MERCURY

Amine & Sulphur Treating Technical Exchange

26 – 30 September 2027
Cairo (Egypt)



Dubai - UAE: +971 4 450 5697
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Amman - Jordan: +962 79 712 3347

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Ref: 121477_1034296 **Date:** 26 – 30 September 2027 **Location:** Cairo (Egypt) **Fees:** 4000 Euro

Introduction

The Amine & Sulphur Treating Technical Exchange course provides an understanding of gas sweetening and sulphur recovery operations in modern gas processing facilities. It focuses on the integration of amine treating systems and sulphur handling technologies used in industrial gas treatment plants. Participants will explore the technical principles behind sour gas purification and hydrogen sulfide H2S removal processes. The program emphasizes real operational challenges encountered in amine units and sulphur recovery units SRU. It highlights best practices for improving efficiency, safety, and environmental compliance in gas treatment operations. By combining theoretical knowledge with technical exchange discussions, it enhances decision-making capabilities in gas processing environments.

Targeted Groups

This Amine & Sulphur Treating Technical Exchange training targets professionals seeking knowledge and skills:

- Process engineers working in gas processing plants and refineries.
- Chemical engineers are involved in the design and optimization of amine treating units.
- Operations personnel handling sour gas treatment systems.
- Maintenance engineers responsible for gas sweetening equipment.
- HSE professionals focused on hydrogen sulfide risk control.
- Technical supervisors in sulphur recovery unit SRU operations.
- Refinery and petrochemical plant technicians.
- Energy-sector professionals seeking gas-treatment expertise.

Course Objectives

Participants will achieve the following objectives by completing the Amine & Sulphur Treating Technical Exchange course:

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- Understand the fundamentals of amine gas treating processes used for sour gas removal and gas sweetening operations in industrial plants.
- Identify key parameters affecting hydrogen sulfide H2S removal efficiency and amine circulation systems in gas processing units.
- Analyze sulphur recovery unit SRU operations and the Claus process for sulphur production and environmental compliance.
- Evaluate amine degradation, corrosion mechanisms, and foaming issues in amine treating systems.
- Apply troubleshooting techniques for operational challenges in gas sweetening and sulphur recovery systems.
- Develop improved operational strategies for amine regeneration, energy efficiency, and process stability in gas treatment facilities.

Targeted Competencies

Participants will gain the following competencies during the Amine & Sulphur Treating Technical Exchange program:

- Ability to assess gas sweetening process performance in amine treating units.
- Technical understanding of sour gas composition and hydrogen sulfide removal mechanisms.
- Competence in monitoring sulphur recovery unit efficiency and operational stability.
- Skills in identifying and resolving amine system operational issues.
- Knowledge of corrosion control and chemical balance in gas treatment systems.
- Capability to evaluate process safety risks in sulphur handling operations.
- Understanding of process optimization techniques for industrial gas treatment systems.

Studying Scenarios

In this Amine & Sulphur Treating Technical Exchange training, participants develop skills through the following scenarios:

- Analysis of amine unit failure due to foaming and contamination in gas sweetening operations.
- Evaluation of SRU performance decline and troubleshooting Claus process inefficiencies.
- Investigation of H2S breakthrough in treated gas streams and corrective operational actions.
- Assessment of corrosion risks in amine regeneration systems under high-pressure conditions.

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Course Content

Unit 1: Fundamentals of Gas Treating and Sour Gas Chemistry

- Introduction to gas treating systems in oil and gas processing plants.
- Understanding sour gas composition and hydrogen sulfide H2S characteristics.
- Overview of gas sweetening processes and industrial applications.
- Role of amine treating units in natural gas purification systems.
- Physical and chemical properties affecting gas absorption efficiency.
- Basic thermodynamics of gas-liquid interaction in amine systems.
- Importance of process control in gas treatment operations.
- Overview of environmental regulations in sour gas handling.

Unit 2: Amine Treating Systems and Gas Sweetening Operations

- Detailed structure of amine treating unit configurations.
- Mechanism of acid gas absorption using amine solutions.
- Types of amines used in gas sweetening MEA, DEA, MDEA systems.
- Amine circulation, loading, and regeneration process principles.
- Operational challenges in amine gas treating systems.
- Heat balance and energy optimization in amine regeneration units.
- Impact of contaminants on amine system performance.
- Troubleshooting common issues in gas sweetening operations.

Unit 3: Hydrogen Sulfide Removal and Process Optimization

- Chemical behavior of hydrogen sulfide in gas processing environments.
- Absorption efficiency factors in H2S removal systems.
- Optimization of contactor column performance in amine systems.
- Control strategies for improving gas sweetening efficiency.
- Monitoring gas quality parameters in treated gas streams.
- Reduction of emissions through effective sour gas treatment.
- Integration of process analytics in gas treatment optimization.
- Operational improvements for stable H2S removal performance.

Unit 4: Sulphur Recovery Unit SRU and Claus Process

- Introduction to sulphur recovery unit SRU operations.
- Detailed explanation of the Claus process for sulphur production.
- Thermal and catalytic stages in sulphur recovery systems.
- Conversion efficiency factors in sulphur recovery operations.
- Tail gas treatment and environmental compliance strategies.
- Operational challenges in sulphur recovery plant performance.
- Monitoring sulphur yield and process stability parameters.
- Integration of SRU with upstream amine treating systems.

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Unit 5: Troubleshooting, Safety, and Advanced Optimization

- Identification of operational failures in amine and sulphur systems.
- Corrosion mechanisms and mitigation strategies in gas treating units.
- Safety management in hydrogen sulfide-rich environments.
- Process monitoring tools for early fault detection.
- Advanced optimization techniques for gas sweetening efficiency.
- Energy reduction strategies in amine regeneration systems.
- Case studies on industrial gas treatment improvements.
- Best practices for long-term operational reliability in gas processing plants.

Final Insights & Key Takeaways

The Amine & Sulphur Treating Technical Exchange course strengthens technical expertise in gas sweetening, H2S removal, and sulphur recovery operations. It prepares professionals to optimize amine systems and enhance efficiency in industrial gas processing environments.