SLOVENSKI STANDARD
kSIST prEN 13075-1:2008

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Bitumen in bitumenska veziva - Določ evanje stopnje stabilnosti - 1. del: Določ evanje hitrosti razpada kationskih bitumenskih emulzij, metoda z mineralnim polnilom

Bitumen and bituminous binders - Determination of breaking behaviour - Part 1: Determination of breaking value of cationic bituminous emulsions, mineral filler method

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Brechverhaltens - Teil 1: Bestimmung des Brechwertes kationischer Bitumenemulsionen, Verfahren mit Feinmineralstoff

Bitumes et liants bitumineux - Détermination du comportement à la rupture - Partie 1 : Détermination de l'indice de rupture des émulsions cationiques de bitume, méthode des fines minérales

Ta slovenski standard je istoveten z: **prEN 13075-1**

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 und bitumenhaltige Bindemittel - Bestimmung des Brechverhaltens - Teil 1: Bestimmung des Brechwertes kationischer Bitumenemulsionen, Verfahren mit Feinmineralsotoff

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Foreword

This document (prEN 13075-1:2008) 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 13075-1:2002.

This European Standard, EN 13075, consists of the following parts under the general title *Bitumen and bituminous binders – Determination of breaking behaviour:*

Part 1 – Determination of breaking value of cationic bituminous emulsions, mineral filler method;

Part 2 – Determination of fines mixing time of cationic bituminous emulsions.

1 Scope

This European Standard specifies a method for the determination of the breaking value of cationic bituminous emulsions.

WARNING — The use of this standard may 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*

3 Terms and definitions

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

3.1
breaking value
dimensionless number corresponding to the amount of reference filler, in grams, needed to coagulate 100 g of bitumen emulsion

4 Principle

A reference filler is added at a uniform rate to a specified quantity of stirred cationic bitumen emulsion. When the emulsion has broken completely, the amount of added filler is determined by weighing. The mass of filler (in grams) multiplied by 100 and divided by the amount of emulsion (in grams) is the breaking value.

NOTE The cationic or anionic nature of an emulsion can be determined with EN 1430 [1].

5 Reagents and materials

5.1 Reference filler

The Sikaisol filler[1] (characteristics are given in Annex A) shall be used as the reference filler.

Other filler such as the Forshammer filler may be used as an alternative to the Sikaisol filler. In the event of dispute, the Sikaisol filler shall be used.

5.2 Cleaning agents, as used conventionally in laboratories.

[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.

6 Apparatus

Usual laboratory apparatus and glassware, together with specific equipments which are described hereafter depending on the used procedure (semi-automatic or manual). An explanatory sketch of the equipment set-up is shown in Figure 1 in the case of the semi-automatic procedure.

6.1 Equipment for semi-automatic procedure

6.1.1 Stirrer motor, as shown in Figure 1, with an output power of at least 25 W, and a speed of (260 ± 60) r/min.

6.1.2 Stirrer, as shown in Figure 2, having the dimensions given in Figure 3, Figure 4 and Figure 5. In Figure 3, the dimensions are given as an example.

6.1.3 Metal cans, cylindrical, of approximate capacity 500 ml, height 95 mm and diameter 90 mm.

6.2 Equipment for manual procedure

6.2.1 Enamelled dish, having approximately 20 cm inside diameter and 10 cm high.

6.2.2 Spatula, nickel or stainless steel, approximately 20 cm long.

6.3 Equipment for both

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

6.3.2 Conical-shaped funnel, capable of supplying a continuous sufficient flow of filler to the filler feeder.

6.3.3 Adjustable filler feeder, to be placed at the outlet of the filler holding funnel and capable of feeding the filler at a rate ranging from 0,25 g/s to 0,45 g/s. This equipment shall be calibrated. The calibration shall be achieved by weighing the amount of the filler poured during a period of time between 100 s and 200 s measured with an accuracy of 0,2 s.

NOTE The feeding rate, q, in grams per second, should be calculated, using the following equation:

$$q = 100 \times \frac{m_f}{t}$$

where:

m_f is the mass of filler in grams;

t is the analysis time in seconds.

6.3.4 Timer or stop watch, with an accuracy of 0,2 s or better over a time interval equal to or higher than 200 s.

6.3.5 Suitable bottles, of approximate capacity 500 ml made of a material that will not react with the emulsion, having tight fitting lids.

6.3.6 Constant temperature bath and/or climatic chamber, capable of maintaining the sample in the can at (25 ± 1) °C.

NOTE If the bath is used to condition the emulsion sample bottles, it should be equipped with a frame or device to prevent the plastic bottles from moving in the water bath.

6.3.7 Balance, having a suitable range, capable of weighing the samples in Clause 8 to the nearest 0,1 g.

6.3.8 **Thermometer**, having a suitable range, capable of measuring the temperature to the nearest 0,2 °C.

7 Sampling

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

8 Procedure

8.1 General

Carry out the procedure under normal laboratory conditions (18 °C to 28 °C). However, before carrying out any one of the two procedures:

— dry the quantities of filler, required for the test, in the oven (6.3.1) at a temperature of (110 ± 5) °C until constant mass and cool to ambient temperature in a desiccator;

— pour a portion of emulsion (250 ± 10) g into a suitable bottle (6.3.5) and secure the lid;

— pour the required quantities of filler in a closed container;

— place the bottle with the emulsion and the container with the filler in the constant temperature bath or climatic chamber (6.3.6) for a minimum of 1,5 h.

8.2 Semi-automatic procedure

Weigh the metal can (6.1.3) containing the stirrer (6.1.2) to the nearest 0,1 g (m_1).

Transfer (100 ± 1) g to the nearest 0,1 g (m_e) of the emulsion sample from the suitable bottle (6.3.5) to the weighed metal can.

Place the metal can under the stirrer motor (6.1.1) and connect the stirrer (6.1.2) to the stirrer motor.

Start the stirrer motor and the feeder simultaneously, ensuring that the stirrer blades are below the surface of the emulsion during the test.

Rotate the metal can slowly (approximately 5 r/min) by hand in the opposite direction to the stirrer in order to ensure homogeneity of mixing.

The mixture becomes thicker as the filler is added and the emulsion is considered to be broken when the mix detaches itself from the metal can. Turn off the filler feeder and the stirrer at this point.

Weigh the metal can containing the broken emulsion and the stirrer to the nearest 0,1 g (m_2).

Repeat the test with a second portion of emulsion taken from the same suitable bottle using a new metal can and stirrer.

NOTE In case of dispute, only the semi-automated apparatus is allowed.

8.3 Manual procedure

Weigh the enamel dish (6.2.1) containing the spatula (6.2.2) to the nearest 0,1 g (m_1).

Transfer (100 ± 1) g to the nearest 0,1 g (m_e) of the emulsion sample from the suitable bottle (6.3.5) to the weighed enamel dish containing the spatula.