



SLOVENSKI STANDARD
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Bitumen and bituminous binders - Determination of penetration power of bituminous emulsions

Bitumen und bitumenhaltige Bindemittel - Bestimmung der Eindringfähigkeit von Bitumenemulsion

Bitumes et liants bitumineux - Détermination du pouvoir de percolation des émulsions de bitume

Ta slovenski standard je istoveten z: prEN 12849

ICS:

75.140	Voski, bitumni in drugi naftni proizvodi	Waxes, bituminous materials and other petroleum products
91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

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Bitumen and bituminous binders - Determination of penetration power of bituminous emulsions

Bitumes et liants bitumineux - Détermination du pouvoir de percolation des émulsions de bitume

Bitumen und bitumenhaltige Bindemittel - Bestimmung der Eindringfähigkeit von Bitumenemulsion

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Foreword

This document (prEN 12849:2008) has been prepared by Technical Committee CEN/TC 336 "Bituminous binders", the secretariat of which is held by AFNOR.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 12849:2002.

prEN 12849:2008 (E)

1 Scope

This European Standard specifies a method for the determination of the penetration power of bituminous emulsions.

This test method is applicable to low-viscosity bituminous emulsions.

WARNING — The use of this standard can involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 Normative references

The following referenced documents are indispensable for the application 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 58, *Bitumen and bituminous binders - Sampling bituminous binders*

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

EN ISO 4259, *Petroleum products - Determination and application of precision data in relation to methods of test (ISO 4259:2006)*

3 Terms and definitions

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

3.1

penetration power

ability of a bitumen emulsion to penetrate into a reference filler

3.2

penetration time

time, in minutes, required for a specified quantity of bituminous emulsion to penetrate into a defined quantity of a reference filler

4 Principle

A specified quantity of the emulsion to be tested is poured onto the reference filler. The time required for the emulsion to penetrate into the filler is measured.

5 Reagents and materials

A mixture of specified silica sand and silica filler is used as the reference filler. In the event of a dispute, the reference specified shall be used.

5.1 Sand

The silica sand type F 34¹ shall be used as one of the two components of the reference filler. Characteristics are given in Annex A.

5.2 Filler

The testing silica filler 315-001¹ shall be used as one of the two components of the reference filler. Characteristics are given in Annex B.

6 Apparatus

Usual laboratory apparatus and glassware, together with the following:

6.1 Test apparatus, as shown in Figure 1, consisting of a glass tube with fused-on glass filter disc with pore size between 160 µm and 250 µm.

A vent, below the glass filter disc, provides pressure compensation when the test apparatus is charged. The vent shall be cut perpendicular to the vertical axis, with its edges slightly fused.

NOTE The vent can be dispensed with if, during the test procedure, the test apparatus is supported.

6.2 Balance, capable of weighing 100 g, with an accuracy of $\pm 0,1$ g.

6.3 Oven, capable of being maintained at (110 ± 5) °C.

6.4 Wooden board, 200 mm x 200 mm x 10 mm in size.

6.5 Stopwatch, graduated in divisions of 1 s or less.

7 Sampling

The material under test shall be sampled in accordance with EN 58 and prepared in accordance with EN 12594.

The test shall be carried out on two test portions of the sample, each weighing $(10,0 \pm 0,1)$ g (see Clause 8).

8 Procedure

8.1 General

Carry out the procedure under normal laboratory conditions, between 18 °C and 28 °C.

8.2 Test

Dry the quantities of silica sand and testing silica filler, required for the test, in the oven (6.3) at a temperature of (110 ± 5) °C until constant mass is reached and cool to ambient temperature in a dessiccator.

¹ This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN of the product name. Equivalent products may be used if they can be shown to lead to the same results, or if a correlation between the products has been established.

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For each test portion, mix intimately $(50,0 \pm 0,1)$ g of silica sand and $(50,0 \pm 0,1)$ g of testing silica filler and transfer via a funnel to the upper part of the test apparatus (6.1), lifting the funnel with increasing filling height. Level the surface of the filler mixture in the apparatus by knocking the lower edge of the test apparatus three times on the wooden board (6.4).

Place the apparatus on the balance (6.2).

Pour $(10,0 \pm 0,1)$ g of the emulsion to be tested along a glass rod onto the centre of the filler mixture. Pour the entire quantity of emulsion within (10 ± 1) s. Start measuring the time immediately after pouring the emulsion.

Cover the test apparatus using a watch glass.

Determine the time for the emulsion to completely penetrate into the filler mixture, i.e. when the structure of the filler at its upper surface can be clearly recognised. If penetration of the filler mixture is not completed within 20 min, discontinue the test.

Repeat the test procedure using new quantities of filler and emulsion. If the results for both sample portions differ by more than 3 min, repeat the procedure for a third sample portion.

The two values nearest to each other are used to calculate the mean penetration time.

9 Expression of results

Express the individual penetration times and the average penetration time (in seconds) to the nearest integer.

Express the result as the arithmetic mean of the two individual results of mixing time, to the nearest integer.

10 Precision

10.1 Repeatability

The difference between two successive test results, obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of the test method, exceed 3 min in only one case in twenty.

10.2 Reproducibility

The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the long run, in the normal and correct operation of the test method, exceed 6 min in only one case in twenty (provided that both results have been determined within two weeks).

NOTE The source of precision data is DIN 52046 [1].

11 Test report

The test report shall contain at least the following information:

- a) type and complete identification of the sample under test;
- b) reference to this European Standard;
- c) reference to the type of apparatus used;
- d) reference to the used sand and filler;