



SLOVENSKI STANDARD

SIST EN 14895:2006

01-september-2006

Bitumen in bitumenska veziva – Stabilizacija veziva iz bitumenskih emulzij ali rezanih in fluksiranih bitumnov

Bitumen and bituminous binders - Stabilisation of binder from bituminous emulsions or from cut-back and fluxed bituminous binders

Bitumen und bitumenhaltige Bindemittel - Stabilisierung von Bindemittel aus Bitumenemulsionen oder verschnittenen oder gefluxten bitumenhaltigen Bindemitteln

Bitumes et liants bitumineux - Stabilisation du liant d'une émulsion de bitume ou d'un bitume fluxé ou fluidifié

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ICS 75.140; 91.100.50

English Version

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This European Standard was approved by CEN on 27 February 2006.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Principle.....	4
5 Apparatus	5
6 Sampling.....	5
7 Procedure	5
8 Test report	7
Bibliography.....	8

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[SIST EN 14895:2006](https://standards.iteh.ai/catalog/standards/sist/9bb5d133-0c05-47ff-8f6c-1ecc1374917b/sist-en-14895-2006)

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Foreword

This document (EN 14895:2006) 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of an identical text or by endorsement, at the latest by October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This document specifies a method for the stabilisation of binder from bituminous emulsions or from cut-back or fluxed bituminous binders that will permit further testing.

It applies to all types of bituminous emulsion, with or without polymers, and as well as to all types of bituminous cut-back and fluxed materials, with or without polymers.

WARNING — The use of this document may involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. The hazards associated with the use of this method have been assessed using cut-back bitumen containing 10 % kerosene and 90 % 160/220 penetration grade bitumen and were found to be low enough to be acceptable. However it is the responsibility of the user of this document 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 13074, *Bitumen and bituminous binders – Recovery of binder from bitumen emulsions by evaporation*

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3 Terms and definitions

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

3.1 recovered binder
material remaining after the treatment of a bituminous emulsion under the condition specified in 7.1.1 or cut-back or fluxed bituminous binders under the conditions specified in 7.2.1 of this document

3.2 stabilised binder
binder free from most of the volatile part of its flux oils obtained from recovered binder (defined in 3.1) by treatment at 85 °C for 24 h under the conditions specified in 7.1.2 or 7.2.2

4 Principle

4.1 Bituminous emulsion

A thin layer of bituminous emulsion is spread onto a sheet of suitable non-stick material and is allowed to stand in the laboratory for 24 h at ambient temperature and in a ventilated oven at 50 °C for 24 h according to EN 13074.

This recovered binder is then stabilised for 24 h at 85 °C in a ventilated oven.

4.2 Cut-back or fluxed bituminous materials

A thin layer of cut-back or fluxed bituminous binder is spread onto a sheet of suitable non-stick material and is allowed to stand in the laboratory for 24 h at ambient temperature and in a ventilated oven at 50 °C for 24 h.

This recovered binder is then stabilized for 24 h at 85 °C in a ventilated oven.

5 Apparatus

Usual laboratory apparatus and glassware, together with the following.

5.1 Plates, equipped with an edge of maximum height 25 mm making it possible to introduce the appropriate quantity of binder onto a sheet of non-stick material. The length and width of the plates should have minimum dimensions of 100 mm (e.g. 250 mm x 250 mm). The internal base of the plate shall have no deformation greater in depth than 1 mm when determined under a straight edge. The number of plates used will be appropriate to give a sufficient amount of binder for further testing.

5.2 Suitable non-stick sheet material (e.g. silicone coated paper or fabric), of appropriate dimensions to fit within the plate (e.g. 250 mm x 250 mm).

5.3 Spatula, palette-knife or other suitable device for spreading the bituminous binder (emulsion or fluxed bituminous binder).

5.4 Ventilated oven 1, of at least 80 l internal volume capable of maintaining 50 °C ± 2 °C around the sample.

5.5 Ventilated oven 2, of at least 80 l internal volume capable of maintaining 85 °C ± 2 °C around the sample.

It is acceptable to use the same oven for both steps of the recovery provided it is capable of maintaining the temperatures required in 5.4 and 5.5. If the same oven is to be used for both steps the sample may be left in the oven during the period of temperature adjustment (50 °C to 85 °C), provided this period does not exceed 1 h.

6 Sampling

Samples shall be taken in accordance with EN 58 and shall be prepared in accordance with EN 12594.

7 Procedure

7.1 Bituminous emulsion

7.1.1 Recovery by EN 13074

Place the non-stick sheet material into the plate and spread the emulsion evenly, using a spatula (5.3), at a rate that will give an approximate 1,0 mm thick layer of recovered binder.

NOTE Use of plate, not mentioned in EN 13074, is aimed at improving implementation of the following steps of the procedure.

Previously calculate the mass, M , to the nearest gram of the emulsion required, taking into account its density at 25 °C, and its water content. If information on the water content or flux content of the samples under test is

not available then these should be determined by the appropriate method. In the absence of precise information the density may be assumed to be $1\,000\text{kg/m}^3$.

Expose the plate with the layer of emulsion on the non-stick sheet material under normal laboratory atmospheric condition for $24\text{ h} \pm 1\text{ h}$ at ambient temperature. Check that the plate is horizontal using a standard spirit level.

Transfer the plate to the oven (5.4) and store it for further $24\text{ h} \pm 1\text{ h}$ at $50\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$. Check that the shelf of the oven is horizontal using a standard spirit level.

After binder recovery, part of the sample may be kept for further and additional testing, without continuing with 7.1.2.

7.1.2 Stabilisation of recovered binder

Remove the plate with the layer of binder from the oven (5.4) and transfer it to the oven (5.5) and store it for a further $24\text{ h} \pm 1\text{ h}$ at $85\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$ (see Note in 5.5). Check that the shelf of the oven is horizontal using a standard spirit level.

If there are several plates, introduce them simultaneously. The binders should not be grouped when their volatile parts might be of different natures.

Arrange the plates in such a way that air circulation is not hindered. They shall be evenly distributed between levels, and cover not more than 80 % of the surface of each level.

Recover the binder with the spatula (5.3) immediately if necessary. In order to prepare specimens for further testing the stabilised binder may be reheated to a maximum temperature of $80\text{ }^\circ\text{C}$ above the assumed softening point of the stabilised binder for the minimum necessary time. In the case of binders for which the above maximum heating temperature cannot be adhered to, then this should be noted in the test report.

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7.2 Cut-back and fluxed bituminous materials

7.2.1 Recovery of binder from cut-back and fluxed bituminous materials

Place the non-stick sheet material into the plate and spread the binder evenly, using a spatula (5.3), at a rate that will give an approximate 1,0 mm thick layer of recovered binder.

Previously calculate the mass M , to the nearest gram, of the cut-back or fluxed bituminous binder required, taking into account its density at $25\text{ }^\circ\text{C}$ and its flux content. In order to spread easily the material it may be heated at $60\text{ }^\circ\text{C}$ maximum for a short period. In the absence of precise information, the density is assumed to be $1\,000\text{ kg/m}^3$.

Expose the plate with the layer of cut-back or fluxed bitumen under normal laboratory atmospheric conditions for $24\text{ h} \pm 1\text{ h}$ at ambient temperature. Check that the plate is horizontal using a spirit level. Transfer the plate to the oven (5.4) and store it for a further $24\text{ h} \pm 1\text{ h}$ at $50\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$. Check that the shelf of the oven is horizontal using a spirit level.

After binder recovery, part of the sample may be kept for further and additional testing, without continuing with 7.2.2.

7.2.2 Stabilisation of recovered binder

Remove the plate with the layer of binder from the oven (5.4) and transfer it to the oven (5.5) and store it for a further $24\text{ h} \pm 1\text{ h}$ at $85\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$ (see Note in 5.5). Check that the shelf of the oven is horizontal using a spirit level.

If there are several plates, introduce them simultaneously. The binders should not be grouped when their volatile components might be of a different nature.

Arrange the plates in such a way that air circulation is not hindered. They shall be evenly distributed between levels and not cover more than 80 % of the surface of each level.

Then recover the binder with the spatula (5.3) immediately if necessary. In order to prepare specimens for further testing it may be reheated to a maximum temperature of 80 °C above the softening point for the minimum necessary time. In the case of binders for which the above maximum temperature cannot be adhered to, then this should be noted in the test report.

7.3 Homogenisation of recovered binders

Before submitting the binder to further testing it is necessary to ensure that the binder from each plate is mixed to ensure homogeneity. If binder from one sample is recovered on more than one plate then the binder from all plates should be mixed before testing.

8 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 document;
- c) date and place of sampling;
- d) temperature of sample preparation (see Clause 6);
- e) binder sample preparation temperature, if above the softening point plus 80 °C, when applicable (see Clause 7);
- f) any deviation, by agreement or otherwise, from the procedure described;
- g) temperature and method of removal of the stabilised binder from the non-stick sheet shall be recorded.