C5-C6 Isomerization unit with DIH

AXENS C5-C6 ISOMERIZATION

OPERATIONS TRAINING

Objective: To provide in-depth knowledge of the **C5-C6 Isomerization** 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 shut-down activities
  (NB: a detailed review of procedures is not included in the course).
- A working knowledge of the main troubleshooting actions

Duration: The training course lasts 5 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.

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AXENS' OPERATIONS TRAINING PROGRAM

C5-C6 Isomerization

Day 1

1. **Introduction**
   - Supply/demand situation
   - Market trends
   - Gasoline specifications
   - 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

Day 2

4. **Dryers' mechanism and regeneration**
   - Dryers objectives
   - Adsorption theory
   - Dryers regeneration
   - Operating variables
5. **Process Description**
   - Process Flow Diagrams
   - Main equipment

Day 3

6. **Preparation for start-up**
   - Precommissioning key points
   - Grading, adsorbents and packing loading
   - Leak test
   - Inerting
7. **Main Start-up Activities**
   - Hydrogen pressurization
   - Oil circulation, column start-up
   - Drying of the reaction section (flushing with oil)
   - Acidizing and final drying
   - Catalyst loading
   - Pressurization
   - First isomerization reactor line-up
   - Second reactor line-up
   - Lining-out at design capacity

Day 4

8. **Normal Operation and Operating parameters**
   - Operating parameters
   - Performance follow-up (yield, etc)
   - Analysis
9. **Shutdown and Restart**
   - Planned shut-down
   - Normal restart
10. **Emergency Shutdown**
    - Emergency shutdown
    - Unscheduled shutdown
    - Safety Interlocks
11. **Troubleshooting**
    - Typical causes and resolution of product quality incidents
    - Operational disturbances
12. **Catalyst Special Procedures**
    - Sulfur stripping
    - Unloading
13. **Health, Safety and Environment**
14. **Quiz**