SLOVENSKI STANDARD
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Plastomerne cevi za industrijske cevovode pod tlakom - Določanje faktorja kemične odpornosti in osnovne napetosti - 2. del: Cevi iz halogeniranih polimerov

Thermoplastics pipes for industrial applications under pressure -- Determination of the chemical resistance factor and of the basic stress -- Part 2: Pipes made of halogenated polymers

Tubes en thermoplastiques pour les applications industrielles sous pression -- Détermination du facteur de résistance chimique et de la contrainte de base -- Partie 2: Tubes en polymères halogénés

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TECHNICAL REPORT

ISO TR 8584-2

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Thermoplastics pipes for industrial applications under pressure — Determination of the chemical resistance factor and of the basic stress —

Part 2: Pipes made of halogenated polymers

Tubes en thermoplastiques pour les applications industrielles sous pression — Détermination du facteur de résistance chimique et de la contrainte de base —

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Contents

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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.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 8584-2, which is a Technical Report of type 2, was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 3, *Plastics pipes and fittings for industrial applications*.

This document is being published as a type 2 Technical Report in order to obtain standardized test data to confirm the validity of the test method described, in particular with respect to the following assumptions:

— that the chemical resistance factor f'_{CR} (see 3.4) determined in experiments using slowly increasing pressure can be treated as if it was an f_{CR} determined in experiments using constant pressure;

— that the method used in ISO/TR 9080 to extrapolate the test results of the first part of the stress curve to lower temperatures can also be used in experiments with chemical fluids at increasing pressure.

ISO 8584 consists of the following parts, under the general title *Thermoplastics pipes for industrial applications under pressure — Determination of the chemical resistance factor and of the basic stress*:

— *Part 1: Polyolefin pipes*

— *Part 2: Pipes made of halogenated polymers*
[Technical Report]

Annexes A, B, C and D of this part of ISO 8584 are for information only.

Introduction

The test method described in this Technical Report is based on long-term tests using slowly increasing pressures and is suitable for the determination of the chemical resistance factor of pipes made of halogenated polymers which, with water, give long-term stress curves in the form of straight lines, with no knees (abrupt transition points) over the time and temperature ranges relevant to practical use.

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Thermoplastics pipes for industrial applications under pressure — Determination of the chemical resistance factor and of the basic stress —

Part 2:
Pipes made of halogenated polymers

1 Scope

1.1 This Technical Report describes a method for the evaluation of the chemical resistance under pressure of pipes made of thermoplastics based on halogenated polymers.

1.2 It defines the chemical resistance factor f'_{CR} for the first part of the basic stress function represented by a bilinear model.

1.3 It specifies a procedure for the determination of f'_{CR} based on long-term tests at various constant rates of pressure increase.

For the evaluation of the chemical resistance in the absence of applied pressure and other stress, the user is referred to ISO 4433.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Technical Report 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 1167:1973, *Plastics pipes for the transport of fluids — Determination of the resistance to internal pressure.*

ISO 4433:1984, *Polyolefin pipes — Resistance to chemical fluids — Immersion test method — System for preliminary classification.*

ISO 8584-1:1990, *Thermoplastics pipes for industrial applications under pressure — Determination of the chemical resistance factor and of the basic stress — Part 1: Polyolefin pipes.*

ISO/TR 9080:1992, *Thermoplastics pipes for the transport of fluids — Methods of extrapolation of hydrostatic stress rupture data to determine the long-term hydrostatic strength of thermoplastics pipe materials.*

3 Definitions

For the purposes of this Technical Report, definitions 3.5 to 3.9 in ISO 8584-1:1990 apply, plus the following definitions specific to testing at increasing pressure:

3.1 stress rate, $\dot{\sigma}_e$: The continuous increase in stress (caused by increasing the test pressure) with time until failure of the test specimen.

3.2 time to failure, t'_R: The interval between the first application of pressure and the appearance of a failure (i.e. a leak) because of bursting or cracking under stress or weeping.