INTERNATIONAL STANDARD

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Second edition
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Thermoplastics pipes — Determination of creep ratio

Tubes en matières thermoplastiques — Détermination du taux de fluage

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 9967 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 second edition cancels and replaces the first edition (ISO 9967:1994), 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 its increase in deflection virtually stops after a short period. 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 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
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
γ	creep ratio	

3 Principle

A cut length of pipe is placed between two parallel flat horizontal plates and a constant compressive force is applied for 1 008 h (42 days).

The deflection of the pipe is recorded at specified intervals so as to prepare a plot of pipe deflection against time. The linearity of the data is analysed and the creep ratio is calculated as the ratio between the two years' extrapolated deflection value and the measured 6 min (0,1 h) deflection.

NOTE It is assumed that the test temperature, as appropriate (see 7.1), is set by the referring standard.