SULFURIC ACID ALKYLATION PROCESS TECHNOLOGY

As petroleum refiners deal with the more stringent second phase of gasoline reformulation regulations, the sulfuric acid alkylation process will continue to play an important role in the manufacture of gasoline. This seminar program provides in-depth coverage of sulfuric acid alkylation process technology, from process fundamentals, chemistry and feed preparation to the issues of safety and waste disposal. The impact of the operation of the fluid catalytic cracking unit on the alkylation process will also be discussed. An update of the status of alternative processes is also included in the program presentation.

The speaker will be Mr. Randy Peterson of STRATCO, DuPont Refinery Solutions. He has extensive industry experience in sulfuric acid alkylation process technology and operations. This program has been specifically designed for refinery engineering, technical service and operations personnel, as well as for engineers and technical service people from design, construction, and refining industry vendor companies.

PROGRAM OUTLINE

1. ALKYLATION FOR REFORMULATED GASOLINE
   ■ Role of Alkylate in Future Gasoline Production

2. PROCESS FUNDAMENTALS
   ■ \( \text{H}_2\text{SO}_4 \) Alkylation Overview

3. \( \text{H}_2\text{SO}_4 \) ALKYLATION CHEMISTRY
   ■ Basic Reactions
   ■ Role of \( \text{H}_2\text{SO}_4 \) Catalyst
   ■ Alkylate Yields, Composition, Quality

4. ALKYLATION FEED PREPARATION
   ■ Impact of FCCU on Alkylation Feed
   ■ Feed Contaminants
   ■ Feed Pretreatment Options
   ■ Effects of Feed Composition on:
     - Yields
     - Product Quality

5. ALKYLATION VARIABLE EFFECTS
   ■ Reaction Temperature
   ■ Isobutane Concentration
   ■ Isobutane / Olefin Ratio Control
   ■ Acid Consumption / Strength / Runaway
   ■ Space Velocity
6. ALKYLATION UNIT EQUIPMENT
   - STRATCO and Exxon Processes
     - Reactor Designs
     - Refrigeration Options
     - Effluent Treating
     - Product Fractionation
     - Acid Regeneration / Handling
     - Reactor Debottlenecking

7. ALTERNATIVE TECHNOLOGY
   - Solid Acid
   - Supported Liquid Acid
   - HF Alkylation

PROGRAM SPEAKERS

Randy Peterson is Manager of Process Engineering for STRATCO, DuPont Refinery Solutions. He is involved in managing STRATCO's Process Engineering and Technical Service Departments. His expertise is in the areas of troubleshooting, start-up assistance, plant monitoring and training of personnel in sulfuric acid alkylation. Prior to his employment at STRATCO, Randy spent three years at CONOCO working in fluid catalytic cracking, catalytic reforming, and HF alkylation. He holds a B.S. degree in Chemical Engineering from the University of Kansas and has an MBA.