

SLOVENSKI STANDARD
SIST EN 17176-2:2019/oprA1:2022
01-januar-2022

Cevni sistemi iz polimernih materialov za oskrbo z vodo in za podzemne in nadzemne sisteme odvodnjavanja, kanalizacije ter namakanja pod tlakom - Orientiran nemehčan polivinilklorid (PVC-O) - 2. del: Cevi - Dopolnilo A1

Plastics piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure - Oriented unplasticized poly(vinyl chloride) (PVC-O) - Part 2: Pipes

Kunststoff-Rohrleitungssysteme für die Wasserversorgung und für erdverlegte und nicht erdverlegte Entwässerungs-, Abwasser- und Bewässerungsdruckleitungen - Orientiertes weichmacherfreies Polyvinylchlorid (PVC-O) - Teil 2: Rohre - Änderung 1

Systèmes de canalisations en plastique pour l'alimentation en eau, les branchements et collecteurs d'assainissement et les systèmes d'irrigation sous pression, enterrés ou aériens - Poly(chlorure de vinyle) non plastifié orienté (PVC-O) - Partie 2 : Tubes

Ta slovenski standard je istoveten z: EN 17176-2:2019/prA1

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
91.140.80	Drenažni sistemi	Drainage systems
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
EN 17176-2:2019
prA1

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ICS 23.040.20

English Version

**Plastics piping systems for water supply and for buried
and above ground drainage, sewerage and irrigation under
pressure - Oriented unplasticized poly(vinyl chloride)
(PVC-O) - Part 2: Pipes**

Systèmes de canalisations en plastique pour
l'alimentation en eau, les branchements et collecteurs
d'assainissement et les systèmes d'irrigation sous
pression, enterrés ou aériens - Poly(chlorure de vinyle)
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Kunststoff-Rohrleitungssysteme für die
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Bewässerungsdruckleitungen - Orientiertes
weichmacherfreies Polyvinylchlorid (PVC-O) - Teil 2:
Rohre - Änderung 1

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

This draft amendment A1, if approved, will modify the European Standard EN 17176-2:2019. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 17176-2:2019/prA1:2021) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

The main amendments to EN 17176-2:2019 are as follows:

- Correct MRS classification;
- Amend text nominal length (7.2) and tolerance Table 2;
- Revision Annex A Addition alternative interpretation reference lines (A.2.2 and A.2.3);
- Including clause test method in Annex E;
- Mistakes corrected in Table E and Annex E.

The amendment of EN 17176-2 is proposed to add clause E.5 Test report in Annex E, to avoid miss interpretation and confusion in the market regarding reporting and use of the test results. Also mistakes regarding MRS classification and ambiguities at different places, including Annex A, in the document and mistakes identified in Table 8 and Annex E are amended. Table 2 Tolerance on length is also amended to align with current practise.

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EN 17176-2:2019/prA1:2021 (E)

1 Modifications to 5.4, "Orientation factor"

In Table 1, first row, replace MRS values "315 /355 /400 / 450 / 500" with "31,5 /35,5 /40,0 / 45,0 / 50,0" as follows:

"Table1 — Minimum orientation factor

Minimum required strength (MRS)-MPa	31,5	35,5	40,0	45,0	50,0
Axial	1,0				
Circumferential	1,5	1,6	1,7	1,8	1,9

2 Modifications to 7.2, "Length of pipes"

Replace the current text in 7.2 with the following:

"The nominal pipe length, l, shall be a minimum length which does not include the depth of the socketed portions, as shown in Figure 1.

It is recommended to supply pipes in one or more of the following lengths: 3 m, 5 m, 6 m, 10 m or 12 m.

NOTE Other lengths are subject to agreement between the manufacturer and the purchaser.

The tolerance on the nominal pipe length is specified in Table 2.

Table 2 — Tolerance on nominal pipe length

Nominal pipe length	Tolerance on length
≥ Manufacturer declared value	+0,05 m

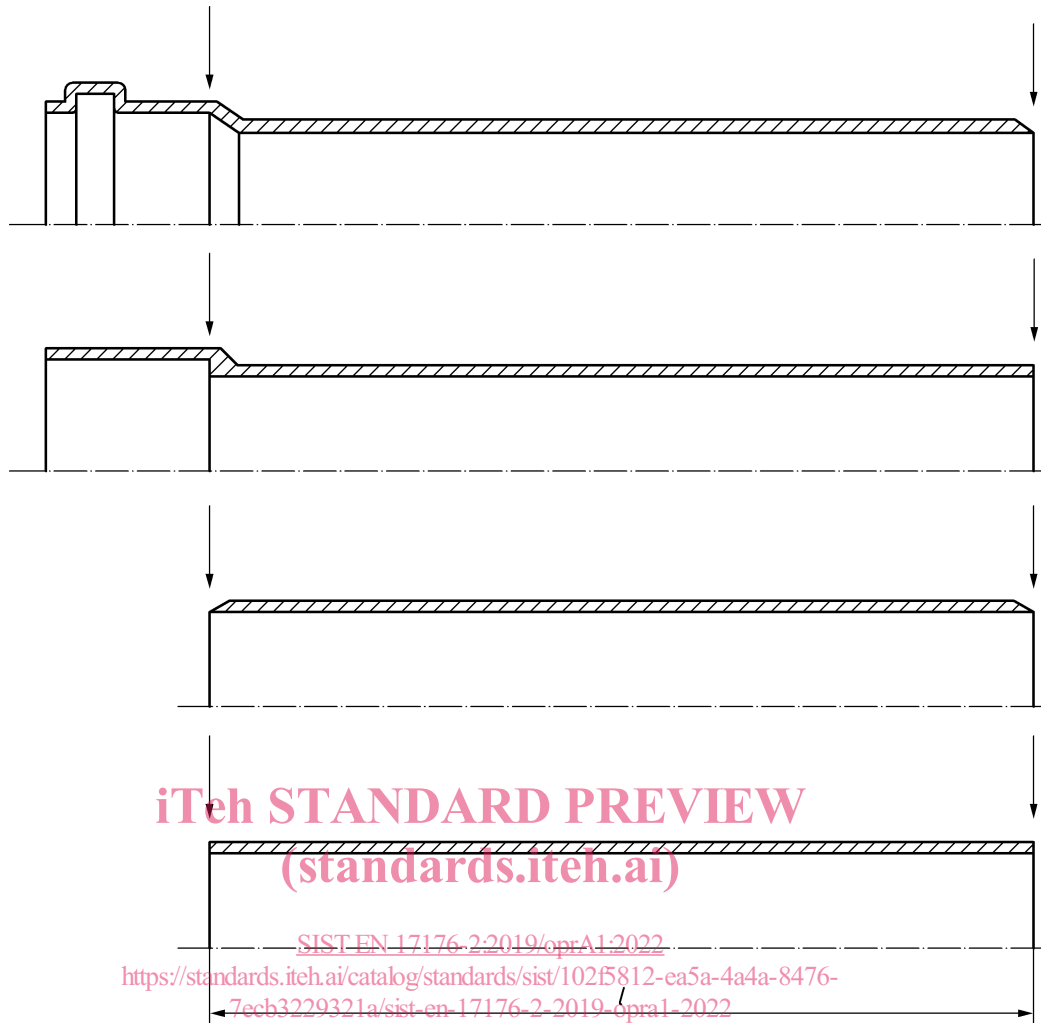


Figure 1 — Points of measurement for nominal pipe lengths".

3 Modifications to 7.4, "Pipes with integral sockets with elastomeric sealing ring type"

In the first paragraph, replace citation to "Figure 1" with "Figure 2".

In the title of Figure 1, replace "Figure 1 - Socket and spigot end for pipes with elastomeric sealing" with "Figure 2 - Socket and spigot end for pipes with elastomeric sealing".

EN 17176-2:2019/prA1:2021 (E)

4 Modifications to 9.1.1, "General"

In Table 5, replace headings "MRS315 /MRS355 /MRS400 / MRS450 / MRS500" with "MRS31,5 /MRS35,5 /MRS40,0 / MRS45,0 / MRS50,0" to read as follows:

"Table 5 — Test conditions

Characteristic	Requirement	Test parameters								Test method	
		Temperature °C	Hoop stress MPa ^b					Time h	Type of test		Number of test pieces
			MRS31,5	MRS35,5	MRS40,0	MRS45,0	MRS50,0				
Short and long-term strength	No failure during the test	20	41	46	52	60	65	10	Water in water	1 ^a	EN ISO 1167-1 and EN ISO 1167-2
		20	36	42	46	53	58	1 000			
		60	20	22	25	28	31	1 000			

^a The number of test pieces required for factory production control and process control should be listed in the manufacturer's quality plan.

^b For calculation of test pressure of pipes minimum measured wall thickness shall be used. In case of integral sockets e_n shall be used for calculation.

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5 Modifications to Clause 10, "Physical characteristics"

In Table 8, in the first column, add a footnote symbol "a" after "Resistance to dichloromethane at a specific temperature" as follows:

"Table 8 — Physical characteristics

Characteristic	Requirements	Test parameters		Test method
Vicat softening temperature (VST) ^a	≥ 80 °C	Shall conform to EN ISO 2507-1		EN ISO 2507-1
Resistance to dichloro-methane at a specific temperature ^{a b}	No attack ^c	Temperature of bath	(15 ± 1) °C	EN ISO 9852
		Immersion time	15 min	
Uniaxial tensile strength ^b	≥48 MPa	speed	(5 ± 1) mm/min	EN ISO 6259-1 and EN ISO 6259-2
		temperature	(23 ± 2) °C	
DSC ^b	B-onset temperature ≥ 185 °C ^d	Shall conform to ISO 18373-1	Number of test pieces: 4	ISO 18373-1

^a To be carried out on feedstock pipe or on reverted pipe.

^b One test method shall be chosen by the producer for factory production control, taking in account National regulation or internal health and safety policy. In case of dispute, the DSC method shall be used.

^c Isolated spots less than 2 mm shall not be considered as an attack.

^d For CaZn and organic based stabilized formulations, the B-onset temperature shall be ≥ 180 °C.

6 Modification to 13.2, "Minimum required marking"

In Table 9, in the 2nd column, replace MRS class "450" with "45,0" as follows:

"Table 9 — Minimum required marking on pipes

Aspects	Mark or symbol
– Number of this European Standard	EN 17176
– Manufacturer's name and/or trademark	xyz
– Material	PVC-O
– MRS class and design coefficient	e.g. 45,0 C = 1,6
– Nominal outside diameter d_n × nominal wall thickness e_n	e.g. 110 × 6,6
– Nominal pressure PN	e.g. PN 16
– Manufacturer's information ^a	e.g. mm yyyy

^a To provide traceability, the following details shall be given:
 — the production period, the year and month, in figures or in code;
 — a name or code for the production site, if the manufacturer is producing in different sites, nationally and/or internationally;
 — identification of the extrusion line, if relevant.

7 Modification to Annex A (normative), "Establishment of the pipe material classification"

Replace the current Annex A with the following:

"

Annex A (normative)

Establishment of the pipe material classification

A.1 General

The minimum required strength of the pipe materials for the purpose of this document shall be evaluated according to the procedures of EN ISO 9080.

NOTE The establishment of the PVC-O pipe material classification is limited to PVC-O pipes with the same orientation factor.

A.2 Determination of PVC-O pipe material classification

A.2.1 Procedure

Pipe material shall be designated by the material type (PVC-O) in pipe form and the level of the minimum required strength (MRS) in accordance with Table 1.

The pipe material shall have an MRS equal to the values as specified in Table 1. The MRS value for classification shall be derived from σ_{LPL} in accordance with EN ISO 12162. The σ_{LPL} at 20°C, 50 years is determined by analysis in accordance with EN ISO 9080, of hydrostatic pressure tests carried out in accordance with EN ISO 1167-1 and EN ISO 1167-2 and using end caps type A or B, tested with water in water at the temperatures 20°C and 60°C.

Alternatively, the conformance to the PVC-O reference lines can be demonstrated by plotting the EN ISO 9080 data points of 20 °C and 60°C on the graph. At least 97,5 % of them shall lie on or above the reference lines.

The reference lines for PVC-O pipe materials in the temperature range of 20 °C to 60 °C for PVC-O 315, PVC-O 355, PVC-O 400, PVC-O 450 and PVC-O 500 are derived from the following equations:

For PVC-O 315:

$$\log t = -86,914 + \frac{44942,044}{T} + 9,173 \cdot \log \sigma - \frac{14575,356 \cdot \log \sigma}{T}$$

For PVC-O 355:

$$\log t = -98,404 + \frac{49246,158}{T} + 14,322 \cdot \log \sigma - \frac{16290,412 \cdot \log \sigma}{T}$$

For PVC-O 400:

$$\log t = -91,994 + \frac{47752,530}{T} + 10,513 \cdot \log \sigma - \frac{15023,175 \cdot \log \sigma}{T}$$