verarbeitbare Fugenmassen - Teil 5: Prüfverfahren zur Bestimmung der Fließlänge

Produits de scellement de joints appliqués à chaud - Partie 5: Méthode d'essai pour la détermination de la résistance au fluage

**Ta slovenski standard je istoveten z: prEN 13880-5**

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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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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 13880-5**

June 2023

ICS 93.080.20

Will supersede EN 13880-5:2004

English Version

## Hot applied joint sealants - Part 5: Test method for the determination of flow resistance

Produits de scellement de joints appliqués à chaud -  
Partie 5: Méthode d'essai pour la détermination de la  
résistance au fluage

Heiß verarbeitbare Fugenmassen - Teil 5:  
Prüfverfahren zur Bestimmung der Fließlänge

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 227.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## European foreword

This document (prEN 13880-5:2023) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13880-5:2004.

This document 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*

EN 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 testing (recipe methods)*

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

**prEN 13880-5:2023 (E)****1 Scope**

This document describes a method for determining the flow resistance of hot applied joint sealants to characterize the stability at elevated temperature.

**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.

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

EN 12594, *Bitumen and bituminous binders - Preparation of test samples*

**3 Term and definition**

For the purposes of this document, the following terms and definitions apply.

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

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

**3.1****flow resistance**

resistance to the movement of the lower transverse edge of a specific test specimen after loading with elevated temperature

**4 Principle**

A representative portion of the sealant is prepared and a rectangular plate-shaped specimen is formed with the help of a metal moulding on the surface of a rectangular metal plate as sample carrier. The rectangular plate-shaped specimen is orthogonal adjusted on the surface of the metal plate. After specimen grouting and cooling to room temperature this metal plate, together with its specimen, is sloped to the horizontal level in a test stand, hereby the dimension of the lower transverse edge is oriented horizontally. The specimen in this configuration is subjected to an elevated temperature over 5 h.

After conditioning the flow movement of the former even and straight lower transverse edge of the specimen is measured as test result.

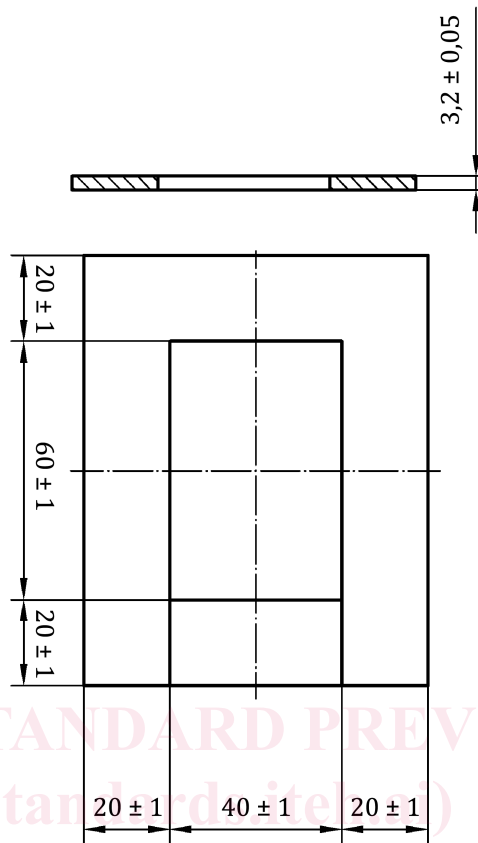
**5 Apparatus**

**5.1 Forced-air ventilated Laboratory oven** conforming to ISO 188, with low air speed, capable of maintaining the test specimen and apparatus at the test temperature of  $(60,0 \pm 1)$  °C.

**5.2 Metal frame (grouting frame)** to prepare the sealant rectangular plate-shaped specimen comprising a steel frame conforming to Figure 1 with external dimensions  $(100 \pm 1)$  mm long  $\times$   $(80 \pm 1)$  mm wide and  $(3,2 \pm 0,05)$  mm thickness with an internal grouting section of  $(60 \pm 1)$  mm long  $\times$   $(40 \pm 1)$  mm wide.

**5.3 Release agent** comprising a mixture of glycerine and dextrin or silicone paste or something similar.

Dimensions in millimetres

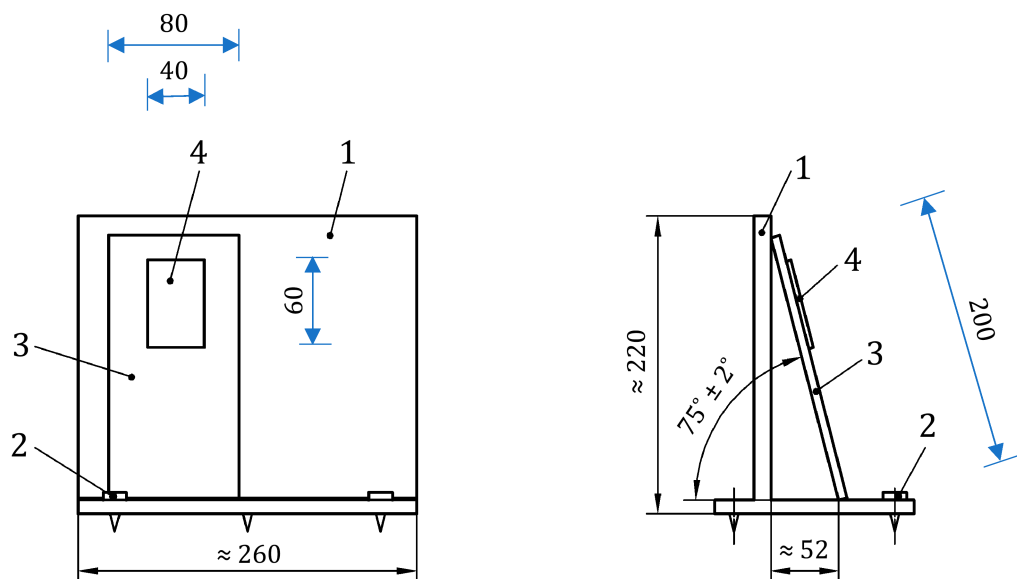


**Figure 1 — Metal frame (grouting frame)**

**5.4 Metal plate** (sample carrier) roughened with sandpaper grain 120, (200 ± 1) mm long × (100 ± 1) mm long × (1,5 ± 0,1) mm thick.

**5.5 Test stand (Metal stand)** conforming to Figure 2, designed to allow the metal plate containing the test specimen to be mounted so that the longitudinal axis of the test specimen is at an angle of (75 ± 2)° with the horizontal, and the transverse axis is horizontal.

Dimensions in millimetres

**Key**

- 1 stand for metal plate
- 2 inclination adjustment screws
- 3 metal plate
- 4 test specimen

**Figure 2 — Examples of test stand with test specimen****6 Preparation and conditioning of the test specimens**

**6.1** For the determination of flow resistance, two test specimens shall be prepared and tested.

**6.2** A representative sealant portion (test sample according to EN 12594) is prepared according to EN 13880-6 to manufacture a rectangular plate-shaped specimen by grouting. The rectangular specimen L:  $(60 \pm 1)$  mm; W:  $(40 \pm 1)$  mm; Thickness  $(3,2 \pm 0,05)$  mm is formed by grouting with the help of a specific rectangular metal frame (grouting frame) with external dimensions  $(100 \pm 1)$  mm long  $\times$   $(80 \pm 1)$  mm wide and  $(3,2 \pm 0,05)$  mm thickness on the surface of a rectangular metal plate (sample carrier) with external dimensions  $(200 \pm 1)$  mm long  $\times$   $(100 \pm 1)$  mm wide and  $(1,5 \pm 0,05)$  mm thickness. The grouting frame is flush arranged at the upper edges of the metal plates (sample carrier).

**6.3** Treat the inside of the metal frame with the release agent. Place the frame on the metal plate and fill the frame with an excess of the test specimen.

For grouting process both combined parts (metal frame and metal plate) are positioned horizontally.

**NOTE** Before grouting it is important to adjust and temporarily fix the metal frame (grouting frame) orthogonally to the metal plates (sample carrier) transverse and longitudinal sides to manufacture a specimen in a position on the metal plate (sample carrier) according to Figure 2. This ensures an exact horizontally orientation of the lower transverse edge of the specimen parallel to the lower metal plate edge.

**6.4** Fill the metal frame with an excess of the test sample material. Record the actual temperature at the end of pouring.



**6.5** After grouting the specimen and re-cooling to room temperature over at least 1 h, trim the sealant materials excess in the frame with a heated knife to create a smooth specimen surface. Subsequently the metal frame is carefully removed. there remains a rectangular plate-shaped sealant film on the surface of the metal plate (sample carrier).

Before arranging the metal plate in the test stand, it is recommended to mark the lower transverse edge of the specimen on the surface of the metal plate as reference line for the flow measurement.

## 7 Test conditions

The test conditions shall be:

- temperature:  $(60,0 \pm 1)$  °C;
- duration of test:  $300 \pm 3$  min.

## 8 Procedure

**8.1** Place the metal test stand in the oven at the required test temperature for 30 min before beginning the test in order to preheat the test stand.

**8.2** The metal plate (sample carrier) together with the manufactured specimen is arranged  $(75 \pm 2)^\circ$  sloped to the horizontal level in the temperature test stand according to Figure 2. Thereby the lower transverse edge  $(40 \pm 1)$  mm together with its edge extension as reference line remains horizontal oriented. The test stand with this specimen configuration is placed in the oven at a temperature of  $(60 \pm 1)$  °C for  $(5 \pm 0,05)$  h.

**8.3** After this period remove the test specimen from the oven and let it horizontally re-cool to room temperature (23 °C).

## 9 Expression of results

Report the flow resistance as the average of the two determinations, rounded to the nearest 1 mm.

## 10 Precision

Estimates of the repeatability and reproducibility of this test method and of the variability due to sampling are not available as yet but they will be included by amendment when known.

NOTE To define variability it is necessary for accredited laboratories to discuss their measurement uncertainty for the test method.

**prEN 13880-5:2023 (E)****11 Test report**

The test report shall state that the test was carried out in accordance with this document and include the following information:

- product; sealant type; manufacturer; sample No.;
- batch number and date of manufacture; expiry date;
- description of specific sample preparation-loading-conditioning; loading history (e.g. sample from original packages; from cooker, etc.);
- the date of testing, and individual measurement values and test result, date of testing and results obtained;
- name of the analyst and test laboratory.

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