
**Thermoplastics pipes — Longitudinal
reversion — Test method and
parameters**

*Tubes en matières thermoplastiques — Retrait longitudinal à chaud
— Méthode d'essai et paramètres*

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 2505:2023](https://standards.iteh.ai/catalog/standards/sist/161d8279-bd2a-4682-8775-a1258a39af69/iso-2505-2023)

<https://standards.iteh.ai/catalog/standards/sist/161d8279-bd2a-4682-8775-a1258a39af69/iso-2505-2023>



iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 2505:2023](https://standards.iteh.ai/catalog/standards/sist/161d8279-bd2a-4682-8775-a1258a39af69/iso-2505-2023)

<https://standards.iteh.ai/catalog/standards/sist/161d8279-bd2a-4682-8775-a1258a39af69/iso-2505-2023>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	1
5 Principle	2
6 Apparatus	2
7 Preparation	3
7.1 Test piece.....	3
7.2 Conditioning.....	4
8 Procedure	4
9 Expression of results	5
10 Test report	5
Annex A (informative) Recommended basic specifications for longitudinal reversion	6

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ISO 2505:2023](https://standards.itih.ai/catalog/standards/sist/161d8279-bd2a-4682-8775-a1258a39af69/iso-2505-2023)

<https://standards.itih.ai/catalog/standards/sist/161d8279-bd2a-4682-8775-a1258a39af69/iso-2505-2023>

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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.

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, *Plastic piping systems and ducting systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 2505:2005), which has been technically revised.

The main changes are as follows:

- the following materials and their respective test requirements have been added: PE 100-RC, PB-H, PB-R, PE-RT, PP-RCT and PE-UHMW;
- a requirement has been added stating that small diameter pipes from coils are to be straightened prior to testing.

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.

Thermoplastics pipes — Longitudinal reversion — Test method and parameters

1 Scope

This document specifies a method for determining the longitudinal reversion of thermoplastics pipes, to be carried out in either a liquid or in air. In case of dispute, heated liquid is used as the reference.

This document is applicable to all thermoplastics pipes with smooth internal and external walls of constant cross-section. It is not applicable to non-smooth structured-wall thermoplastics pipes.

The parameters appropriate to the pipe material and recommendations for the maximum levels of reversion as a function of the pipe material are given in [Annex A](#).

This method is applicable for pipes of wall thickness ≤ 16 mm.

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 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Abbreviated terms

For the purposes of this document, the abbreviated terms used for the plastic materials given in ISO 1043-1 and the following apply.

ABS	acrylonitrile/butadiene/styrene
ASA	acrylonitrile/styrene/acrylate
MRS	minimum required strength
PA-U	unplasticized polyamide
PB-H	polybutene homopolymer
PB-R	polybutylene random copolymer
PE 32/40	polyethylene MRS 3,2/4

PE 50/63	polyethylene MRS 5/6,3
PE 80	polyethylene MRS 8
PE 100	polyethylene MRS 10
PE 100-RC	PE 100 with raised crack resistance
PE-RT	polyethylene with raised temperature resistance
PE-UHMW	polyethylene with ultra-high molecular weight
PE-X	cross-linked polyethylene
PP-B	polypropylene block copolymer
PP-H	polypropylene homopolymer
PP-R	polypropylene random copolymer
PP-RCT	polypropylene random copolymer with modified crystallinity
PVC-C	chlorinated poly(vinyl chloride)
PVC-U	unplasticized poly(vinyl chloride)
PVC-HI	high-impact poly(vinyl chloride)
SAN+PVC	styrene/acrylonitrile plus poly(vinyl chloride)

5 Principle

A pipe of specified length is placed in a liquid bath or air oven at a specified temperature for a specified time. A marked length of this portion of pipe is measured, under identical conditions, before and after heating. The reversion is calculated as a percentage of the change in length in relation to the initial length. The surface appearance of the test piece shall not be changed after heating.

6 Apparatus

6.1 Heated liquid bath, thermostatically controlled at the temperature, T_R , as specified in [Table 1](#), unless otherwise specified by a referring standard.

The volume and agitation of the bath shall be such that the temperature remains within the specified temperature range when the test piece is immersed.

The liquid chosen should be stable at the specified temperature and should not otherwise affect the plastics material. Glycerine, glycol, mineral oil free from aromatic hydrocarbons, or a solution of calcium chloride are suitable, but any other liquid in line with these requirements may be used.

6.2 Air oven, thermostatically controlled such that it operates at the temperature, T_R , as specified in [Table 1](#), unless otherwise specified, and capable of re-establishing this temperature within 15 min of the introduction of the test pieces. The oven shall be equipped with a thermostat capable of maintaining T_R to a permissible deviation of ± 2 °C.

6.3 Ancillary equipment

6.3.1 Device, to hold the test piece(s) within the heating bath or oven in accordance with [Clause 7](#).