



SLOVENSKI STANDARD
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Cevni sistemi iz polimernih materialov za oskrbo s plinastimi gorivi - Polietilen (PE) - 2. del: Cevi

Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 2: Pipes

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 2: Rohre

Systèmes de canalisations en plastique pour la distribution de combustibles gazeux - Polyéthylène (PE) - Partie 2: Tubes

Ta slovenski standard je istoveten z: prEN 1555-2

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Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 2: Pipes

Systèmes de canalisations en plastique pour la distribution
de combustibles gazeux - Polyéthylène (PE) - Partie 2:
Tubes

Kunststoff-Rohrleitungssysteme für die Gasversorgung -
Polyethylen (PE) - Teil 2: Rohre

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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prEN 1555-2:2008 (E)

Foreword

This document (prEN 1555-2:2008) has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1555-2:2002.

It has been prepared in liaison with Technical Committee CEN/TC 234 "Gas supply".

This standard is a part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

System Standards are based on the results of the work undertaken in ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids", which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 1555 consists of the following parts, under the general title *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE)*:

- *Part 1: General*
- *Part 2: Pipes* (this standard)
- *Part 3: Fittings*
- *Part 4: Valves*
- *Part 5: Fitness for purpose of the system*
- *Part 7: Guidance for assessment of conformity* (CEN/TS).

NOTE The document dealing with recommended practice for installation which was initially submitted for CEN enquiry as prEN 1555-6 [1] was withdrawn when EN 12007-2 [2], prepared by CEN/TC 234 Gas supply, was published with the title "Gas supply systems - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)".

Introduction

The System Standard, of which this is Part 2, specifies the requirements for a piping system and its components made from polyethylene (PE) and which is intended to be used for the supply of gaseous fuels.

Requirements and test methods for material and components, other than pipes, are specified in EN 1555-1, EN 1555-3 and EN 1555-4 (for the titles see Foreword). Characteristics for fitness for purpose are covered in EN 1555-5. CEN/TS 1555-7 gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2 [2] prepared by CEN/TC 234.

This part of EN 1555 covers the characteristics of pipes.

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1 Scope

This part of EN 1555 specifies the characteristics of pipes made from polyethylene (PE) for piping systems in the field of the supply of gaseous fuels.

It also specifies the test parameters for the test methods referred to in this standard.

In conjunction with the other parts of EN 1555 (see Foreword) it is applicable to PE pipes, their joints and to joints with components of PE and other materials intended to be used under the following conditions:

- a) a maximum operating pressure, MOP, up to and including 10 bar ¹⁾;
- b) an operating temperature of 20 °C as reference temperature.

NOTE 1 For other operating temperatures, derating coefficients should be used, see prEN 1555-5:2008.

EN 1555 covers a range of maximum operating pressures and gives requirements concerning colours and additives.

It covers three types of pipe:

- PE pipes (outside diameter d_n) including any identification stripes;
- PE pipes with co-extruded layers on either or both the outside and/or inside of the pipe (total outside diameter d_n) as specified in Annex B, where all layers have the same MRS rating;
- PE pipes (outside diameter d_n) with a peelable, contiguous thermoplastics additional layer on the outside of the pipe ('coated pipe') as specified in Annex C.

NOTE 2 It is the responsibility of the purchaser or specifier to make the appropriate selections from these aspects, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

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.

prEN 1555-1:2008, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

prEN 1555-5:2008, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN 12106, *Plastics piping systems — Polyethylene (PE) pipes — Test method for the resistance to internal pressure after application of squeeze-off*

EN ISO 1167-1:2006, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces (ISO 1167-2:2006)*

EN ISO 1133:2005, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:2005)*

EN ISO 2505, *Thermoplastics pipes — Longitudinal reversion — Test method and parameters (ISO 2505:2005)*

1) 1 bar = 0,1 MPa

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (ISO 3126:1999)*

EN ISO 6259-1, *Thermoplastics pipes — Determination of tensile properties — Part 1: General test method (ISO 6259-1:1997)*

EN ISO 13477, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small-scale steady-state test (S4 test) (ISO 13477:2008)*

EN ISO 13478, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Full scale test (FST) (ISO 13478:2007)*

prEN ISO 13479, *Polyolefin pipes for the conveyance of fluids — Determination of resistance to crack propagation — Test method for slow crack growth on notched pipes (notch test) (ISO/DIS 13479:2008)*

ISO 6259-3, *Thermoplastics pipes — Determination of tensile properties — Part 3: Polyolefin pipes*

ISO/FDIS 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

ISO 13480, *Polyethylene pipes — Resistance to slow crack growth — Cone test method*

3 Terms and definitions, symbols and abbreviations

For the purposes of this document the terms and definitions, symbols and abbreviations given in prEN 1555-1:2008 apply.

4 Material

4.1 Compound

The pipes shall be made from virgin material or own reprocessable material from the same PE compound or a mixture of both materials.

The compound(s) from which the pipes are made shall conform to prEN 1555-1:2008.

4.2 Compound for identification stripes

For black pipe with yellow or orange identifications stripes (see also 5.2), the compound used for these identification stripes shall be made from the same base resin as one of the pipe compounds for which fusion compatibility has been proven.

5 General characteristics

5.1 Appearance

When viewed without magnification, the internal and external surfaces of pipes shall be smooth and clean and shall have no scoring, cavities and other surface defects to an extent that would prevent conformity to this standard.

The ends of the pipe shall be cut cleanly and square to the axis of the pipe.

5.2 Colour

Pipes shall be black, yellow (PE 80) or orange (PE 100). In addition black PE 80 pipes may be identified by yellow stripes and black PE 100 pipes may be identified by yellow or orange stripes, according to national preference.

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Non-pigmented compounds are permitted for the base pipe of peelable layer pipes.

The outer coextruded layer of coextruded pipes (see Annex A) or the outer peelable layer of peelable layer pipes (see Annex C) shall be either black, yellow or orange. In addition identification stripes may be used according to national preference.

6 Geometrical characteristics

6.1 Measurement of dimensions

Dimensions shall be measured in accordance with EN ISO 3126 at (23 ± 2) °C, after being conditioned for at least 4 h. The measurement shall not be made less than 24 h after manufacture.

NOTE Indirect measurement is allowed at shorter time periods providing evidence is shown of correlation.

6.2 Mean outside diameters, out-of-roundness (ovality) and tolerances

The mean outside diameters of the pipe, d_{em} shall conform to Table 1.

For straight pipes, the maximum out-of-roundness shall conform to Table 1. For coiled pipes, the maximum out-of-roundness shall be specified by agreement between the manufacturer and the end-user.

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