



SLOVENSKI STANDARD

SIST ENV 1401-2:2001

01-april-2001

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Plastics piping systems for non-pressure underground drainage and sewerage -
Unplasticized poly(vinyl chloride) (PVC-U) - Part 2: Guidance for assessment of
conformity

ITeH STANDARD PREVIEW

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

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

Ta slovenski standard je istoveten z: ENV 1401-2:2000

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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en

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EUROPEAN PRESTANDARD
 PRÉNORME EUROPÉENNE
 EUROPÄISCHE VORNORM

ENV 1401-2

May 2000

ICS 23.040.01; 93.030

English version

Plastics piping systems for non-pressure underground drainage
 and sewerage - Unplasticized poly(vinyl chloride) (PVC-U) - Part
 2: Guidance for assessment of conformity

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

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

This European Prestandard (ENV) was approved by CEN on 15 November 1999 as a prospective standard for provisional application.

The period of validity of this ENV 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 ENV can be converted into a European Standard.

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

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
 COMITÉ EUROPÉEN DE NORMALISATION
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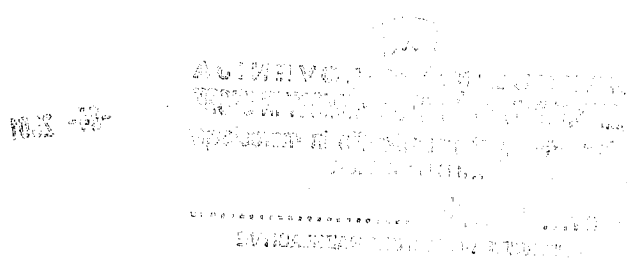
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Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NNI.

This prestandard can be used to support elaboration of national third party certification procedures for products conforming to EN 1401-1.

NOTE This draft was initially published as draft European standard. At a later stage CEN/TC 155 decided that documents covering the assessment of conformity shall become European Prestandards (ENV).

This prestandard 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 1401 consists of the following Parts, under the general title "*Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly(vinyl chloride) (PVC-U)*".

- Part 1: *Specifications for pipes, fittings and the system*
- Part 2: *Guidance for assessment of conformity (this prestandard)*
- Part 3: *Guidance for installation*

This Part of EN 1401 includes the following annex:

- Annex A (informative): Bibliography

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

1 Scope

This Part of EN 1401 gives guidance for the assessment of conformity to be included in the manufacturer's quality plan as part of the quality system.

This standard includes:

- a) requirements for materials, components and assemblies given in EN 1401-1;
- b) requirements for the manufacturer's quality system;

NOTE 1 It is recommended that the quality system conforms to EN ISO 9001 or EN ISO 9002, as applicable.

- c) definitions and procedures to be applied if a 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 or EN 45012, as applicable.

This Part of EN 1401 is applicable to piping systems made of unplasticized poly(vinyl chloride) (PVC-U) in the field of non-pressure underground drainage and sewerage outside the building structure (application area code "U") and for non-pressure underground drainage and sewerage for both buried in ground within the building structure (application area code "D") and outside the building structure. This is reflected in the marking of products by "U" and "UD".

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.

EN 1401-1:1998, *Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: Specifications for pipes, fittings and the system*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection*

ISO 2859-2, *Sampling procedures for inspection by attributes — Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection*

3 Definitions, symbols and abbreviations

For the purposes of this standard the definitions, symbols and abbreviations given in EN 1401-1 apply together with the following.

3.1 Definitions

3.1.1

certification body

An 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**

An 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**

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

**3.1.4
quality system**

The organizational structure, responsibilities, procedures, processes and resources for implementing quality management (see EN ISO 8402:1995).

**3.1.5
quality plan**

A 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)**

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

**3.1.8
process verification test (PVT)**

A test performed by the manufacturer on materials, components, joints or assemblies at specified 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)**

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

**3.1.10
indirect test (IT)**

A 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**

A defined type of polymer or additive or constituent thereof.

3.1.13**compound (blend)**

A recipe which defines types of polymer, additives and constituents at specified dosage levels.

3.1.14**material batch or compound batch**

A clearly identifiable quantity of a particular material or compound.

3.1.15**production batch**

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

3.1.16**lot**

A clearly identifiable sub-division of a batch for inspection purposes.

3.1.17**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.

3.1.18**acceptable quality level (AQL)**

When a continuous series of lots or batches is considered, the quality level which for the purpose of sampling inspection is the limit of a satisfactory process average (see ISO 2859-1 and ISO 3951).

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

3.1.19**inspection level**

The relationship between the lot or batch size and the sample size (see ISO 2859-1).

3.1.20**limiting quality (LQ)**

An index of sampling plans when a lot is considered in isolation (see ISO 2859-2).

3.1.21**group**

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

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 abbreviations for "acceptable quality level" (AQL) is NQA, however for the purpose of this European Standard for all three languages the same abbreviation (AQL) is used.

- AQL E: acceptable quality level
- F: niveau de qualité acceptable
- D: annehmbare Qualitätsgrenzlage

- AT E: audit test
F: essai d'audit
D: Überwachungsprüfung
- BRT E: batch release test
F: essai de libération de campagne de fabrication
D: Freigabeprüfung einer Charge
- IT E: indirect test
F: essai indirect
D: indirekte Prüfung
- ITT E: initial type testing
F: essai de type initial
D: Erst-Typprüfung
- PTT E: preliminary type testing
F: essai de type préliminaire
D: vorausgehende Typprüfung
- PVT E: process verification test
F: essai de vérification du procédé de fabrication
D: Prozessüberprüfung
- TT E: type test
F: essai de type
D: Typprüfung
- WT E: witness testing
F: essai témoin
D: 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 1401-1:1998.

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 Material specification

For the purposes of this standard the material specification consists of a recipe/compound which defines types of PVC and additives and their dosage levels.

The dosage level of ingredients of a material shall not exceed the tolerance bands given in Table 1. If any level exceeds the dosage band or if a type is changed, this variation in formulation constitutes a change in material.

The values of the parts X_i , added to 100 parts by mass of PVC, shall be specified by the manufacturer in his quality plan.

Table 1 — Material specification

Ingredients	Type	Band
PVC resin	-	nominal K value: $\begin{matrix} +3 \\ 0 \end{matrix}$ units
Type of stabilizer or master batch	1) Pb 2) Ca-Zn 3) Sn 4) Ca-Sn .. n) each other type	$X_1: \pm 25\%$
Lubricants	all	$X_2: \pm 50\%$ for $X_2 \leq 0,2$ $X_2: \pm 0,1$ parts for $X_2 > 0,2$
Fillers	1) CaCO_3 2) others	$X_3: \begin{matrix} 0 \\ -6 \end{matrix}$ parts $X_4: \begin{matrix} 0 \\ -50\% \end{matrix}$
Impact modifiers	all	$X_5: \pm 1$ part
Flow agents	all	$X_6: \pm 25\%$ for $X_6 \leq 2$ $X_6: \pm 0,5$ parts for $X_6 > 2$
Pigments		no requirement
Others	To be separately specified by the manufacturer	$X_{7,n}: \pm 12,5\%$
External reprocessable and recyclable material	With an agreed specification ¹⁾	$\leq X_8$ ²⁾
External reprocessable and recyclable material	Not covered by an agreed specification	$\leq X_9$ ³⁾

1) The specification shall be declared by the manufacturer.
2) See limitations in A.2.2.2 of EN 1401-1:1998.
3) See limitations in A.2.3.1 of EN 1401-1:1998.

4.2.2 Grouping

4.2.2.1 Size group

Three size groups, each comprising a group of nominal sizes, shall be designated as follows:

Size group 1: 110, 125, 160, 200;

Size group 2: 250, 315, (355), 400, (450), 500;

Size group 3: 630, (710), 800, (900), 1000.

4.2.2.2 Fitting group

Three fitting groups, each comprising a group of fitting types having a similar design, shall be designated as follows:

Fitting group 1: Bends;

Fitting group 2: Branches;

Fitting group 3: Other fittings.

4.2.3 Type tests (TT)

4.2.3.1 General

Type tests shall demonstrate that the products conform to all requirements for the characteristics given in Tables 2, 3 and 4, as applicable.

In addition relevant type tests shall be carried out whenever there is a change in design, in material and/or in the production method, other than routine in-process adjustments and to extensions of the product range as indicated in the same tables.

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