SLOVENSKI STANDARD
oSIST prEN 12850:2021

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Bitumen in bitumenska veziva - Določevanje pH vrednosti bitumenskih emulzij

Bitumen and bituminous binders - Determination of the pH value of bituminous emulsions

Bitumen und bitumenhaltige Bindemittel - Bestimmung des pH-Wertes von Bitumenemulsionen

Bitumes et liants bitumineux - Détermination du pH des émulsions bitumineuses

Ta slovenski standard je istoveten z: **prEN 12850**

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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EUROPEAN STANDARD

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ICS 75.140; 91.100.50

Will supersede EN 12850:2009

English Version

Bitumen and bituminous binders - Determination of the pH value of bituminous emulsions

Bitumes et liants bitumineux - Détermination du pH des émulsions bitumineuses

Bitumen und bitumenhaltige Bindemittel - Bestimmung des pH-Wertes von Bitumenemulsionen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 336.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 12850:2021) 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 CEN Enquiry.

This document will supersede EN 12850:2009.

The main technical changes are:

— the number of required standard buffer solutions is at least three and allows to frame the expected pH value to be measured (5.4 and Clause 8);

— the requirement to use certified buffer solutions and to follow manufacturer’s instructions for their verification and storage conditions (5.4);

— the requirement to calibrate according to the manufacturer’s instructions for the used pH meter and with the obligation to test pH = 7 and to frame the expected pH value (Clause 8);

— the requirement that the calibration temperatures are compliant with those indicated for each buffer solution (Clause 8).

1 Scope

This document specifies a method for measuring the pH value of bituminous emulsions.

It is applicable to anionic, cationic bituminous emulsions and bituminous emulsions prepared by means of non-ionic surfactant.

In certain circumstances, the pH value can provide an indication of the ionic character of a bituminous emulsion. However, this indication should be confirmed by a particle polarity test conforming to EN 1430 [1].

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
pH value
negative logarithm to the base of 10 of the concentration of hydrogen ions in moles per litre of solution

4 Principle

A pH meter and electrode are calibrated using standard buffer solutions. The pH value of the test solution is then determined.

5 Reagents and materials

5.1 General

Only reagents of recognized analytical grade and water conforming to grade 3 of EN ISO 3696:1995 [2] should be used.

5.2 Xylene or toluene, conforming respectively to ISO 5280 [6] and ISO 5272 [5], or any cleaning agent enabling the dissolution of the bitumen.

5.3 Propan-2-ol or preferably ethanol, conforming respectively to ISO 756-1 [3] and ISO 1388-1 [4].

If possible, the use of ethanol is preferable.

It is however permissible to use other cleaning agent providing their effectiveness is established. Reference to this shall be made in the test report as appropriate.

5.4 Standard buffer solutions, at least three, of which one buffer solution with a pH equal to 7,0 (for neutral electric balance), and other solutions allowing to frame the expected pH value. Buffer solutions need to be certified by the suppliers and stored and verified according to their instructions.

5.5 Potassium chloride solution, 3 mol/l.

6 Apparatus

Usual laboratory apparatus and glassware, together with a pH meter, with pH electrodes (combined or not).

7 Sampling

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

8 Procedure

Calibrate the pH meter and electrode according to the manufacturer's instructions using the standard buffer solutions (5.4). The set of standard buffer solutions (including one for a pH value of 7) shall be selected among those proposed by the supplier of the pH meter and shall allow the bracketing of the expected pH value. The calibration temperature shall be compliant with the one indicated for the buffer solution. Calibration shall be done regularly and ideally before each new series of measurements.

Gently stir the emulsion test sample and pour a sufficient quantity into a 250 ml glass beaker.

Adjust the temperature of the emulsion test sample to (25 ± 5) °C, if necessary by cooling the sample.

Rinse the electrode with water, wipe it and immerse it in the emulsion test sample to the minimum depth recommended by the manufacturer. Read the indicated pH value when this becomes constant. If the pH value is not constant after 1 min, include this information in the test report. It is possible to indicate the approximate pH.

Remove the electrode from the emulsion test sample and clean it, using the following sequence of operations:

— wash with the aqueous phase of the emulsion if there is some;

— wash with water;

— wash with propan-2-ol or ethanol (5.3);

— wash with xylene or toluene (5.2) or any cleaning agent enabling the dissolution of the bitumen;

— wash with propan-2-ol or ethanol (5.3);

— wash with water.

Store the electrode in the potassium chloride solution (5.5).

The instructions concerning electrode cleaning and storage are applied if there is no manufacturer’s information.