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Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
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ILNAS-EN 13702:2018

Bitumen and bituminous binders - Determination of dynamic viscosity of bitumen and bituminous binders by the cone and plate method

Bitumen und bitumenhaltige Bindemittel - Bestimmung der dynamischen Viskosität von Bitumen und bitumenhaltigen Bindemitteln mit dem

Bitumes et liants bitumineux - Détermination de la viscosité dynamique des bitumes et liants bitumineux par la méthode du cône et plateau

10/2018

National Foreword

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ILNAS-EN 13702:2018

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13702

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Supersedes EN 13702:2010

English Version

Bitumen and bituminous binders - Determination of dynamic viscosity of bitumen and bituminous binders by the cone and plate method

Bitumes et liants bitumineux - Détermination de la viscosité dynamique des bitumes et liants bitumineux par la méthode du cône et plateau

Bitumen und bitumenhaltige Bindemittel - Bestimmung der dynamischen Viskosität von Bitumen und bitumenhaltigen Bindemitteln mit dem Platte-Kegel-Verfahren

This European Standard was approved by CEN on 27 August 2018.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 13702:2018) 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text or by endorsement, at the latest by month year of April 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

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 13702:2010.

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

— the Scope and title of the test method has been changed so the standard covers bituminous binders and not just modified bitumen;

— the requirement in Clause 6 that the sample shall not contain any filler has been deleted. It is not the intention that the test method can be used on bituminous mortars but to accommodate the use of the test method for bituminous binders recovered from asphalt mixtures;

— the test method has been changed to a general test method with the conditions at 60 °C, 100 °C and 150 °C given as examples.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This document specifies a method for determining the dynamic viscosity of a bituminous binder over a range of temperatures by means of a cone and plate viscometer. The test method is intended for all bituminous binders (e.g. paving grade bitumen and polymer modified), unaged or aged. It is also suitable for recovered bituminous binders according to EN 12697-3 [1] and EN 12697-4 [2] with no or limited amount of filler.

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. 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 http://www.iso.org/obp

3.1
shear stress
force acting tangentially to a surface divided by the area of the surface

Note 1 to entry: Shear stress is expressed in Newton per square metre ($N \cdot m^{-2}$), kilogram per meter per square second ($kg \cdot m^{-1} \cdot s^{-2}$) or Pascal (Pa).

3.2
shear rate
velocity gradient in a flowing fluid perpendicular to the stress

Note 1 to entry: Shear rate is expressed in units per second (s^{-1}).

Note 2 to entry: The shear rate calculation depends upon the viscometer geometry. This should be mentioned by the viscometer manufacturer.

3.3
dynamic viscosity
ratio between the applied shear stress and the shear rate

Note 1 to entry: Dynamic viscosity is expressed in Pascal second ($Pa \cdot s$). Millipascal second ($mPa \cdot s$) is a frequently used sub-unit.