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Irish Standard
I.S. EN ISO 21457:2010

Petroleum, petrochemical and natural gas industries - Materials selection and corrosion control for oil and gas production systems (ISO 21457:2010)

I.S. EN ISO 21457:2010

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English Version

**Petroleum, petrochemical and natural gas industries - Materials
selection and corrosion control for oil and gas production
systems (ISO 21457:2010)**

Industries du pétrole, de la pétrochimie et du gaz naturel -
Choix des matériaux et contrôle de la corrosion pour les
systèmes de production de pétrole et de gaz (ISO
21457:2010)

Erdöl-, petrochemische und Erdgasindustrie -
Werkstoffauswahl und Korrosionsprüfung für Öl- und
Gasproduktionssysteme (ISO 21457:2010)

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Foreword

This document (EN ISO 21457:2010) 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 CEN/TC 12 “Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries” 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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

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**INTERNATIONAL
STANDARD**

**ISO
21457**

First edition
2010-09-01

**Petroleum, petrochemical and natural gas
industries — Materials selection and
corrosion control for oil and gas
production systems**

*Industries du pétrole, de la pétrochimie et du gaz naturel — Choix des
matériaux et contrôle de la corrosion pour les systèmes de production
de pétrole et de gaz*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 21457 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

Introduction

The provision of well-established and robust material selection guidelines offers a means of satisfying long-term materials performance that meet the minimum requirements for a broad range of end users in the petroleum, petrochemical and natural gas industries. An additional benefit can be to enable product suppliers to develop, manufacture and provide off-the-shelf equipment that meets these requirements.

Oil and gas production projects benefit from a structured evaluation of materials used for the different fluids being handled. Therefore, the main objective of this International Standard is to provide general requirements with guidelines for the selection of materials for systems and components, with due consideration to the transported fluids and the external environment.

It is the end user's responsibility to provide a project document with respect to implementation of the requirements and guidelines of this International Standard, and to specify the design conditions for material selection. In addition to the end user, the organization responsible for the facility or for the equipment design, or for both, is regarded as responsible for materials selection.

This International Standard is developed to provide responsible parties with a structured process to carry out materials selection in a consistent manner as a part of the engineering work, based upon a design basis for a particular installation. This International Standard is intended for use by oil companies and engineering contractors.

Users of this International Standard are advised that further or differing requirements might be needed for individual applications. This International Standard 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 advisable that the vendor identify any variations from this International Standard and provide details.

Petroleum, petrochemical and natural gas industries — Materials selection and corrosion control for oil and gas production systems

1 Scope

This International Standard identifies the corrosion mechanisms and parameters for evaluation when performing selection of materials for pipelines, piping and equipment related to transport and processing of hydrocarbon production, including utility and injection systems. This includes all equipment from and including the well head, to and including pipelines for stabilized products. This International Standard is not applicable to downhole components.

Guidance is given for the following:

- corrosion evaluations;
- materials selection for specific applications, or systems, or both;
- performance limitations for specific materials;
- corrosion control.

This International Standard refers to materials that are generally available, with properties that are known and documented. It also allows other materials to be evaluated and qualified for use.

This International Standard does not provide detailed material requirements or guidelines for manufacturing and testing of equipment. Such information can be found in particular product and manufacturing standards.

2 Normative references

The following referenced documents are indispensable for the application 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 15156-1¹⁾, *Petroleum and natural gas industries — Materials for use in H₂S-containing environments in oil and gas production — Part 1: General principles for selection of cracking-resistant materials*

ISO 15156-2¹⁾, *Petroleum and natural gas industries — Materials for use in H₂S-containing environments in oil and gas production — Part 2: Cracking-resistant carbon and low-alloy steels, and the use of cast irons*

ISO 15156-3¹⁾, *Petroleum and natural gas industries — Materials for use in H₂S-containing environments in oil and gas production — Part 3: Cracking-resistant CRAs (corrosion-resistant alloys) and other alloys*

1) ISO 15156 (all parts) has been adopted by NACE as NACE MR0175/ISO 15156.

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