



SLOVENSKI STANDARD
SIST EN 14680:2007

01-april-2007

Adhezivni sistemi za nenačrtno toplotno plastične cevi - Specifikacije

Adhesives for non-pressure thermoplastic piping systems - Specifications

Klebstoffe für drucklose thermoplastische Rohrleitungssysteme - Festlegungen

Adhésifs pour systèmes de canalisations thermoplastiques sans pression -
Spécifications

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Ta slovenski standard je istoveten z: **EN 14680:2006**

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ICS 83.180

English Version

Adhesives for non-pressure thermoplastic 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 4 September 2006.

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.

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 Central Secretariat has the same status as the official versions.

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

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Foreword

This document (EN 14680:2006) 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of an identical text or by endorsement, at the latest by April 2007, and conflicting national standards shall be withdrawn at the latest by July 2008.

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 EU Directive(s).

For relationship with EU Directive(s), 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

This product 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.

This product standard completes the characterisation of the adhesives for thermoplastic piping systems in conjunction with another product standard prEN 14814 "Adhesives for thermoplastic piping systems for fluids under pressure - Specifications". These product standards are supported by standard test methods to which references are made through the texts.

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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 fluids under zero pressure (e.g. soil and waste discharge), independent of the application area.

It provides reference for the evaluation of conformity of the adhesive to this EN.

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.

EN 923:2005, *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 (all parts), *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure -Unplasticized poly(vinyl chloride) (PVC-U)*

EN 1455 (all parts), *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Acrylonitrile-butadiene-styrene (ABS)*

EN 1565 (all parts), *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Styrene copolymer blends (SAN+PVC)*

EN 1566 (all parts), *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Chlorinated poly(vinyl chloride) (PVC-C)*

EN 13566-1:2002, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks - Part 1: General*

EN 45020:1998, *Standardization and related activities - General vocabulary (ISO/IEC Guide 2:1996)*

EN ISO 9001:2000, *Quality management systems - Requirements (ISO 9001:2000)*

prEN ISO 9229:2004, *Thermal insulation - Definitions of terms (ISO/DIS 9229:2004)*

EN ISO 9311-1, *Adhesives for thermoplastic piping systems - Part 1: Determination of film properties (ISO 9311-1:2005)*

EN ISO 9311-2, *Adhesives for thermoplastic piping systems – Part 2: Determination of shear strength (ISO 9311-2:2002)*

CEN ISO/TS 15874-7:2003, *Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 7: Guidance for the assessment of conformity (ISO/TS 15874-7:2003)*

3 Terms and definitions

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

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

3.2 definitions related to assessment of conformity

NOTE This clause applies for assessment of conformity if third party certification is involved

3.2.1 conformity assessment [EN 45020:1998]
any activity concerned with determining directly or indirectly that relevant requirements are fulfilled

3.2.2 Batch Release Test (BRT) [EN 13566-1:2002]
test performed by the manufacturer on a batch of components, which has to be satisfactorily completed before the batch can be released

3.2.3 Type Test (TT) [CEN ISO/TS 15874-7:2003]
tests performed to prove that the material, component, joint or assembly is capable of conforming with the relevant requirements given in the System Standard

3.2.4 Initial Type Test (ITT) [prEN ISO 9229:2004]
one or more tests performed on a product prior to commencing normal production to prove that the product is capable of conforming to the relevant requirements of this standard

4 Requirements

4.1 General considerations

4.1.1 The manufacturer of the adhesive shall specify for which non-pressure system (EN 1329 (PVC-U), EN 1455 (ABS), EN 1566 (PVC-C), EN 1565 (SAN+PVC)) the adhesive is intended.

4.1.2 When not otherwise mentioned, the test pieces shall fulfil the following requirements set in Tables 1 and 2:

Table 1 — Test pieces diametral clearance

PVC-U	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$ mm
PVC-C	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$ mm
ABS	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$ mm
SAN+PVC	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$ mm

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Table 2 — Test pieces setting time

	Setting time <small>SIST EN 14680:2007</small>	Setting conditions
PVC-U	1 h 1 day 20 days	At $(23 \pm 2)^{\circ}\text{C}$ and $(50 \pm 5) \%$ relative humidity
PVC-C	1 h 1 day 20 days	At $(23 \pm 2)^{\circ}\text{C}$ and $(50 \pm 5) \%$ relative humidity
ABS	1 h 1 day 20 days	At $(23 \pm 2)^{\circ}\text{C}$ and $(50 \pm 5) \%$ relative humidity
SAN + PVC	1 h 1 day 20 days	At $(23 \pm 2) ^{\circ}\text{C}$ and $(50 \pm 5) \%$ relative humidity

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

4.2 Shear strength

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 mean of the test results shall meet the requirements of Table 3.

Table 3 — Requirements for the shear strength

Test temperature (°C)	Setting time (hours)	PVC-U adhesives MPa (N/mm ²)	PVC-C adhesives MPa (N/mm ²)	ABS adhesives (SAN+PVC) adhesives MPa (N/mm ²)
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

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4.3 Resistance to elevated temperature cycling

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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 shall be tested in accordance with EN 1055 application "B" using pipe and fitting compatible with the claims of the adhesive suitability.

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.

4.4 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 unopened containers in accordance with the manufacturer's instructions for the specified shelf life shall still meet the requirements of Table 3.

5 Evaluation of conformity

5.1 General

The conformity of the adhesives for non-pressure thermoplastic piping systems to the requirements of this standard and with the stated values shall be demonstrated by:

- initial type testing
- factory production control by the manufacturer, including product assessment
- batch release test

5.2 Initial type testing

5.2.1 General

Initial type testing shall be performed at the beginning of the production of a new adhesive for thermoplastic piping systems or at the beginning of a new method of production or raw material supplier (where this may affect the stated properties).

Historical data may be used insofar as tests previously performed on the same adhesive in accordance with the provisions of this standard (same characteristic(s), test method, sampling procedure, system of attestation of conformity, etc.) may be taken into account.

5.2.2 Characteristics

All characteristics in Table 4 shall be subject to initial type testing

Table 4 — Characteristics to be assessed in initial and surveillance testing

Characteristic	Test method	Requirements
Shear strength at 480 h setting time	EN ISO 9311-2	4.2
Shear strength at 24 h setting time	EN ISO 9311-2	4.2
Shear strength at 1 h setting time	EN ISO 9311-2	4.2
Resistance to elevated temperature cycling	EN 1055	4.3
Shelf life	EN ISO 9311-1 EN ISO 9311-2	4.4

The results of all initial type tests shall be recorded and held by the manufacturer for at least ten years after the product for which the ITT is representative ceases production (see 5.2.1).

5.2.3 Sampling, testing and conformity criteria

5.2.3.1 Sampling

Initial type testing shall be performed on samples of adhesives for thermoplastic piping systems representative for the manufactured adhesive type.