

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1555-5:2010 sisaldab Euroopa standardi EN 1555-5:2010 ingliskeelset teksti.

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English Version

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

Systèmes de canalisations en plastique pour la distribution
de combustibles gazeux - Polyéthylène (PE) - Partie 5:
Aptitude à l'emploi du système

Kunststoff-Rohrleitungssysteme für die Gasversorgung -
Polyethylen (PE) - Teil 5: Gebrauchstauglichkeit des
Systems

This European Standard was approved by CEN on 30 July 2010.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 1555-5:2010) has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2011 and conflicting national standards shall be withdrawn at the latest by March 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1555-5:2002.

EN 1555 consists of the following parts:

- EN 1555-1, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*;
- EN 1555-2, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*;
- EN 1555-3, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*;
- prEN 1555-4, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 4: Valves*;
- EN 1555-5, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system* (this standard);
- CEN/TS 1555-7, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 7: Guidance for assessment of conformity*.

System Standards 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.

NOTE EN 12007-2:2000 [1] prepared by CEN/TC 234 "Gas infrastructure" deals with the recommended practice for installation of plastics pipes system in accordance with EN 1555 (all parts).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The System Standard, of which this is Part 5, specifies the requirements of 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 are specified in EN 1555-1, EN 1555-2, EN 1555-3 and prEN 1555-4.

CEN /TS 1555-7 [2] gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2:2000 [1] prepared by CEN /TC 234.

This part of EN 1555 covers the characteristics of fitness for purpose of the system.

1 Scope

This part of EN 1555 specifies requirements of fitness for purpose of the polyethylene (PE) piping system in the field of the supply of gaseous fuels.

It specifies the definitions of electrofusion, butt fusion and mechanical joints.

It specifies the method of preparation of test piece joints, and the tests to be carried out on these joints for assessing the fitness for purpose of the system under normal and extreme conditions.

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

In conjunction with Parts 1 to 4 of EN 1555, it is applicable to PE pipes, fittings, valves, their joints and to joints with components of 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 Annex A.

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

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.

EN 1555-1:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

EN 1555-2:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*

EN 1555-3, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*

prEN 1555-4, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 4: Valves*

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 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)*

1) 1 bar = 0,1 MPa.

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)*

ISO 10838-1 ²⁾, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 1: Metal fittings for pipes of nominal outside diameter less than or equal to 63 mm*

ISO 10838-2 ²⁾, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 2: Metal fittings for pipes of nominal outside diameter greater than 63 mm*

ISO 10838-3 ²⁾, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 3: Thermoplastics fittings for pipes of nominal outside diameter less than or equal to 63 mm*

ISO 11413:2008, *Plastics pipes and fittings — Preparation of test piece assemblies between a polyethylene (PE) pipe and an electrofusion fitting*

ISO 11414:2009, *Plastics pipes and fittings — Preparation of polyethylene (PE) pipe/pipe or pipe/fitting test piece assemblies by butt fusion*

ISO 13953, *Polyethylene (PE) pipes and fittings — Determination of the tensile strength and failure mode of test pieces from a butt-fused joint*

ISO 13954, *Plastics pipes and fittings — Peel decohesion test for polyethylene (PE) electrofusion assemblies of nominal outside diameter greater than or equal to 90 mm*

ISO 13955, *Plastics pipes and fittings — Crushing decohesion test for polyethylene (PE) electrofusion assemblies*

ISO/FDIS 13956, *Plastics pipes and fittings — Determination of cohesive strength — Evaluation of ductility of fusion joint interface by tear test*

3 Terms and definitions

For the purposes of this document, the terms and definitions, symbols and abbreviations given in EN 1555-1:2010 and the following definition apply.

3.1

mechanical joint

joint made by assembling a PE pipe with a fitting that generally includes a compression part to provide for pressure integrity, leaktightness and resistance to end loads

NOTE A support sleeve inserted into the pipe bore should be used to provide a permanent support for the PE pipe to prevent creep in the pipe wall under radial compressive forces. The metallic part of this fitting can be assembled to a metallic pipe by screw threads, compression joints, welded or brazed flanges or by other means.

²⁾ These standards are under revision.