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Plastics piping systems for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 2: Guidance for the assessment of conformity

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Kunststoff-Rohrleitungssysteme für erdverlegte und nicht erdverlegte Abwasserdruckleitungen - Weichmacherfreies Polyvinylchlorid (PVC-U) - Teil 2: Empfehlungen für die Beurteilung der Konformität

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Systemes de canalisations en plastique pour branchements et collecteurs d'assainissement enterrés et aériens avec pression - Poly(chlorure de vinyle) non plastifié (PVC-U) - Partie 2: Guide pour l'évaluation de la conformité

**Ta slovenski standard je istoveten z: CEN/TS 1456-2:2003**

**ICS:**

23.040.01	Deli cevovodov in cevovodi na splošno	Pipeline components and pipelines in general
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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TECHNICAL SPECIFICATION  
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**CEN/TS 1456-2:2003**

April 2003

ICS 23.040.01, 93.030

English version

Plastics piping systems for buried and above-ground drainage  
and sewerage under pressure - Unplasticized poly(vinyl  
chloride) (PVC-U) - Part 2: Guidance for the assessment of  
conformity

Systèmes de canalisations en plastiques pour  
branchements et collecteurs d'assainissement enterrés et  
aériens avec pression - Poly(chlorure de vinyle) non  
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Kunststoff-Rohrleitungssysteme für erdverlegte und nicht  
erdverlegte Abwasserdruckleitungen - Weichmacherfreies  
Polyvinylchlorid (PVC-U) - Teil 2: Empfehlungen für die  
Beurteilung der Konformität

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This Technical Specification (CEN/TS) was approved by CEN on 29 February 2003 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This document (CEN/TS 1456-2:2003) has been prepared by Technical Committee CEN /TC 155, "Plastics piping systems and ducting systems" the secretariat of which is held by NEN.

This specification can be used to support elaboration of national third party certification procedures for products conforming to EN 1456-1.

This specification 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*
- *Part 2: Guidance for the assessment of conformity (this specification).*

This Technical Specification includes a Bibliography.

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

NOTE: All listed System Standards have reached the Enquiry stage or are under preparation.

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

prEN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*

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

**CEN/TS 1456-2:2003 (E)****Introduction**

The System Standard, of which this is Part 2, specifies the requirements for a piping system and its components when 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.

For material, piping components and their fitness for purpose requirements and test methods are specified in EN 1456-1.

This Part of EN 1456 gives guidance for the assessment of conformity of products covered by EN 1456-1. It can be used integrally and/or be used for inclusion of conformity assessment in the manufacturer's quality plan as part of the quality system for attestation purposes. The use of this Technical Specification does not necessarily imply the involvement of a third party.

It can also be used to support the elaboration of national third party certification procedures for products conforming to EN 1456-1. It is the responsibility of the manufacturer to choose or not to choose for the involvement of a third party for certification purposes.

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## 1 Scope

This Technical Specification gives guidance for the assessment of conformity intended to be included in the manufacturer's quality plan as part of the quality management system.

It includes:

- a) requirements for materials, components, joints and assemblies given in EN 1456-1;
- b) requirements for the manufacturer's quality management system;

NOTE 1 It is recommended that the quality management system conforms to EN ISO 9001 [1];

- c) definitions and procedures to be applied if third party certification is involved.

NOTE 2 If third party certification is involved, it is recommended that the certification body is accredited to EN 45011[2] or EN 45012[3], as applicable.

In conjunction with EN 1456-1 it is applicable to PVC-U piping systems intended to be used for the conveyance of sewage and drainage under pressure at approximately 20 °C:

- a) buried in the ground;
- b) sea outfalls;
- c) laid in inland waters and/or in ducts;
- d) suspended below bridges.

This specification is also applicable to PVC-U piping systems for the continuous conveyance of sewage and drainage up to and including 45 °C as required in EN 773 [4].

NOTE 3 In this case the pressure derating factors given in Figure A.1 of EN 1452-2:1999 apply.

NOTE 4 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 Technical Specification 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 Technical Specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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*

EN 1456-1:2001, *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*

## CEN/TS 1456-2:2003 (E)

### 3 Terms, definitions, symbols and abbreviations

For the purposes of this specification, the terms, definitions, symbols and abbreviations given in EN 1456-1:2001 apply together with the following:

#### 3.1 Terms and definitions

##### 3.1.1

###### **certification body**

impartial body, governmental or non-governmental, possessing the necessary competence and responsibility to carry out certification of conformity according to given rules of procedure and management

##### 3.1.2

###### **inspection body**

impartial organization or company, approved by a certification body as possessing the necessary competence to verify and/or to carry out initial type testing, audit testing and inspection of the manufacturer's factory production control in accordance with the relevant European Standard

##### 3.1.3

###### **testing laboratory**

laboratory which measures, tests, calibrates or otherwise determines the characteristics of the performance of materials and products

##### 3.1.4

###### **quality system**

organizational structure, responsibilities, procedures, processes and resources for implementing quality management

##### 3.1.5

###### **quality plan**

document setting out the specific quality practices, resources and sequence of activities relevant to a particular product or range of products

##### 3.1.6

###### **type testing (TT)**

testing performed to prove that the material, component, joint or assembly is capable of conforming to the requirements given in the relevant standard

##### 3.1.6.1

###### **preliminary type testing (PTT)**

type testing carried out by, or on behalf of, the manufacturer

##### 3.1.6.2

###### **initial type testing (ITT)**

type testing carried out by, or on behalf of, a certification body for certification purposes

##### 3.1.7

###### **batch release test (BRT)**

test performed by the manufacturer on a batch of components, which has to be satisfactorily completed before the batch can be released.

##### 3.1.8

###### **process verification test (PVT)**

test performed by the manufacturer on materials, components, joints or assemblies at specific intervals to confirm that the process continues to be capable of producing components conforming to the requirements given in the relevant standard

NOTE Such tests are not required to release batches of components and are carried out as a measure of process control.



**3.1.9****audit test (AT)**

test performed by, or on behalf of, a certification body to confirm that the material, component, joint or assembly continues to conform to the requirements given in the System Standard and to provide information to assess the effectiveness of the quality system

**3.1.10****indirect test (IT)**

test performed by the manufacturer different from that specified for that particular characteristic, having verified its correlation with the specified test

**3.1.11****witness testing (WT)**

testing accepted by a certification body for initial type testing and/or audit testing, which is carried out by, or on behalf of, the manufacturer and supervised by a representative of the certification body, qualified in testing

**3.1.12****material batch or compound batch**

clearly identifiable quantity of a particular material or compound

**3.1.13****production batch**

clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions, using material or compound conforming to the same specification

**3.1.14****lot**

clearly identifiable sub-division of a batch for inspection purposes

**3.1.15****sample**

one or more units of product drawn from a batch or lot, selected at random without regard to quality

NOTE The number of units of product in the sample is the sample size.

**3.1.16****acceptable quality level (AQL)**

when a continuous series of lots or batches is considered: quality level which for the purpose of sampling inspection is the limit of a satisfactory process average (see ISO 2859-1:1989 [5] and ISO 3951:1989 [6])

NOTE The designation of an AQL does not imply that a manufacturer has the right knowingly to supply any non-conforming unit of product.

**3.1.17****inspection level**

relationship between the lot or batch size and the sample size (see ISO 2859-1:1989 [5])

**3.1.18****group**

collection of similar components from which samples are selected for testing purposes

**3.1.19****single component**

single part as a final product or a part of an assembled final product

**3.1.20****assembled component**

assembled final product using two or more single parts

**3.1.21****assembly**

test piece consisting of various components

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## CEN/TS 1456-2:2003 (E)

## 3.1.22

**sampling plan**

specific plan which indicates the number of units of components or assemblies to be inspected

**3.2 Abbreviations**

NOTE 1 For reasons of avoiding misunderstanding the following abbreviations are kept the same in each of the languages. For the same reason the terms are given in the three languages.

NOTE 2 In the French language the abbreviation for "acceptable quality level" (AQL) is NQA, however for the purposes of this Specification for all three languages the same abbreviation (AQL) is used.

AQL eng: acceptable quality level  
fr: niveau de qualité acceptable  
ge: annehmbare Qualitätsgrenzlage

AT eng: audit test  
fr: essai d'audit  
ge: Überwachungsprüfung

BRT eng: batch release test  
fr: essai de libération de campagne de fabrication  
ge: Freigabepfung einer Charge

IT eng: indirect test  
fr: essai indirect  
ge: indirekte Prüfung

ITT eng: initial type testing  
fr: essais de type initiaux  
ge: Erst-Typprüfung

PTT eng: preliminary type testing  
fr: essais de type préliminaires  
ge: vorausgehende Typprüfung

PVT eng: process verification test  
fr: essai de vérification du procédé de fabrication  
ge: Prozeßüberprüfung

TT eng: type test  
fr: essai de type  
ge: Typprüfung

WT eng: witness testing  
fr: essais témoins  
ge: Prüfung unter Aufsicht

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## 4 Requirements

### 4.1 General

4.1.1 Materials, components, joints and assemblies shall conform to the requirements given in EN 1456-1.

4.1.2 Components and/or assemblies shall be produced by the manufacturer under a quality system which includes a quality plan.

### 4.2 Testing and inspection

#### 4.2.1 Grouping

For the purposes of this Technical Specification the following groups shall apply for TT, PTT, ITT, PVT and AT.

##### 4.2.1.1 Pressure group

A pressure group is a group of one or more nominal pressures, PN. Three pressure groups are designated as given in Table 1.

**Table 1 — Pressure groups**

Pressure group	Range of nominal pressures, PN
1	6; 7,5; 8
2	10; 12,5
3	16, 20, 25

##### 4.2.1.2 Size group

A size group is a group of nominal diameters,  $d_n$ . Five size groups are designated as given in Table 2.

**Table 2 — Size groups**

Size group	Range of nominal diameters $d_n$
1	12, 16, 20, 25, 32, 40, 50, 63
2	75, 90, 110, 125, 140, 160, 180
3	200, 225, 250, 280, 315, 355, 400
4	450, 500, 560, 630
5	710, 800, 900, 1000

##### 4.2.1.3 Single component group

A single component group is a group of components having a similar design. Six single component groups are designated as given in Table 3.