

**Course Name:** Gas Sweetening and Sulphur Recovery Chemistry and Troubleshooting of Acid Gas Removal Processes.

**Reference Code:** Gas 708

**About the course:**

A significant fraction of the natural gas produced today contains acid gases--primarily hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>) in sufficiently high concentrations as to be considered subquality. These contaminants must be removed for the gas to be safely and economically utilised

**Course Objective:**

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

- 1- Demonstrate an understanding of Amine sweetening and Sulphur Recovery technologies
- 2- Grasp an explanation of the key features of gas treating
- 3- Discuss the thermodynamics of gas processing
- 4- Identify the main process steps
- 5- Evaluate, monitor and troubleshoot gas treating operations.

**Who Should attend?.**

- 1- Technologists
- 2- Mechanical Engineers
- 3- Inspection Engineers
- 4- Maintenance or Project Engineers
- 5- Operations Personnel

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### Course Methodology:

This training course is designed to be a hands-on, stimulating experience. The training course is highly interactive with many discussion and practice sessions.

- ☐ Relevant computer simulations and videos .
- ☐ Copies of all presentation material.
- ☐ Variety of Learning Methods.
- ☐ Pre-test and final test.
- ☐ Case Study
- ☐ Training Groups.
- ☐ Presentation.
- ☐ Lectures

### Course Outline:

**Day One:** Introduction to Natural Gas

Statistical review of petroleum consumption and supply

LNG / NGL production and processing

Commercial and Unconventional Gases

Associated / Non-associated Gas

Types of Contaminants and Gas specifications

Environmental and Safety Considerations

Case Study: Carbon capture and storage

**Day Two:** Gas Sweetening

Gas contaminants and commercial processing alternatives

Chemistry of Amine Gas Sweetening

Physical Solvents and

Membrane Processes

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Guide to selection of gas Sweetening Processes

Mechanical Filters

Case study: Troubleshooting filtration systems

**Day Three: System Design & Troubleshooting**

Process Flow and process description

Design Criteria Guidelines for Amine Systems:

General Considerations for Amine Processes

Materials selection and construction

General Operating Problems and troubleshooting

Solution degradation & amine losses

Foaming

Heat Stable salts

Corrosion

Data collection key to successful troubleshooting

**Day Four: Sulphur Recovery I**

“Claus” Sulphur recovery chemistry and thermodynamics – A question of equilibrium

Claus Process - Considerations and Modifications

The EUROCLAUS Concept

Process Considerations & Instrumentation

Mechanical Considerations

Claus Process Calculations and Exercises

**Day Five: Sulphur Recovery II**

Tail Gas Handling

SCOT and Incineration

Sulfur Product Specifications, Storage and Handling

Safety and Environmental Considerations

Troubleshooting: what can go wrong

Course review and evaluation.

**Time: 08:00 AM -03:00 PM Numbers of hours: 35 Hours**

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