

Non-Destructive Testing Visual Inspection

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

SC - 27

Non-Destructive Testing

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 11/2013) of PETROBRAS N-1597 REV. G 08/2013. 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 sets out the conditions required for non-destructive testing by means of visual inspection, whether or not aided by optical devices, complementing national and foreign applicable design standards.

1.2 This Standard is applied in the visual inspection of:

- a) joints prepared for welding;
- b) welded joints;
- c) castings;
- d) forgings;
- e) rolled products;
- f) finish on parts;
- g) preparation of surfaces;
- h) identification of state of surfaces;
- i) coatings;
- j) evidence of leaks;
- k) alignments;
- l) deformations and mechanical damage;
- m) other types that can be checked by visual inspection.

1.3 This Standard applies to procedures started as of its date of issuance.

1.4 This Standard contains only Technical Requirements.

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 applies.

INMETRO [VIM:2012](#) - Vocabulário Internacional de Metrologia: Conceitos Fundamentais e Gerais e Termos Associados (Edição Luso-Brasileira);

ABNT [NBR NM 329:2011](#) - Ensaios Não Destrutivos - Ensaio Visual - Terminologia;

ABNT [NBR NM 315:2007](#) - Ensaios Não Destrutivos - Ensaio Visual - Procedimento;

ABNT [NBR NM ISO 9712](#) - Ensaio não Destrutivo - Qualificação e Certificação de Pessoal;

ISO [8501-1:2007](#) - 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/IEC [17024:2012](#) - Conformity Assessment - General Requirements for Bodies Operating Certification of Persons;