

Hydrocracking and Hydrotreating Process Technology Training

Description

Introduction

This training course is to provide an in-depth, yet practical review of both hydrotreating and hydrocracking technologies for the refining of petroleum. The course will cover topics ranging from the chemistry of hydrotreating and hydrocracking to a discussion of the design of commercial processes and reactors. The program will also address fcc feed pretreatment, diesel and jet fuel production, naphtha hydrotreating, and hydrogen production and purification.

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The Outlines :

Introduction

- Review of refining trends
- Product specifications and environmental concerns
- Overview of hydrotreating processes, yields and configurations

Chemistry And Principles Of Hydroprocessing

- Hydrotreating reactions and process principles
- Chemistry and kinetics of sulfur removal
- Chemistry of nitrogen and oxygen removal
- Hydrotreating catalysts
- Olefin and aromatics saturation
- Coke formation and catalyst deactivation
- Mild hydrocracking
- Resid chemistry

Naphtha Pretreating

- Process variables and feedstock effects
- Commercial flow schemes

- Effects on reformer operation

Feed And Operating Variable Effects

- Feed properties
- Operating variable effects
- HDS as FCC pretreatment
- Hydrotreating requirements and process economics

Diesel And Jet Fuel Production

- Trends in demand/quality
- Effect of feed/process on yields/quality
- Cut point effects
- Cetane improvers, cloud/pour point improvers
- Commercial considerations in hydroprocessing
- Catalyst presulfiding
- Catalyst deactivation and regeneration
- Process design/mechanical design features

Commercial Hydrocracking

- Hydrocracking feedstocks
- Pretreatment considerations
- Review of hydrocracking reactions/heats of reaction
- Hydrocracking process configurations
- Reactor design
- Process variables and catalysts
- Catalyst deactivation and regeneration
- Hydrocracking yields and product properties

Hydroprocessing Mechanical Considerations And Troubleshooting

- Design principles
- Common problem areas
- Safety issues

Hydrogen Production

- Steam reforming for hydrogen production
- Hydrogen purification options

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