Plastics piping and ducting systems - Plastics pipes and fittings - Method for exposure to direct (natural) weathering

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 16871:2004 sisaldab Euroopa standardi EN ISO 16871:2003 ingliskeelset teksti. Käesolev dokument on jõustatud 23.11.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 16871:2004 consists of the English text of the European standard EN ISO 16871:2003. This document is endorsed on 23.11.2004 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 International Standard specifies a method for exposing plastics pipes and fittings, individually or assembled, or as pieces therefrom, to natural weathering in order to assess changes.	**Scope:** This International Standard specifies a method for exposing plastics pipes and fittings, individually or assembled, or as pieces therefrom, to natural weathering in order to assess changes.

ICS 23.040.20, 23.040.45

Võtmesõnad:

EUROPEAN STANDARD
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Supersedes EN 1056 : 1996.

English version

Plastics piping and ducting systems

Plastics pipes and fittings

Method for exposure to direct (natural) weathering
(ISO 16871 : 2003)

Systèmes de canalisations et de gaines en matières plastiques – Tubes et raccords en matières plastiques – Méthode pour l'exposition directe aux intempéries (ISO 16871 : 2003)

Kunststoff-Rohrleitungs- und Schutzrohrsysteme – Rohre und Formstücke aus Kunststoffen – Verfahren für die Bewitterung im Freien (ISO 16871 : 2003)

This European Standard was approved by CEN on 2003-05-05.

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.

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

CEN

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

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Ref. No. EN ISO 16871 : 2003 E

Foreword

International Standard

ISO 16871 : 2003 Plastics piping and ducting systems – Plastics pipes and fittings – Method for exposure to direct (natural) weathering,

which was prepared by ISO/TC 138 'Plastics pipes, fittings and valves for the transport of fluids' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 155 'Plastics piping systems and ducting systems', the Secretariat of which is held by NEN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by November 2003 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

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

Endorsement notice

The text of the International Standard ISO 16871 : 2003 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

Contents

Page

Introduction

Outdoor exposure tests of the type specified in this International Standard are needed to evaluate the performance of plastics piping components or materials when exposed to direct sunlight. The results of such tests should be regarded only as an indication of the effect of exposure to direct weathering by the method described. Results obtained after exposure for a given time may not be comparable to those obtained after other exposures of equal time using the same method. When identical materials are exposed at different times for extended periods of several years, they generally show comparable behaviour after equal exposure intervals. However, even in long-term tests, the results may be affected by the season in which the tests are started.

The results of short-term direct-weathering tests can give an indication of the relative outdoor performance, but should not be used to predict the absolute long-term performance of a pipe, fitting or joint. Even results of tests carried out for longer than 24 months can show an effect of the season in which the exposure started. Comparisons of non-full-year exposures will exhibit seasonable effects.

The test method chosen is usually designed to expose the material to the most severe conditions associated with any particular climate. It should, therefore, be borne in mind that the severity of exposure in actual use is, in most cases, likely to be less than that specified in this International Standard, and allowance should be made accordingly when interpreting the results. For example, vertical exposure at 90° from the horizontal is considerably less severe in its effects on plastics than near-horizontal exposure, particularly in tropical regions, where the sun is most powerful at high zenith angles.

Surfaces facing away from the equator are much less likely to be degraded than equator-facing surfaces because they are less exposed to solar radiation. However, the fact that they may remain wet for longer periods may be of significance for materials affected by moisture.

1 Scope

This International Standard specifies a method for exposing plastics pipes and fittings, individually or assembled, or as pieces therefrom, to natural weathering in order to assess changes.

NOTE 1 The exposure is considered appropriate for evaluating components subject to yard storage prior to installation and use without further exposure to direct weathering, and is quantified to promote rationalization of exposure doses and comparability of data.

NOTE 2 For exposures appropriate to tropical or equatorial conditions, attention is drawn to ISO 877.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 877:1994, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors*

ISO 2818, *Plastics — Preparation of test specimens by machining*

ISO 4582, *Plastics — Determination of changes in colour and variations in properties after exposure to daylight under glass, natural weathering or laboratory light sources*

3 Principle

Test pieces, comprising all or part of a pipe section, a fitting or a jointed assembly, are mounted on a rack under specified conditions and directly exposed to natural weathering until a given minimum total solar radiant exposure per unit area has been received.

Climatic conditions and incident radiation are monitored and reported during the exposure period in accordance with this International Standard or the referenced standards.

If necessary (see Note 1), additional, comparable, test pieces are tested to establish initial values for one or more properties and/or are stored under protected conditions before testing to enable comparison of the property or properties with and without weathering.

NOTE 1 Additional test pieces are unnecessary if the data required can be obtained only from exposed test pieces, e.g. by comparison of quantitative colour measurements before, during and/or after exposure or colour comparisons between masked and unmasked zones on the test piece.