SLOVENSKI STANDARD
SIST EN 1427:2026

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Nadomešča:
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Bitumni in bitumenska veziva - Določanje zmehčišča - Metoda prstana in kroglice

Bitumens and bituminous binders - Determination of the softening point - Ring and Ball method

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Erweichungspunktes - Ring- und Kugel-Verfahren

Bitumes et liants bitumineux - Détermination du point de ramollissement - Méthode Bille et Anneau

Ta slovenski standard je istoveten z: **EN 1427:2026**

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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English Version

Bitumens and bituminous binders - Determination of the softening point - Ring and Ball method

Bitumes et liants bitumineux - Détermination du point de ramollissement - Méthode Bille et Anneau

Bitumen und bitumenhaltige Bindemittel - Bestimmung des Erweichungspunktes - Ring- und Kugel-Verfahren

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European foreword

This document (EN 1427:2026) 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of an identical text or by endorsement, at the latest by November 2026 and conflicting national standards shall be withdrawn at the latest by November 2026.

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 1427:2015.

EN 1427:2026 includes the following significant technical changes with respect to EN 1427:2015:

— the Foreword has been updated;

— Clause 1, Scope, extends the application of the method to recovered bituminous binders;

— in Clause 1, Scope, the technical warning regarding mercury thermometers and electronic temperature devices has been moved to 6.1.7;

— in 5.2.1, the requirement on water quality was rephrased;

— in 5.2.2, a note, informing on investigations made on the use of silicone oil as alternative bath liquid to glycerol and referring to the new Annex D, has been added;

— in 5.3, the Note 2 was moved to standard text;

— in Clause 6, the drafting was aligned to be consistent with recently revised test method standards;

— in 6.1, the requirement on equipment combination has been better defined;

— in 6.1.5, the description of the ring holder and assembly has been clarified (the dimensions shown in Figures 4 and 6 are mandatory whilst the shape is exemplary) and the note has been turned into standard text;

— in 6.1.6, the description of the beaker has been updated;

— in 6.1.7:

  — the requirement for the use of mercury reference thermometers was removed;

  — the description of the temperature measuring device has been aligned to be consistent with the drafting in EN 1426;

  — for alternative temperature measuring devices to mercury thermometers, a response time specification has been introduced based on a study carried out by the French metrological institute LNE; the determination of temperature response time used in the study is explained in the new informative Annex A;

— in 6.1.8, the description of the stirrer has been updated to be understood as magnetic stirrer with hot plate, and the reference to any manufacturer has been deleted;

— in 6.1.9, the note was deleted;

— in 6.2, the calibration and verification requirements have been developed and aligned with recently revised test method standards;

— Clause 7, now called "*Test sample preparation*", has been updated;

— Clause 8 has been rearranged for better readability (subclauses renumbering) and the position of the temperature measuring device has been better defined;

— subclause 8.1, "General" has been added;

— in 8.2.1, the initial temperature for measurements in glycerol was changed from 30 °C to 40 °C;

— subclause 8.2.2 was reworded and indents were renumbered;

— in 8.3, the wording with regard to the beaker was revised and subclauses were renumbered;

— in 8.3.2 and 8.4.2, the wording with regard to the assembling of the apparatus was aligned;

— in 8.3.6, the wording was revised;

— in 8.3.7 and 8.4.7, the wording was improved;

— in 8.4.6, the timing for the heating up was adjusted in line with the new initial temperature, and the wording was revised;

— in Clause 10, Table 1 now refers to polymer modified or oxidised bitumens, and information on background and information on interlaboratory tests have been updated;

— all figures have been moved to the new Clause 12 "Figures";

— in Figure 3, the wording "precision" was replaced by "tolerance";

— in Figure 5, the diameter dimensions of the beaker have been adapted and the drawing has been updated to reflect current testing conditions;

— former Annex A (normative) "Characteristics of thermometers" has been replaced by the new Annex A (informative) "Determination or verification of the response time of the temperature measuring device";

— in Annex B (informative), Tables B.2 and B.3 have been updated to reflect the new initial temperature of 40 °C;

— a new Annex C (informative) "Examples of even temperature distribution and experiences on beaker - stirrer combinations" has been added;

— a new Annex D (informative) "Trials on silicone oil as alternative to glycerol as bath liquid" has been added;

— the document has been editorially revised.

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 organizations 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 softening point of bitumens and bituminous binders in the range of 28 °C to 150 °C.

The method described is also applicable to bituminous binders that have been recovered from bituminous mixes, e.g. by extraction according to EN 12697-3 [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, *Bitumens and bituminous binders — Preparation of test samples*

EN 12597, *Bitumens and bituminous binders —Terminology*

EN ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

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
softening point
temperature at which material under standardized test conditions attains a specific consistency

4 Principle

Two horizontal discs of bituminous binder, cast in shouldered brass rings are heated at a controlled rate in a liquid bath whilst each supports a steel ball. The softening point is reported as the mean of the temperatures at which the two discs soften enough to allow each ball, enveloped in bituminous binder, to fall a distance of (25,0 ± 0,4) mm.

5 Reagents and materials

5.1 Reagents

Only reagents of specified analytical grade and water conforming to grade 3 of EN ISO 3696:1995 shall be used, unless otherwise specified.