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COURSE BROCHURE

# Amine Gas Sweetening and Sulphur Recovery Operations Training Course

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Sharm El-Sheikh

**jupiterprime.uk**

info@jupiterprime.uk

Registered in the United Kingdom and Saudi Arabia

# Amine Gas Sweetening and Sulphur Recovery Operations Training Course

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Amine Gas Sweetening and Sulphur Recovery Operations is a 1-week training course for gas plant process engineers and operators who run amine contactors, regenerators and Claus units, and who leave with a troubleshooting guide for a gas treating unit. Sourer feed gas, tighter sales gas and sulphur emission limits and ageing equipment make stable acid gas removal and sulphur recovery central to plant uptime. Jupiter Prime Training delivers this amine gas sweetening and sulphur recovery course.

## Why Amine Gas Sweetening and Sulphur Recovery Operations Matters Now

Three pressures shape gas treating today: new gas developments with higher hydrogen sulphide and carbon dioxide content; stricter limits on sulphur dioxide from incinerator stacks and on sulphur in sales gas; and buyers who reject off-specification gas or sulphur. A plant that runs its amine and sulphur units well holds specification, limits solvent losses and avoids unplanned trips. A plant that runs them poorly suffers foaming, corrosion, flaring and missed contracts. The course draws on established gas processing practice for amine solvent management, regenerator control and modified Claus sulphur recovery with tail gas treatment.

## Who Gains Most from Amine Gas Sweetening and Sulphur Recovery Operations

- Process engineers who set amine circulation, strength and regenerator duty
- Control room operators who run contactors, flash drums and reboilers
- Sulphur unit specialists who manage burner air, converters and condensers
- Laboratory staff who analyse lean and rich amine and heat-stable salts
- Integrity engineers who monitor corrosion in amine and sulphur service

Gas plant operations departments gain most when engineers, operators and laboratory staff attend together and agree one troubleshooting language.

## Amine Gas Sweetening and Sulphur Recovery Operations Capabilities

Participants learn to read the signals of an amine and sulphur train and choose the adjustment that restores specification.

- Assess amine type and strength against feed gas composition — solvent selection and change-out
- Calculate circulation rate and acid gas loading — contactor and reboiler settings
- Test for foaming causes and antifoam response — contactor stability
- Specify heat-stable salt and corrosion limits — solvent reclaiming decisions
- Apply Claus air-to-acid-gas ratio control — sulphur recovery efficiency
- Build fault trees for off-specification events — operations and maintenance response

## Key Amine Gas Sweetening and Sulphur Recovery Operations Terms

- Acid gas loading — Moles of hydrogen sulphide and carbon dioxide carried per mole of amine in rich or lean solvent.
- Lean and rich amine — Regenerated solvent sent to the contactor, and acid-gas-laden solvent leaving it for regeneration.
- Heat-stable salts — Amine degradation products that cannot be stripped by heat and reduce capacity while raising corrosion.
- Foaming — Stable froth in the contactor or regenerator that carries solvent over and destabilises gas treating.
- Modified Claus process — Partial combustion of hydrogen sulphide followed by catalytic conversion to elemental sulphur.
- Tail gas treating — Downstream processing that recovers remaining sulphur compounds before the incinerator.

## Amine Gas Sweetening and Sulphur Recovery Operations Day by Day

### Day 1: Sour Gas and Solvent Choices

- Sour Gas Composition and Sales Gas Specifications — Setting Treating Targets
- MEA, DEA, MDEA and Formulated Solvents — Choosing the Amine System
- Selective Hydrogen Sulphide Removal Concepts — Shaping Acid Gas for Sulphur Units
- Amine Unit Process Flow and Key Equipment — Tracing Solvent Circulation
- Hydrogen Sulphide Safety Practices — Protecting Operators in Sour Service

### Day 2: Absorber and Regenerator Operation

- Contactor Hydraulics and Tray or Packing Performance — Avoiding Flooding
- Circulation Rate and Loading Calculations — Balancing Treating and Energy
- Flash Drum and Lean-Rich Exchanger Operation — Protecting Downstream Equipment
- Regenerator Reboiler Duty and Reflux Ratio — Controlling Lean Loading
- Solvent Make-Up and Water Balance — Holding Amine Strength

### Day 3: Foaming, Corrosion and Solvent Health

- Foaming Causes and Antifoam Injection — Restoring Contactor Stability
- Filtration and Carbon Bed Performance — Removing Contaminants From Solvent
- Heat-Stable Salt Monitoring and Reclaiming — Recovering Solvent Capacity
- Corrosion Mechanisms in Amine Service — Selecting Metallurgy and Velocity Limits
- Laboratory Analysis Programme for Amine — Tracking Solvent Condition

### Day 4: Claus Sulphur Recovery and Tail Gas

- Reaction Furnace and Burner Operation — Destroying Ammonia and Hydrocarbons
- Air-to-Acid-Gas Ratio Control — Maximising Sulphur Conversion
- Catalytic Converters and Sulphur Condensers — Preventing Sulphur Fog and Plugging
- Tail Gas Treating and Incinerator Operation — Meeting Emission Limits
- Liquid Sulphur Degassing and Handling — Controlling Hydrogen Sulphide Release

## Day 5: Practising the Gas Treating Troubleshooting Guide

- Off-Specification Sales Gas Case — Applying Loading and Regenerator Checks
- Contactor Foaming Event Simulation — Applying Solvent Health Diagnostics
- Low Sulphur Recovery Efficiency Case — Applying Claus Ratio Diagnosis
- Fault Trees and Operator Response Steps — Structuring Troubleshooting Logic
- Gas Treating Troubleshooting Guide — Presenting Symptoms, Causes and Actions

## Applying Amine Gas Sweetening and Sulphur Recovery Operations After the Course

- Compare current lean and rich loadings with design values and propose circulation or reboiler adjustments.
- Review a month of Claus tail gas analyser data and identify periods of poor air-to-acid-gas ratio control.

## Amine Gas Sweetening and Sulphur Recovery Operations Questions FAQ

### What is amine gas sweetening and sulphur recovery and why does it matter now?

Amine gas sweetening and sulphur recovery is the removal of hydrogen sulphide and carbon dioxide from natural gas and the conversion of that acid gas into elemental sulphur. It matters now because sourer feeds and tighter emission limits leave less margin for error.

### Which roles gain most from amine gas sweetening and sulphur recovery training?

Gas plant process engineers, control room operators, sulphur unit specialists and laboratory staff gain most. You benefit if you adjust amine circulation, respond to foaming or control a Claus burner.

### How does amine gas sweetening and sulphur recovery differ from a gas treating design course?

This amine gas sweetening and sulphur recovery course focuses on running and troubleshooting existing units, while gas treating design courses size new equipment and compare dehydration and liquids recovery options.

### What do you bring back from amine gas sweetening and sulphur recovery training?

You bring back a troubleshooting guide that links common symptoms in amine and sulphur units to likely causes, checks and corrective actions for your plant.

## Amine Gas Sweetening and Sulphur Recovery Operations: The Way Forward

The gas treating troubleshooting guide becomes the reference for shift handovers and upset response, first informing how operators react to off-specification gas. Engineers, operators and laboratory staff use it to share one diagnosis routine. After its first use, revisit the fault trees once real events show which causes were missing or ranked wrongly.