

SLOVENSKI STANDARD

SIST EN ISO 21809-1:2019

01-januar-2019

Nadomešča:

SIST EN ISO 21809-1:2012

Naftna industrija in industrija zemeljskega plina - Zunanje prevleke za cevovode, zakopane v zemljo ali potopljene v vodo, v sistemih cevovodnega transporta - 1. del: Poliolefinske prevleke (3-slojni PE in 3-slojni PP) (ISO 21809-1:2018)

Petroleum and natural gas industries - External coatings for buried or submerged pipelines used in pipeline transportation systems - Part 1: Polyolefin coatings (3-layer PE and 3-layer PP) (ISO 21809-1:2018)

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Erdöl- und Erdgasindustrie - Umhüllungen für erd- und wasserverlegte Rohrleitungen in Transportsystemen - Teil 1: Polyolefinumhüllungen (3-Lagen-PE und 3-Lagen-PP) (ISO 21809-1:2018)

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Industries du pétrole et du gaz naturel - Revêtements externes des conduites enterrées ou immergées utilisées dans les systèmes de transport par conduites - Partie 1: Revêtements à base de polyoléfines (PE tricouche et PP tricouche) (ISO 21809-1:2018)

Ta slovenski standard je istoveten z: EN ISO 21809-1:2018

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25.220.99	Druge obdelave in prevleke	Other treatments and coatings
75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment

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EUROPEAN STANDARD

EN ISO 21809-1

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November 2018

ICS 75.200

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English Version

**Petroleum and natural gas industries - External coatings
for buried or submerged pipelines used in pipeline
transportation systems - Part 1: Polyolefin coatings (3-
layer PE and 3-layer PP) (ISO 21809-1:2018)**

Industries du pétrole et du gaz naturel - Revêtements
externes des conduites enterrées ou immergées
utilisées dans les systèmes de transport par conduites -
Partie 1: Revêtements à base de polyoléfines (PE
tricouche et PP tricouche) (ISO 21809-1:2018)

Erdöl- und Erdgasindustrie - Umhüllungen für erd- und
wasserverlegte Rohrleitungen in Transportsystemen -
Teil 1: Polyolefinumhüllungen (3-Lagen-PE und 3-
Lagen-PP) (ISO 21809-1:2018)

This European Standard was approved by CEN on 17 September 2018.

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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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Contents	Page
European foreword.....	3

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[SIST EN ISO 21809-1:2019](https://standards.iteh.ai/catalog/standards/sist/ceec0785-b473-4738-b2fc-088eb37c4c2d/sist-en-iso-21809-1-2019)
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European foreword

This document (EN ISO 21809-1:2018) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" in collaboration with Technical Committee ECISS/TC 110 "Steel tubes, and iron and steel fittings" the secretariat of which is held by UNI.

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 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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.

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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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Endorsement notice

The text of ISO 21809-1:2018 has been approved by CEN as EN ISO 21809-1:2018 without any modification.

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INTERNATIONAL
STANDARDISO
21809-1Second edition
2018-10

**Petroleum and natural gas
industries — External coatings for
buried or submerged pipelines used
in pipeline transportation systems —**

Part 1:

**Polyolefin coatings (3-layer PE and
3-layer PP)**

(standards.iteh.ai)

*Industries du pétrole et du gaz naturel — Revêtements externes
des conduites enterrées ou immergées utilisées dans les systèmes de
transport par conduites*

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*Partie 1: Revêtements à base de polyoléfines (PE tricouche et PP
tricouche)*

Reference number
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Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	3
4 Conformance	6
4.1 Rounding.....	6
4.2 Compliance with this document.....	6
5 Symbols and abbreviated terms	6
5.1 Symbols.....	6
5.2 Abbreviations.....	7
6 Information supplied by the purchaser	7
6.1 General information.....	7
6.2 Additional information.....	8
7 Coating classification	9
7.1 General.....	9
7.2 Coating classes.....	9
7.3 Coating thickness classes.....	9
8 Qualification processes	10
8.1 General — Qualification scheme.....	10
8.2 Application procedure specification.....	11
8.3 Pre-production trial (PPT).....	12
8.4 Inspection and testing plan (ITP).....	12
8.5 Procedure qualification trial (PQT).....	13
9 Coating material qualification	13
9.1 Composition of the coating system.....	13
9.2 Qualification of the coating materials.....	14
9.2.1 General requirements.....	14
9.2.2 Epoxy material.....	14
9.2.3 Adhesive material.....	15
9.2.4 PE/PP top layer material.....	15
9.3 Batch certificate.....	17
9.4 Storage and handling of coating materials.....	18
10 Coating system qualification	18
11 Application of the coating system	19
11.1 General.....	19
11.2 Surface preparation.....	20
11.2.1 Initial preparation.....	20
11.2.2 Abrasive blast cleaning — Cleanliness and surface roughness.....	20
11.2.3 Surface dust contamination.....	20
11.2.4 Surface pre-treatment and salt contamination.....	21
11.3 Coating application.....	21
11.3.1 General.....	21
11.3.2 Epoxy application.....	21
11.3.3 Adhesive application.....	21
11.3.4 PE/PP application.....	22
11.3.5 Rough coat application.....	22
11.4 Cutback.....	22
12 Inspection and testing	22

ISO 21809-1:2018(E)

12.1	General.....	22
12.2	Re-testing.....	25
13	Coating repairs.....	25
14	Marking.....	25
14.1	General.....	25
14.2	Required markings.....	26
15	Handling and storage in the applicator's facilities.....	26
15.1	Handling.....	26
15.2	Storage.....	26
16	Test reports and certificate of compliance.....	26
Annex A	(normative) Inspection of thickness.....	27
Annex B	(normative) Holiday detection test.....	29
Annex C	(normative) Peel strength test.....	31
Annex D	(normative) Thermal analysis of epoxy and cured epoxy coating film with $T_g \leq 115^\circ\text{C}$.....	34
Annex E	(normative) Impact test.....	39
Annex F	(normative) Indentation test.....	41
Annex G	(normative) UV ageing test and thermal ageing test.....	43
Annex H	(normative) Cathodic disbondment test.....	47
Annex I	(normative) Flexibility test.....	52
Annex J	(normative) Gel time of the epoxy powder.....	54
Annex K	(normative) Total volatile/moisture content of the epoxy powder — Mass loss.....	56
Annex L	(normative) Hot water immersion test.....	58
Annex M	(normative) Density of epoxy powder.....	60
	Bibliography.....	62

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 2, *Pipeline transportation systems*.

This second edition cancels and replaces the first edition (ISO 21809-1:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- adoption of qualification processes ([Clause 8](#));
- added prescriptions for coating application on pipes made by corrosion resistant alloys (CRA) or lined/clad internally with a CRA;
- cathodic disbondment test conditions revised.

A list of all parts in the ISO 21809 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO 21809-1:2018(E)**Introduction**

It is necessary that users of this document be aware that further or differing requirements can be required for individual applications. This document is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This can be particularly applicable where there is innovative or developing technology. Where an alternative is offered, it is the responsibility of the vendor to identify any variations from this document and provide details.

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Petroleum and natural gas industries — External coatings for buried or submerged pipelines used in pipeline transportation systems —

Part 1: Polyolefin coatings (3-layer PE and 3-layer PP)

1 Scope

This document specifies requirements for plant-applied external three-layer polyethylene and polypropylene based coatings for corrosion protection of welded and seamless steel pipes for pipeline transportation systems in the petroleum and natural gas industries in accordance with ISO 13623.

NOTE Pipes coated in accordance with this document are considered suitable for further protection by means of cathodic protection.

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.

ISO 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test*

ISO 179-2, *Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test*

ISO 306, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST)*

ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)*

ISO 1133-1, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method*

ISO 1183 (all parts), *Plastics — Methods for determining the density of non-cellular plastics*

ISO 2808, *Paints and varnishes — Determination of film thickness*

ISO 2811 (all parts), *Paint and varnishes — Determination of density*

ISO 3183, *Petroleum and natural gas industries — Steel pipe for pipeline transportation systems*

ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content*

ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 6964, *Polyolefin pipes and fittings — Determination of carbon black content by calcination and pyrolysis — Test method and basic specification*

ISO 21809-1:2018(E)

ISO 8130-2, *Coating powders — Part 2: Determination of density by gas comparison pyknometer (referee method)*

ISO 8130-3, *Coating powders — Part 3: Determination of density by liquid displacement pyknometer*

ISO 8130-7, *Coating powders — Part 7: Determination of loss of mass on stoving*

ISO 8501-1:2007, *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 8502-3, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)*

ISO 8502-6, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 6: Extraction of soluble contaminants for analysis — The Bresle method*

ISO 8502-9, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 9: Field method for the conductometric determination of water-soluble salts*

ISO 8503-4, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 4: Method for the calibration of ISO surface profile comparators and for the determination of surface profile — Stylus instrument procedure*

ISO 8503-5, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 5: Replica tape method for the determination of the surface profile*

ISO 10350-1, *Plastics — Acquisition and presentation of comparable single-point data — Part 1: Moulding materials*

ISO 10474:2013, *Steel and steel products — Inspection documents*

ISO 11124 (all parts), *Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives*

ISO 11126 (all parts), *Preparation of steel substrates before application of paints and related products — Specifications for non-metallic blast-cleaning abrasives*

ISO 11357-2, *Plastics — Differential scanning calorimetry (DSC) — Part 2: Determination of glass transition temperature and glass transition step height*

ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

ISO 15512, *Plastics — Determination of water content*

ISO 17855-2, *Plastics — Polyethylene (PE) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

ISO 18553, *Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds*

ISO 19069-2, *Plastics — Polypropylene (PP) moulding and extrusion materials — Part 2: Preparation of test specimens and determination of properties*

ISO 21809-2, *Petroleum and natural gas industries — External coatings for buried or submerged pipelines used in pipeline transportation systems — Part 2: Single layer fusion-bonded epoxy coatings*

ISO 80000-1, *Quantities and units – Part 1: General*

EN 10204:2004, *Metallic materials — Types of inspection documents*

ASTM D792, *Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement*

ASTM D1505, *Standard Test Method for Density of Plastics by the Density-Gradient Technique*

ASTM D1693, *Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics*

ASTM D4940, *Standard Test Method for Conductimetric Analysis of Water Soluble Ionic Contamination of Blast Cleaning Abrasives*

SSPC-AB 1,¹⁾ *Mineral and Slag Abrasives*

SSPC-AB 2, *Cleanliness of Recycled Ferrous Metallic Abrasives*

SSPC-AB 3, *Ferrous Metallic Abrasive*

SSPC-SP 1, *Solvent Cleaning*

SSPC-Guide 15, *Field Methods for Extraction and Analysis of Soluble Salts on Steel and Other Nonporous Substrates*

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:

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

3.1

adhesion

bond between coating and substrate

3.2

applicator

company that undertakes the coating application in accordance with the provisions of this document

Note 1 to entry: If the compounding of the top layer is done prior to or during the application process by the applicator, then the applicator is regarded as the manufacturer (see 3.16).

3.3

application procedure specification

APS

document describing procedures, methods, equipment and tools used for coating application

3.4

batch

quantity of material produced in a continuous manufacturing operation using raw materials of the same source and grade

3.5

batch certificate

certificate of analysis issued by the manufacturer

1) Society for Protective Coating, 40 24th Street, 6th floor, Pittsburg; PA 15222-4656, USA.