



SLOVENSKI STANDARD SIST EN 578:1997

01-februar-1997

Cevni sistemi iz polimernih materialov - Polimerne cevi in fitingi - Določanje svetlobne neprosojnosti

Plastics piping systems - Plastics pipes and fittings - Determination of the opacity

Kunststoff-Rohrleitungssysteme - Rohre und Formstücke aus Kunststoffen - Bestimmung der Opazität

Systemes de canalisations en plastiques - Tubes et raccords en plastiques - Détermination de l'opacité

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Ta slovenski standard je istoveten z: **EN 578:1993**

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ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
23.040.45	Fitingi iz polimernih materialov	Plastics fittings

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EUROPEAN STANDARD

EN 578:1993

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1993

UDC 621.643.2-036:621.643.06-036:620.1:535.345

Descriptors: Plastics, pipes, fittings, tests, determination, opacity

English version

Plastics piping systems - Plastics pipes and fittings - Determination of the opacity

Systèmes de canalisations en plastiques - Tubes et raccords en plastiques - Détermination de l'opacité

Kunststoff-Röhrleitungssysteme - Rohre und Formstücke aus Kunststoffen - Bestimmung der Opazität

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-02-1997

This European Standard was approved by CEN on 1993-06-25. 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.

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 Central Secretariat has the same status as the official versions.

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

CEN

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This standard was prepared by CEN/TC 155 "Plastics piping systems and ducting systems".

This standard is based on the international standards ISO 3474:1976 "Unplasticized polyvinyl chloride (PVC) pipes - Specification and measurement of opacity" and on ISO/DIS 7686:1984 "Plastics pipes and fittings - Specification and measurement of opacity", prepared by the International Organisation for Standardisation (ISO). It is a modification for reasons of applicability to other plastics materials.

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 1994, and conflicting national standards shall be withdrawn at the latest by January 1994.

The modifications are:

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- no material is mentioned;
 - test parameters, except for those that are common to all plastics, are omitted;
 - no requirements are given: a general performance requirement is recommended to enable the classification of a pipe or fitting as opaque;
 - editorial changes have been introduced.
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The material-dependent test parameters and/or performance requirements are incorporated in the referring standard(s).

Annex A, which is informative, gives guidance on the light transmission of opaque pipes and fittings.

No existing European Standard is superseded by this standard.

This Standard was approved and in accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.



Plastics piping systems - Plastics pipes and fittings - Determination of the opacity

1 Scope

This standard specifies a method for determining the opacity of plastics pipes and fittings.

2 Principle

The light flux passing through a test piece cut from a pipe or fitting is measured and expressed as a percentage of the incident light flux on the test piece.

3 Apparatus

3.1 **Incandescent lamp**, the intensity of light of which is constant to $\pm 1\%$. Filters shall be provided to limit the spectrum to between 540 nm and 560 nm.

3.2 **Diaphragm and optical lenses**, adjusted to obtain a parallel and symmetrical incident beam. The diaphragm shall be circular.

3.3 **Support**, arranged so that it maintains the surface of the test piece to be examined perpendicular to the optical axis and at a fixed distance from the diaphragm of the cell.

3.4 **Photoelectric cell**, used such that the response of the reading or recording apparatus is a linear and uniform function of the light intensity, from a maximum incident light flux I_0 down to $0,01I_0$ or less.

4 Test piece

The test piece shall comprise a section of a pipe or fitting, the thickness of which shall be the full wall thickness. The zone of the test piece on which the incident light falls, shall be considerably bigger than the optically effective area of the photoelectric cell.

5 Calibration

Check each of the following:

- a) that the reading given by the photoelectric cell is at zero, in the absence of light, and ensure that the photoelectric cell is protected from incident daylight;
- b) that the reading is 100 %, in the light emitted by the luminous source in the absence of the test piece;
- c) the accuracy of the reading using standard lenses that give an absorption percentage of about 0,2 %;
- d) the alignment of the installation.

6 Procedure

6.1 Before placing the test piece in the apparatus, adjust the apparatus to measure the maximum incident light flux received by the photoelectric cell. Record this incident light flux as Φ .

6.2 Place the test piece on the support (see 3.3) so that the test piece intercepts, and is perpendicular to, the incident light flux on the photoelectric cell.

6.3 Measure and record the light flux, Φ_r , which passes through the test piece to the photoelectric cell.

6.4 Calculate the percentage τ , of the light transmitted through the test piece using the following equation:

$$\tau = \frac{\Phi_r}{\Phi} \times 100$$

where:

Φ_r is the light flux which has passed through the test piece;

Φ is the maximum incident light flux on the photoelectric cell.

7 Test report

The test report shall include the following information:

- a) a reference to this standard and to the referring standard;
- b) the identity of the test piece(s);
- c) the percentage of incident light flux transmitted through the test piece;
- d) any factors which may have affected the results, such as any incidents or any operating details not specified in this standard;
- e) the date of test.

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Annex A (informative)**Recommended maximum light transmission
for opaque pipes and fittings**

It is recommended that the maximum acceptable limit for the amount of light which may pass through the wall of the pipe or fitting, if the referring standard specifies that it shall be opaque, be 0,2 % when determined in accordance with this method. This limit is sufficient to suppress the growth of algae within such a pipe or fitting.

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