Plastics piping systems for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1: Specifications for piping components and the system

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1456-1:2002 sisaldab Euroopa standardi EN 1456-1:2001 ingliskeelset teksti. Käesolev dokument on jõustatud 14.02.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 1456-1:2002 consists of the English text of the European standard EN 1456-1:2001. This document is endorsed on 14.02.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard specifies requirements for unplasticized poly(vinyl chloride) (PVC-U) piping systems in the field of buried and above-ground drainage and sewerage under pressure.	**Scope:** This European Standard specifies requirements for unplasticized poly(vinyl chloride) (PVC-U) piping systems in the field of buried and above-ground drainage and sewerage under pressure.

ICS 23.040.01, 93.030

Võtmesõnad: fire hoses, pipes, pressure, pressure pipes, pvc-pipes, pvc-u, sewage, sewer pipes, sewers, specification (approval), specifications, tubes, underground, unplasticized, unplasticized polyvinyl chloride, water, water pipes, water practice

EUROPEAN STANDARD
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English version

Plastics piping systems for buried and above-ground drainage and sewerage under pressure – Unplasticized poly(vinyl chloride) (PVC-U)

Part 1: Specifications for piping components and the system

Systèmes de canalisations en plastique pour branchements et collecteurs d'assainissement enterrés et aériens avec pression – Poly(chlorure de vinyle) non plastifié (PVC-U) – Partie 1: Spécifications pour les composants et le système

Kunststoff-Rohrleitungssysteme für erdverlegte und nicht erdverlegte Abwasserdruckleitungen – Weichmacherfreies Polyvinylchlorid (PVC-U) – Teil 1: Anforderungen an Rohrleitungsbauteile und das Rohrleitungssystem

This European Standard was approved by CEN on 2000-08-10.

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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist 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 Management Centre has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Contents

Foreword

This European Standard 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 January 2002, and conflicting national standards shall be withdrawn at the latest by July 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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 1456 consists of the following parts, under the general title Plastics piping systems for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U):

- *Part 1:* Specifications for piping components and the system *(the present standard)*
- *Part 2: Guidance for the assessment of conformity (ENV)*

This standard includes the following:

- Annex A (informative): Guidance for installation
- Bibliography

At the date of publication of this standard, System Standards for piping systems of other plastics materials used for the same application are the following:

NOTE All listed System Standards are under preparation.

Plastics piping systems for pressure and non-pressure underground drainage and sewerage - Glass-reinforced thermosetting plastics (GRP) based on polyester resin (UP)

EN 13244 *Plastics piping systems for buried and above-ground pressure systems for water for general purposes, drainage and sewerage - Polyethylene (PE)*

Introduction

This standard specifies the requirements for a piping system and its components made from unplasticized poly(vinyl chloride) (PVC-U). The piping system is intended to be used for buried and above-ground drainage and sewerage under pressure.

Since the differences between requirements for piping components according to EN 1452 and this standard are slight, this standard gives only specific requirements, which are applicable to drainage

and sewerage under pressure. For all aspects common to water supply, reference is made to EN 1452.

This standard is therefore complementary to, and can only be used in conjunction with, EN 1452, Parts 1 to 5 and ENV 1452-6.

When EN 1452 is taken into account, the medium "water" for the pipes, fittings, valves and ancillary equipment needs to be read as "sewage and drainage".

Clause 3 of this standard covers the general aspects of the plastics piping system. Components, requirements and test methods are specified in clauses 4, 5 and 6 of this standard. Characteristics for fitness for purpose (mainly for joints) are covered in clause 7. Guidance for installation is given in Annex A.

1 Scope

This European Standard specifies requirements for unplasticized poly(vinyl chloride) (PVC-U) piping systems in the field of buried and above-ground drainage and sewerage under pressure.

In conjunction with one or more of Parts 1 to 5 of EN 1452 and ENV 1452-6, it is applicable to PVC-U pipes, fittings, valves and ancillary equipment, their joints and to joints with components of other plastics and non-plastics materials intended to be used for the conveyance of sewage and drainage under pressure at approximately 20 °C as follows:

a) buried in the ground;

b) sea outfalls;

c) laid in inland waters and/or in ducts;

d) suspended below bridges.

This standard is also applicable to components for the continuous conveyance of sewage and drainage up to and including 45 °C as required in EN 773 [1].

NOTE 1 In this case the pressure derating factors given in EN 1452-2:1999, Figure A.1 apply.

NOTE 2 No pressure reduction is necessary for the drainage of waste waters at short-term peak temperatures up to 45 °C (cumulated for 2 years during a service life of 50 years).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 578, *Plastics piping systems — Plastics pipes and fittings — Determination of the opacity*

EN 921, *Plastics piping systems — Thermoplastics pipes — Determination of resistance to internal pressure at constant temperature*

EN 1452-1:1999, *Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: General*

EN 1452-2:1999, *Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U) — Part 2: Pipes*

EN 1452-3:1999, *Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U) — Part 3: Fittings*

EN 1452-4:1999, *Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U) — Part 4: Valves and ancillary equipment*

EN 1452-5:1999, *Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U) — Part 5: Fitness for purpose of the system*

prEN ISO 3126:1999, *Plastics piping systems — Plastics components — Mesurement and determination of dimensions (ISO/DIS 3126:1999)*

EN ISO 12162:1995, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient (ISO 12162:1995)*

ISO 1183:1987, *Plastics — Methods for determining the density and relative density of non-cellular plastics*

ISO/TR 9080:1992 [1)], *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 General

3.1 Definitions, symbols and abbreviations

For the purposes of this standard, the definitions, symbols and abbreviations given in parts 1 to 5 of EN 1452:1999 apply, as applicable.

3.2 Material

3.2.1 PVC-U compound

The material from which the pipes, fittings and valves are made shall be an unplasticized poly(vinyl chloride) compound. This compound shall consist of PVC-U resin, to which are added those additives that are needed to facilitate the manufacture of pipes, fittings and valves conforming to this standard.

None of these additives shall be used separately or together in quantities sufficient to impair the fabrication or solvent cementing properties of the product or to impair the chemical and physical or mechanical properties (in particular long-term mechanical strength and impact strength) as specified in this standard.

3.2.2 Reprocessable and recyclable materials

The use of the manufacturer's own reprocessable material obtained during the production and works testing of products conforming to this standard is permitted in addition to the use of virgin material. Reprocessable material obtained from external sources and recyclable material shall not be used.

3.2.3 Chemical resistance

In cases where piping systems conforming to this standard will be used for chemically contaminated waste waters, such as industrial discharges, chemical and temperature resistance shall be taken into account.

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1) In ISO/TC138/SC5 a new extrapolation method is under development, which is intended to replace ISO/TR 9080. It is currently available as prEN ISO 9080:1998 [2].