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Thermoplastics pipes — Determination of creep ratio

Tubes en matières thermoplastiques — Détermination du taux de fluage

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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is 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 9967:2007), which has been technically revised.

Introduction

Experience shows that when a pipe is installed in the soil in accordance with an appropriate code of practice an increase in deflection may be observed. Depending on the soil and installation conditions this period will vary but normally not exceed two years.

Therefore, the two-year creep ratio as determined in accordance with this International Standard is intended for use when long-term static calculations are carried out.

The theory of creep in thermoplastics materials is briefly explained in Annex A.

For experiments, the test can be carried out based on other ages of the test pieces, other test temperatures and/or other test durations.

Thermoplastics pipes — Determination of creep ratio

1 Scope

This International Standard specifies a method for determining the creep ratio of thermoplastics pipes having a circular cross-section.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions*

3 Symbols

		Unit
d_n	nominal diameter of pipe	mm
d_i	inside diameter of test piece of pipe	mm
F	loading force	kN
F_0	pre-load force	N
p	pitch	mm
L	length of test piece	mm
y_0	measured initial deflection	mm
Y_t	calculated deflection at time t	mm
Y_2	extrapolated two-year deflection	mm
δ	vertical deflection used to determine the loading force	mm
B	theoretical deflection, at t = 1 h	mm
M	gradient coefficient	
N	number of points on the deflection curve used for the linear regression	
R	correlation coefficient	
t	time	h
x	log(t)	
y	measured total deflection	mm
γ	creep ratio	