Petrogenium. Academy

Process Technology

Catalysis in the Refinery

Consultant / Trainer

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The **Petrogenium. Catalysis in the Refinery** course will guide the participants to develop key concepts and techniques to operate, select and optimize refinery catalytic processes. These key concepts can be utilized to make design and operating decisions. Training and development give yourself and your employees the keys to success.

The course covers Hydroprocessing Processes in a Refinery, such as Hyrdrotreating and Hyrdrocracking. Each Catalyic Process will be reviewed including process description, reaction chemistry, catalyst properties, and handling.

Participants

This **Petrogenium.** course can be adapted for aware/inexperienced people, for moderately or very experienced people. Additionally, the course can be customized for a specific refinery, plant or unit. It is also possible to benefit from an advice and assistance service after the training. Participants can be (new) engineers and experienced operational personnel. Depending on the profile of the participants, it is possible to adopt a more theoretical or more practical approach. If desired, the training can be structured with specific exercises during the different sessions.

Learning Objectives

Understanding of catalysis and catalytic processes in the refinery, enabling further optization and trouble shooting:

- Mechanisms of reactions, Kinetics: reaction order, activation energy
- Types of catalysts used, Catalyst preparation : support, active metals
- Manufacturing of catalysts, Physical Properties and Specifications
- Catalyst selection : Testing of catalysts, wetting, plug flow, trickle flow
- Optimal operation, including loading, sulfidation, reduction
- Performance monitoring

Programme

DAY 1

What is Catalysis

- General principles of catalysis
- Mechanisms of reactions
- Kinetics: reaction order, activation energy
- Types of catalysts used

Catalyst preparation

- Extrusion, impregnation, drying, calcination
- Metals distribution/dispersion
- Physical properties and specifications

Testing of hydrotreating catalysts

- Downscaling: wetting, plug flow, trickle flow
- Activation: sulfidation, reduction.

DAY 3

Optimizing Catalyst Performance

- Pefromance Monitoring
- Troubleshooting
- Pilot Plant Testing

DAY 2

Catalyst Deactivation & Regeneration

- Deactivation Mechanisms
- Strategies to mitigate deactivation
- Catalyst Regeneration Techniques

Hydrotreating

- Process
- Catalyst characteristics
- Catalyst Loading, Start-up
- Performance Monitoring
- Deactivation, regeneration
- Catalyst Selection

Hydrocracking

- Processes: Mild Hydrocracking, Hydrocracking
- Treating Catalysts, Cracking Catalysts, Zeolites
- Activity and Selectivity, Deactivation
- Regeneration
- Catalyst Selection

Why select Petrogenium.?

The above support will be provided by principal consultants with 30+ years world-class experience in the technology and hands-on know-how from operation of refinery units.

Contact Petrogenium.:

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Because Experience Matters