Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 5: Fitness for purpose of the system

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 22391-5:2010 sisaldab Euroopa standardi EN ISO 22391-5:2009 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 22391-5:2010 consists of the English text of the European standard EN ISO 22391-5:2009.
Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 02.12.2009.	Date of Availability of the European standard text 02.12.2009.
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Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 5: Fitness for purpose of the system (ISO 22391-5:2009)

Systèmes de canalisations en plastique pour les installations d'eau chaude et froide - Polyéthylène de meilleure résistance à la température (PE-RT) - Partie 5: Aptitude à l'emploi du système (ISO 22391-5:2009)

Kunststoff-Rohrleitungssysteme für die Warm- und Kaltwasserinstallation - Polyethylen erhöhter Temperaturbeständigkeit (PE-RT) - Teil 5: Gebrauchstauglichkeit des Systems (ISO 22391-5:2009)

This European Standard was approved by CEN on 4 November 2009.

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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 22391-5:2009) has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" in collaboration with 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of an identical text or by endorsement, at the latest by June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

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.

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Endorsement notice

The text of ISO 22391-5:2009 has been approved by CEN as a EN ISO 22391-5:2009 without any modification.

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Introduction

The System Standard, of which this is Part 5, specifies the requirements for a piping system and its components when made from polyethylene of raised temperature resistance (PE-RT). The piping system is intended to be used for hot and cold water installations.

In respect of potential adverse effects on the quality of water intended for human consumption caused by the products covered by ISO 22391, the following are relevant.

a) This part of ISO 22391 provides no information as to whether the products can be used without restriction.

b) Existing national regulations concerning the use and/or characteristics of the products remain in force.

This part of ISO 22391 specifies the characteristics of fitness for purpose of the system. At the date of publication of this part of ISO 22391, System Standards Series for piping systems of other plastics materials used for the same application are the following:

ISO 15874 (all parts), *Plastics piping systems for hot and cold water installations — Polypropylene (PP)*

ISO 15875 (all parts), *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X)*

ISO 15876 (all parts), *Plastics piping systems for hot and cold water installations — Polybutylene (PB)*

ISO 15877 (all parts), *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C)*

Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT) —

Part 5: Fitness for purpose of the system

1 Scope

This part of ISO 22391 specifies the characteristics of the fitness for purpose of piping systems made of

— polyethylene of raised temperature resistance (PE-RT), Type I, and

— polyethylene of raised temperature resistance (PE-RT), Type II,

intended to be used for hot and cold water installations within buildings for the conveyance of water, whether or not the water is intended for human consumption (domestic systems) and for heating systems, under the design pressures and temperatures appropriate to the class of application according to ISO 22391-1.

This part of ISO 22391 covers a range of service conditions (classes of application), design pressures and pipe dimension classes, and also specifies test parameters and test methods. In conjunction with the other parts of ISO 22391, it is applicable to PE-RT pipes, fittings, their joints, and to joints having components of PE-RT as well as of other plastics and non-plastics materials, respectively, used for hot and cold water installations.

It is not applicable to values of design temperature, maximum design temperature or malfunction temperature in excess of those specified in ISO 22391-1.

NOTE 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.

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

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 22391-1:2009, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT) — Part 1: General*

ISO 22391-2:2009, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT) — Part 2: Pipes*

EN 712, *Thermoplastics piping systems — End-load bearing mechanical joints between pressure pipes and fittings — Test method for resistance to pull-out under constant longitudinal force*

EN 713, *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending*

EN 12293, *Plastics piping systems — Thermoplastics pipes and fittings for hot and cold water — Test method for the resistance of mounted assemblies to temperature cycling*

EN 12294, *Plastics piping systems — Systems for hot and cold water — Test method for leaktightness under vacuum*

EN 12295, *Plastics piping systems — Thermoplastics pipes and associated fittings for hot and cold water — Test method for resistance of joints to pressure cycling*

3 Terms, definitions, symbols and abbreviated terms

For the purposes of this document, the terms, definitions, symbols and abbreviated terms given in ISO 22391-1 apply.

4 Fitness for purpose of joints and piping system

4.1 General

The joints and the piping system shall be tested in accordance with Table 1 and 4.2 to 4.7, as applicable. When tested, their characteristics shall be in accordance with the requirements of the corresponding subclauses.

For the tests given in Table 1, applicable for each of the different types of jointing system covered by this part of ISO 22391, the fittings shall be connected to the pipe with which they are intended to be used.

Table 1 — Joint tests

Test	Jointing system			Test parameters (subclause of this part of ISO 22391 in which given)	Test method
	SW	EF	M		
Internal pressure test	Yes	Yes	Yes	4.2	ISO 1167-1 and ISO 1167-2
Bending test	N/A	N/A	Yes	4.3	EN 713
Pull-out test	N/A	N/A	Yes	4.4	EN 712
Thermal cycling test	Yes	Yes	Yes	4.5	EN 12293
Pressure cycling test	N/A	N/A	Yes	4.6	EN 12295
Leaktightness under vacuum test	N/A	N/A	Yes	4.7	EN 12294
SW Socket fusion joint.					
EF Electrofusion joint.					
M Mechanical joint.					
Yes Test applicable.					
N/A Not applicable.					