Training - Corrosion Prevention in Oil and Gas Production

CORR-EN-P | Face-to-face only | 5 days

This course provides in-depth understanding of corrosion phenomena specific to Oil & Gas production facilities and the main corrosion prevention techniques

Level

Knowledge

Public

Engineers and technicians working for the design, construction, operation, inspection or maintenance of Oil & Gas upstream production facilities

Objectives

Attendees will be able to implement the following skills:

- List the main characteristics and types of corrosion of metallic materials used in the Oil & Gas industries
- Describe the means of protection against each type of corrosion
- Select the most appropriated material for a given Oil & Gas application
- Explain the available ways of monitoring the state of corrosion of a metallic equipment

Pedagogical & technical resources

- Highly interactive teaching by experienced lecturers
- Several applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DEFINITION & MECHANISMS OF CORROSION — 1 day

Ferrous and non-ferrous metals: structure, composition, mechanical properties, metallurgy.
Definitions: wet corrosion, dry corrosion.
Cost of corrosion: financial and human.
Basics: electrochemical mechanisms, polarization, passivity, diffusion.

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COMMON TYPES OF CORROSION — 1 day

Analysis of the origin and development process of each form of corrosion and possible methods of prevention.
Forms of corrosion studied: uniform, galvanic, pitting, crevice, inter-granular, selective, corrosion-erosion and cavitation, stress corrosion, contact corrosion.

TYPES OF CORROSION ENCOUNTERED IN THE OIL & GAS INDUSTRY — 1 day

Each type of corrosion is studied together with possible remedial treatment:

- Corrosion by hydrogen sulfide.
- Corrosion by carbon dioxide.
- Corrosion due to oxygen in aqueous environment.
- Caustic soda corrosion.
- Corrosion in acid gas treatment units.
- Atmospheric corrosion or corrosion by sea water.
- Corrosion by mercury.
- Corrosion of reinforced concrete.

Case studies of corrosion observed in Oil & Gas installations: identification of the types of corrosion and suggested remedial treatments.

CORROSION PREVENTION — 1 day

Design of equipment aimed at avoiding certain types of corrosion.
Choice of the materials best suited to the environment.
Corrosion inhibitors, filming, passivating, neutralizing, absorbing the oxygen.
Anticorrosion coatings and systems.
Cathodic protection with sacrificial anodes or imposed current.
Methodology and control of processes. Control of process and environmental parameters.
Analysis of the means of prevention implemented in the units.

CORROSION MONITORING - FUNDAMENTALS OF INSPECTION — 1 day

Corrosion coupons and probes.
Non-destructive testing of the state of walls.
Corrosion monitoring plan.
Fundamentals of inspection.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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