



SLOVENSKI STANDARD
SIST EN 14814:2007

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Adhezivni materiali za toplotno plastične sisteme za tekočine pod pritiskom - Specifikacije

Adhesives for thermoplastic piping systems for fluids under pressure - Specifications

Klebstoffe für Druckrohrleitungssysteme aus thermoplastischen Kunststoffen für Fluide - Festlegungen

Adhésifs pour systèmes de canalisations thermoplastiques pour liquides sous pression - Spécifications

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Ta slovenski standard je istoveten z: **EN 14814:2007**

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ICS:

83.180

Lepila

Adhesives

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ICS 83.180

English Version

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pour liquides sous pression - Spécifications

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thermoplastischen Kunststoffen für Fluide - Festlegungen

This European Standard was approved by CEN on 29 December 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 CEN 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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 14814:2007) 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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by November 2008.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, Bulgaria, 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 thermoplastic piping systems under pressure 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 are required in the specified application.

This product standard completes the characterisation of the adhesives for thermoplastic piping systems in conjunction with another product standard EN 14680 "Adhesives for non-pressure thermoplastic piping systems - Specifications". These product standards are supported by standard test methods to which references are made through the texts.

Safety Statement

Persons using this document should be familiar with the normal laboratory practice, if applicable. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

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1 Scope

This European Standard specifies the functional 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) thermoplastic piping systems for fluids under pressure.

It provides for the evaluation of conformity of the adhesive for 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 1452 *Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U)*

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

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)*

EN ISO 9311-3, *Adhesives for thermoplastic piping systems - Part 3: Test method for the determination of resistance to internal pressure (ISO 9311-3:2005)*

EN ISO 15493, *Plastics piping systems for industrial applications - Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) - Specifications for components and the system - Metric series (ISO 15493:2003)*

EN ISO 15877, *Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C)*

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

diametric 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

3.2.1

conformity assessment

any activity concerned with determining directly or indirectly that relevant requirements are fulfilled

[EN 45020:2006]

3.2.2

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

[EN 13566-1:2002]

3.2.3

Initial Type Test (ITT)

complete set of test or other procedures, determining the performance of samples of products representative of the product type

3.2.4

Type Test (TT)

test performed to prove that the material, component, joint or assembly is capable of conforming with the relevant requirements given in the System Standard

[CEN ISO/TS 15874-7:2003]

4 Requirements

4.1 General consideration

The manufacturer of the adhesive shall specify for which pressure system the adhesive is intended to be used, e.g. PVC-U for water supply (see EN 1452 series), ABS, PVC-U or PVC-C for industrial applications (see EN ISO 15493) or PVC-C for hot and cold water installations (see EN ISO 15877).

Unless otherwise specified in this clause, the test pieces shall fulfil the following requirements set in Tables 1 and 2:

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Table 1 — Diametric clearance

Material	Diametric clearance mm
ABS	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$
PVC-C	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$
PVC-U	$\begin{pmatrix} 0 \\ 0,6 \\ -0,1 \end{pmatrix}$

NOTE The value and tolerances proposed for PVC-C systems are not based on a wide experience. The proposed value, *0.6 mm*, seem to be the most adequate at the moment, but it will be followed closely throughout the implementation of this standard. Changes will be introduced, if necessary, in the future revision of this standard.

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Table 2 — Setting time

Material	Relative Humidity %	Setting time	Setting temperature °C
ABS	(50 ± 5)	1 h 24 h 480 h + 96 h	(23 ± 2) (23 ± 2) (23 ± 2) + (40 ± 2)
PVC-C	(50 ± 5)	1 h 24 h 480 h + 96 h	(23 ± 2) (23 ± 2) (23 ± 2) + (80 ± 2)
PVC-U	(50 ± 5)	1 h 24 h 480 h + 96 h	(23 ± 2) (23 ± 2) (23 ± 2) + (60 ± 2)

Setting time shall be measured from the beginning 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 — Shear strength

Material	Test temperature °C	Setting time	Requirements for shear strength MPa
ABS	(23 ± 2)	1 h 24 h 480 h + 96 h	0,1 1,5 5,0
PVC-C	(23 ± 2)	1 h 24 h 480 h + 96 h	0,4 1,5 10,0
PVC-U	(23 ± 2)	1 h 24 h 480 h + 96 h	0,4 1,5 7,0

NOTE The value and tolerances proposed for PVC-C systems are not based on a wide experience. The proposed values seem to be the most adequate at the moment, but they will be followed closely throughout the implementation of this standard. Changes will be introduced, if necessary, in the future revision of this standard.

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4.3 Pressure resistance <https://standards.iteh.ai/catalog/standards/sist/13382977-906c-4635-955a-928b9ea04e67/sist-en-14814-2007>

The adhesive shall be tested in accordance with EN ISO 9311-3 using pipe and fitting compatible with the claims of the adhesive suitability. The test results shall meet the requirements of Table 4.

Table 4 — Pressure resistance

Material	Setting time	Conditioning period (h)	Pressure conditions (Temperature °C)	Requirements for pressure resistance, h
ABS	480 h + 96 h	≥ 1	2,4 x PN ^c (20 ± 2)	≥ 1 000 h no leakage
PVC-C ^a	480 h + 96 h	≥ 1	0,5 x PN (80 ± 2)	≥ 1 000 h no leakage
PVC-U in cold water applications	480 h + 96 h	≥ 1	3,2 x PN (20 ± 2)	≥ 1 000 h no leakage
			1,3 x PN (40 ± 2)	≥ 1 000 h no leakage
PVC-U in industrial applications	480 h + 96 h	≥ 1	3,2 x PN (20 ± 2)	≥ 1 000 h no leakage
			1,0 x PN ^b (60 ± 2)	≥ 1 000 h no leakage

^a The value and tolerances proposed for PVC-C systems are not based on a wide experience. The proposed values seem to be the most adequate at the moment, but they will be followed closely throughout the implementation of this standard. Changes will be introduced, if necessary, in the future revision of this standard.

^b To prevent deformation of the fitting during 60 °C test at PVC-U it is recommended to use a fitting with greater wall thickness (e.g. use PN 16 fitting when tested for 10 PN) or to support the fitting.

^c PN – Nominal pressure (MPa).

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When the adhesive is specified for a piping system with conical fittings, these fittings shall be used for testing the internal pressure resistance. The inside diameter of the sockets shall be in accordance with the relevant standards.

4.4 Shelf life

The adhesive, stored in unopened containers in accordance with the manufacturer's instructions for the specified shelf life shall still meet the requirements in Table 3 at a setting time of 1 day and conform to the manufacturers specifications for application properties.

5 Evaluation of conformity

5.1 General

The conformity of the adhesives for 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.