Fluid Catalytic Cracking Process Technology

Potential PDH: 24

Description:

The most widely attended FCC course has been updated to reflect the new equipment designs from the leading licensers. Operational data reflects current FCC practices. All of the major components of the FCC reactor and regenerator, flue gas and gas plant systems are presented which includes some design information. The heat balance and pressure balances are examined to reveal how they impact an FCC operation.

Residual processing reflects the current practices and equipment used in this application. The handling of the obstacles to processing resid are examined and current methods of alleviating them are presented. Sections on fluidization, catalyst and additives and catalyst evaluation are presented in a way that will help participants better understand the FCC process.

The last section reviews refining trends and its effect on the FCC process.

The course instructors have over 85 years of experience in catalytic cracking including jobs in R & D, refining, catalysts, operations and process development.

Outline:

FCC Fundamentals
- FCC Flow Scheme
- Pressure Balance
- Process Fundamentals

FCC Chemistry and Heat Balance
- Basic Cracking Reactions
- Heat Balance
- How to Get Accurate Test Run Data

FCC Variable Effects
- Operating Variable Interactions
- Feedstock Effects in FCC
- Methods of Increasing LCO Yields
- NOx / SOx Emissions and Reduction

Process Equipment Overview
- FCCU Configurations
- Resid Cracking Processes

- Hardware Modifications
- Riser/Reactor/Fractionator Design Principles
- Recovery Side Operating Guidelines
- Reactor/Regenerator Troubleshooting
- Cyclone Operation
- Air Blower Operation

Cracking of Heavy Feedstocks and Resids

- Characterization of Heavy Feeds and Resids
- Effect of Heavy Oil Cracking on Product Yield and Product Quality
- Effect of Carbon and Metals
- Metals Passivation in FCC

Fluidization Fundamentals for FCC

- Basics of FCC Fluidization
- Flow in Standpipes

FCC Catalyst Technology

- Zeolite Cracking Catalysts
- Catalyst Composition and Selectivity Effects

FCC Catalyst Evaluation

- Analytical Characterization
- Performance Testing
- Impact of Properties on FCCU Operation

Advances In FCC Technology

- New Feed Nozzle Designs
- Advanced Riser Termination Devices
- Improved Stripper Technologies

Who Should Attend:

This program is ideal for personnel involved in refinery process engineering, unit operations, catalyst sales, technical service and catalyst/process research and development. Process engineers from design and construction companies as well as those who provide services to the petroleum refining industry should also find this program beneficial.

Subject Matter Expert (SME):

Warren S. Letzsch is an independent consultant with an extensive FCC background. His prior employment was with Stone & Webster, Inc., a Shaw Group Company, where he was responsible for FCC/DCC technology and business development and with Refining Process Services where he was involved in licensing of the MagnaCat® Process. He was also Director of Worldwide Sales and Marketing for UOP/Katalistiks. He has had experience with Total Petroleum as Manager of Refining Technology and with Davison Chemical and Shell Chemical in research, marketing, and technical support of petroleum

catalysts. Warren has authored numerous articles on refining technology and holds seven patents in the FCC area. He holds B.S. and M.S. degrees in Chemical Engineering from the Illinois Institute of Technology.

Alan R. English is an independent consultant, has extensive experience in the petroleum refining industry. During his 40 plus year career, he helped dozens of refineries in North America, South America, Europe, Asia and the Middle East optimize their performance. He was employed at KBC Advanced Technologies, Sunoco, Chevron and Gulf Oil. Al led the development and commercialization of the use of tin for vanadium passivation and bismuth for nickel passivation. He has authored or co-authored 13 publications and twice served on the NPRA (now AFPM) Q & A Panel. He holds three US patents. Al has a BS degree in Chemical Engineering from Lehigh University and an Executive Masters degree in Technology Management from Stevens Institute of Technology. He is a licensed Professional Engineer in Pennsylvania.