

TRAINING TITLE

OIL TREATMENT - STABILIZATION AND SWEETENING DESIGN

Training Duration

5 day

Training Venue and Dates

Ref. No. PE112	Oil Treatment - Stabilization and Sweetening Design	5	29 Sep-03 Oct 2025	\$5,500	ABU DHABI, UAE
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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

Effective oil treatment is a cornerstone of safe and efficient oil production. Stabilization and sweetening are critical processes in preparing crude oil for transportation, refining, and marketing. These processes remove impurities such as hydrogen sulfide (H₂S) and control vapor pressure to meet product quality specifications, ensure safety, and comply with environmental regulations.

This 5-day course provides a detailed exploration of the design and operation of stabilization and sweetening systems in oil treatment facilities. Participants will gain the skills needed to design, optimize, and troubleshoot these systems, ensuring operational reliability and environmental compliance.

TRAINING OBJECTIVES

By the end of the course, participants will be able to understand

- Learn the principles of stabilization to control vapor pressure and enhance safety.
- Gain in-depth knowledge of sweetening techniques for H₂S and mercaptan removal.
- Understand the design and sizing of key equipment, including stabilization columns and sweetening systems.
- Explore energy efficiency, heat integration, and cost optimization strategies.

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- **Develop troubleshooting and problem-solving skills for operational challenges.**
- **Apply their knowledge to real-world scenarios through case studies and group projects.**

WHO SHOULD ATTEND?

This course is designed for:

- Process engineers and facility designers.
- Operations and production engineers in upstream and midstream sectors.
- Safety and environmental compliance specialists.
- Project managers overseeing oil treatment systems.
- Maintenance and reliability professionals.

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: Fundamentals of Oil Treatment

- **Overview of Oil Treatment Processes in Upstream and Midstream Operations**
- **Characteristics of Crude Oil and Associated Contaminants (e.g., H₂S, CO₂)**
- **Introduction to Stabilization and Sweetening**
- **Importance of Stabilization: Vapor Pressure Control and Safety Considerations**
- **Key Principles of Sweetening: H₂S and Mercaptan Removal**
- **Case Study: Oil Treatment in a Typical Production Facility**

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Day 2: Stabilization Process Design

- **Design Fundamentals: Stabilization Columns and Operating Conditions**
- **Flash Separation and Multi-Stage Separation Techniques**
- **Key Equipment: Heat Exchangers, Reboilers, and Condensers**
- **Process Optimization for Stabilization Units: Energy Efficiency and Throughput**
- **Troubleshooting Common Stabilization Issues**
- **Stabilization Column Design Calculations**

Day 3: Sweetening Process Design

- **Overview of Sweetening Technologies: Amine Treating, Claus Process, and Non-Regenerative Methods**
- **H₂S and Mercaptan Removal: Chemistry and Mechanisms**
- **Design and Sizing of Amine Sweetening Systems**
- **Regeneration and Reuse of Sweetening Agents**
- **Environmental Considerations: Sulfur Recovery and Acid Gas Flaring**
- **Case Study: Sweetening System Design for High-H₂S Crude Oil**

Day 4: Integration, Safety, and Environmental Considerations

- **Integration of Stabilization and Sweetening Processes in Production Facilities**
- **Safety and Risk Management in Oil Treatment Systems: Fire, Explosion, and Toxicity Risks**
- **Regulatory Standards for Emissions and Product Specifications**
- **Process Control and Automation in Stabilization and Sweetening Systems**
- **Energy Recovery and Heat Integration Opportunities**
- **Designing an Integrated Oil Treatment System**

Day 5: Advanced Topics and Emerging Trends

- **Advances in Stabilization and Sweetening Technologies: Membrane Separations, Hybrid Systems**
- **Digital Twins and Simulation Tools for Oil Treatment Optimization**
- **Economic Analysis: Cost and Feasibility Studies for Oil Treatment Projects**
- **End-to-End Oil Treatment System Design**
- **Review of Key Concepts and Industry Best Practices**
- **Course Assessment, Feedback, and Closing Remarks**

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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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