Fundamentals of Hydrotreating Technology Training Course

Introduction

The success of every company depends of each employee's understanding of the business's key components. Employee training and development will unlock the companies' profitability and reliability. When people, processes, and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner.

It is strategically important that your group understands the fundamentals of hydrotreating technology. This is the difference between being in the best quartile of unit operations and being in the last quartile. There is vast difference in the ability of companies and most benchmarking studies have confirmed this gap in abilities.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts is greatly beneficial in closing the gap if you are not in the best quartile or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in project management principles is the most effective way to obtain the desired results. Training and learning should be an ongoing continuous lifelong goal.

Course Objective

This course will guide the participates to develop key concepts and techniques to operate and troubleshoot key fundamental unit operation systems of Hydrotreaters Systems. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Many aspects of operations can be improved including, product recoveries, purities and energy utilization, and safety. This cannot be achieved without first an understanding of basic fundamental principles of design and operation. These principles need to be understood in advance of operating and trouble shooting a process unit operation for the operator or problem solving to be effective.

This seminar focuses on the core building blocks of the Hydrotreater process unit equipment. The program will emphasize process unit equipment fundamentals, safe utilization of these fundamentals by operations and maintenance personnel, and equipment troubleshooting techniques.

The purpose of this seminar is to improve and update the participant's personal knowledge of Hydro treating technologies and will include:

- Naphtha HT
- Kerosene HT
- Diesel HT
- BTX Hydrotreating
- Monitoring unit operations
- Troubleshooting
- Latest developments
- Areas of concern

Course Duration and Delivery

Typical course duration is 3 to 5 days based on the background of the participates. One of our Senior Technical Professional with over 25 years of experience would lead the class. Instruction can be in house or in an online webinar.

Typical Course Outline

1. Introduction to Processing Industry

   A. Overview of the Chemical Processing Industry
   B. Safety for the Chemical Processing Industry

2. Background-development of Hydro processing.

   •Hydro processing Objectives.
   •Commercial History

3. Process Fundamentals

- Chemical reactions
- Catalysts
- Reaction Kinetics
- Hydrogenation –Dehydrogenation Equilibrium
- Reaction Selectivity
- Multicatalyst Systems
- Commercial Catalysts
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Distillation Fundamentals
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst, Regeneration
- Process Variables

4. Process Design

- Typical Processing Conditions
- Reactor Systems
- Flow Schemes
- Design Considerations

5. Process Capabilities

- Feedstocks and applications
- Hydrogen Utilization
- Product Qualities
- Catalyst Consumption
- Hydrogen Consumption
- Utilities

6. Cost and Economics

7. Summary

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.

    1. 1st Line Operations personnel,
    2. Operation Supervisors,
    3. 1st Line Maintenance personnel,
    4. Maintenance Supervisors,
    5. Senior Plant Supervisors,
    6. Operations Engineers
    7. Process Support Engineers,
    8. Design Engineers,
    9. Cost Engineers

- An engineer or chemist who must troubleshoot and solve catalyst problems in a plant, an engineering office or laboratory.

- Technical Engineers, Operating Engineers, Process Support Personnel, Chemist, and Managers

- Engineering graduates/technologists who will be using catalyst in their daily work.

- Technical Process engineers doing process design and optimization projects and studies that need who need advanced skills for more complex modeling tasks.

- Plant Operation Support Engineers checking plant performance under different operating conditions, and who are involved in design of new facilities or revamps of existing facilities.

- R&D engineers and researchers using catalyst for process synthesis, upgrade or modifications.

- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of the subject matter.

What You Can Expect To Gain

- Overview of the Hydrotreater Processes in a Refinery.
- An understanding of Reactor and Catalyst interaction
- The operation, control and trouble shooting of a reactors and associated equipment
- An overview of hydrotreater, practical solutions as well as theory
- An understanding of essential hydrotreater concepts
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of operations
- To tailor your approach to specific design, analysis and trouble shooting problems.