
**Thermoplastics pipes — Determination
of tensile properties —**

**Part 1:
General test method**

*Tubes en matières thermoplastiques — Détermination des caractéristiques
en traction —*

Partie 1: Méthode générale d'essai



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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6259-1 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*.

ISO 6259 consists of the following parts, under the general title *Thermoplastics pipes — Determination of tensile properties*:

- *Part 1: General test method*
- *Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI)*
- *Part 3: Polyolefin pipes*

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Introduction

This part of ISO 6259 specifies a short-term tensile test method for determining the tensile properties of thermoplastics pipes.

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, such applications requiring the appropriate impact, creep and fatigue tests.

The tests of tensile properties should 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.

ISO 6259 has been drawn up on the basis of ISO 527.

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 should be made to ISO 527.

It should however be noted that ISO 527 is applicable to materials in sheet form, whereas ISO 6259 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 are those in the choice of test piece.

ISO 527 specifies test pieces a few millimetres thick, whereas the thickness of a pipe can be up to around 60 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, ISO 6259 comprises three parts. The first part gives the general conditions under which the tensile properties of thermoplastics pipes are to be determined. The other two parts provide, respectively, particular information on the execution of tests on pipe made from different materials (see the foreword).

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

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Thermoplastics pipes — Determination of tensile properties —

Part 1: General test method

1 Scope

This part of ISO 6259 specifies a method of determining the tensile properties of thermoplastics pipes, including in particular the following properties:

- stress at yield point;
- elongation at break.

This part of ISO 6259 is applicable to all types of thermoplastics pipe, regardless of their intended use.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6259. 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 6259 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 1167:1996, *Thermoplastics pipes for the conveyance of fluids — Resistance to internal pressure — Test method.*

ISO 2602:1980, *Statistical interpretation of test results — Estimation of the mean — Confidence interval.*

ISO 5893:1993, *Rubber and plastics test equipment — Tensile, flexural and compression types (constant rate of traverse) — Description.*

ISO 6259-2:1997, *Thermoplastics pipes — Determination of tensile properties — Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI).*

ISO 6259-3:1997, *Thermoplastics pipes — Determination of tensile properties — Part 3: Polyolefin pipes.*

3 Principle

Test pieces of given shape and dimensions are obtained from a thermoplastics pipe, in the longitudinal direction, by cutting or machining.

The tensile properties are measured using a test machine under specified conditions.