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Plastics pipes and fittings — Pressure reduction factors for polyethylene pipeline systems for use at temperatures above 20 °C

Tubes et raccords en matières plastiques — Facteurs de réduction de pression des canalisations en polyéthylène utilisées à des températures supérieures à 20 °C

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Foreword

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This document was prepared by Technical Committee ISO/TC 138, *Plastic 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 13761:1996), which has been technically revised.

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Introduction

This document provides pressure reduction factors for an increased temperature range up to 50 °C and guidance for dealing with higher temperatures. The use of these factors allows the operating pressure of polyethylene (PE) pipeline systems to be determined for use at higher temperatures.

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Plastics pipes and fittings — Pressure reduction factors for polyethylene pipeline systems for use at temperatures above 20 °C

1 Scope

This document specifies a method for the derivation of pressure reduction factors to obtain the allowable operating pressure for operation of polyethylene (PE) pipeline systems at temperatures between 20 °C and 40 °C or 50 °C, dependent on the classification of the material used for manufacture.

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 9080:2012, *Plastic piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

For operation of systems at temperatures between 20 °C and up to 50 °C, the allowable pressure is reduced by applying the pressure reduction factor derived from the graph in Figure 1 or from Table 1 to the nominal pressure for 20 °C operation.

5 Procedure

5.1 Determination of the applicable pressure reduction factor

Select the pressure reduction factor at the required operating temperature from Table 1 or derive it from the graph in Figure 1. Table 1 and Figure 1 are applicable for PE 100 and PE 80 materials up to 50 °C, and for PE 63 and PE 40 materials up to 40 °C.

Multiply the nominal operating pressure of the system for 20 °C operation by the pressure reduction factor at the required operating temperature in order to obtain the allowable operating pressure.

Allowable operating pressure at elevated temperature = PN × reduction factor at that temperature

where PN is the nominal pressure rating of the system at 20 °C.

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