



SLOVENSKI STANDARD
oSIST prEN ISO 2505:2021
01-september-2021

Plastomerne cevi - Dimenzijska stabilnost po segrevanju - Preskusna metoda in parametri (ISO/DIS 2505:2021)

Thermoplastics pipes - Longitudinal reversion - Test method and parameters (ISO/DIS 2505:2021)

Rohre aus Thermoplasten - Längsschrumpf - Prüfverfahren und Kennwerte (ISO/DIS 2505:2021)

Tubes en matières thermoplastiques - Retrait longitudinal à chaud - Méthode d'essai et paramètres (ISO/DIS 2505:2021)

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Thermoplastics pipes — Longitudinal reversion — Test method and parameters

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

ICS: 23.040.20

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Foreword

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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).

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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*.

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

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

- the following materials with test requirements have been added: PE 100-RC, PB-H, PB-R, PE-RT, PP-RCT and PE-UHMW
- small diameter pipes from coils shall be straightened prior to testing
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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.

Introduction

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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 International Standard 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 referenced documents are indispensable for the application 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*

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3 Terms and definitions

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For the purposes of this document, the following apply.

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

4 Abbreviations

The abbreviations used for the plastic materials are as specified in ISO 1043-1. The following abbreviations are used in this International Standard.

| | |
|-----------|---------------------------------|
| ABS | acrylonitrile/butadiene/styrene |
| PA | polyamide (nylon) |
| ASA | acrylonitrile/styrene/acrylate |
| 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 80/100 | polyethylene MRS 8/10 |

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|-----------|--|
| 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 |
| 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) |
| PP-H | polypropylene homopolymer |
| PP-B | polypropylene block copolymer |
| PP-R | polypropylene random copolymer |
| PP-RCT | polypropylene random copolymer with modified crystallinity |

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.

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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.

Note 1 to entry Glycerine, glycol, mineral oil free from aromatic hydrocarbons, or a solution of calcium chloride are suitable, but any other liquid in line with these recommendations can 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](#).

6.3.2 Thermometer, with an accuracy to within $\pm 0,5$ °C.