BITUUMENID JA BITUUMENSIDEAINED. NÕELPENETRATSIOONI MÄÄRAMINE

Bitumens and bituminous binders - Determination of needle penetration

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1426:2024 sisaldab Euroopa standardi EN 1426:2024 ingliskeelset teksti.	This Estonian standard EVS-EN 1426:2024 consists of the English text of the European standard EN 1426:2024.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.11.2024.	Date of Availability of the European standard is 13.11.2024.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 75.140, 91.100.50

EUROPEAN STANDARD

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English Version

Bitumens and bituminous binders - Determination of needle penetration

Bitumes et liants bitumineux - Détermination de la pénétrabilité à l'aiguille

Bitumen und bitumenhaltige Bindemittel - Bestimmung der Nadelpenetration

This European Standard was approved by CEN on 16 September 2024.

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

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European foreword

This document (EN 1426:2024) has been prepared by Technical Committee CEN/TC 336 “Bitumens and 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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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 1426:2015.

EN 1426:2024 includes the following significant changes with respect to EN 1426:2015:

a) Clause 1, Scope, has been updated;

b) Clause 2, Normative references, has been updated;

c) Clause 5, Apparatus, has been updated and revised, so that:

   — the specifications of the penetrometer (5.1) have been further detailed and a substructure of 5.1 has been introduced;

   — the specifications of the penetration needle and ferrule (5.2) have been further detailed and a substructure has been introduced;

   — the specifications of the test sample container (5.3) have been further detailed to include containers of different volumes for which a substructure has been introduced;

   — the transfer equipment (5.5) now consists of a transfer bath and a transfer dish;

d) Clause 6, Calibration and verification, has been added containing the revised and expanded specifications of former subclause 5.8;

e) Clause 7, Sampling, has been updated and further detailed regarding, e.g. filling the test sample container, duration between test sample preparation and start of testing and the specification of the ambient temperature;

f) Clause 8, Procedure, has been updated and revised to include, e.g. the updated apparatus and automatic surface detection;

g) the former subclause 7.1, Preparation of the needle holder and needles, has been split up into new subclause 8.1, Preparation of the penetrometer, and new subclause 8.2, Preparation of the penetration needles, and the specifications of former subclause 5.2.2 on the continuous check of penetration needles have been move there;

h) Clause 11, Test report, has been updated;

i) Figures 1 and 2 have been updated;

j) the Bibliography has been updated.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies a method for the determination of the needle penetration of bitumens and bituminous binders.

The standard procedure for the determination of the needle penetration (consistency) is described for penetrations up to (330 × 0,1) mm at a temperature of 25 °C. The method also allows for penetrations up to (500 × 0,1) mm using a longer needle.

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 1425, *Bitumen and bituminous binders — Characterization of perceptible properties*

EN 10088-3, *Stainless steels — Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resistant steels for general purposes*

EN 12594, *Bitumen and bituminous binders — Preparation of test samples*

EN 12597, *Bitumen and bituminous binders — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12597 and the following apply.

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

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

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

3.1
penetration
distance expressed in tenths of a millimetre that a penetration needle will penetrate vertically into a test sample of a material under specified conditions of temperature, load and loading duration

4 Principle

The penetration of a standard needle into a conditioned test sample is measured. For penetrations up to (330 × 0,1) mm, the operating parameters are a test temperature of 25 °C, an applied load of 100 g, and a loading duration of 5 s. For penetrations expected to be above (330 × 0,1) mm, the test temperature is 15 °C while the operating parameters regarding the applied load and the loading duration remain unchanged.

The test procedures also provide for testing at other conditions, e.g. 200 g, 60 s and 5 °C for lower temperature performance, to address different purposes.