

SLOVENSKI STANDARD

SIST EN 15655-2:2021

01-februar-2021

Nadomešča:
SIST EN 15655:2009

Cevi, fittingi in pribor iz duktilne železove litine - Zahteve in preskusne metode za notranje organske prevleke cevi in fittingov iz duktilne železove litine - 2. del: Termoplastična notranja prevleka cevi iz modificiranega poliolefina (TMPO)

Ductile iron pipes, fittings and accessories - Requirements and test methods for organic linings of ductile iron pipes and fittings - Part 2: Thermoplastic Modified Polyolefin (TMPO) lining of pipes

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Rohre, Formstücke und Zubehörteile aus duktilem Gusseisen - Anforderungen und Prüfverfahren für organische Auskleidungen von Rohren und Formstücken aus duktilem Gusseisen - Teil 2: Auskleidung von Rohren aus thermoplastisch säuremodifiziertem Polyolefin (TMPO) <https://standards.iteh.ai/catalog/standards/sist/619cfd63-216f-4657-9eac-d278140ecde8/sist-en-15655-2-2021>

Tuyaux, raccords et accessoires en fonte ductile - Prescriptions et méthodes d'essai pour les revêtements organiques des tuyaux et raccords en fonte ductile - Partie 2 : Revêtements thermoplastiques en polyoléfine modifiée par un acide (TPMA) des tuyaux

Ta slovenski standard je istoveten z: EN 15655-2:2020

ICS:

23.040.10	Železne in jeklene cevi	Iron and steel pipes
23.040.40	Kovinski fittingi	Metal fittings

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EUROPEAN STANDARD

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Ductile iron pipes, fittings and accessories - Requirements and test methods for organic linings of ductile iron pipes and fittings - Part 2: Thermoplastic Acid Modified Polyolefin (TMPO) lining of pipes

Tuyaux, raccords et accessoires en fonte ductile - Prescriptions et méthodes d'essai pour les revêtements organiques des tuyaux et raccords en fonte ductile - Partie 2 : Revêtements thermoplastiques en polyoléfine modifiée par un acide (TPMA) des tuyaux

Rohre, Formstücke und Zubehörteile aus duktilem Gusseisen - Anforderungen und Prüfverfahren für organische Auskleidungen von Rohren und Formstücken aus duktilem Gusseisen - Teil 2: Auskleidung von Rohren aus thermoplastisch säuremodifiziertem Polyolefin (TMPO)

This European Standard was approved by CEN on 11 October 2020.

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.

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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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EN 15655-2:2020 (E)**European foreword**

This document (EN 15655-2:2020) has been prepared by Technical Committee CEN/TC 203 “Cast iron pipes, fittings and their joints”, the secretariat of which is held by AFNOR.

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 May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021. Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15655:2009.

The main changes to EN 15655:2009 are:

- a) EN 15655 has been split into two parts. This part covers thermoplastic acid modified polyolefin lining of pipes.

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

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Introduction

This document is in conformity with the general requirements already established by CEN/TC 164 in the field of water supply (e.g. potable water) and CEN/TC 165 in the field of waste water.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this document:

- a) no information is provided as to whether the product may be used without restriction in any of the member states of the EU or EFTA;
- b) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

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EN 15655-2:2020 (E)**1 Scope**

This document specifies the requirements and test methods applicable to factory applied internal lining made of thermoplastic acid modified polyolefin (TMPO) for the heavy duty corrosion protection of ductile iron pipes conforming to EN 545, EN 598 and EN 969. This document also applies to pipes with only socket and spigot ends coated with TMPO. Fittings and accessories are covered separately by EN 14901-2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 545, *Ductile iron pipes, fittings, accessories and their joints for water pipelines — Requirements and test methods*

EN 598:2007+A1:2009, *Ductile iron pipes, fittings, accessories and their joints for sewerage applications — Requirements and test methods*

EN 805, *Water supply — Requirements for systems and components outside buildings*

EN 969, *Ductile iron pipes, fittings, accessories and their joints for gas pipelines — Requirements and test methods*

EN 14901-1, *Ductile iron pipes, fittings and accessories — Requirements and test methods for organic coatings of ductile iron fittings and accessories — Part 1: Epoxy coating (heavy duty)*

EN 14901-2, *Ductile iron pipes, fittings and accessories — Requirements and test methods for organic coatings of ductile iron fittings and accessories — Part 2: Thermoplastic acid modified polyolefin coating (TMPO)*

EN ISO 4624, *Paints and varnishes — Pull-off test for adhesion (ISO 4624)*

EN ISO 4628-2:2016, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering (ISO 4628-2:2016)*

EN ISO 4628 (series), *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance*

EN ISO 62:2008, *Plastics — Determination of water absorption (ISO 62:2008)*

EN ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets (ISO 527-3)*

EN ISO 6272-1:2011, *Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 1: Falling-weight test, large-area indenter (ISO 6272-1:2011)*

EN ISO 8501-1, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

ductile iron

cast iron used for pipes, fittings and accessories in which graphite is present substantially in spheroidal form

3.2

adhesion

force per unit area, applied perpendicular to the surface, which is necessary to separate the lining from its substrate

3.3

indirect impact strength

impact energy applied from outside of the pipe with deformation to which a lining can withstand without damage under defined test conditions

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3.4

hardness

resistance of the lining to the penetration of a ball under defined test conditions

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3.5

minimum lining thickness

minimum value of the lining thickness measured at the lined item

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3.6

non-porosity

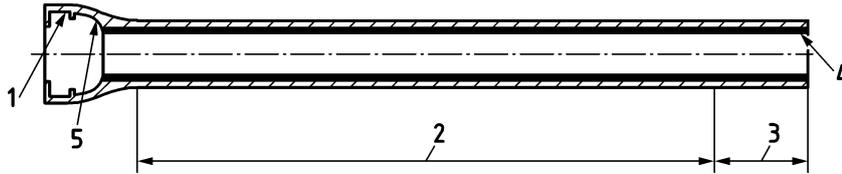
absence of holidays in a high voltage test under defined test conditions

3.7

TMPO lining

factory applied lining which consists of TMPO on the inside of the pipe

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**Key**

- 1 gasket seat
- 2 pipe barrel
- 3 spigot end
- 4 lining
- 5 internal socket profile

Figure 1 — Location of the defined pipe areas

3.8**thermoplastic acid modified polyolefin powder material (TMPO powder)**

polyolefin resin in which a significant amount of carbon hydrogen chemical bonds are replaced by carboxylic acid functional groups

[SOURCE: EN 14901-2:2019]

3.9**specific lining resistance**

surface related electric resistance of the lining perpendicular to the pipe wall

3.10**performance test**

test which is done once and is repeated according to a schedule or after relevant change of lining material and/or material supplier or change in process application

3.11**routine test**

test carried out to control the manufacturing process with a frequency defined by the manufacturer

3.12**designated zones**

areas of a casting where because of jointing tolerance restrictions, testing difficulties, or shrouding by a gasket, etc. a lower standard of lining performance is unavoidable

Note 1 to entry: For the purpose of this standard these areas are defined as:

- joint areas;
- permitted markings;
- edges

Note 2 to entry: Where considered necessary, these zones may be protected by appropriate additional corrosion protection measures during or after installation. However, such measures are not part of this standard

4 Ordering information

The following information shall be supplied by the purchaser to the manufacturer.

Ductile iron pipes according to EN 545, EN 598 or EN 969 but internally lined in accordance with this document shall be specified in the purchaser's enquiry and order by reference to this standard, e.g.

- 5 000 m of ductile iron pipe DN 300 according to EN 545, internal TMPO-lining according to EN 15655-2; or
- further information about use and handling, if needed.

General information on handling, transportation and storage to prevent damage to the TMPO lining is given in Annex C.

5 Technical requirements

5.1 Surface preparation

Surface preparation shall be designed in order to reach the required performances specified in this document. It is the responsibility of the manufacturer to demonstrate the fitness for purpose of surface preparation technology and to put in place a quality control procedure to ensure the stability of those performances (see 7.1.2).

5.2 Finished TMPO lining

5.2.1 Appearance and continuity

The TMPO lining shall be checked in accordance with 7.1.3 and be of:

- uniform colour, except the spigot end and the internal socket profile which may be of a different colour and/or different lining material;
- uniform appearance and smoothness except for admissible repairs;
- free of visible defects (pinholes, bubbles, blisters, wrinkles, cracks or voids).

Slight superficial variations of colour or brilliance due to repairs or prolonged exposure to sunlight or contact with other pipes are permissible.

5.2.2 Minimum lining thickness

When measured in accordance with the method defined in 7.1.4, except on designated zones, the localized minimum thickness shall be greater than 300 μm and the minimum average thickness shall be equal to or greater than 350 μm . For designated zones (see 3.12), localized minimum thickness of 200 μm is permissible.

5.3 Non-porosity

When tested in accordance with the test method described in 7.1.8 with a voltage of 1 500 V, the lined body of the component shall be free from porosity i.e. no electrical puncture shall occur. For potable water applications only, one electrical puncture per square meter is accepted.

In designated zones, electrical punctures are permitted.

Test frequency, see Table A.2.