

Saturated LPG treatment unit

AXENS SULFREX™

OPERATIONS TRAINING

Objective: To provide an in-depth knowledge of the **SULFREX™** process and particularly the client's unit. By the end of the course, the participants will have:

- A general understanding of the significance of the unit within the refinery scheme
- A broad technical understanding of the catalyst and the chemical reactions involved in the process
- A solid knowledge of the Process Flow Diagram and equipment
- A thorough knowledge of operating conditions and their impact on performance
- A good overview of the start-up and shutdown activities (NB: a detailed review of procedures is not included in the course).
- A sound knowledge of the main troubleshooting actions

Duration: The training course lasts 2 days. The duration can be tailored to the participants' level of understanding.

Attendance: This course is targeted to unit process engineers, unit technical managers, shift leaders, and board men. Suitably qualified or experienced outside operators may attend to enhance their process knowledge.

Program: The program below may be modified due to specific customer requirements, subject to an agreement between the customer and AXENS.

Day 1

1. Introduction

- Supply/demand situation
- Market trends
- Environmental regulation
- Focus on the unit in its context

2. Process Objectives

- General information
- Feed characteristics
- Unit duty
- Products' specifications
- Material Balance

3. Chemical Reactions

- Chemistry of sulfur compounds in the LPG cut and catalysis basics
- Feed chemical composition
- Chemical reactions
- Catalysts
-

4. Process Description

- Process Flow Diagrams
- Piping & Instrumentation Diagrams
- Main equipment
(Drawings, pictures and functions)

Day 2

5. Start up Preparation

- Pre-commissioning operations
- Commissioning Operation:
 - Unit dry out
 - Unit washing
 - Unit emptying
 - Pump calibration procedure
 - Catalyst and chemicals loading procedures

6. Main Start up Operations

- Detailed description of the steps involved in introducing fresh feed :
 - Loading of oxidizer
 - Leak tests
 - Caustic filling-up
 - Caustic circulation
 - Catalyst loading
 - Start-up

7. Normal Operation and Operating Parameters

- Summary of main operating conditions
- Operating variables
- Adjusting operating conditions
- Analytical control

Day 2 (Cont'd)

8. Troubleshooting

- Typical causes and resolution of product quality incidents
- Operational disturbances

9. Shutdown and Restart

- Planned shutdown
- Normal restart

10. Description of emergency situations

- Emergency procedures
- Interlock loops

11. Health, Safety and Environment

12. Quiz