

This is a preview of "ISO 16961:2015". [Click here to purchase the full version from the ANSI store.](#)

First edition
2015-08-01

Petroleum, petrochemical and natural gas industries — Internal coating and lining of steel storage tanks

*Industries du pétrole, de la pétrochimie et du gaz naturel —
Revêtement de protection interne et doublure des réservoirs de
stockage en acier*



Reference number
ISO 16961:2015(E)

© ISO 2015

This is a preview of "ISO 16961:2015". [Click here to purchase the full version from the ANSI store.](#)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

This is a preview of "ISO 16961:2015". [Click here to purchase the full version from the ANSI store.](#)

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Conformance	1
2.1 Rounding.....	1
2.2 Compliance to this International Standard.....	1
3 Normative references	1
4 Terms, definitions and abbreviated terms	3
4.1 Terms and definitions.....	3
4.2 Abbreviated terms.....	6
5 Pre-work requirements	7
5.1 General.....	7
5.2 Safety precautions in flammable atmosphere.....	7
5.3 Safety precautions in confined space.....	7
5.4 Qualification of coating/lining application and inspection personnel.....	7
5.5 Positive isolation and ventilation.....	8
6 Coating/lining materials	8
6.1 General.....	8
6.2 Approvals.....	8
6.3 Procedure qualification trial (PQT).....	9
6.4 Pre-production trial (PPT).....	9
6.5 Holding (blast) primer.....	9
6.6 Caulking (putty) and filler compounds.....	10
6.7 Fibreglass lining materials.....	10
6.7.1 Fibreglass resin compound.....	10
6.7.2 Glass fibre reinforcement.....	10
6.8 Glass flake filled coating/lining system.....	10
6.9 Epoxy coating/lining systems.....	11
6.10 Thixotropic agent for viscosity control.....	11
6.11 Material approvals — Fibreglass lining system.....	11
6.12 Material approvals — Glass flake filled coating/lining system.....	14
6.13 Material approvals — Thin film epoxy coating/lining systems.....	15
7 Surface preparation	16
7.1 General.....	16
7.2 Tank pre-cleaning and residue removal (for rehabilitation work).....	17
7.3 Preparatory patching and grinding (for new and rehabilitation work).....	17
7.4 Dry abrasive blasting cleaning.....	18
7.5 Humidity control.....	19
7.6 After blast cleaning.....	19
7.7 Removal of existing laminate linings prior to abrasive blasting.....	20
7.8 Striker plates, steel legs, risers, down comers and supports.....	20
7.9 Safety precautions.....	20
8 Coating/lining application	20
8.1 General requirements.....	20
8.2 Safety precautions.....	21
8.3 Areas to be lined (fibreglass lining).....	22
8.4 Weather conditions.....	22
8.5 Primer application.....	22
8.6 Caulking (putty) application.....	23
8.7 Fibreglass laminate application.....	23
8.8 Lining thickness.....	24

This is a preview of "ISO 16961:2015". Click here to purchase the full version from the ANSI store.

8.9	Glass flake filled coating application.....	24
8.10	Thin film coating application.....	26
8.11	Curing.....	27
9	Inspection and testing.....	27
9.1	General requirements.....	27
9.2	Environmental conditions testing.....	28
9.3	Materials and equipment inspection.....	28
9.4	Compressed air and abrasive.....	28
9.5	Surface preparation inspection.....	28
9.6	Coating/lining inspection and testing.....	29
9.7	Coating/lining film thickness.....	29
9.8	Holiday detection test.....	29
9.9	Curing hardness test.....	30
9.10	Defects and pinhole repair.....	30
9.11	Adhesion test.....	30
10	Quality requirements.....	30
11	Documentation.....	31
11.1	General.....	31
11.2	Work proposal.....	31
11.3	Work records/reports.....	31
11.4	Inspection and testing reports and certificates of compliance.....	32
11.5	Final report.....	32
	Annex A (informative) Dew point calculation chart.....	33
	Annex B (informative) Caulking (putty) application.....	34
	Annex C (informative) Example of coating/lining work record/data sheet.....	35
	Annex D (informative) Example of coating/lining inspection and testing data sheet.....	36
	Bibliography.....	37

This is a preview of "ISO 16961:2015". [Click here to purchase the full version from the ANSI store.](#)

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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

This is a preview of "ISO 16961:2015". [Click here to purchase the full version from the ANSI store.](#)

Introduction

This International Standard is based on GSO 2057 – 2010 (E). The objectives of this International Standard are to define minimum technical requirements for the corrosion protection by coating and lining of internal surfaces of steel storage tanks, to provide technical guidance for developing local standards and specifications, and to ensure compliance in coating and lining material selection and performance with contract requirements.

Users of this International Standard should be aware that further or differing requirements can be needed for individual applications. This International Standard is not limiting the contractor and/or manufacturer from proposing or the company from accepting alternative engineering solutions for the individual application. This can be particularly applicable where there is innovative or developing technology. Where an alternative is proposed, the specification issuer should identify any deviations from this International Standard and provide details.

[Annexes A, B, C](#) and [D](#) of this International Standard are informative only.