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OIL AND GAS | OG-022

Amine Gas Sweetening and Sulphur Recovery

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Course content

Why Attend

Why Attend Amine gas sweetening and sulphur recovery are critical processes for producing marketable natural gas, protecting processing equipment, meeting environmental regulations, and ensuring safe plant operations. This course provides participants with practical knowledge of acid gas removal, amine process design, sulphur recovery technologies, operational troubleshooting, and integrated optimization of gas treating facilities.

Course Methodology The course combines technical presentations, engineering calculations, process simulations, case studies, troubleshooting workshops, group discussions, and practical exercises based on real-world gas processing facilities.

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

- Understand the principles of gas sweetening and sulphur recovery processes
- Select appropriate amine solvents for different gas compositions and operating conditions
- Optimize amine unit performance while minimizing operating costs and corrosion
- Understand Claus sulphur recovery technologies and tail gas treatment systems
- Diagnose and resolve common operational problems in gas treating plants
- Improve environmental performance and regulatory compliance
- Apply integrated operating strategies across amine and sulphur recovery facilities

Target Audience

- Process engineers
- Gas processing engineers
- Production engineers
- Operations and plant supervisors
- Process and facility operators
- Maintenance and integrity engineers

Course content

Target Audience

• Oil and gas professionals responsible for gas treatment facilities

Target Competencies

• Gas sweetening technology

• Amine process optimization

• Sulphur recovery operations

• Process troubleshooting

• Plant optimization

• Corrosion management

• Environmental compliance

• Gas processing engineering

Course outline

Day 1: Fundamentals of Gas Sweetening and Treating Systems

• Understanding natural gas processing and the role of gas sweetening within integrated production facilities

• Identifying common gas contaminants and their effects on equipment, safety, product quality, and environmental performance

• Reviewing product quality specifications for natural gas, LPG, and sulphur products

• Comparing gas treating technologies, including chemical solvents, physical solvents, membranes, and hybrid processes

• Understanding why amine systems remain the preferred solution for many gas processing applications

• Reviewing the interaction between gas sweetening and sulphur recovery systems within integrated processing facilities

Course content

Course outline

• Practical workshop: Evaluating gas treating configurations and identifying operational bottlenecks

Day 2: Amine Chemistry, Solvent Selection, and Process Configuration

• Understanding acid gas absorption and solvent regeneration principles

• Reviewing the characteristics and applications of common amine solvents for gas sweetening

• Evaluating solvent performance, selectivity, capacity, and energy requirements

• Understanding solvent degradation mechanisms and their impact on process performance and equipment integrity

• Reviewing gas sweetening process configurations for different operating objectives

• Understanding solvent purification systems, filtration, reclaiming, and quality monitoring practices

• Evaluating interactions between gas sweetening units and downstream processing facilities

• Practical exercise: Selecting solvents and designing suitable gas sweetening configurations

Day 3: Amine Unit Operation, Performance Optimization, and Troubleshooting

• Understanding the operation of major amine unit equipment and process flow arrangements

• Reviewing key operating variables affecting absorption and regeneration performance

• Understanding hydraulic performance, mass transfer efficiency, and process control strategies

• Managing corrosion risks through material selection, monitoring, and operational practices

• Diagnosing operational problems including foaming, flooding, solvent losses, corrosion, and off-specification gas quality

• Applying systematic troubleshooting methodologies and performance optimization techniques

• Practical case study: Resolving operational issues affecting amine system performance and product quality

Day 4: Sulphur Recovery Technologies and Claus Process Operations

• Understanding the objectives and environmental drivers of sulphur recovery operations

Course content

Course outline

• Reviewing Claus process chemistry and sulphur conversion mechanisms

• Understanding the operation of thermal and catalytic sulphur recovery stages

• Evaluating key sulphur recovery equipment and process integration principles

• Optimizing combustion control, catalyst performance, heat recovery, and steam generation

• Reviewing enhanced sulphur recovery technologies used to improve plant efficiency and sulphur recovery rates

• Practical workshop: Calculating sulphur recovery performance and evaluating process efficiency

Day 5: Tail Gas Treatment, Environmental Performance, and Integrated Plant Optimization

• Understanding tail gas treatment technologies and emission control strategies

• Reviewing hydrogenation, hydrolysis, absorption, and polishing processes for tail gas management

• Managing sulphur handling, storage, transportation, and safety considerations

• Applying process safety principles for H S management, emissions control, and environmental compliance

• Understanding interactions between amine systems, sulphur recovery units, and tail gas treatment facilities

• Diagnosing integrated plant performance issues affecting gas quality, sulphur recovery, and energy efficiency

• Final workshop: Developing an integrated improvement strategy for gas sweetening and sulphur recovery operations, including KPIs, maintenance planning, monitoring systems, and operational optimization

Seminar dates

Available seminar dates

Live dates and pricing for Amine Gas Sweetening and Sulphur Recovery generated from the course details page.

Date	Location	Format	Fee
Dates on request	Venue on request	Classroom	**Contact us**

Live online option	Online delivery is available at €1,850.-.