Cracked gasoline hydrodesulphurization

AXENS PRIME-G+™

OPERATIONS TRAINING

**Objective:** To provide in-depth knowledge of the PRIME-G+™ 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 3 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.
# AXENS’ OPERATIONS TRAINING PROGRAM

## Prime G+™: cracked gasoline hydrodesulphurization

### 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 and catalysis basics
   - Feed chemical composition
   - Chemical reactions
   - Catalysts
   - Catalyst contaminants

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 operations:
     - Leak tests
     - Dry out
     - Inerting
     - Catalyst loading…

6. **Main Start up Operations**
   - Detailed description of the steps involved in introducing fresh feed:
     - Cold naphtha circulation
     - Hot naphtha circulation
     - Reactive feed introduction
     - Capacity increase and unit tuning

7. **Normal Operation and Operating Parameters**
   - Summary of main operating conditions
   - Operating variables
   - Operating conditions adjustments
   - Analytical control

### Day 3

8. **Troubleshooting**
   - Catalyst activity and selectivity issues
   - Operational disturbances

9. **Shut-down and Restart**
   - Detailed description of a:
     - Planned shut-down for:
       - Stand–by
       - Maintenance
       - Catalyst handling
     - Normal restart

10. **Emergency Situation Description**
    - Emergency procedures
    - Interlock loops

11. **Catalyst Special Procedures**
    - When applicable:
      - Sulfiding
      - Regeneration
      - Unloading

12. **Health, Safety and Environment**

13. **Quiz**