Thermoplastics pipes and fittings - Vicat softening temperature - Part 1: General test method (ISO 2507-1:1995)

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 2507-1:2017 sisaldab Euroopa standardi EN ISO 2507-1:2017 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 2507-1:2017 consists of the English text of the European standard EN ISO 2507-1:2017.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.10.2017.	Date of Availability of the European standard is 18.10.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

ICS 23.040.20, 23.040.45

EUROPEAN STANDARD

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EN ISO 2507-1

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English Version

Thermoplastics pipes and fittings - Vicat softening temperature - Part 1: General test method (ISO 2507-1:1995)

Tubes et raccords en matières thermoplastiques - Température de ramollissement Vicat - Partie 1: Méthode générale d'essai (ISO 2507-1:1995)

Rohre und Formstücke aus Thermoplasten - Vicat-Erweichungstemperatur - Teil 1: Allgemeines Prüfverfahren (ISO 2507-1:1995)

This European Standard was approved by CEN on 19 September 2017.

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

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European Foreword

The text of ISO 2507-1:1995 has been prepared by Technical Committee ISO/TC 138 “Plastics pipes, fittings and valves for the transport of fluids” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 2507-1:2017 by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems” the secretariat of which is held by NEN.

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 April 2018 and conflicting national standards shall be withdrawn at the latest by October 2020.

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 727:1994.

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, 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.

Endorsement notice

The text of ISO 2507-1:1995 has been approved by CEN as a EN ISO 2507-1:2017 without any modification.

Introduction

This International Standard is based on ISO 306.

For convenience of use, it has been considered preferable to draw up a complete document for use in determining the Vicat softening temperature of thermoplastics pipes and fittings. For further details, reference to ISO 306 is recommended.

Please note, however, that ISO 306 is applicable to materials in the form of sheets, whereas this International Standard is applicable to materials in the form of pipes and fittings.

ISO 2507 comprises three parts: the first gives the general conditions under which the Vicat softening temperature of a pipe or fitting is determined, the other two parts provide the particular requirements for conducting tests on pipes and fittings of different materials (see the Foreword).

The basic specifications for various materials are given in the informative annexes of the appropriate parts.

Thermoplastics pipes and fittings — Vicat softening temperature —

Part 1:
General test method

1 Scope

This part of ISO 2507 specifies a general method for determining the Vicat softening temperature of thermoplastics pipes and fittings. It includes the adaptation of method B of ISO 306:1994, using a force of 50 N.

This method is applicable only to thermoplastics materials for which it is possible to measure the temperature at which their rate of softening becomes rapid.

It is not applicable to crystalline or semi-crystalline polymers.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 2507. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 2507 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 291:1977, *Plastics — Standard atmospheres for conditioning and testing.*

ISO 306:1994, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST).*

3 Principle

Determination of the temperature at which a standard indenter, under a force of 50 N $\pm$ 1 N, penetrates 1 mm into the surface of a test piece cut from the wall of a pipe or fitting while the temperature is raised at a constant rate.

The temperature at which the penetration is 1 mm is called the Vicat softening temperature (VST), in degrees Celsius.

4 Apparatus

4.1 Rod, provided with a **load-carrying plate** (4.4), held in a **rigid metal frame** so that it can move freely in the vertical direction, the base of the frame serving to support the test piece under the indenting tip at the end of the rod (see figure 1).

If the rod and the components of the frame do not have the same coefficient of linear thermal expansion, their differential change in length introduces an error into the readings. A blank test shall be carried out for each apparatus using a test piece of rigid material with a low coefficient of expansion. This test shall cover the whole range of service temperatures and a correction term shall be determined for each temperature. If the correction term is greater than or equal to 0,02 mm, its algebraic sign shall be noted and the correction shall be applied to each test by adding it to the value observed for apparent penetration. It is recommended that the apparatus be constructed using an alloy with a low coefficient of thermal expansion.