Training Course on Production Chemistry and Corrosion Control

Professional Development Training Course Outline

Category	Oil and Gas	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Production Chemistry and Corrosion Control are critical disciplines within the oil, gas, and petrochemical industries, ensuring operational efficiency, safety, and longevity of assets. Training Course on Production Chemistry & Corrosion Control delves into the advanced principles of chemical treatments, corrosion mechanisms, and mitigation techniques vital for maintaining the integrity of production systems. Participants will gain hands-on knowledge and practical insights into cutting-edge chemical formulations, monitoring technologies, and industry best practices to optimize production while minimizing costly downtime and environmental impact.
Designed for professionals striving to master corrosion control and production chemistry, this training emphasizes real-world applications, regulatory compliance, and sustainability in asset management. With a focus on trending innovations such as green corrosion inhibitors, digital corrosion monitoring, and data-driven chemical management, attendees will be equipped to implement robust corrosion mitigation strategies that enhance safety, reduce maintenance costs, and extend equipment life in challenging production environments.

Programme Curriculum

Training Course on Production Chemistry & Corrosion Control

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Course Objectives

1. Understand fundamental and advanced concepts of Production Chemistry in oil & gas operations.
2. Identify types, causes, and consequences of corrosion in production systems.
3. Explore latest corrosion inhibitors and chemical treatment formulations.
4. Develop skills in corrosion monitoring techniques including ultrasonic, electrochemical methods.
5. Analyze impact of microbial influenced corrosion (MIC) and mitigation strategies.
6. Implement best practices for scale and deposit control in production lines.
7. Master flow assurance chemistry to prevent hydrate and wax formation.
8. Gain proficiency in risk assessment and corrosion management plans.
9. Study environmental and regulatory frameworks related to chemical use and corrosion control.
10. Utilize data analytics and IoT for predictive corrosion management.
11. Apply case study analysis to solve real-world corrosion challenges.
12. Integrate sustainable and eco-friendly corrosion inhibitors.
13. Enhance teamwork and communication skills in multidisciplinary corrosion control projects.

Target Audiences

1. Production Chemists
2. Corrosion Engineers
3. Maintenance Supervisors
4. Process Engineers
5. Asset Integrity Managers
6. Environmental Health & Safety Professionals
7. Technical Sales and Service Personnel
8. Operations Managers

Course Duration: 10 days

Course Modules

Module 1: Introduction to Production Chemistry

- Overview of production chemistry principles
- Role of chemicals in production optimization
- Types of chemicals used in oil & gas industry
- Basic chemistry of corrosion processes
- Environmental considerations in chemical use
- **Case Study:** Chemical treatment optimization in offshore production

Module 2: Fundamentals of Corrosion in Production Systems

- Types of corrosion: uniform, pitting, crevice, galvanic
- Factors influencing corrosion rate
- Materials selection and corrosion resistance
- Corrosion mechanisms specific to production environments
- Effects of temperature, pressure, and flow on corrosion
- **Case Study:** Corrosion failure analysis in pipeline systems

Module 3: Corrosion Inhibitors and Chemical Treatments

- Types of corrosion inhibitors (anodic, cathodic, mixed)

- Selection criteria for inhibitors
- Application methods and dosing strategies
- Interaction of inhibitors with production fluids
- Evaluating inhibitor efficiency and compatibility
- **Case Study:** Successful inhibitor program in gas processing plant

Module 4: Corrosion Monitoring and Inspection Techniques

- Ultrasonic thickness measurement
- Electrochemical impedance spectroscopy (EIS)
- Electrical resistance probes and coupons
- Data interpretation and trending
- Integration of digital monitoring systems
- **Case Study:** Implementing a corrosion monitoring system in refinery

Module 5: Microbial Influenced Corrosion (MIC)

- Types of microbes causing MIC
- Detection and monitoring of MIC
- Biocides and treatment strategies
- Impact of MIC on different materials
- Prevention and control best practices
- **Case Study:** MIC mitigation in subsea pipelines

Module 6: Scale and Deposit Control Chemistry

- Types of scales and deposits (carbonate, sulfate, silica)
- Chemical scale inhibitors
- Cleaning and removal methods
- Monitoring scale formation
- Impact of deposits on corrosion and flow assurance
- **Case Study:** Scale control in water injection systems

Module 7: Flow Assurance Chemistry

- Hydrate formation and prevention
- Wax deposition and treatment
- Use of flow improvers and dispersants
- Chemical compatibility and safety
- Monitoring and troubleshooting flow assurance issues
- **Case Study:** Flow assurance management in deepwater production

Module 8: Corrosion Risk Assessment and Management

- Corrosion risk identification techniques
- Developing corrosion management plans
- Prioritizing inspection and maintenance
- Cost-benefit analysis of corrosion control measures
- Regulatory compliance and reporting
- **Case Study:** Corrosion risk management in aging infrastructure

Module 9: Environmental and Regulatory Aspects

- Environmental impact of corrosion chemicals
- Regulatory frameworks and standards
- Safe handling and disposal of chemicals

- Sustainable corrosion control solutions
- Corporate social responsibility in corrosion management
- **Case Study:** Compliance with environmental regulations in chemical usage

Module 10: Data Analytics and Digital Corrosion Management

- Role of IoT and sensors in corrosion monitoring
- Data collection and analysis tools
- Predictive maintenance using analytics
- AI applications in corrosion prediction
- Integration with asset integrity management systems
- **Case Study:** Predictive corrosion analytics in onshore facilities

Module 11: Sustainable and Eco-friendly Corrosion Control

- Green corrosion inhibitors
- Biodegradable chemical alternatives
- Impact on environment and operator safety
- Lifecycle assessment of corrosion chemicals
- Future trends in sustainable corrosion management
- **Case Study:** Implementing eco-friendly inhibitors in refinery operations

Module 12: Case Studies in Corrosion Control

- Review of global corrosion failure cases
- Lessons learned from major corrosion incidents
- Best practice implementation across industries
- Application of multidisciplinary approaches
- Risk mitigation through case study insights
- **Case Study:** Root cause analysis of a major pipeline failure

Module 13: Teamwork and Communication in Corrosion Projects

- Importance of cross-functional collaboration
- Effective communication strategies
- Reporting and documentation best practices
- Training and capacity building
- Conflict resolution in technical teams
- **Case Study:** Successful teamwork in a corrosion mitigation project

Module 14: Advanced Chemical Treatments

- Specialty chemical formulations
- Nano-technology in corrosion control
- Enhanced oil recovery (EOR) chemicals
- Customized treatment programs
- Monitoring chemical performance in real-time
- **Case Study:** Application of nanotech inhibitors in production lines

Module 15: Future Trends and Innovations in Production Chemistry

- Digital twins and simulation
- Automation in chemical dosing
- Emerging corrosion-resistant materials
- Blockchain for chemical supply chain transparency
- Industry 4.0 impact on corrosion management

- **Case Study:** Innovation-driven corrosion control in smart fields

Training Methodology

- Interactive lectures with multimedia presentations
- Hands-on practical demonstrations and lab sessions
- Group discussions and problem-solving workshops
- Real-life case study analysis and group projects
- Field visits to production and corrosion monitoring sites
- Continuous assessment through quizzes and assignments

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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