



Steam Cracking & Olefin Technology

Potential PDH: 16

Description:

Crude cracking is the major route to olefins production and is vital to the profitability of petrochemical operations. Recent swings in markets have renewed interest in both gas cracking and liquids cracking. This program has been developed to provide an in-depth, and practical review of steam cracking and olefins technology. Feed flexibility, smooth operation, capacity and product quality are critically important goals that can be difficult to achieve. Many complex process, equipment, and reliability issues have to be balanced to optimize run-length, capacity, and quality. With the many variables involved, constant adjustments are required.

The program's content is both comprehensive and wide-ranging. Sessions begin with a discussion of olefins processes, including process objectives, feed characterization, products, process flow sequences, cold-ends equipment, hot-ends equipment and auxiliary systems. Special emphasis is placed on areas of high current interest in the industry. Attendees will gain an understanding of how process requirements, equipment operation, and economic objectives interact. Once the fundamentals are established, the session moves into the topics of operation, control, troubleshooting and revamps. The program speaker is Mr. Andrew Sloley, Principal Consultant for Advisian (WorleyParsons Group) in Houston, Texas.

Outline:

INTRODUCTION AND PROCESS OBJECTIVES

- Feeds and Yields
- Importance of Troubleshooting
- General Process Sequences
- Hot-ends
- Cold-ends

TROUBLESHOOTING CONCEPTS AND TECHNIQUES

- Typical Problems
- Integration of Process and Equipment
- Troubleshooting Techniques
- Troubleshooting Tools

CRACKING FURNACES

- Furnace Types
- Operation
- Decoking



- Metallurgy
- Reliability
- Transfer Line Exchangers

QUENCH TOWERS AND PRIMARY FRACTIONATORS

- Energy Recovery
- Steam Generation
- Equipment and Reliability

CHARGE GAS COMPRESSION

- Compressors
- Fouling
- Drivers

HOT-ENDS SEQUENCES

COLD-ENDS SEQUENCES

- General Sequences
- Drying
- Charge Gas Compression
- Ethylene Production
- Propylene Production

COLD-ENDS EQUIPMENT

- Cold-Boxes
- Heat-Exchangers
- Turboexpanders
- Trace Contaminants

ACETYLENE

- Front-End Conversion
- Back-End Conversion

REFRIGERATION SYSTEMS

- Ethylene Refrigeration
- Propylene Refrigeration
- Mixed Refrigeration
- Heat Recovery and Energy Efficiency
- Refrigeration Compressors

HYDROGEN

- Cryogenic Production
- Methanation
- PSA

HEAVY PRODUCTS

- Butadiene
- Pyrolysis Gasoline
- Pyrolysis Tar

CURRENT TOPICS



BECHT LEARNING AND DEVELOPMENT

Course Content



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- Flexibility for Gas and Liquid Cracking
- Energy Recovery and Climate Change
- Safety

Who Should Attend:

Program participants will have ample opportunity to obtain a broad working knowledge of steam cracking operations, to gain insight into current technology and trends, and to interact with others working in this area. The program is ideal for personnel involved in petrochemical process engineering, plant operations, troubleshooting, and technical services. Process engineers from design and construction companies as well as those providing services to the steam cracking industry should also find this program beneficial.

Subject Matter Expert (SME):

Andrew W. Sloley is a Consultant for Advisian (WorleyParsons Group), Houston, Texas. He has over 35 years of experience in the hydrocarbon processing industry. At Advisian he is primarily responsible for economic analysis and conceptual design of refinery modifications for profit improvement. He has extensively worked on petrochemical and refining units. His other responsibilities include proposal preparation, technical support and system troubleshooting. Andrew has authored or co-authored over 250 publications on petrochemical and refinery operations in the areas of equipment design and troubleshooting. He is currently a contributing editor on equipment and plant design for Chemical Processing magazine. He has a B.S. degree in Chemical Engineering from the University of Tulsa and is a licensed professional engineer in Texas.