



SLOVENSKI STANDARD

SIST EN 13075-2:2003

01-januar-2003

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Bitumen and bituminous binders - Determination of breaking behaviour - Part 2:
Determination of fines mixing time of cationic bitumen emulsions

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Brechverhaltens - Teil 2:
Bestimmung der Mischzeit kationischer Bitumenemulsionen

Bitumes et liants bitumineux - Détermination du comportement a la rupture - Partie 2:
Détermination de la durée de miscibilité des fines dans les emulsions cationiques de
bitume

Ta slovenski standard je istoveten z: EN 13075-2:2002

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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en

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ICS 75.140; 91.100.50

English version

Bitumen and bituminous binders - Determination of breaking
behaviour - Part 2: Determination of fines mixing time of cationic
bitumen emulsions

Bitumes et liants bitumineux - Détermination du
comportement à la rupture - Partie 2: Détermination de la
durée de miscibilité des fines dans les émulsions
cationiques de bitume

Bitumen und bitumenhaltige Bindemittel - Bestimmung des
Brechverhaltens - Teil 2: Bestimmung der Mischzeit
kationischer Bitumenemulsionen

This European Standard was approved by CEN on 14 March 2002.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document EN 13075-2:2002 has been prepared by Technical Committee CEN/TC 336 "Bituminous binders", the secretariat of which is held by AFNOR.

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 January 2003, and conflicting national standards shall be withdrawn at the latest by January 2003.

This European Standard is part of a package including 14 standards: EN 1428, EN 1429, EN 1430, EN 1431, EN 12846, EN 12847, EN 12848, EN 12849, EN 12850, EN 13074, EN 13075-1, EN 13075-2, EN 13614 and EN 13808.

Annex A is normative.

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 bitumen emulsions, mineral filler method;

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

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies a method for the determination of the fines mixing time of cationic bitumen emulsions, under standardized conditions.

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

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).

EN 58¹⁾, *Bitumen and bituminous binders - Sampling bituminous binders*.

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)*.

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

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3 Term and definition

For the purposes of this European Standard, the following term and definition apply.

3.1

fines mixing time

time in seconds for the mixability of a mixture of mineral filler and bitumen emulsion without noticeable breaking effect under the conditions specified in this standard

4 Principle

A specified quantity of filler is added at a uniform rate, with stirring, to a specified quantity of bitumen emulsion diluted with water. Stirring is continued until the mixture becomes pasty and forms lumps which do not adhere to the walls of the pan. This, combined with a noticeable increase in stirring power indicates the end of mixability. The time to reach this point (breaking status) is the fines mixing time.

5 Reagents and materials

Use only reagents of recognized analytical grade and water conforming to grade 3 of EN ISO 3696.

5.1 Filler, Forshammer SE filler²⁾, reference is given in annex A.

1) In course of revision.

2) 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.

The filler shall be dried before use.

5.2 Cleaning agents, as used conventionally in laboratories.

6 Apparatus

Usual laboratory apparatus and glassware, together with the following:

- 6.1 **Conical shaped pan**, capable of feeding the filler at a rate of 10 g per 5 s;
- 6.2 **Spatula**, nickel or stainless steel, 200 mm long;
- 6.3 **Spatula**, spoon shaped for adding filler;
- 6.4 **Timer or stop watch**, with an accuracy of 0,2 s or better over a time interval of 500 s;
- 6.5 **Containers**, of appropriate capacity for storing emulsion samples, water and filler;
- 6.6 **Balance**, capable of weighing up to 1000 g with an accuracy of 0,1 g or better.

7 Sampling

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

8 Procedure

Carry out the procedure under normal laboratory conditions (18 °C to 28 °C).

Transfer 100 g ± 0,5 g of the emulsion and 50 g ± 0,5 g of water from their containers (6.5) to the conical shaped pan (6.1) while stirring with the spatula (6.2).

Transfer 150 g ± 1 g of the filler (5.1) to a filler container and maintain the temperature of the filler and container at 25 °C ± 2 °C.

Start the timer (6.4) and, while mixing by hand with the spatula (6.2) at a steady rate 1 r/s, add the filler from the container to the diluted emulsion in the conical shaped pan in portions of 10 g per 5 s so that within 75 s all of the 150 g ± 1 g of filler has been added.

Continue mixing and measure the time until the emulsion breaks (see clause 4).

If the bitumen emulsion does not break within 300 s, the test procedure shall be stopped, and the result of the test “ > 300 s ” shall be reported.

Repeat the test with a new test portion taken from the same laboratory sample using clean apparatus.

9 Expression of results

Express the final mixing time as the average breaking time in seconds for the two test portions, rounded up to the next whole second.

10 Precision

NOTE A European round robin test has not been carried out. The precision data given are based on data obtained by long term experience in Germany and calculated according to ISO 5725 [1]. They are considered valid until the results of a European round robin test become available.

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 10 % of the average value 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 20 % of the average value in only one case in twenty.

11 Test report

The test report shall contain at least the following information:

- a) the type and complete identification of the sample under test;
- b) a reference to this European Standard;
- c) the result of the test (see clause 9);
- d) any deviation, by agreement or otherwise, from the procedure described;
- e) the date of the test.

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Annex A
(normative)

Characteristics of the filler Forshammer SE

The filler Forshammer SE is a mixture of:

- 65 % Felspar;
- 30 % Quartz;
- 5 % Mica.

The gradation is:

- 91,2 % passing 0,5 mm sieve;
- 56,6 % passing 0,25 mm sieve;
- 23,9 % passing 0,125 mm sieve;
- 7,7 % passing 0,064 mm sieve;
- 3 % passing 0,032 mm sieve;
- 1,7 % passing 0,016 mm sieve.

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To secure a supply of identical filler, one batch of filler Forshammer SE is stored for at least ten years for the purpose of this test method. The filler is available from the Swedish Research Laboratory, S-581 95, Linköping, Sweden.

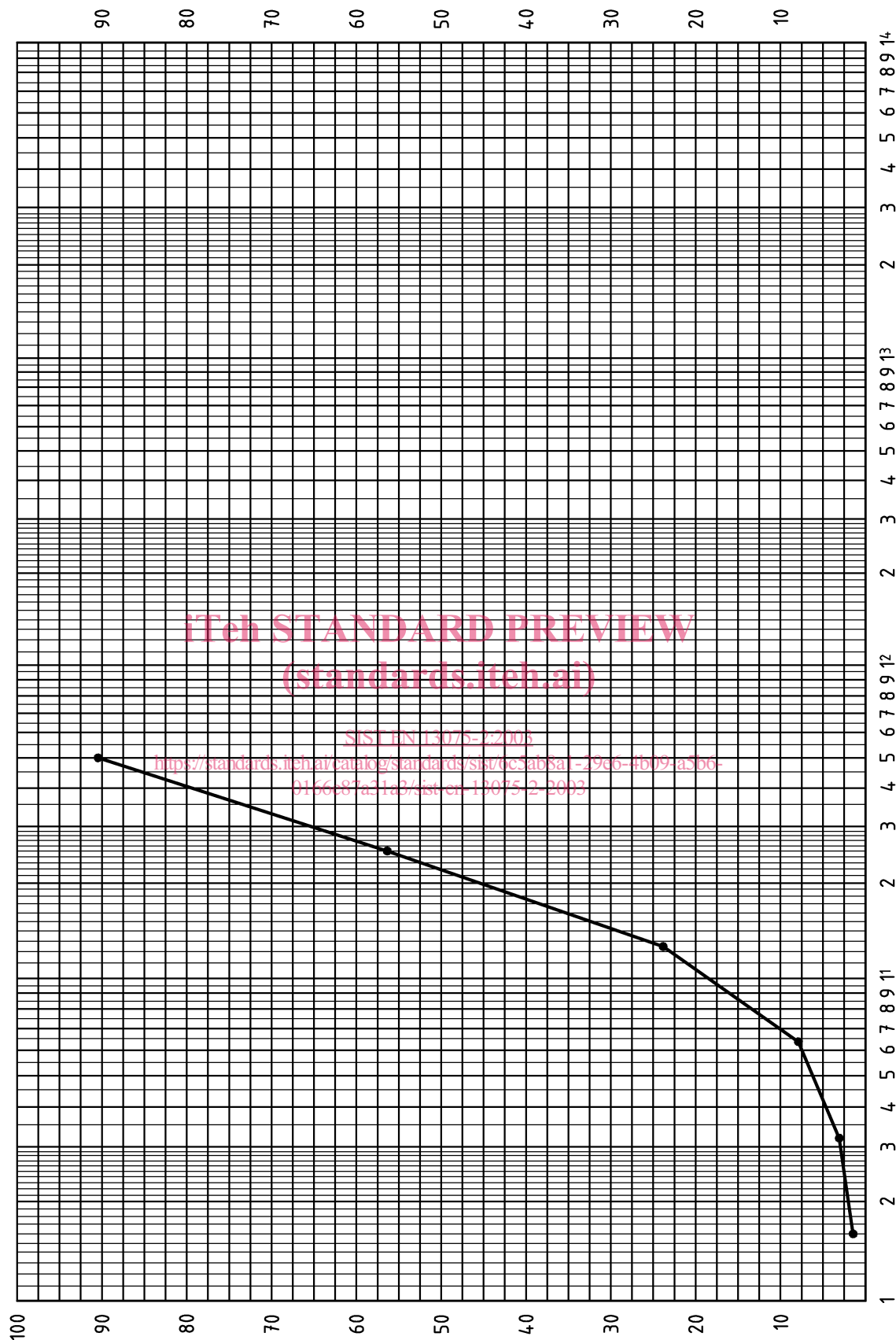


Figure A.1 — Gradation of the filler Forshammer SE