



Corrosion Monitoring & Inspection Methods Control In Gas, Oil & Water



Introduction:

The production of gas and oil is often accompanied by water and acid gases, such as (H₂S) and (CO₂) are often present in produced fluids. These increase the corrosivity of the process, which can significantly impact the safe operating life of pipes and equipment. Additionally, the build-up of corrosion and bacterial by-products on the equipment walls can cause problems with the equipment's operation.

The potential consequences of internal and external corrosion represent both safety and economic concerns to various sectors of the industry. Corrosion is fought by a complex system of monitoring, preventative repairs and careful use of materials. This course examines the types of corrosion and corrosion control in the gas, oil and water industry and provides an overview of specific process descriptions, and focuses on the examination and identification of metallurgical problems in process units and methods of corrosion monitoring, control and damage reduction.

This training course will feature:

- Materials of construction for process applications
- Corrosion monitoring and inspection methods

- Fundamental corrosion principles and mechanisms
- Types of corrosion that are related to the oil, gas and water
- Aspects of Corrosion inspection and anti-corrosion management and mitigation

Who Should Attend?

Reliability Engineers, Maintenance Managers, Engineers & Planners, Reliability and Maintenance Engineers, Facilities and Utilities Managers, Design Engineers, Top Level Maintenance Technicians, OE Champions, Predictive and Preventive Maintenance, Technicians & Supervisors, Planners, Maintenance Supervisors, Crafts and Tradesmen, Operations Supervisors, Process Engineers, Inspectors and Inspection Supervisors, Equipment Engineers Team Leaders and Professionals in Maintenance, Engineering and Production, Maintenance managers, reliability and maintenance Engineers, Production Managers, Plant Engineers, Design Engineers, Reliability Engineers and Technicians, Operators, Safety Engineers, Risk Engineers, Safety Engineers and anyone who is involved in Reliability Engineering strategies or methodologies to include design engineers for capital projects engineers, Foreman and Technicians, Mechanical, Electrical and Operational Personnel, Personnel designated as Planners, Key leaders from each maintenance craft, Key operations personnel, Technical professionals responsible for maintenance and repair of equipment, Professionals involved in inspection and maintenance and repair, professionals involved in asset & maintenance management auditing, Quality & Compliance Managers, Lead Auditors & Audit Team Members, Process Controllers, Maintenance Supervisors, Maintenance Planners, Predictive Maintenance Technicians & Supervisors, Materials Management Managers and Supervisors, Service Company Representatives, Asset owners & Asset Managers

Course Objectives:

By the end of this course delegates will be able to:

- Have a knowledge of basic metallurgical considerations and Materials of Construction for corrosion resistance
- Recognize and define corrosion for applications and equipment related to oil, gas and water
- Understand the basic principles of corrosion and its mechanisms
- Learn about the different types of corrosion, related to oil, gas and water

- Understand the application of corrosion protection techniques including cathodic protection, coatings and inhibitors
- Learn about corrosion inspection and monitoring techniques and methods of corrosion mitigation

Course Outline:

Fundamentals of Corrosion Principles

- Introduction to corrosion and corrosion failure potential
- Requirements of corrosion
- Electro chemical cells
- Corrosion mechanisms
- Corrosion rates

Types of Corrosion in the Refinery Industry, Related to Oil, Gas and Water

- Uniform corrosion
- Pitting Corrosion
- Erosion Corrosion
- Crevice Corrosion
- Corrosion Under Lining
- Bimetallic Corrosion
- H₂S, CO₂, influenced corrosion
- Types of Hydrogen related cracking
- Naphthenic Acid Corrosion
- Carbonate Cracking (CC)
- Chlorine Stress Corrosion Cracking
- Microbiologically Induced Corrosion (MIC)

Materials of Construction for Refinery Applications

- Common Materials in the Refinery Industry

- Carbon and alloy Steels
- Stainless steels
- Nickel based alloys
- Polymeric materials
- Selecting the proper material for the application
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Corrosion Control, Protection and Monitoring

- Cathodic protection
- Coatings and linings
- Inhibitors
- Corrosion coupons and probes
- Intelligent Pigs
- Overview of API 579