

SLOVENSKI STANDARD
SIST EN 12847:2003**01-januar-2003**

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Bitumen and bituminous binders - Determination of settling tendency of bitumen emulsions

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Absetzverhaltens von Bitumenemulsionen

Bitumes et liants bitumineux - Détermination de la tendance a la décantation des émulsions de bitume

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Ta slovenski standard je istoveten z: **EN 12847:2002**

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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

SIST EN 12847:2003**en**

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EUROPEAN STANDARD

EN 12847

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2002

ICS 75.140; 91.100.50

English version

Bitumen and bituminous binders - Determination of settling tendency of bitumen emulsions

Bitumes et liants bitumineux - Détermination de la tendance à la décantation des émulsions de bitume

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Absetzverhaltens von Bitumenemulsionen

This European Standard was approved by CEN on 15 February 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.

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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 12847:2002 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 November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.

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.

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 settling tendency of bitumen emulsions.

NOTE 1 This test method is not applicable for emulsions having a low viscosity.

NOTE 2 For the purposes of this European Standard, the term “% (m/m)” is used to represent the mass fraction.

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

This European Standard incorporates, by dated or undated reference, provisions from other publications. The 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⁾, *Sampling bituminous binders*.

EN 1428, *Bitumen and bituminous binders - Determination of water content in bitumen emulsions – azeotropic distillation method*.

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

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

3 Terms and definitions

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

3.1

settling tendency

difference in water content of the top layer and the bottom layer of a prescribed volume of sample after standing for a specified time at ambient temperature

4 Principle

The sample is allowed to stand for the specified time at ambient temperature in a stoppered graduated cylinder, after which the water contents of the top and bottom layers are determined. The settling tendency is calculated as the difference between the two water contents.

¹⁾ In course of revision.

EN 12847:2002 (E)**5 Reagents and materials****5.1 General**

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

5.2 Cleaning agents, as used conventionally in the laboratory.

6 Apparatus

Usual laboratory apparatus and glassware, together with the following:

6.1 Stopped glass graduated cylinder, 600 ml capacity, with one division mark at 500 ml. This vessel is modified with two closeable side tubes. The dimensions are shown in Figure 1.

The two side tubes may be closed either by a rubber or glass stopper, or by a rubber tube with a pinch-clamp cock.

6.2 Distillation apparatus, as described in EN 1428.

7 Sampling

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

8 Procedure**8.1 General**

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Carry out the procedure under normal laboratory conditions.

NOTE "Normal laboratory conditions" mean that the range of temperature is 18 °C to 28 °C.

8.2 Test

Close the two side tubes of the graduated cylinder (6.1).

Pour the emulsion test sample into the cylinder until the surface of the liquid reaches the 500 ml level.

Stopper the cylinder tightly and allow to stand undisturbed for the specified time (t).

At the end of the standing period, without disturbing the contents of the cylinder, remove the stopper and draw a test portion (p_1) of approximately 55 ml, from the top of the cylinder, through the upper side tube of the cylinder into a weighed round bottomed flask (6.2). Allow 5 min for bitumen emulsion adhering to the wall of the cylinder to flow into the flask.

Put this volume in a beaker and stir gently until uniform.

Weigh precisely (see EN 1428), between 40 g and 50 g of this sample, depending on the water content expected. The higher the water content is expected, the lower the mass of the sample shall be weighed.

Drain the emulsion from the middle part of the cylinder by opening the lower side tube and allowing the emulsion to flow into a container until the flow ceases. Discard this portion of emulsion.

Close the lower side tube.

Stir the remaining emulsion (approximately 55 ml), so that any sediment adhering to the wall or bottom of the cylinder is loosened.

If the homogenisation of the remaining emulsion in the bottom part of the cylinder cannot be performed correctly, due to for instance broken emulsion, the test shall be aborted. This information shall then be mentioned in the report.

Drain the remaining contents of the cylinder into a second weighed round bottomed flask (6.2) to obtain a second test portion (p_2).

Determine the water content of each test portion according to EN 1428.

9 Calculation

Calculate the settling tendency, ST , of the test sample, by means of the following equation :

$$ST = (a - b) \% (m/m)$$

where

a is the water content of the top layer, i.e. the first test portion, p_1 , in percentage by mass;

b is the water content of the bottom layer, i.e. the second test portion, p_2 , in percentage by mass.

NOTE Negative values, obtained for the settling tendency, indicate that the bituminous phase rises to the surface.

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10 Expression of results

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Report the specified time of standing, t , (see clause 8), the water content, a , of the top layer and the water content, b , of the bottom layer (see clause 9).

Express the result, obtained in accordance with clause 9, as a percentage by mass, rounded to the nearest 0,1 % (m/m).

11 Precision

NOTE The precision of the method was evaluated in accordance with EN ISO 4259 [1].

11.1 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 the following values in only one case in twenty:

Table 1 - Repeatability

Settling tendency % (m/m)	Repeatability
0 to 1,0	0,4 % (m/m)
> 1,0	5 % of the average

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11.2 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 the following values in only one case in twenty:

Table 2 - Reproducibility

Settling tendency % (<i>m/m</i>)	Reproducibility
0 to 1,0	0,8 % (<i>m/m</i>)
> 1,0	10 % of the average

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12 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 10);
- d) any deviation, by agreement or otherwise, from the procedure specified (for example any case of emulsion adhering to the wall or bottom);
- e) the date of sampling, the date of sample preparation and the date of the test.

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