

**BITUUMEN JA BITUUMENSIDEAINED - FRAASS'I
MURDUMISTÄPI MÄÄRAMINE**

**Bitumen and bituminous binders - Determination of
the Fraass breaking point**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN 12593:2015 sisaldab Euroopa standardi EN 12593:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 12593:2015 consists of the English text of the European standard EN 12593:2015.
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English Version

Bitumen and bituminous binders - Determination of the Fraass breaking point

Bitumes et liants bitumineux - Détermination du point de fragilité Fraass

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Brechpunktes nach Fraaß

This European Standard was approved by CEN on 27 May 2015.

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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.

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Foreword

This document (EN 12593:2015) has been prepared by Technical Committee CEN/TC 336 "Bituminous binders", the secretariat of which is held by AFNOR.

This document supersedes EN 12593:2007.

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of an identical text or by endorsement, at the latest by January 2016, and conflicting national standards shall be withdrawn at the latest by January 2016.

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

There are three major changes in this revised standard compared to the former version.

- the standard has been revised due to a normative reference to mercury thermometers. The changes involve mainly the text in 5.3.3 and the present Annex A is now informative;
- regarding sample preparation the procedure for press-application of sample has been deleted, and the maximum sample preparation time of 10 min has been moved from an informative note to the normative text;
- the explanation for determination of Fraass breaking point in the former 7.3 and 7.4 have been editorial changed into the present 7.3 and a flow diagram in a new Figure 7.

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.

1 Scope

This European Standard specifies a method for determining the Fraass breaking point which measures the brittleness of bitumen and bituminous binders at low temperatures.

WARNING — Use of this European Standard can 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 1425, *Bitumen and bituminous binders - Characterization of perceptible properties*

EN 1427, *Bitumen and bituminous binders - Determination of the softening point - Ring and Ball method*

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
Fraass breaking point
temperature, expressed in degrees Celsius, at which a film of bituminous binder of a specified and uniform thickness will break under defined loading conditions

4 Principle

A sample of bituminous binder is applied to a metal plate at an even thickness. This plate is subjected to a constant cooling rate and flexed repeatedly until the binder layer breaks; the temperature at which the first crack appears is reported as the Fraass breaking point.

5 Apparatus

Usual laboratory apparatus and glassware, together with the following:

5.1 Plates, made of tempered spring steel with the following dimensions: $(41,00 \pm 0,05)$ mm long, $(20,0 \pm 0,2)$ mm wide and $(0,15 \pm 0,02)$ mm thick. The plates shall be kept flat and protected from corrosion when not in use. Any plate that becomes visibly curved or corroded shall be discarded.

5.2 Plate preparation equipment, used for application of the melted sample, and including:

5.2.1 Magnet block with a flat and smooth surface (Figure 1) holding one to three plates with a suitable cover (Figure 2).