

Thermoplastics pipes - Determination of tensile properties - Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), oriented unplasticized poly(vinyl chloride) (PVC-O), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI) (ISO 6259-2:2020)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 6259-2:2020 sisaldab Euroopa standardi EN ISO 6259-2:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 6259-2:2020 consists of the English text of the European standard EN ISO 6259-2:2020.
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 30.09.2020.	Date of Availability of the European standard is 30.09.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

**Thermoplastics pipes - Determination of tensile properties  
- Part 2: Pipes made of unplasticized poly(vinyl chloride)  
(PVC-U), oriented unplasticized poly(vinyl chloride (PVC-  
O), chlorinated poly (vinyl chloride) (PVC-C) and high-  
impact poly (vinyl chloride) (PVC-HI) (ISO 6259-2:2020)**

Tubes en matières thermoplastiques - Détermination des caractéristiques en traction - Partie 2: Tubes en poly(chlorure de vinyle) non plastifié (PVC-U), poly(chlorure de vinyle) non plastifié orienté (PVC-O), poly(chlorure de vinyle) chloré (PVC-C) et poly(chlorure de vinyle) à résistance au choc améliorée (PVC-HI) (ISO 6259-2:2020)

Rohre aus Thermoplasten - Bestimmung der Eigenschaften im Zugversuch - Teil 2: Rohre aus weichmacherfreiem Polyvinylchlorid (PVC-U), orientiertem weichmacherfreiem Polyvinylchlorid (PVC-O), chloriertem Polyvinylchlorid (PVC-C) und hochschlagzähem Polyvinylchlorid (PVC-HI) (ISO 6259-2:2020)

This European Standard was approved by CEN on 18 September 2020.

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

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

## European foreword

This document (EN ISO 6259-2:2020) has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" in collaboration with 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 March 2021, and conflicting national standards shall be withdrawn at the latest by March 2021.

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.

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, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 6259-2:2020 has been approved by CEN as EN ISO 6259-2:2020 without any modification.

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories — Test methods and basic specifications*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 6259-2:1997), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the introduction of PVC-O pipes;
- the correction of cross-references to ISO 6259-1:2015;
- the introduction of stress at break as an additional characteristic to be measured and recorded;
- the addition of extended sampling for pipe dimensions above or equal to 250 mm;
- updated informative annexes.

A list of all parts in the ISO 6259 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document specifies a method for determining the tensile properties of pipes made of PVC-U, PVC-O, PVC-C and PVC-HI.

NOTE In some countries, PVC-HI is designated as PVC-M or PVC-A.

It can provide data for further testing for the purpose of research and development.

It cannot be regarded as significant for applications in which the conditions of application of the force differ considerably with those in this test method, as such applications require the appropriate impact, creep and fatigue tests.

The tests of tensile properties are intended to be principally regarded as tests of material in the form of pipe. The results can be useful as a material process control test, but are not a quantitative assessment of long term pipe performance.

This document has been developed on the basis of ISO 527-1 and ISO 527-2.

For ease of use, it has been thought preferable to draw up a complete document that can be used for determining the tensile properties of thermoplastics pipes. For greater detail, reference can be made to the ISO 527 series.

However, the ISO 527 series is applicable to materials in sheet form, whereas the ISO 6259 series is applicable to materials in pipe form.

As it was considered essential to test the pipes as supplied, i.e. without reduction in thickness, difficulties arose in the choice of test piece.

The ISO 527 series specifies test pieces a few millimetres thick, whereas the thickness of a pipe can be in excess of 50 mm. This is why certain changes have been made on this point.

For thin-walled pipes, the test piece can be obtained by die cutting, while for thick pipes, it can be obtained only by machining.

At present, the ISO 6259 series comprises three parts:

- ISO 6259-1 gives the general conditions under which the tensile properties of thermoplastics pipes are to be determined.
- ISO 6259-2 (this document) and ISO 6259-3 provide, respectively, specific information on the execution of tests on pipes made from different materials (see the Foreword).

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

# Thermoplastics pipes — Determination of tensile properties —

Part 2:

## Pipes made of unplasticized poly(vinyl chloride) (PVC-U), oriented unplasticized poly(vinyl chloride) (PVC-O), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI)

### 1 Scope

This document specifies a method for determining the tensile properties of pipes made of unplasticized poly(vinyl chloride) (PVC-U), oriented unplasticized poly(vinyl chloride) (PVC-O), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI, PVC-M or PVC-A), and in particular the following properties:

- the stress at yield and stress at break;
- the elongation at break.

NOTE The general method of test for the determination of the tensile properties of thermoplastics pipes is given in ISO 6259-1.

This document also gives, for information purposes only, the corresponding basic specifications in [Annexes A, B, C](#) and [D](#).

### 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.

ISO 6259-1:2015, *Thermoplastics pipes — Determination of tensile properties — Part 1: General test method*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6259-1 and the following apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>