

**Plastics piping systems with  
structured-wall pipes for soil and waste  
discharge (low and high temperature)  
inside buildings - Unplasticized  
poly(vinyl chloride) (PVC-U) - Part 1:  
Specifications for pipes and the system**

Plastics piping systems with structured-wall pipes for  
soil and waste discharge (low and high temperature)  
inside buildings - Unplasticized poly(vinyl chloride)  
(PVC-U) - Part 1: Specifications for pipes and the  
system

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1453-1:2000 sisaldab Euroopa standardi EN 1453-1:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 17.07.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1453-1:2000 consists of the English text of the European standard EN 1453-1:2000.</p> <p>This document is endorsed on 17.07.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This standard specifies the requirements for pipes and the system of unplasticized poly(vinyl chloride) (PVC-U) piping systems with structured-wall pipes intended to be used for soil and waste discharge (low and high temperature) inside buildings. (Marked with "B") It also specifies the test parameters for the test methods referred to in this standard. It covers pipes with an external and internal smooth layer which are connected with foamed PVC-U or by radial legs in solid PVC-U. The fully foamed PVC-U pipes and spirally wound PVC-U pipes are not covered by this standard.</p>	<p><b>Scope:</b></p> <p>This standard specifies the requirements for pipes and the system of unplasticized poly(vinyl chloride) (PVC-U) piping systems with structured-wall pipes intended to be used for soil and waste discharge (low and high temperature) inside buildings. (Marked with "B") It also specifies the test parameters for the test methods referred to in this standard. It covers pipes with an external and internal smooth layer which are connected with foamed PVC-U or by radial legs in solid PVC-U. The fully foamed PVC-U pipes and spirally wound PVC-U pipes are not covered by this standard.</p>
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**English version**

**Plastics piping systems with structured-wall pipes for  
soil and waste discharge (low and high temperature)  
inside buildings – Unplasticized poly(vinyl chloride)  
(PVC-U)**

**Part 1: Specifications for pipes and the system**

Systèmes de canalisations en plastique avec des tubes à paroi structurée pour l'évacuation des eaux-vannes et des eaux usées (à basse et à haute température) à l'intérieur des bâtiments – Poly(chlorure de vinyle) non plastifié (PVC-U) – Partie 1: Spécifications pour tubes et le système

Kunststoff-Rohrleitungssysteme mit Rohren mit profilierter Wandung und glatten Rohroberflächen zum Ableiten von Abwasser (niedriger und hoher Temperatur) innerhalb von Gebäuden – Weichmacherfreies Polyvinylchlorid (PVC-U) – Teil 1: Anforderungen an Rohre und das Rohrleitungssystem

This European Standard was approved by CEN on 1999-04-24.

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 Central Secretariat or to any CEN member.

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**CEN**

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

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## 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 NNI.

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 July 2000, and conflicting national standards shall be withdrawn at the latest by January 2002.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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 1453 consists of the following Parts, under the general title "Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside building — Unplasticized poly(vinyl chloride) (PVC-U)" <sup>1)</sup> :

- *Part 1: Requirements for pipes and the system (the present standard)*
- *Part 2: Guidance for the assessment of conformity (under preparation)*

This Part of EN 1453 includes the following:

- Annex A (normative): Utilization of non-virgin material
- Bibliography

At the date of publication of this standard, System Standards for piping systems of PVC-U and other plastics materials used for the inside buildings are the following:

EN 1329, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Unplasticized poly(vinyl chloride) (PVC-U)*

EN 1451, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polypropylene (PP)*

1) EN 1453 does not cover a recommended practice for installation. A recommended practice for installation is covered by the following European prestandard: *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Thermoplastics — Recommended practice for installation* (under preparation).

- EN 1455, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Acrylonitrile-butadiene-styrene (ABS)*
- EN 1519, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polyethylene (PE)*
- EN 1565, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Styrene copolymer blends (SAN+PVC)*
- EN 1566, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Chlorinated poly(vinyl chloride) (PVC-C)*



## 1 Scope

This standard specifies the requirements for pipes and the system of unplasticized poly(vinyl chloride) (PVC-U) piping systems with structured-wall pipes intended to be used for soil and waste discharge (low and high temperature) inside buildings (marked with "B").

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

It covers pipes with an external and internal smooth layer which are connected with foamed PVC-U or by radial legs in solid PVC-U. The fully foamed PVC-U pipes and spirally-formed PVC-U pipes are not covered by this standard.

This standard covers a range of pipe sizes and gives recommendations concerning colours.

**NOTE 1** 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.

This standard is applicable to PVC-U pipes, their joints and to joints with components (marked with "B" and "BD") of other plastics intended to be used for the following purposes:

- a) soil and waste discharge pipework for the conveyance of domestic waste waters (low and high temperature);
- b) ventilation pipework associated with a);
- c) rainwater pipework inside building.

This standard is applicable to pipes marked with "B", which are intended to be used above ground inside the building.

**NOTE 2** Fittings conforming to EN 1329-1 are normally be used with pipes conforming to this standard. Components conforming to other standards on plastics piping system can be used with pipes conforming to this standard, provided they conform to the requirements for joint dimensions and functional requirements given in this standard.

**NOTE 3** For external above ground application additional requirements depending on the climate should be agreed between the manufacturer and the user.

**NOTE 4** This standard does not include any requirement for fire. Certain countries may require additional requirements based on national regulations.

## 2 Normative references

This 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 standard only when incorporated in it by amendment or revision.

For undated references the latest edition of the publication referred to applies.

EN 580, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) pipes — Test method for the resistance to dichloromethane at a specified temperature (DCMT)*

EN 681-1, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

prEN 681-2, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastics elastomers*

EN 727, *Plastics piping and ducting systems — Thermoplastics pipes and fittings — Determination of Vicat softening temperature (VST)*

EN 743:1994, *Plastics piping and ducting systems — Thermoplastics pipes — Determination of the longitudinal reversion*

EN 744:1995, *Plastics piping and ducting systems — Thermoplastics pipes — Test method for resistance to external blows by the round-the-clock method*

EN 922, *Plastics piping and ducting systems — Pipes and fittings of unplasticized poly(vinyl chloride) (PVC-U) — Specimen preparation for determination of the viscosity number and calculation of the K-value*

EN 1053, *Plastics piping systems — Thermoplastics piping systems for non-pressure applications — Test method for watertightness*

EN 1054, *Plastics piping systems — Thermoplastics piping systems for soil and waste discharge — Test method for airtightness of joints*

EN 1055:1996, *Plastics piping systems — Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for resistance to elevated temperature cycling*

EN 1329-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: Requirements for pipes and the system*

EN 1411:1996, *Plastics piping and ducting systems — Thermoplastics pipes — Determination of resistance to external blows by the staircase method*

EN 1905, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) pipes, fittings and material — Method for assessment of the PVC content based on total chlorine content*

EN 10204:1991, *Metallic products — Types of inspection documents*

prEN ISO 3126, *Plastics piping systems — Plastics components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

ISO 472:1988, *Plastics — Vocabulary*

ISO 1043-1:1997, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

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

### 3 Definitions, symbols and abbreviations

For the purposes of this standard, the following definitions, symbols and abbreviations apply.

#### 3.1 Definitions

In addition to the following definitions, the definitions given in ISO 472:1988 and ISO 1043-1:1997 apply.

##### 3.1.1

##### **application area code**

code used in the marking of pipes and fittings to indicate the application area(s) for which they are intended, as follows:

B: application area code for components intended for use above ground inside the building.

NOTE Other application area codes BD, U and D not covered by this standard are defined elsewhere, e.g. in EN 1329-1 and EN 1401-1.