Title: Fluid Catalytic Cracking Process Technology

Potential PDH: 24 **Code:** BTT046

Description:

The fluid catalytic cracking process is a very complex and demanding one. This program has been developed to provide an in-depth yet practical review of current FCC technology. The speakers will cover topics ranging from the basic process principles through items of current interest such as diesel fuel maximization and methods of meeting fuel specifications. The interactions between process variables such as feedstock quality, reaction conditions, and environmental constraints will be discussed. A thorough understanding of these principles is required to optimize the performance of the fluid catalytic cracking unit.

Program participants will have the opportunity to obtain a broad working knowledge of the fluid catalytic cracking process, to stay abreast of the constantly changing technology, and to interact with others currently working in this field. Participants are invited to submit questions for discussion during the program.

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

Instructor:

Robert J. Campagna is the Director of Technical Services and one of the principals of Refining Process Services. He is currently involved in refining industry technical service, and training program presentations for the company. Bob was previously employed by Filtrol Corporation where he provided technical and marketing support for Filtrol's fluid catalytic cracking catalysts. He also spent 10 years with the Gulf Oil Corporation working in the areas of hydrotreating, catalytic reforming, and fluid catalytic cracking technical service. Bob is a leading independent consultant in the field of fluid catalytic cracking and has presented numerous technical seminars on this subject throughout the world. He holds B.S. and M.S. degrees in Chemical Engineering from the University of Pittsburgh.

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.