SLOVENSKI STANDARD
oSIST prEN ISO 17782:2014

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Petrokemična industrija ter industrija za predelavo nafte in zemeljskega plina - Proizvajalčeva kvalifikacija posebnih materialov (ISO/DIS 17782:2014)

Petroleum, petrochemical and natural gas industries - Qualification of manufacturers of special materials (ISO/DIS 17782:2014)

Erdöl-, petrochemische und Erdgasindustrie - Herstellerqualifizierung von Sonderwerkstoffen (ISO/DIS 17782:2014)

Industries du pétrole, de la pétrochimie et du gaz naturel - Qualification des fabricants de matériaux spéciaux (ISO/DIS 17782:2014)

Ta slovenski standard je istoveten z: **prEN ISO 17782**

ICS:

75.180.01	Oprema za industrijo nafte in zemeljskega plina na splošno	Equipment for petroleum and natural gas industries in general

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Petroleum, petrochemical and natural gas industries — Qualification of manufacturers of special materials

Industries du pétrole, de la pétrochimie et du gaz naturel — Qualification des fabricants de matériaux spéciaux

ICS: 75.020

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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.

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.

ISO 17782 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC , .

Introduction

This International Standard is based on NORSOK M-650, 4th edition, which was developed by the Norwegian petroleum industry to ensure adequate safety, value added and cost effectiveness for petroleum industry developments and operations

Petroleum, petrochemical and natural gas industries — Qualification of manufacturers of special materials

1 Scope

This International Standard establishes a set of qualification requirements to verify that the manufacturer has sufficient competence and experience of the relevant material grades of metal, and necessary facilities and equipment to manufacture these in the required shapes and sizes with acceptable properties.

This International Standard is applicable to the qualification of manufacturers of various materials, product forms and manufacturing processes when specified by the Purchaser. The standard has been established considering especially:

a) duplex stainless steel;

b) high alloyed austenitic stainless steel;

c) martensitic stainless steel;

d) age hardening martensitic steel;

e) nickel-based alloys;

f) titanium and its alloys.

This standard also includes the special processes of induction bending, cold bending of tubes Ø > 25mm and strain hardening.

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 3834-2, *Quality requirements for fusion welding of metallic materials — Part 2: Comprehensive quality requirements*

ISO 9001, *Quality management system — Requirements*

ISO 10423:2009, *Petroleum and natural gas industries — Drilling and production equipment — Wellhead and christmas tree equipment* (equivalent to API 6A)

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

ISO 14343, *Welding consumables — Wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat resisting steels — Classification*

ISO 15590-1, *Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 1: Induction bends*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

API 6A:2010 Annex M, *Specification for Wellhead and Christmas Tree Equipment — Qualification of heat treatment equipment*

ASME II Part C, *Specification for welding rods, electrodes, and filler metals — Materials*

ASTM A703, *Standard Specification for Steel Castings, General Requirements, for Pressure-Containing Parts*

ASTM A991, *Standard Test Method for Conducting Temperature Uniformity Surveys of Furnaces Used to Heat Treat Steel Products*

EN 10204, *Metallic products — Types of Inspection Documents*

3 Terms, definitions and abbreviates terms

For the purposes of this document, the terms and definitions given in ISO 9000 and the following apply.

3.1 Terms and definitions

3.1.1
continuous furnace
the item/product to be heat treated is loaded and heat treated in a continuous cycle

3.1.2
company
owner or organization that is responsible for development of and/or operation of an installation/facility

Note 1 to entry: For the purposes of this International Standard, this is normally an oil company

3.1.3
equalization time
time used to ensure a uniform pre-set temperature throughout a heat treatment load and/or throughout all section thicknesses of a component

3.1.4
heat sink
separate block made from the same generic type of material as the parts being heat-treated to monitor temperature during heat treatment

3.1.5
high alloyed austenitic SS
austenitic stainless steel with PREN ≥ 40 or (%Ni + 2 x%Mo) > 30 and (%Mo > 2)); all % by weight

EXAMPLES SS type 6 Mo, UNS S31266, UNS S32654, UNS S34565, UNS J95370.

3.1.6
holding time
time from when the controlling thermocouple(s) (normally the furnace thermocouple(s)) has reached set temperature until the specified soaking time is completed

See also Annex C.

Note 1 to entry: Holding time consists of equalization time + soaking time. Not applicable to continuous and semi-continous furnaces.

3.1.7
main contractor
party which carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project, or operation or maintenance of a facility, on a contract awarded by the company

3.1.8
manufacturer
party, including subcontractors, which carries out operations which affect the material properties of the finished product

Note 1 to entry: These operations can include forming, heat treatment, etc.

3.1.9
pitting resistance equivalent number
PREN
number indicating the resistance of stainless steel to pitting corrosion related to chemical composition and derived from the equation PREN = % Cr + 3,3 x % (Mo + 0,5W) + 16 x % N; all % by weight

3.1.10
purchaser
party which purchases a product from a manufacturer

3.1.11
qualifying company
party which monitors the qualification exercise and in the end approves the resulting manufacturing procedure qualification test record (MPQR) by signing and stamping the MPQR front page (Annex E)

Note 1 to entry: A Qualifying Company shall be the company, the main contractor, the purchaser or a party authorised to act on their behalf. Qualifying Company shall be independent of the manufacturer.

3.1.12
semi – continuous furnace
the load to be heat treated is prepared as a batch in front of the furnace. The heat treatment is carried out by passing the batch in a continuous way through the furnace

3.1.13
soaking time
batch processes: time that the entire part being heat treated (throughout its cross-sections) remains at the specified set temperature

continuous and semi-continous processes: time that the section being heat treated (throughout its cross-sections) remains within the specified temperature range

3.1.14
soaking zone
The zone in a continuous heat treatment furnace within which the material is maintained at a temperature between the start set temperature and the final set temperature

3.1.15
test direction
test directions are defined relative to the geometry of the component to be tested

For the purposes of this International Standard, the definitions given in ASTM -11, sect. 4, apply, with axial defined as the longitudinal axis of test specimen located parallel to the main axis of the component.

3.1.16
SS type 22Cr duplex
ferritic/austenitic stainless steel alloy having nominal 22 % Cr by weight.

EXAMPLES UNS S31803 and UNS S32205.

3.1.17
SS type 25Cr duplex
ferritic/austenitic stainless steel alloy having nominally 25 % Cr by weight and PREN ≥ 40.

Note 1 to entry: This alloy is often referred to as “super duplex”.

EXAMPLES UNS S S32505, UNS S32550, UNS S32750, UNS S32760 and UNS S39274.

3.1.18
SS type 6Mo
austenitic stainless steel alloy having 6 % Mo by weight and PREN ≥ 40.

EXAMPLES UNS S31254, UNS N08367 and UNS N08926.

3.2 Abbreviated terms

Abbreviation	Meaning
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
EN	European Standard
HIP	hot isostatic pressed
MDS	material data sheet (for example, from NORSOK M-630)
MOM	minutes of meeting
MPS	manufacturing procedure summary
NDE	Non-destructive examination
PED	Pressure Equipment Directive
PREN	pitting resistance equivalent number
PWHT	post-weld heat treatment
MPQR	manufacturing procedure qualification record
SS	stainless steel
UNS	unified numbering system
WPQR	welding procedure qualification record
WPS	post-weld heat treatment

4 Responsibilities

4.1 Purchaser's responsibility

The purchaser is responsible for ensuring that the manufacturers engaged are qualified within the essential variables of this International Standard. It is recommended that existing MPQR's, accepted by Qualifying Company's unknown to the purchaser, are reviewed for compliance with this standard. Manufacturers unknown to him should in addition be visited.

Acceptance of a manufacturer's qualification record (MPQR) and the manufacturer is at the discretion and determination of the purchaser.

4.2 Manufacturer's responsibility

The manufacturer is responsible for establishing and maintaining required documentation and carrying out verifications and testing in accordance with this International Standard.

A manufacturer complying with this ISO standard assumes an obligation to carry out manufacturing in accordance with the qualified Manufacturing Procedure Summary, including all referenced procedures. If an order requiring compliance with this standard (ISO 17782) is outside the qualified range as defined in 10.2, Purchaser shall be informed.

4.3 Responsibilities of the qualifying company

The qualification exercise itself shall be carried out in co-operation with and verified by a Qualifying Company.

The qualifying company shall monitor the qualification exercise, review and in the end approve the resulting MPQR by signing and stamping the MPQR front page (Annex E).

It is important for acceptance of the MPQR by other customers that the qualification exercise is carried out in compliance with and fulfils this International Standard.

5 Qualification of manufacturers

5.1 Basis for qualification of manufacturers

As a basis for qualification of manufacturers, including their nominated subcontractors, the manufacturer shall have:

a) knowledge and relevant manufacturing experience with the type of material to be qualified (see Clause 7);

b) acceptable manufacturing facilities and equipment (see Clause7 and Clause 9);

c) an established Manufacturing Procedure Summary (procedure) covering all manufacturing steps from melting or semi-finished product to finished products (see Clause 8);

d) an established heat treatment procedure (see Clause 9);

e) a quality system which is compliant with the requirements of ISO 9001;

f) documented qualification records in compliance with this International Standard (see Clause 10).