SLOVENSKI STANDARD
SIST EN 14680:2016

01-januar-2016

Nadomešča:
SIST EN 14680:2007

Lepila za netlačne plastomerne cevne sisteme - Specifikacije

Adhesives for non-pressure thermoplastic piping systems - Specifications

Klebstoffe für drucklose thermoplastische Rohrleitungssysteme - Festlegungen

Adhésifs pour systèmes de canalisations thermoplastiques sans pression - Spécifications

Ta slovenski standard je istoveten z: EN 14680:2015

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
83.180	Lepila	Adhesives

SIST EN 14680:2016 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14680

October 2015

ICS 83.180

Supersedes EN 14680:2006

English Version

Adhesives for non-pressure thermoplastics piping systems - Specifications

Adhésifs pour systèmes de canalisations thermoplastiques sans pression - Spécifications

Klebstoffe für drucklose thermoplastische Rohrleitungssysteme - Festlegungen

This European Standard was approved by CEN on 15 August 2015.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 14680:2015 E

Contents Page

European foreword

This document (EN 14680:2015) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by April 2016, and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14680:2006.

With respect to the previous version, no technical changes have been introduced in this standard, being the only modifications those relevant for its adaptation to the Construction Products Regulation EU nº305/2011.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of basic work requirements of Regulation (EU) 305/2011.

For relationship with Regulation (EU) 305/2011, see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard contains the requirements for adhesives for non-pressure thermoplastic piping systems independent of piping system application. The existing system and application standards which specify parameters for adhesive joints in particular application areas and the test methods specified therein remain unchanged. The requirements referred to in these system standards concern temperature, pressure and standard life span of the piping system, and are applicable to all the components of the piping system for all the relevant dimensions that require specified application.

1 Scope

This European Standard specifies the requirements and test methods for adhesives used for joining the components of unplasticised poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride)(PVC-C), acrylonitrile -butadiene-styrene (ABS) and styrene copolymer blends (PVC+SAN) thermoplastic piping systems for non-pressure applications (e.g. soil and waste discharge), independent of the application area.

2 Normative references

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

EN 923:2005+A1:2008, *Adhesives — Terms and definitions*

EN 1055, *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: Specifications for pipes, fittings and the system*

EN 1401-1, *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*

EN 1453-1, *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*

EN 1455-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Acrylonitrile-butadiene-styrene (ABS) — Part 1: Requirements for pipes, fittings and the system*

EN 1565-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Styrene copolymer blends (SAN+PVC) — Part 1: Specifications for pipes, fittings and the system*

EN 1566-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Chlorinated poly(vinyl chloride) (PVC-C) — Part 1: Specifications for pipes, fittings and the system*

EN 13476-2, *Plastics piping systems for non-pressure underground drainage and sewerage — Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — Part 2: Specifications for pipes and fittings with smooth internal and external surface and the system, Type A*

EN 13476-3, *Plastics piping systems for non-pressure underground drainage and sewerage — Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — Part 3: Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B*

EN ISO 9311-2, *Adhesives for thermoplastic piping systems — Part 2: Determination of shear strength (ISO 9311-2)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2005+A1:2008 and the following apply.

3.1
diametral clearance
difference between the mean inside diameter (d_{sm}) of the socket and the mean outside diameter (d_{em}) of the pipe

3.2
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

3.3
Type Test
TT
tests performed to prove that the material, component, joint or assembly is capable of conforming with the relevant requirements given in the System Standard

4 Product characteristics

4.1 General considerations

The manufacturer of the adhesive shall specify for which non-pressure system the adhesive is intended by reference to the appropriate standard as listed in Table 1.

Table 1 — Intended use standard list

PVC-U	EN 1401–1, EN 1453–1, EN 1329–1, EN 13476–2, EN 13476–3
PVC-C	EN 1566–1
ABS	EN 1455–1
PVC+ABS	EN 1565–1

When not otherwise mentioned, the test pieces shall fulfil the following requirements set in Tables 2 and 3:

Table 2 — Test pieces diametral clearance

PVC-U	$\left(0{,}6\,^{0}_{-0{,}1}\right)$ mm
PVC-C	$\left(0{,}6\,^{0}_{-0{,}1}\right)$ mm
ABS	$\left(0{,}6\,^{0}_{-0{,}1}\right)$ mm
SAN+PVC	$\left(0{,}6\,^{0}_{-0{,}1}\right)$ mm

Table 3 — Test pieces setting time

	Setting time	Setting conditions
PVC-U	1 h 24 h 480 h	At (23 ± 2) °C and (50 ± 5) % relative humidity
PVC-C	1 h 24 h 480 h	At (23 ± 2) °C and (50 ± 5) % relative humidity
ABS	1 h 24 h 480 h	At (23 ± 2) °C and (50 ± 5) % relative humidity
SAN+PVC	1 h 24 h 480 h	At (23 ± 2) °C and (50 ± 5) % relative humidity

The setting time shall be measured from the start of the application of the adhesive.

4.2 Resistance to pull out

The resistance to pull out is assessed by the measurement of the shear strength.

The resistance to pull out obtained by using adhesives for non-pressure thermoplastic piping systems shall comply with the requirements of 5.1 using pipe and fitting compatible with the claims of the adhesive suitability.

The adhesive joints on the test pieces shall be prepared according to the instructions recommended by the adhesive manufacturer.

4.3 Tightness

The tightness is assessed by the resistance to elevated temperature cycling.

The adhesive joints shall be prepared according to the instructions recommended by the adhesive manufacturer. The setting time of the adhesive joints shall be at least 24 h at (23 ± 2) °C and (50 ± 5) % relative humidity.

The adhesive joints shall be tested against water leakage in accordance with 5.2.

4.4 Resistance for high temperature

The resistance for high temperature is assessed by the resistance to elevated temperature cycling.

The adhesive joints shall be prepared according to the instructions recommended by the adhesive manufacturer. The setting time of the adhesive joints shall be at least 24 h at (23 ± 2) °C and (50 ± 5) % relative humidity.

The adhesive joints shall be tested against water leakage in accordance with 5.2.

4.5 Shelf life

Adhesive producers shall indicate the minimum shelf life of the adhesive when it is stored in unopened containers.

Shelf life of adhesives have to be assessed with the requirements of 5.3.

4.6 Release of dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through: http://ec.europa.eu/growth/tools-databases/cp-ds/index_en.htm.

4.7 Durability

The durability of tightness and resistance to high temperature of the adhesive joints shall comply with the requirements of 5.5.

5 Testing, assessment and sampling methods

5.1 Resistance to pull out

The adhesive shall be tested in accordance with EN ISO 9311-2 using pipe and fitting compatible with the claims of the adhesive suitability. The sampling procedure is to be defined by the manufacturer and the number of samples is one. The mean of the test results shall meet the requirements of Table 4.

Table 4 — Requirements for the shear strength

Test temperature (°C)	Setting time (hours)	PVC-U adhesives MPa (N/mm²)	PVC-C adhesives MPa (N/mm²)	ABS adhesives (SAN+PVC) adhesives MPa (N/mm²)
23 ± 2	1	≥ 0,25	≥ 0,25	≥ 0,10
23 ± 2	24	≥ 1,5	≥ 1,5	≥ 1,5
23 ± 2	480	≥ 3,0	≥ 3,0	≥ 3,0

5.2 Tightness and resistance for high temperature

The adhesive shall be tested in accordance with EN 1055 application "B" using pipe and fitting compatible with the claims of the adhesive suitability. The sampling procedure is to be defined by the manufacturer and the number of samples is one.

The test assembly, application "B", described in EN 1055, shall contain a minimum of six adhesive joints:

— minimum two adhesive joints in pipe of 40 mm or 50 mm diameter, horizontal stack;

— minimum two adhesive joints in pipe of 75 mm ≤ d ≤ 160 mm diameter, vertical stack;

— minimum two adhesive joints in pipe of 75 mm ≤ d ≤ 160 mm diameter, horizontal stack.

When tested in accordance with this method, each adhesive joint shall show no signs of leakage.

5.3 Shelf life

The producer shall recheck the film properties (see Annex A) and the shear strength (setting time 24 h) of the adhesive after the recommended shelf life (minimum 12 months). The adhesive, stored in