Catalytic Reforming Process Technology

Potential PDH: 24

Description:

The catalytic reforming process is critical to the overall economic balance of the modern petroleum refinery. This program has been developed to provide an in-depth, yet practical review of the current technology available in the processing areas of catalytic reforming and naphtha pretreating. The speakers will cover topics ranging from the basic process chemistry through commercial unit operations. The interactions between feedstock types, yields, product quality, catalysts, cycle length, and operating process variables will be explained. In addition, unit monitoring, troubleshooting, catalyst regeneration, and process evaluation methods will be discussed. A thorough understanding of these principles and techniques is necessary to optimize the performance of the catalytic reformer and, ultimately, to maximize the profitability of the unit.

Outline:

INTRODUCTION TO CATALYTIC REFORMING
- Process History
- Position in Refining Process
- Process Overview
- Process Types
- Evolution to Moving Bed

REFORMING CHEMISTRY AND CATALYSTS
- Reaction Chemistry
- Metal/Acid Catalyst Functions

REFORMING FEED AND PRODUCTS
- Feed Sources and Quality
- Reformate Product Quality
- Net Gas Product Quality

REFORMER PROCESS TECHNOLOGIES
- Semi-Regenerative
- Cyclic Regeneration
- Continuous Regeneration

REFORMING PROCESS EQUIPMENT
- Reforming Equipment
- Regeneration Equipment

REFORMING PROCESS VARIABLES
- Process Variables: Severity, Pressure, H2/HC Ratio, LHSV, Feed, Catalyst
- Effect of Variables on Yields, Activity, Catalyst Stability and Product Quality

REFORMER MONITORING
- Parameters to Monitor
- Water/Chloride Balance

REFORMER TROUBLESHOOTING
- Low Reformate RON
- Catalyst Performance
- Catalyst Sampling
- Water/Chloride Balance
- Feed Contaminants

REFORMING PROCESS SAFETY
NAPHTHA HYDROTREATING
- Chemistry and Catalysts
- Process Flow
- Process Variables
- Process Safety

Who Should Attend:

This program has been designed for refinery staff involved in catalytic reforming unit operation, process engineering, and unit monitoring. The program will also benefit process R & D personnel, as well as sales and technical service engineers from catalyst suppliers. Personnel from design and construction companies, process control vendors, and refining equipment suppliers will also find the program beneficial. Participants are invited to bring questions and any non-proprietary operating experiences for discussion during the program and the open forum sessions which are scheduled at the end of each day.

Subject Matter Expert (SME):

Brad Palmer has 32 years' experience in the oil and gas industry and has held engineering and leadership roles in both technical and operations. He started in oil and gas production but soon transferred to refining where he spent the rest of his career, working for Chevron, Conoco, ConocoPhillips and Phillips 66. For the first 9 years he held process engineering roles for Chevron in environment, hydrotreating, blending and shipping, crude units, cokers, utilities, FCCs, planning and economics and operations coordination. Joining Conoco as a lead engineering in their central technology group, Brad worked across technologies then settled into a technical leadership role in Reforming and Isomerization for 17 years. He spent his last 5 years as a Process Engineering Superintendent in the Alliance refinery leading both project and process engineering teams.

Working in both technology development and operations organizations for ConocoPhillips and Phillips66, Brad's career was focused on process training, troubleshooting, unit monitoring and optimization, best practice development, reliability improvement, process safety standards, project development, turnaround support, catalyst testing, and technology development.

Brad has been working as a Becht Engineering Process Technology Advisor for over one year. He holds 8 patents.

Peter Marsh has more than 40 years' experience in oil refining and engineering contracting businesses in various technical, operational and leadership roles. The majority of his career has been spent with BP where he worked at 4 different refineries and in the technical centre. He has specialist knowledge in all types of naphtha isomerisation and naphtha reforming processes and spent 9 years serving as a refining advisor providing technical support in these technologies to BP's global refining portfolio. Activities included process technology training, troubleshooting, unit optimisation, turnaround and project support, developing process safety standards, promoting application of technology and sharing best practices. He has a strong focus on process safety, plant reliability and use of technology to enhance plant capability.

Mr. Marsh also has experience in many other refinery process technologies including crude distillation, hydrotreating, fluid catalytic cracking, catalytic polymerisation, alkylation and light ends separation processes. He served as lead process engineer for an EPC contractor on several major revamps of fluid catalytic cracking (FCC) units and a grass roots residue cracking unit. He is currently a self-employed consultant providing independent technical support to oil refineries. He is also a volunteer committee member of the Institution of Chemical Engineers (IChemE) Safety and Loss Prevention Special Interest Group. His primary focus area within this group to date has been learning lessons from process safety incidents.