TRAINING TITLE

PROCESS CHEMICALS TESTING METHODS

Training Duration

5 day

Training Venue and Dates

Ref. No. PE117	**Process Chemicals Testing Methods**	**5**	**15-19 Sep. 2025**	**$5,500**	**DUBAI, UAE**

In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- **$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch**

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

In the oil and gas industry, process chemicals play a crucial role in optimizing production, ensuring safety, and maintaining the integrity of systems. The ability to effectively test and evaluate these chemicals is essential for their successful application across different operations, from upstream exploration and production to downstream refining and transportation. This 5-day course provides participants with a comprehensive understanding of process chemical testing methods, focusing on the physical, chemical, and performance testing of various chemicals used in oil and gas operations.

TRAINING OBJECTIVES

Upon the successful completion of this course, participants will be able to:-

1. Understand the importance of process chemicals in the oil and gas industry and their role in enhancing operational performance.
2. Apply appropriate testing methods for evaluating the properties and performance of process chemicals such as corrosion inhibitors, scale inhibitors, demulsifiers, and surfactants.
3. Conduct laboratory tests to assess the chemical composition, physical properties (density, viscosity, pH), and stability of process chemicals.
4. Use advanced instrumentation for process chemical testing, including gas chromatography, spectrophotometry, and viscometers.

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5. Perform field testing and real-time monitoring of process chemicals, evaluating their performance in operational environments.
6. Troubleshoot common issues in chemical testing, interpret data effectively, and optimize chemical treatments.
7. Ensure that testing processes comply with industry standards (API, ASTM, ISO) and are aligned with safety, environmental, and regulatory requirements.

WHO SHOULD ATTEND?

This course is intended for professionals involved in the selection, testing, application, and management of process chemicals in the oil and gas industry, including:

- **Process Engineers**
- **Production Supervisors and Operators**
- **Laboratory Technicians and Chemists**
- **Quality Control Specialists**
- **Field Technicians and Engineers**
- **HSE (Health, Safety, and Environmental) Professionals**
- **Regulatory Compliance Officers**
- **Supply Chain and Chemical Procurement Managers**

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.
Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos & General Discussions

COURSE PROGRAM:

Day 1: Introduction to Process Chemicals and Testing in Oil and Gas Operations

- **Overview of process chemicals in the oil and gas industry: types and applications (e.g., corrosion inhibitors, scale inhibitors, demulsifiers, surfactants).**

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- Importance of testing process chemicals for optimal performance, safety, and regulatory compliance.
- Introduction to key testing methods and industry standards (API, ASTM, ISO).
- The role of process chemicals in upstream, midstream, and downstream operations.
- Understanding the chemical composition of common process chemicals used in the industry.
- Case studies: Real-world examples of testing process chemicals to improve operational efficiency.
- Group discussion: Challenges and best practices for testing process chemicals in different phases of oil and gas operations.

Day 2: Testing Methods for Chemical Properties and Performance

- Analytical techniques for testing the physical and chemical properties of process chemicals (e.g., density, viscosity, pH, chemical stability).
- Testing for corrosion inhibition: techniques to evaluate the effectiveness of corrosion inhibitors.
- Testing for scale inhibition: methods for determining scale formation potential and inhibitor performance.
- Testing for demulsifier performance: separation efficiency, water-in-oil emulsion behavior, and chemical effectiveness.
- Evaluation of surfactant properties: foaming behavior, wettability, and oil-water interfacial tension.
- Performing basic physical and chemical property tests on sample process chemicals.
- Discussion: Interpretation of test results and identifying performance issues.

Day 3: Laboratory Testing Techniques and Instrumentation

- Overview of laboratory instruments used in process chemical testing: titrators, viscometers, pH meters, gas chromatographs.
- Calibration, maintenance, and troubleshooting of testing instruments.
- Proper sample collection and preparation for accurate testing results.
- Gas chromatography for chemical analysis: separation and identification of chemical components.
- Spectroscopic techniques: UV-Vis, IR, and NMR for testing process chemicals.
- Using laboratory equipment to conduct tests on process chemicals (e.g., viscosity, density, corrosion potential).
- Group activity: Review of the testing process and data interpretation.

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Day 4: Field Testing Methods and Real-Time Monitoring

- **Field testing techniques for process chemicals: on-site testing versus laboratory analysis.**
- **Real-time monitoring of process chemical performance in production systems (e.g., chemical injection rates, chemical concentration).**
- **Chemical testing for flow assurance: wax inhibitors, hydrate inhibitors, and asphaltene inhibitors.**
- **Field instruments for monitoring chemical performance: portable analyzers, sensors, and handheld devices.**
- **Integrating field data with laboratory results to optimize chemical treatment programs.**
- **Case study: Applying field and lab testing results to improve chemical treatment programs in a real-world operation.**
- **Conducting field-based chemical tests and monitoring systems.**

Day 5: Troubleshooting, Data Analysis, and Reporting

- **Troubleshooting common issues in process chemical testing: inconsistencies in results, incorrect chemical dosages, and failures in chemical treatments.**
- **Statistical analysis and data interpretation: how to analyze and correlate testing results to identify trends and performance issues.**
- **Best practices for improving chemical treatment programs based on test data.**
- **Reporting and documenting test results: creating clear, comprehensive, and accurate reports for management and regulatory compliance.**
- **Health, safety, and environmental (HSE) considerations in testing process chemicals.**
- **Course wrap-up: Review of key concepts, Q&A, and feedback session.**
- **Final assessment and certification distribution.**

NOTE:
Pre-& Post Tests will be conducted.
Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.

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