

CONTECComissão de Normalização
Técnica**GEPC**Special Group for Personal
Certification**Personal Competencies for Inspection
Activities****4th Amendment**

This is the 4th Amendment to PETROBRAS N-2941, that contains the 3rd amendment, and it is used to alter the text of the Standard in the part(s) indicated below:

NOTE 1 The new(s) page(s) with the performed amendment(s) is (are) placed in its corresponding position(s).

NOTE 2 The amended pages, indicated the date of the amendment, are placed at the end of this standard, in chronological order, and shall not be used.

CONTENTS OF THE 1st AMENDMENT - 09/2020**Section 1**

- Item renumbering, from 1.1 to 1.6.
- Alteration of item 1.1.
- Inclusion of item 1.1.1.
- Inclusion of item 1.2.
- Item 1.3 becomes the equivalent of item 1.2 prior to the 1st amendment.
- Item 1.4 becomes the equivalent of item 1.3 prior to the 1st amendment.
- Item 1.5 modifies the item 1.4 prior to the 1st amendment.
- Item 1.6 becomes the equivalent of item 1.5 prior to the 1st amendment.

Table 2

- Table changing.

Table 4

- Table changing

CONTENTS OF THE 2nd AMENDMENT - 10/2021**Section 4**

- Inclusion of CEBRAPI (Centro Brasileiro de Pintura e Inspeção)

Table 4

-Inclusion of CEBRAPI (Centro Brasileiro de Pintura e Inspeção)

CONTENTS OF THE 3rd AMENDMENT - 04/2022**Section 1**

-Inclusion of 1.6 and 1.7

Section 6

-Alteration on requirements of 6.2.1, 6.2.2 and 6.2.3

CONTENTS OF THE 4th AMENDMENT – 03/2023

-Alteration on requirements of 6.1

Personal Competencies for Inspection Activities

Procedure

This Standard replaces and cancels its previous revision.

The CONTEC - Authoring Subcommittee provides guidance on the interpretation of this Standard when questions arise regarding its contents. The Department of PETROBRAS that uses this Standard is responsible for adopting and applying the sections, subsections and enumerates thereof.

Technical Requirement: A provision established as the most adequate and which shall be used strictly in accordance with this Standard. If a decision is taken not to follow the requirement ("non-conformity" to this Standard) it shall be based on well-founded economic and management reasons, and be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by imperative nature.

Recommended Practice: A provision that may be adopted under the conditions of this Standard, but which admits (and draws attention to) the possibility of there being a more adequate alternative (not written in this Standard) to the particular application. The alternative adopted shall be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by verbs of a nonmandatory nature. It is indicated by the expression: **[Recommended Practice]**.

Copies of the registered "non-conformities" to this Standard that may contribute to the improvement thereof shall be submitted to the CONTEC - Authoring Subcommittee.

Proposed revisions to this Standard shall be submitted to the CONTEC - Authoring Subcommittee, indicating the alphanumeric identification and revision of the Standard, the section, subsection and enumerate to be revised, the proposed text, and technical/economic justification for revision. The proposals are evaluated during the work for alteration of this Standard.

"This Standard is exclusive property of Petróleo Brasileiro S. A. - PETROBRAS, internal application and PETROBRAS Subsidiaries and shall be used by its suppliers of goods and services under contracts or similar under the conditions established in Bidding, Contract, Agreement or similar.

The use of this Standard by other companies / organizations / government agencies and individuals is the sole responsibility of the users."

CONTEC

Comissão de Normalização
Técnica

GEPC

Special Group for Personal
Certification

Introduction

PETROBRAS Technical Standards are prepared by Working Groups - WG (consisting specialized of Technical Collaborators from Company and its Subsidiaries), are commented by Company Units and its Subsidiaries, are approved by the Authoring Subcommittees - SCs (consisting of technicians from the same specialty, representing the various Company Units and its Subsidiaries), and ratified by the Executive Nucleus (consisting of representatives of the Company Units and its Subsidiaries). A PETROBRAS Technical Standard is subject to revision at any time by its Authoring Subcommittee and shall be reviewed every 5 years to be revalidated, revised or cancelled. PETROBRAS Technical Standards are prepared in accordance with PETROBRAS Technical Standard N-1. For complete information about PETROBRAS Technical Standards see PETROBRAS Technical Standards Catalog.

Foreword

This Standard is the English version (issued in 05/2020) of PETROBRAS N-2941 REV. In case of doubt, the Portuguese version, which is the valid document for all intents and purposes, shall be used.

1 Scope

1.1 This standard is only applicable to professionals in service provision contracts and is not applicable to Petrobras employees and its shareholdings.

1.1.1 This Standard only applies when any personal competencies presented in 5.1 is required in the contract.

1.2 This standard aims to establish the requirements for the certification of the personal competence of the professionals of the service providers, related to the inspection activities defined in 5.1, who work for Petrobras and its shareholdings, aiming at increasing reliability, reducing rework, security of installations and operational continuity.

1.3 The requirements of this standard applies in situations not established in specific national regulations.

1.4 For defining or not the application of this standard in contracts shall be considered, at least, the following conditions:

- a) Risk analysis for the activity to be performed;
- b) Corporate Directives and Standards of HSE;
- c) Building and safety requirements established in design codes and standards;
- d) Availability evaluation of certificates professionals for the level and required unit of competency.

1.5 This Standard is only applicable to inspection service contracts bid as of the date of its edition.

1.6 The effective term for implementation of this Standard to replace the previous review is 180 days from the date of its publication. If the Petrobras unit that is applying the Standard understands that it is not possible to implement it within this period, it shall register an Implementation Plan within this period defining the necessary actions and the respective deadlines.

1.7 The definition of the effective term of implementation of the requirements of this standard, when it is referenced in contracts for the provision of services and acquisition of goods, is the exclusive prerogative of the Petrobras.

1.8 This Standard only contains Technical Requirements.

2 Normative References

The following documents are cited in the text in such a way that their contents, total or partial, are requirements for this document. For dated references, only the mentioned editions apply. For undated references, the most recent editions of that document apply (including amendments).

ABNT [NBR 14842](#) - Soldagem - Critérios para a Qualificação e Certificação de Inspetores para o setor de Petróleo e Gás, Petroquímico, Fertilizantes, Naval e Termogeração (exceto nuclear);

ABNT [NBR 15218](#) - Critérios para Qualificação e Certificação de Inspectores de Pintura industrial;

ABNT [NBR 16049](#) - Dutos terrestres - Qualificação e certificação de Pessoas - Inspectores;

ABNT [NBR 16278](#) - Inspeção de Fabricação - Qualificação e Certificação de Pessoas para o setor de Petróleo e Gás;

ABNT [NBR IEC 60079-17](#) - Atmosferas Explosivas - Parte 17: Inspeção e Manutenção de Instalações Elétricas;

ABNT [NBR IEC 62337](#) - Comissionamento de Sistemas Elétricos, de Instrumentação e de Controle de Processos Industriais – Fases e Marcos Específicos;

ABNT [NBR IEC 62381](#) - Sistemas de Automação de Processos Industriais - Testes de Aceitação em Fábrica (TAF), Testes de Aceitação em Campo (TAC) e Testes de Integração em Campo (TIC);

ABNT [NBR IEC 62382](#) - Sistemas de Controle de Processos Industriais - Verificação de Malhas de Elétrica e de Instrumentação;

ABNT [NBR ISO/IEC 17024](#) - Avaliação da Conformidade - Requisitos Gerais para Organismos que Certificam Pessoas;

ISO [9712](#) - Non-Destructive Testing - Qualification and Certification of NDT Personnel;

IRAM-IAS [U500-169](#) - Soldadura. Calificación y Certificación de Inspectores;

ABENDI [NA-003](#) - Qualificação e Certificação de Pessoas em Ensaios Não Destrutivos para o Setor Subaquático;

ABENDI [NA-017](#) - Certificação de Competências Pessoais em Atmosferas Explosivas;

ASNT [SNT-TC-1A](#) - Recommended Practice: Personnel Qualification and Certification in Nondestructive Testing;

ANSI/ASNT [CP-189](#) – ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel;

AWS [B5.1](#) - Specification for the Qualification of Welding Inspectors;

AWS [QC1](#) - Specification for AWS Certification of Welding Inspectors;

BS EN ISO [17637:2016](#) - Non-Destructive Testing of Welds - Visual Testing of Fusion-Welded Joints;

CSA [W178.2-01](#) - Certification of Welding Inspectors;

CSWIP [WI-6-92](#) - Requirements for the Certification of Visual Welding Inspectors Welding Inspectors and Senior Welding Inspectors (fusion welding) in Accordance with the Requirements of BS EN ISO 17637:2016;

IECEx [05 A](#) - Orientações e instruções para inscrição para obter um Certificado de Competências Pessoais (CoPC);

IECEx [OD 504](#) - Documento Operacional - Especificações para a Avaliação dos Resultados das Unidades de Competência;

FIRJAN/SENAI-RJ [MC-0001](#) - Competências Pessoais em Atmosferas Explosivas - Manual do Candidato.

3 Terms and Definitions

For the purpose of this document applies the terms and definitions established in ABNT NBR [ISO/IEC 17024](#) and the followings:

3.1

equivalence among the certification programs of personal competencies

greater adherence or equivalence possible between the various systems of certification of personal competences existing, indicated in the equivalence tables presented in this standard

3.2

Site Acceptance Test - SAT

Activities performed to demonstrate that the installation and several suppliers systems are in accordance with the applicable specifications and installation instructions (ABNT [NBR IEC 62381](#))

3.3

Factory Acceptance Test - FAT

Activities performed to demonstrate that de supplier system and the auxiliary systems supplied are in accordance with the specifications (ABNT [NBR IEC 62381](#))

3.4

Site Integration Test - SIT

Activities performed to demonstrate that the integration of various systems in a single whole system is finished and all components are operating together in accordance with the specifications (ABNT [NBR IEC 62381](#))

4 Acronyms and Abbreviations

For the purposes of this standard applies the acronyms and abbreviations below:

ABNT	Associação Brasileira de Normas Técnicas
ABENDI	Associação Brasileira de Ensaaios Não Destrutivos e Inspeção
ABRACO	Associação Brasileira de Corrosão
ASNT	American Society for Non-Destructive Tests
AWS	American Welding Society
BINDT	British Institute of Non-Destructive Testing
CEBRAPI	Centro Brasileiro de Pintura Industrial
CSA	Canadian Standards Association
CSW	Canadian Welding Bureau
CSWIP	Certification Scheme for Weldment Inspection Personnel
FIRJAN	Federação das Indústrias do Estado do Rio de Janeiro
FROSIO	Faglig Råd for Opplæring og Sertifisering av Inspektører innen Overflatebehandling
IAF	International Accreditation Forum
IECEX	IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres
IRAM	Instituto Argentino de Normalización y Certificación
ISA	International Society of Automation
ICORR	Institute of Corrosion
NACE	National Association of Corrosion Engineers
NCCER	National Center for Construction, Education and Research
SSPC	Society for Protective Coatings

5 General Conditions

5.1 Activities that require personal competencies certification

The activities mentioned below are applied to inspection and quality control of services that require personal competencies certification:

- a) Welding Inspection;
- b) Inspection by Non Destructives Tests;
- c) Manufacturing Inspection;
- d) Inspection of Equipment, Systems and Installations in Explosive Atmospheres;
- e) Inspection of Industrial Painting,
- f) Inspection of Process Automation;
- g) Inspection of Electrical Automation Systems;
- h) Inspection of Onshore Pipelines;
- i) Subaquatic Inspection.

5.2 Requirements for personal competencies certification

The requirements for personal competencies certification are established on its certification systems, applied for each kind of activity, as per Section 6 (Specific Requirements) of this standard.

5.3 Issuing the certificate of conformity of personal competencies

Are accepted the personal competencies certificates issued by:

- a) Personal Certification Bodies that have been accredited in the specific scope of personal competence;
- b) Entities cited in Sections that address specific personal competencies, as described in Section 6 (Specific Requirements) of this standard.

6 Specific Requirements

6.1 Personal Skill Requirements for Welding Inspection

6.1.1 Welding inspectors working in Brazil shall be qualified and certified through a system operated by a People Certification Body (OPC) accredited by INMETRO, according to ABNT NBR [14842](#).

6.1.2 For welding services performed abroad or offshore, welding inspectors shall be qualified and certified by certification systems equivalent to ABNT NBR [14842](#), as per Table 1. An OPC qualification and certification system not listed in Table 1, can be accepted, provided that this OPC meets the requirements of ISO IEC 17024, in which case prior approval by PETROBRAS is required.

NOTE The level 2 welding inspector, or equivalent, used abroad shall be qualified and certified in the main applicable standard or demonstrate at least one year of experience working with said standard.

Table 1 – Equivalence between systems and certification levels for welding inspectors

Certification System	Standard	Certification Levels Equivalence (Note 1)		
ABNT (Brazil – Reference System)	ABNT NBR-14842	EV-N2-S Inspetor Visual de Solda	IS-N1 Inspetor de Soldagem Nível 1	IS-N2 Inspetor de Soldagem Nível 2
IRAM (IAS) (Argentina)	IRAM- IAS U500-169	- (Nota 2)	Inspector de Soldadura Nível II	Inspector de Soldadura Nível III
CWB (Canada)	CSA W178.2	WI-L1 Welding Inspector Level 1	WI-L2 Welding Inspector Level 2	WI-L3 Welding Inspector Level 3
CSWIP (TWI) (Inglaterra)	CSWIP WI-6-92	Visual Welding Inspector (Level 1)	Welding Inspector (Level 2)	Senior Welding Inspector (Level 3)
AWS (Americano - USA)	AWS QC1 AWS B5.1	CAWI Certified Associate Welding Inspector	CWI Certified Welding Inspector	SCWI Senior Certified Welding Inspector
IIW (International Institute of Welding)	IAB-041r5	IWI-B International Welding Inspector Level Basic	IWI-B International Welding Inspector Level Basic	IWI-S International Welding Inspector Level Standard ou IWI-C International Welding Inspector Level Comprehensive
IIW (International Institute of Welding)	IAB-254r5	IWP International Welding Practitioner	IWS International Welding Specialist	IWT International Welding Technologist ou IWE International Welding Engineer
NOTE 1 This Table presents the equivalence between Qualification and certification systems for welding inspectors by OPC already analyzed and accepted by PETROBRAS.				
NOTE 2 Certification of “Inspector de Soldadura Nível I” is not accepted for visual inspection purposes.				

6.2 Requirements of Personal Competencies for Non-Destructive Examination

For non-destructive testing services performed in Brazil or abroad, the qualification and certification of personnel must be by independent entities, accredited by the bodies nationals of their respective countries, according to ABNT NBR NM ISO 9712 or ISO [9712](#).

NOTE Self-certification systems such as the "Nondestructive Personnel Qualification and Certification ASNT SNT-TC-1A", for Level 1, 2 or 3 inspectors, in which the methodology of certification is established or applied by the employer at its own discretion, not are accepted by PETROBRAS, even if mentioned in the base rules of this document.

6.3 Requirements of Personal Competencies for Manufacturing Inspection

6.3.1 The inspectors of hired or manufacturing inspection services companies shall be qualified and certified in accordance with the reference standard ABNT [NBR 16278](#) or Table 3.

Table 3 – Equivalence among certified manufacturing inspectors according to ABNT [NBR 16278](#) and API Source Inspector

ABNT NBR 16278	API Source Inspector
IF-AT (piping accessories)	API SIFE – Fixed Equipment
IF-CT (fixed equipment and piping)	API SIFE – Fixed Equipment
IF-EL (electricity)	API SIEE – Electrical Equipment
IF-IN (instrumentation and automation)	API SIEE – Electrical Equipment
IF-MC (mechanics)	API SIRE – Rotating Equipment
IF-PP (oil drilling and production equipment)	API SIFE – Fixed Equipment
IF-TF (flexible ducts and umbilicals)	Does not have equivalent modality

6.3.2 Other certifications issued by independent bodies, that scope is related to the materials and equipment knowledge area to be inspected shall be submitted to Petrobras approval previously.

6.4 Requirements of Personal Competencies for Industrial Painting Inspection

6.4.1 For performing industrial painting inspection, the personal qualification and certification shall be in accordance with ABNT [NBR 15218](#) or Table 4.

Table 4 – Equivalence for Industrial Painting Inspection

Equivalence among Schemes and Certification Levels							
ABNT (ABNT NBR-15218)	ABRACO	CEBRAPI	NACE	British Gas BGAS/ER1	SSPC	FROSIO	ICORR
Inspector Level 1	Inspector Level 1	Inspector Level 1	NACE <u>Certified</u> Coating Inspector – Level 2	Painting Inspector Grade 2	Protective Coating Inspector – Level 2	Frosio Inspector – Level 2	ICORR Level 2 Coating Inspector
Inspector Level 2	Inspector Level 2	_____	NACE <u>Certified</u> Coating Inspector – Level 3	Painting Inspector Grade 1	Protective Coating Inspector – Level 3	Frosio Inspector – Level 3	ICORR Level 3 Coating Inspector

6.5 Requirements of Personal Competencies for Process Automation Inspection

6.5.1 For performing inspections and Factoring Acceptance Test (FAT), Site Acceptance Test (SAT), Site Integration Test (SIT), assembly, pre-commissioning and commissioning of process automation systems, the professionals shall carry out their activities according to ABNT [NBR IEC 62381](#), ABNT [NBR IEC 62382](#) and ABNT [NBR IEC 62337](#) and the Table 5 requirements shall be attended.

Table 5 – Equivalence for Process Automation Systems Inspection

Hired Activity	Certification Schemes		
	FIRJAN SYSTEM	ISA	NCCER
TAF, SAT, Construction and Assembly	Process Installation and Storage Inspector	CCST Level I	Instrumentation Construction and Maintenance
TAF, SAT, SIT, Pre-Commissioning and Commissioning	Commissioning Inspector	CCST Levels II e III, ISA CAP	Not applicable

6.6 Requirements of Personal Competencies for Inspection of Electrical Automation Systems

6.6.1 For performing the inspections and construction, assembly, pre-commissioning and commissioning tests of electrical automation systems in Brazil, the professionals shall carry out the activities in accordance with ABNT [NBR IEC 62381](#) and ABNT [NBR IEC 62337](#) and attend the requirements of Table 6.

Table 6 – Table of Equivalence for Inspection of Electrical Automation Systems

Hired Activity	Certification Schemes	
	FIRJAN SYSTEM	NCCER
TAF, SAT, Construction and Assembly	Electrical Automation Installation and Storage Inspector	Electrical Construction and Maintenance
TAF, SAT, SIT, Pre-Commissioning and Commissioning	Electrical Automation Commissioning Inspector	Not applicable

6.7 Requirements of Personal Competencies for Inspection of Equipment, Systems and Installations in Explosive Atmospheres

6.7.1 For the certification of professionals that perform visual inspections activities in explosive atmospheres shall be attended the ABNT [NBR IEC 60079-17](#) standard.

6.7.2 Units of “Ex” Competencies to be obtained in accordance with the performed functions

Considering the specified requirements in the Operational Document [IECEx OD 504](#) and in the Guide [IECEx 05 A](#) the following personal competencies in explosive atmospheres are required, in accordance with the performed functions by “Ex” certified persons:

- Persons involved in the function of visual or accurate inspections of “Ex” equipment or installations shall be certified by the Ex 007 Competence Unit.
- Persons involved with the function of detailed inspections of equipment or installations “Ex” shall have certification in the Competence Unit Ex 008.

6.7.3 The Table 7 define the equivalence among Units of Personal Competencies in Explosive Atmospheres.

Table 7 – Units for personal competencies Certification in explosive atmospheres offered by IECEx and by Brazilian Certification bodies

Certification Schemes		
IECEx OD 504 - Operational Document - Specifications for the evaluation of the results of the “Ex” Competence Units	FIRJAN/SENAI-RJ MC-0001 – Personal competencies in explosive atmospheres - Candidate's Manual	Abendi NA-017 – Certification of personal competencies in explosive atmospheres
Ex 007 - Performing visual and accurate inspections of equipment and installations in, or associated with, explosive atmospheres	Ex 007 - Performing visual and accurate inspections of equipment and installations in classified areas	Ex 007 - Performing visual and accurate inspections of equipment and installations in, or associated with, explosive atmospheres
Ex 008 - Performing detailed inspections of equipment and installations in, or associated with, explosive atmospheres	Ex 008 - Performing accurate inspections in installations and equipment in classified areas	Ex 008 - Performing detailed inspections of equipment or electrical installations in, or associated with, explosive atmospheres



6.8 Requirements of Personal Competencies for Inspection of Onshore Pipelines

For performing inspection of Onshore Pipelines in Brazil, the qualification and certification of persons shall be in accordance with ABNT [NBR 16049](#).

6.9 Requirements of Personal Competencies for Subaquatic Inspection

For performing subaquatic non-destructive tests, the qualification and certification of persons shall be in accordance with the requirements specified in the standard ABENDI [NA-003](#) or as per the subsection 6.2 for the cases where the scope of non-destructive tests in subaquatic environment is formally established in the correspondent certification scheme.

5 General Conditions

5.1 Activities that require personal competencies certification

The activities mentioned below are applied to inspection and quality control of services that require personal competencies certification:

- a) Welding Inspection;
- b) Inspection by Non Destructive Tests;
- c) Manufacturing Inspection;
- d) Inspection of Equipment, Systems and Installations in Explosive Atmospheres;
- e) Inspection of Industrial Painting;
- f) Inspection of Process Automation;
- g) Inspection of Electrical Automation Systems;
- h) Inspection of Onshore Pipelines;
- i) Subaquatic Inspection.

5.2 Requirements for personal competencies certification

The requirements for personal competencies certification are established on its certification systems, applied for each kind of activity, as per Section 6 (Specific Requirements) of this standard.

5.3 Issuing the certificate of conformity of personal competencies

Are accepted the personal competencies certificates issued by:

- a) Personal Certification Bodies that have been accredited in the specific scope of personal competence;
- b) Entities cited in Sections that address specific personal competencies, as described in Section 6 (Specific Requirements) of this standard.

6 Specific Requirements

6.1 Requirements for Personal Competencies for Welding Inspection

The inspectors who work for welding services companies shall be qualified and certificated in accordance with the reference standard ABNT [NBR 14842](#) or Table 1.

Table 1 – Equivalence among Schemes and Certification Levels for Welding

Certification System	Standard	Certification Levels		
ABNT (Reference System)	ABNT NBR-14842	Visual Welding Inspector EV-N2-S	Welding Inspector Level 1 IS-N1	Welding Inspector Level 2 IS-N2
IRAM (IAS)	IRAM-IAS U500-169	- See Note	Welding Inspector Level II	Welding Inspector Level III
CWB	CSA W178.2-01	WI-L1 Welding Inspector Level 1	WI-L2 Welding Inspector Level 2	WI-L3 Welding Inspector Level 3
CSWIP (TWI)	CSWIP WI-6-92	Visual Welding Inspector (Level 1)	Welding Inspector (Level 2)	Senior Welding Inspector (Level 3)
AWS	AWS QC1 AWS B5.1	CAWI Certified Associate Welding Inspector	CWI Certified Welding Inspector	SCWI Senior Certified Welding Inspector

Note: The Certification of Welding Inspector Level I is not accepted for visual inspection.

FOREWORD

This Standard is the English version (issued in 10/2021) of PETROBRAS N-2941, including its amendments. In case of doubt, the Portuguese version, which is the valid document for all intents and purposes, shall be used.

1 SCOPE

1.1 This standard is only applicable to professionals in service provision contracts and is not applicable to Petrobras employees and their equity interests.

1.1.1 This Standard only applies when any personal competencies presented in 5.1 is required in the contract.

1.2 This standard aims to establish the requirements for the certification of the personal competence of the professionals of the service providers, related to the inspection activities defined in 5.1, who work for Petrobras and its shareholdings, aiming at increasing reliability, reducing rework, security of installations and operational continuity.

1.3 The requirements of this standard applies in situations not established in specific national regulations.

1.4 For defining or not the application of this standard in contracts shall be considered, at least, the following conditions:

- a) Risk analysis for the activity to be performed;
- b) Corporate Directives and Standards of PSE;
- c) Building and safety requirements established in design codes and standards;
- d) Availability / evaluation of certificates professionals for the level and required unit of competency.

1.5 This Standard is only applicable to inspection service contracts bid as of the date of its edition.

1.6 This Standard only contains Technical Requirements.

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ABNT [NBR 14842](#) - Soldagem - Critérios para a Qualificação e Certificação de Inspetores para o setor de Petróleo e Gás, Petroquímico, Fertilizantes, Naval e Termogeração (exceto nuclear);

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ABNT [NBR 16049](#) - Dutos terrestres - Qualificação e certificação de Pessoas - Inspetores;

ABNT [NBR 16278](#) - Inspeção de Fabricação - Qualificação e Certificação de Pessoas para o setor de Petróleo e Gás;

ABNT [NBR IEC 60079-17](#) - Atmosferas Explosivas - Parte 17: Inspeção e Manutenção de Instalações Elétricas;

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6 SPECIFIC REQUIREMENTS

6.1 Requirements for Personal Competencies for Welding Inspection

The inspectors who work for welding services companies shall be qualified and certificated in accordance with the reference standard ABNT [NBR 14842](#) or Table 1.

Table 1 – Equivalence among Schemes and Certification Levels for Welding

Certification System	Standard	Certification Levels		
ABNT (Reference System)	ABNT NBR 14842	Visual Welding Inspector (V-N2) S	Welding Inspector Level 1 (IS-N1)	Welding Inspector Level 2 (IS-N2)
IRAM (IAS)	IRAM IAS 1200-69	See Note	Welding Inspector Level II	Welding Inspector Level III
CWB	CSA W178.2-11	WI-L1 Welding Inspector Level 1	WI-L2 Welding Inspector Level 2	WI-L3 Welding Inspector Level 3
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AWS	AWS QC1 AWS B5.1	CAWI Certified Associate Welding Inspector	CWI Certified Welding Inspector	SCWI Senior Certified Welding Inspector

Note: The Certification of Welding Inspector Level I is not accepted for visual inspection.

6.2 Requirements of Personal Competencies for Non-Destructive Examination

6.2.1 To perform a visual test, penetrating liquid, magnetic particles, radiography, ultrasound and eddy currents, the qualification and certification of people shall be in accordance with ISO 9712. The entities listed in Table 2 comply with ISO [9712](#). The certifications of entities not listed in Table 2, but which also comply with ISO [9712](#) and which are linked to the IAF, can be accepted according to Petrobras' evaluation.

6.2.2 ACCP - ASNT Central Certification Program and the United Kingdom's PCN / BINDT are centralized personnel qualification programs that are also considered acceptable. However, other ASNT and PCN / BINDT qualification programs, which use the ASNT SNT-TC-1A recommended practice or the ANSI / ASNT CP-189 standard are not acceptable because they are systems based on self certification (certification conferred by the employer itself) for Level 1 and 2 inspectors, and in some cases, even for Level 3 inspectors according to the exam criteria).

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1.6 This Standard only contains Technical Requirements.

2 NORMATIVE REFERENCES

The following documents are cited in the text in such a way that their contents, total or partial, are requirements for this document. For dated references, only the mentioned editions apply. For undated references, the most recent editions of that document apply (including amendments).

ABNT [NBR 14842](#) - Soldagem - Critérios para a Qualificação e Certificação de Inspetores para o setor de Petróleo e Gás, Petroquímico, Fertilizantes, Naval e Termogeração (exceto nuclear);

ABNT [NBR 15218](#) - Critérios para Qualificação e Certificação de Inspetores de Pintura industrial;

ABNT [NBR 16049](#) - Dutos terrestres - Qualificação e certificação de Pessoas - Inspetores;

ABNT [NBR 16278](#) - Inspeção de Fabricação - Qualificação e Certificação de Pessoas para o setor de Petróleo e Gás;

ABNT [NBR IEC 60079-17](#) - Atmosferas Explosivas - Parte 17: Inspeção e Manutenção de Instalações Elétricas;

ABNT [NBR IEC 62337](#) - Comissionamento de Sistemas Elétricos, de Instrumentação e de Controle de Processos Industriais – Fases e Marcos Específicos;

3.2**Site Acceptance Test - SAT**

Activities performed to demonstrate that the installation and several suppliers systems are in accordance with the applicable specifications and installation instructions (ABNT [NBR IEC 62381](#))

3.3**Factory Acceptance Test - FAT**

Activities performed to demonstrate that the supplier system and the auxiliary systems supplied are in accordance with the specifications (ABNT [NBR IEC 62381](#))

3.4**Site Integration Test - SIT**

Activities performed to demonstrate that the integration of various systems in a single whole system is finished and all components are operating together in accordance with the specifications (ABNT [NBR IEC 62381](#))

4.3 ACRONYMS AND ABBREVIATIONS

For the purposes of this standard applies the acronyms and abbreviations below:

ABNT	Associação Brasileira de Normas Técnicas
ABENDI	Associação Brasileira de Ensaios Não Destrutivos e Inspeção
ABRACO	Associação Brasileira de Corrosão
ASNT	American Society for Non-Destructive Tests
AWS	American Welding Society
BINDT	British Institute of Non-Destructive Testing
CSA	Canadian Standards Association
CSW	Canadian Welding Bureau
CSWIP	Certification Scheme for Welding Inspection Personnel
FIRJAN	Federação das Indústrias do Estado do Rio de Janeiro
FROSIO	Faglig Råd for Opplæring og Sertifisering av Inspektører innen Overflatebehandling
IAF	International Accreditation Forum
IECx	IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres
IRAM	Instituto Argentino de Normalización y Certificación
ISA	International Society of Automation
ICORR	Institute of Corrosion
NACE	National Association of Corrosion Engineers
NCCER	National Center for Construction, Education and Research
SSPC	Society for Protective Coatings

5 GENERAL CONDITIONS**5.1 Activities that require personal competencies certification**

The activities mentioned below are applied to inspection and quality control of services that require personal competencies certification:

- Welding Inspection;
- Inspection by Non Destructives Tests;;
- Manufacturing Inspection;
- Inspection of Equipment, Systems and Installations in Explosive Atmospheres;
- Inspection of Industrial Painting,
- Inspection of Process Automation;
- Inspection of Electrical Automation Systems;
- Inspection of Onshore Pipelines;
- Subaquatic Inspection.

6.4 Requirements of Personal Competencies for Industrial Painting Inspection

6.4.1 For performing industrial painting inspection, the personal qualification and certification shall be in accordance with ABNT [NBR 15218](#) or Table 4.

Table 4 – Equivalence for Industrial Painting Inspection

Equivalence among Schemes and Certification Levels						
ABNT (ABNT NBR-15218)	ABRACO	NACE	British Gas BGAS/ER1	SSPC	FROSIO	ICORR
Inspector Level 1	Inspector Level 1	NACE Certified Coating Inspector – Level 2	Painting Inspector Grade 2	Protective Coating Inspector – Level 2	Frosio Inspector – Level 2	ICORR Level 2 Coating Inspector
Inspector Level 2	Inspector Level 2	NACE Certified Coating Inspector – Level 3	Painting Inspector Grade 1	Protective Coating Inspector – Level 3	Frosio Inspector – Level 3	ICORR Level 3 Coating Inspector

6.5 Requirements of Personal Competencies for Process Automation Inspection

6.5.1 For performing inspections and Factoring Acceptance Test (FAT), Site Acceptance Test (SAT), Site Integration Test (SIT), assembly, pre-commissioning and commissioning of process automation systems, the professionals shall carry out their activities according to ABNT [NBR IEC 62381](#), ABNT [NBR IEC 62382](#) and ABNT [NBR IEC 62337](#) and the Table 5 requirements shall be attended.

Table 5 – Equivalence for Process Automation Systems Inspection

Hired Activity	Certification Schemes		
	FIRJAN SYSTEM	ISA	NCCER
TAF, SAT, Construction and Assembly	Process Installation and Storage Inspector	CCST Level I	Instrumentation Construction and Maintenance
TAF, SAT, SIT, Pre-Commissioning and Commissioning	Commissioning Inspector	CCST Levels II e III, ISA CAP	Not applicable

6.6 Requirements of Personal Competencies for Inspection of Electrical Automation Systems

6.6.1 For performing the inspections and construction, assembly, pre-commissioning and commissioning tests of electrical automation systems in Brazil, the professionals shall carry out the activities in accordance with ABNT [NBR IEC 62381](#) and ABNT [NBR IEC 62337](#), and attend the requirements of Table 6.