



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 18796-1:2020

Petroleum, petrochemicals and natural gas industries - Internal coating and lining of carbon steel process vessels - Part 1: Technical requirements (ISO 18796-1:2018)

**I.S. EN ISO 18796-1:2020**

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## National Foreword

I.S. EN ISO 18796-1:2020 is the adopted Irish version of the European Document EN ISO 18796-1:2020, Petroleum, petrochemicals and natural gas industries - Internal coating and lining of carbon steel process vessels - Part 1: Technical requirements (ISO 18796-1:2018)

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EUROPEAN STANDARD

**EN ISO 18796-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2020

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English Version

**Petroleum, petrochemicals and natural gas industries -  
Internal coating and lining of carbon steel process vessels -  
Part 1: Technical requirements (ISO 18796-1:2018)**

Industries du pétrole, de la pétrochimie et du gaz  
naturel - Revêtement de protection interne et doublure  
des récipients de production en acier au carbone -  
Partie 1: Exigences techniques (ISO 18796-1:2018)

Erdöl-, petrochemische und Erdgasindustrie - Innere  
Schutzbeschichtungen und Auskleidungen für  
Prozessbehälter aus unlegiertem Stahl - Teil 1:  
Allgemeine Anforderungen (ISO 18796-1:2018)

This European Standard was approved by CEN on 4 October 2020.

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

**EN ISO 18796-1:2020 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

The text of ISO 18796-1:2018 has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 18796-1:2020 by Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by April 2021, and conflicting national standards shall be withdrawn at the latest by April 2021.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.

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, 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.

## **Endorsement notice**

The text of ISO 18796-1:2018 has been approved by CEN as EN ISO 18796-1:2020 without any modification.

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**Petroleum, petrochemicals and  
natural gas industries — Internal  
coating and lining of carbon steel  
process vessels —**

**Part 1:  
Technical requirements**

*Industries du pétrole, de la pétrochimie et du gaz naturel —  
Revêtement de protection interne et doublure des récipients de  
production en acier au carbone —*

*Partie 1: Exigences techniques*



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# Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms, definitions and abbreviated terms</b> .....	<b>3</b>
3.1 Terms and definitions.....	3
3.2 Abbreviated terms.....	4
<b>4 Conformance</b> .....	<b>5</b>
4.1 Rounding.....	5
4.2 Conformance to this document.....	5
<b>5 Pre-work requirements</b> .....	<b>6</b>
5.1 General.....	6
5.2 Safety precautions in flammable atmosphere.....	6
5.3 Safety precautions in confined space.....	6
5.4 Safety precautions for blasting and coating works.....	6
5.5 Isolation and ventilation.....	7
5.6 Qualification of coating/lining application and inspection personnel.....	7
<b>6 Coating/lining materials</b> .....	<b>7</b>
6.1 General.....	7
6.2 Approvals.....	7
6.3 Procedure qualification trial (PQT).....	8
6.4 Pre-production trial (PPT).....	8
6.5 Thickness classifications of coatings.....	9
6.6 Holding (blast) primer.....	9
6.7 Coating and lining systems.....	9
6.8 Material approvals — Coating and lining systems.....	10
<b>7 Surface preparation</b> .....	<b>11</b>
7.1 General.....	11
7.2 Preparations.....	11
7.3 Patching, grinding, degreasing and washing (for new and rehabilitation works).....	12
7.4 Dry abrasive blasting cleaning.....	12
7.5 Humidity control.....	13
7.6 After blast cleaning.....	14
<b>8 Coating/lining application</b> .....	<b>14</b>
8.1 General requirements.....	14
8.2 Application of environmental conditions.....	15
8.3 Primer application.....	15
8.4 Coating/lining thickness.....	15
<b>9 Coating/lining application</b> .....	<b>16</b>
<b>10 Inspection and testing</b> .....	<b>16</b>
10.1 General requirements.....	16
10.2 Environmental conditions testing.....	17
10.3 Materials and equipment inspection.....	17
10.4 Compressed air and abrasive.....	17
10.5 Surface preparation inspection.....	17
10.6 Coating/lining inspection and testing.....	18
10.6.1 General.....	18
10.6.2 Lining film thickness.....	18
10.6.3 Holiday detection test.....	18
10.6.4 Curing test.....	18

**ISO 18796-1:2018(E)**

10.7	Adhesion test.....	19
<b>11</b>	<b>Quality requirements .....</b>	<b>19</b>
<b>12</b>	<b>Documentation.....</b>	<b>19</b>
12.1	General.....	19
12.2	Work proposal.....	20
12.3	Work records/reports .....	20
12.4	Inspection and testing reporting.....	20
12.5	Final report .....	20
<b>Annex A</b>	<b>(informative) Example of coating/lining work record/data sheet.....</b>	<b>21</b>
<b>Annex B</b>	<b>(informative) Example of coating/lining inspection and testing data sheet.....</b>	<b>22</b>
<b>Bibliography</b>	<b>.....</b>	<b>23</b>

## 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](http://www.iso.org/directives)).

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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](http://www.iso.org/iso/foreword.html).

This document was prepared by ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

A list of all parts in the ISO 18796 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](http://www.iso.org/members.html).

## **ISO 18796-1:2018(E)**

### **Introduction**

The objective of this document is to define the minimum technical requirements for the corrosion protection by coating/lining of internal surfaces of carbon steel process vessels used in the oil and gas industry and subject to marked pressure/temperature changes and/or acidic or other aggressive chemicals. In addition, this document provides technical guidance for developing project specifications and helps to ensure compliance in coating/lining material selection and performance with contract requirements.

Further or differing requirements can be specified for individual applications. This document does not limit the contractor and/or manufacturer from proposing, or the company from accepting, alternative engineering solutions for the individual application. This can particularly be applicable where there is an innovative or emerging technology. Where an alternative is proposed, the specification issuer will need to identify any deviation from this document and provide details.

# Petroleum, petrochemicals and natural gas industries — Internal coating and lining of carbon steel process vessels —

## Part 1: Technical requirements

### 1 Scope

This document specifies the minimum technical requirements for surface preparation, materials, application, inspection and testing of internal coating and lining systems that are intended to be applied on internal surfaces of process vessels that are subject to marked pressure/temperature changes and/or potentially corrosive conditions or processes and aggressive chemicals, used in the oil and gas industry.

This document covers both new construction and maintenance works of process vessels as well as the repair of defective and deteriorated coating and lining systems.

This document also provides the minimum requirements for the coated and lined samples and the criteria for their approval.

### 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 2812 (all parts), *Paints and varnishes — Determination of resistance to liquids*

ISO 3233 (all parts), *Paints and varnishes — Determination of the percentage volume of non-volatile matter*

ISO 4624<sup>1)</sup>, *Paints and varnishes — Pull-off test for adhesion*

ISO 7027, *Water quality — Determination of turbidity*

ISO 7619-1, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 1: Durometer method (Shore hardness)*

ISO 8501-1<sup>2)</sup>, *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 8501-3, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 3: Preparation grades of welds, edges and other areas with surface imperfections*

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)*

1) ASTM D4541 is equivalent to this document.

2) SSPC-SP5/NACE No. 1 is equivalent to this document.

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