



# SLOVENSKI STANDARD

## SIST EN 13075-1:2017

01-januar-2017

Nadomešča:  
SIST EN 13075-1:2012

---

**Bitumen in bitumenska veziva - Ugotavljanje stopnje stabilnosti - 1. del:  
Ugotavljanje 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

**iTeh STANDARD PREVIEW**

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

[SIST EN 13075-1:2017](https://standards.iteh.ai/catalog/standards/sist/0f0e713b-f459-4026-9e48-6464b69643/sist-en-13075-1-2017)

[https://standards.iteh.ai/catalog/standards/sist/0f0e713b-f459-4026-9e48-](https://standards.iteh.ai/catalog/standards/sist/0f0e713b-f459-4026-9e48-6464b69643/sist-en-13075-1-2017)

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: EN 13075-1:2016**

---

**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 13075-1:2017**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 13075-1:2017

<https://standards.iteh.ai/catalog/standards/sist/0f0e713b-f459-4026-9e48-fab64b606dc3/sist-en-13075-1-2017>

EUROPEAN STANDARD

EN 13075-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2016

ICS 75.140; 91.100.50

Supersedes EN 13075-1:2009

English Version

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

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

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

This European Standard was approved by CEN on 27 August 2016.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

	Page
European foreword.....	3
<b>1 Scope .....</b>	<b>4</b>
<b>2 Normative references .....</b>	<b>4</b>
<b>3 Terms and definitions .....</b>	<b>4</b>
<b>4 Principle .....</b>	<b>4</b>
<b>5 Reagents and materials.....</b>	<b>4</b>
<b>6 Apparatus.....</b>	<b>5</b>
<b>6.1 General.....</b>	<b>5</b>
<b>6.2 Equipment for semi-automatic procedure .....</b>	<b>5</b>
<b>6.3 Equipment for manual procedure.....</b>	<b>5</b>
<b>6.4 Equipment for both procedures .....</b>	<b>5</b>
<b>7 Sampling.....</b>	<b>8</b>
<b>8 Procedure.....</b>	<b>8</b>
<b>8.1 General.....</b>	<b>8</b>
<b>8.2 Semi-automatic procedure.....</b>	<b>9</b>
<b>8.3 Manual procedure.....</b>	<b>9</b>
<b>9 Calculation.....</b>	<b>10</b>
<b>10 Expression of results.....</b>	<b>10</b>
<b>11 Precision.....</b>	<b>10</b>
<b>11.1 Repeatability, <math>r</math>.....</b>	<b>10</b>
<b>11.2 Reproducibility, <math>R</math>.....</b>	<b>11</b>
<b>12 Test report.....</b>	<b>11</b>
<b>Annex A (normative) Characteristics of the reference fillers .....</b>	<b>12</b>
<b>A.1 Characteristics of the Forshammer filler .....</b>	<b>12</b>
<b>A.2 Characteristics of the Sikaisol filler.....</b>	<b>13</b>
<b>A.3 Characteristics of the Caolin Q92 filler.....</b>	<b>14</b>
<b>Bibliography.....</b>	<b>16</b>

Iteh STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 13075-1:2017

[https://standards.iteh.ai/catalog/standards/sist/010e713b-459-4026-9e48-](https://standards.iteh.ai/catalog/standards/sist/010e713b-459-4026-9e48-fb64b606dc3/sist-en-13075-1-2017)

[fb64b606dc3/sist-en-13075-1-2017](https://standards.iteh.ai/catalog/standards/sist/010e713b-459-4026-9e48-fb64b606dc3/sist-en-13075-1-2017)

## European foreword

This document (EN 13075-1:2016) 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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13075-1:2009.

In comparison with EN 13075-1:2009, the following significant changes have been made:

- Clause 5 : three reference fillers (Forshammer, Sikaisol and Caolin Q92) may be used;
- Subclauses 6.4.3 and 6.4.4: calibration range of the filler feeder and accuracy requirements for the timer are extended so as to cover the case of slow breaking emulsions;
- Subclause 6.4.8 is discarded since this clause is not called by the test procedure (Clause 8) and since requirements on temperature control are already stated in 6.4.1 (oven) and 6.4.6 (temperature bath or climatic chamber); (standards.iteh.ai)
- Subclauses 8.2 and 8.3: more accurate and more complete description of the test procedure. Calculation and reporting (Clause 12) of the actual filler feeding rate; <https://standards.iteh.ai/catalog/standards/sist/010c715b-459-4026-9e48-fab64b606dc3/sist-en-13075-1-2017>
- Clause 9: New factors for the conversion of measured breaking values into “Forshammer equivalents”. The conversion factors for Sikaisol and Caolin Q92 have been established from an extensive Round Robin test program conducted by TC336/WG2 in 2014 (see bibliographic reference N°2);
- Subclause 11.2: A value for Reproducibility is now stated, as an outcome of the TC336/WG2 Round Robin;
- Annex A: more complete (e.g. particle size distribution envelopes) and more homogeneous description of the three reference fillers.

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*

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

## EN 13075-1:2016 (E)

### 1 Scope

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

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

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 term and definition applies.

**3.1 breaking value “BV”**  
dimensionless number corresponding to the mass of reference filler, in grams, needed to coagulate 100 g of bitumen emulsion

(standards.iteh.ai)  
SIST EN 13075-1:2017  
<https://standards.iteh.ai/catalog/standards/sist/0f0e713b-f459-4026-9e48-fab64b606dc3/sist-en-13075-1-2017>

### 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 mass of added filler is determined by weighing. The mass of filler (in grams) multiplied by 100 and divided by the mass 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 fillers.

The Forshammer filler<sup>1)</sup>, the Sikaisol filler<sup>1)</sup> or the Caolin Q92 filler<sup>1)</sup> shall be used as reference fillers while applying the conversion factors given in Clause 9. The characteristics of these fillers are given in Annex A.

In the event of dispute, the same filler and the same procedure (manual or semi-automatic) shall be used by the testing laboratories.

#### 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 products named. 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

### 6.1 General

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

### 6.2 Equipment for semi-automatic procedure

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

**6.2.2 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.

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

### 6.3 Equipment for manual procedure

**6.3.1 Enamelled or stainless steel dish**, having approximately 20 cm inside diameter and 10 cm high.

**6.3.2 Spatula**, nickel or stainless steel, approximately 20 cm long.

### 6.4 Equipment for both procedures

**6.4.1 Oven**, capable of maintaining a temperature of  $(110 \pm 5)$  °C.

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

**6.4.3 Adjustable filler feeder**, to be placed at the outlet of the filler holding funnel and capable of feeding the filler at a rate of  $(0,35 \pm 0,10)$  g/s. This equipment shall be calibrated. The calibration shall be achieved by weighing the mass of the filler poured during a period of time between 100 s and 600 s depending on the anticipated test duration and measured with an accuracy of 0,2 s.

The feeding rate,  $q$ , in g/s, shall be calculated, using Formula (1):

$$q = \frac{m_f}{t} \quad (1)$$

where

$m_f$  is the mass of filler, in grams;

$t$  is the analysis time, in seconds.

**6.4.4 Timer or stop watch**, with an accuracy of 0,2 s or better over a time interval equal to or higher than 600 s.

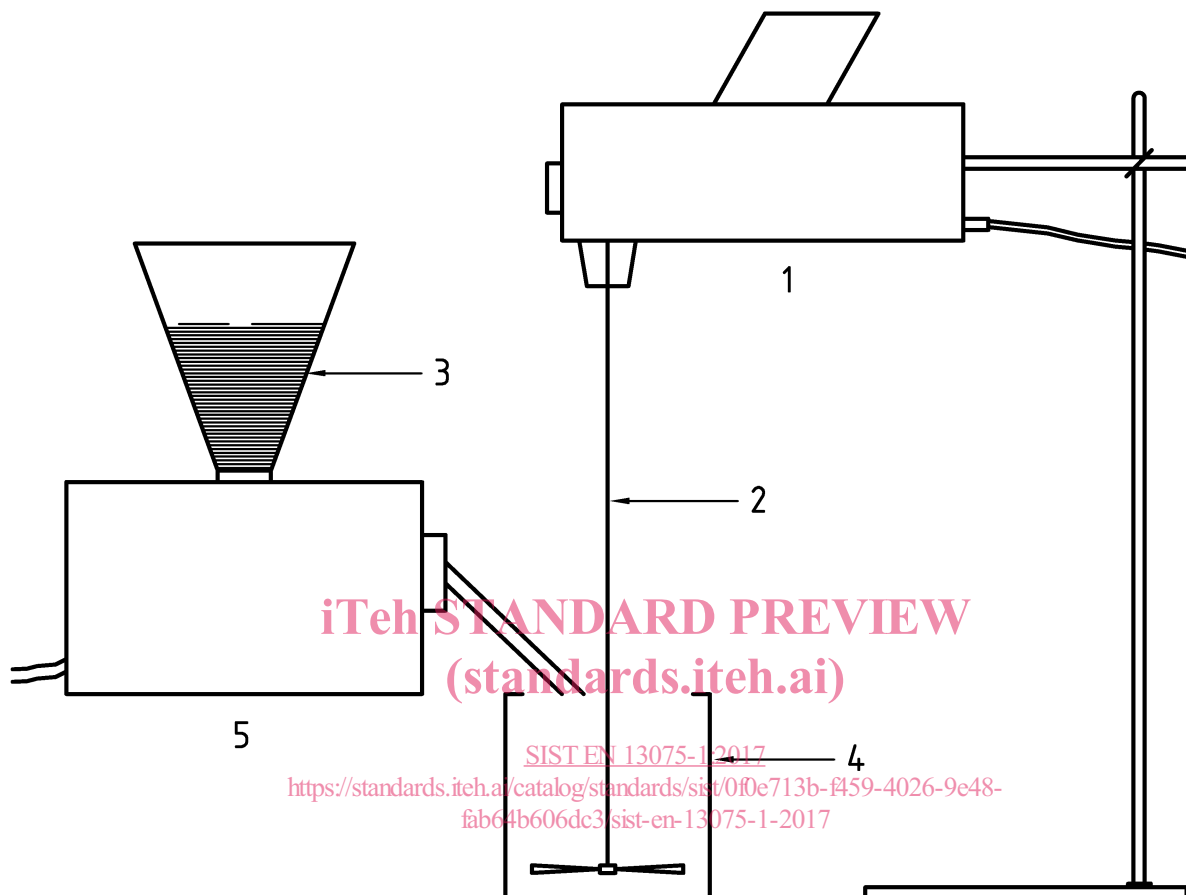
**6.4.5 Bottles**, of approximate capacity 500 ml made of a material that will not react with the emulsion, having tight fitting lids.

**6.4.6 Constant temperature bath and/or climatic chamber**, capable of maintaining the sample in the can at  $(25 \pm 1)$  °C.

## EN 13075-1:2016 (E)

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.

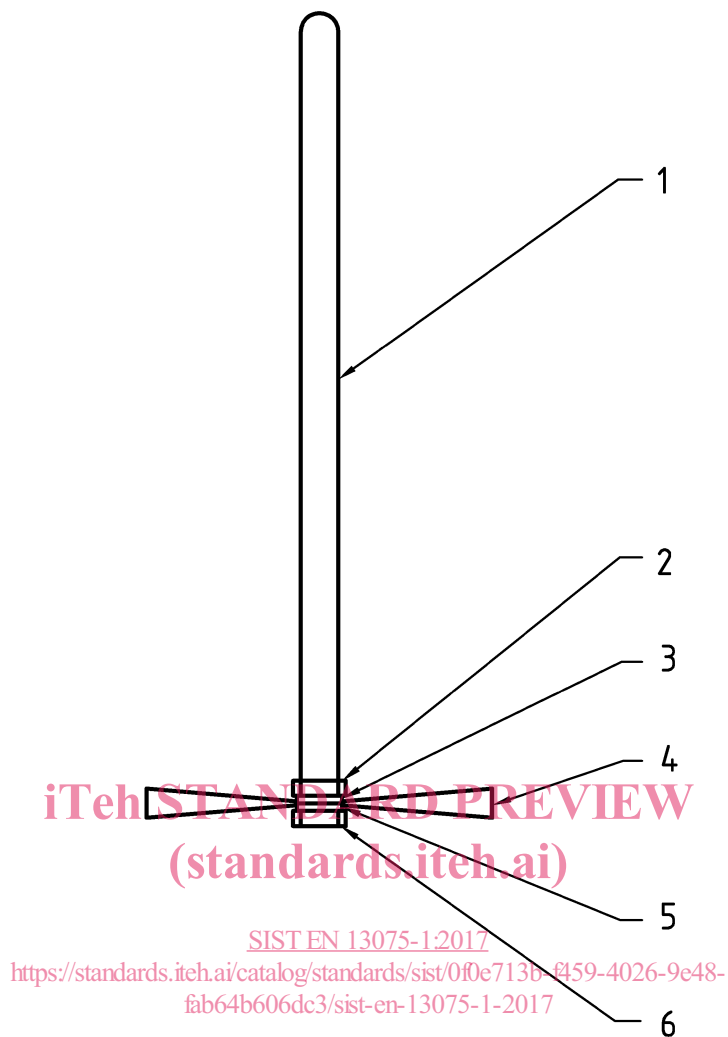
**6.4.7 Balance**, having a suitable range, capable of weighing the samples in Clause 8 to the nearest 0,1 g.

**Key**

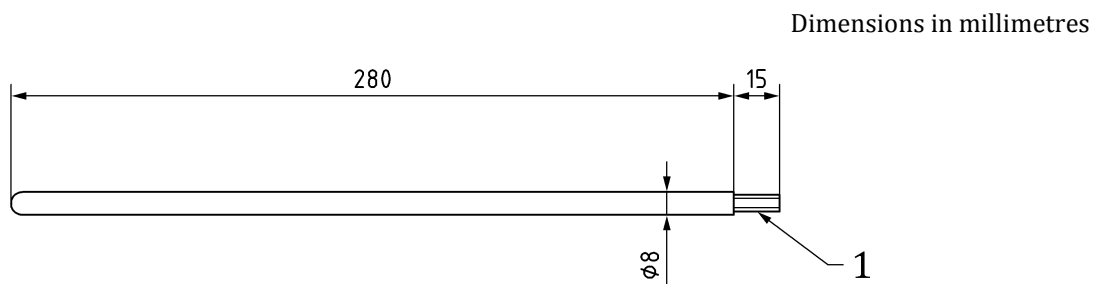
- 1 stirrer motor
- 2 stirrer
- 3 filler
- 4 sample can
- 5 feeder

**Figure 1 — Explanatory sketch of equipment for determination of breaking value of bituminous emulsion**



**Key**

- 1 stirrer rod
- 2 nut
- 3 washer
- 4 stirrer blades
- 5 washer
- 6 nut

**Figure 2 — Design of stirrer****Key**

- 1 M6 metric thread

**Figure 3— Example stirrer rod (informative)**