

Production Chemistry: Chemical Solutions for Oil & Gas Operations

Course general description:

This comprehensive training course focuses on the fundamental principles and practical applications of production chemistry in the oil and gas industry. The course covers chemical treatments, monitoring techniques, and optimization strategies for managing production challenges such as corrosion, scale, hydrates, and other flow assurance issues. Participants will gain practical knowledge in selecting, applying, and evaluating chemical solutions for various production scenarios.

Audience:

This course is designed for:

1. Production Chemists
2. Production Engineers
3. Process Engineers
4. Field Operations Personnel
5. Technical Support Staff
6. Laboratory Technicians
7. Asset Integrity Specialists
8. Environmental Compliance Officers

Course objectives:

By the end of this course, participants will be able to:

1. Evaluate and select appropriate chemical treatments for specific production challenges
2. Implement effective monitoring programs for chemical treatment efficiency
3. Understand the environmental impact of production chemicals
4. Apply best practices in chemical handling and application
5. Perform basic troubleshooting of production chemistry issues
6. Design chemical treatment programs for various production scenarios

Course duration:

5 days

Course location:

Dubai

Course contents:

Day 1: Fundamentals and Corrosion Management

1. Production Chemistry Fundamentals: Principles, production chemicals overview, sampling, analysis, and lab testing.
2. Corrosion Mechanisms and Monitoring: Types, monitoring techniques, corrosion rate measurement, and risk mitigation.
3. Corrosion Control and Inhibition: Inhibitor types, application methods, dosage calculations, and performance monitoring.

Day 2: Flow Assurance and Scale Management

1. Scale Formation and Prevention: Mechanisms, prediction modeling, inhibitors, selection criteria, and removal techniques.
2. Hydrate Management: Formation conditions, prevention methods, inhibitor types, and monitoring strategies.
3. Wax and Asphaltene Management: Formation mechanisms, control strategies, chemical treatments, and case studies.

Day 3: Emulsion, Foam, and Water Treatment

1. Emulsion Treatment: Formation, emulsion breakers, application methods, and troubleshooting.
2. Foam Control: Causes, antifoam agents, application strategies, and case studies.
3. Produced Water Treatment: Water quality, clarifiers, flocculants, H₂S scavenging, and environmental considerations.

Day 4: Environmental Considerations and Special Applications

1. Environmental Impact and Green Chemistry: Regulations, eco-friendly alternatives, biodegradability, and waste management.
2. Deepwater and Special Applications: Chemical needs for extreme conditions, low-dosage hydrate inhibitors, and combined treatments.
3. Course review and final assessment.

Methodology:

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

Course code: (TPTR004)