Hydrotreating & Hydrocracking Process Technology

Potential PDH: 20

Description:

Becht has developed this program to provide an in-depth, yet practical review of both hydrotreating and hydrocracking technologies for the refining of petroleum. The speaker 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. The program instructor will be Jeff Johns. He has a wealth of knowledge and experience covering all areas of hydrotreating and hydrocracking.

Seminar participants will have an opportunity to obtain a broad working knowledge of petroleum hydrotreating and hydrocracking from a distinguished industry expert. In addition, participants will be able to stay abreast of the developments in hydroprocessing technology, to interact with others working in this area of refining, and to have their questions answered in the open forum sessions.

Outline:

INTRODUCTION
- Review of Refining Trends and Where Hydroprocessing Technology Fits in a Refinery
- Overview of Hydroprocessing Processes, Configurations, and Economics
- Safety and Environmental Concerns

CHEMISTRY AND CATALYSTS
- Chemistry and Reactions
- Hydroprocessing Catalysts
- Process Variables and Feed Effects
- Coke Formation and Catalyst Deactivation

HYDROTREATING PROCESSES
- Naphtha Hydrotreating
- Middle Distillate Hydrotreating
- VGO (FCC Feed) Hydrotreating
- Resid Hydrotreating
- Renewable Feed Processing

HYDROCRACKING PROCESSES

- Fuels Hydrocracking
- Mild Hydrocracking
- Hydroprocessing Lube Oil Production
- Catalytic Dewaxing
- Resid Hydrocracking

STARTUP, SHUTDOWN, AND EMERGENCY PROCEDURES

- Normal Operation and Control
- Shutdown Procedures
- Catalyst Changeouts
- Startup Procedures
- Emergency Procedures
- Best Practices

HYDROPROCESSING EQUIPMENT DESIGN AND OPERATION

- High-Pressure Equipment
- Reactor Design and Operation
- Corrosion and Metallurgy

Who Should Attend:

This program is ideal for personnel involved in refinery process engineering, unit operations, catalyst research and development, catalyst sales, and refinery technical service. Engineers from design and construction companies as well as those who provide products and services to the petroleum refining industry should also find the program very useful and informative. Managers who have not had previous Hydroprocessing experience would also find this class to be very valuable.

Subject Matter Expert (SME):

Jeff Johns has over 35 years' experience in the petroleum refining industry. He was honored as a Chevron Hydroprocessing Fellow (Chevron's highest technical recognition) for contributions to Chevron and to the industry. Jeff has expert knowledge of hydrocracker and hydrotreater design/operation, optimization, and troubleshooting, and has substantial experience in other key refinery processes. Jeff managed hydrocracking and hydrotreating technology in Chevron's refineries worldwide where he developed and implemented best practices and projects to improve safety, reliability, and profitability. One of his special interests as a technology mentor was developing and delivering training. For 20 years, Jeff led an ad hoc Industry Committee of hydroprocessing experts dedicated to sharing safety and reliability information among North American Refiners. He was a member of the AFPM Q&A Panel in 2004 and directed multiple technology seminars as a member of the AFPM Q&A screening committee. Jeff served on the Board of Directors for Advanced Refining Technologies (ART). Jeff holds a B.S. degree in

Chemical Engineering from the University of Utah. He holds six patents in hydroprocessing technology.

Keith Wilson has over 37 years of major oil company engineering and research experience. He is a distinguished Engineer; an innovative and experienced Process Engineer with specialist knowledge across refining process technologies, including fuels and lubes hydrotreating, and catalytic naphtha reforming. He has a proven track record with global credibility for delivering solution-focused results. His experience spans technology development, early project planning and design engineering, process integration, optimization, modeling, project engineering, startup to operations, and troubleshooting. He has led European Technology Networks across hydroprocessing and naphtha reforming technologies along with improvement strategies resulting in a significant increase in cycle length of major processing units. Keith has Participated in various design studies and projects. He is experienced in general capability build for the design and operation of all significant process engineering equipment and control systems, including design of fractionating towers, drums, reactors, heat integration, and hydraulics systems. Keith Wilson holds a BSc (Hons) in Chemical Engineering from the University of Manchester, Institute of Science & Technology, Manchester, U.K.