



PE087: Catalyst in Oil Refining & Petrochemical Process Industries

Training Description:

The success of every company depends of each employee's understanding of the business's key components. Employee training and development will unlock the companies' profitability and reliability. When people, processes and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner.

Most unit operations are divided in to two sectors; the reactor section and the separation section. The high value products are produced in the reactor section and purified in the separation section. The proper reactor design and catalyst selection can greatly improve company profit margins. The net effect is to produce increasing amounts of higher value products by improving selectivity.

Reactor design and catalyst developments are one of the largest Research and Development (R&D) Divisions in Chemical Engineering. To stay abreast of the current reactor designs and catalyst developments should be an operations personnel's target.

This course covers a general overview of the Catalytic Processes in a Refinery and how each integrates with the high value products, with a special emphasis on Fluidized Catalytic Crackers, and Catalytic Reformers. A history of each Catalytic Process will be reviewed including; process description, process variables, reaction chemistry, catalyst development and evaluation.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Overview of the Catalytic Processes in a Refinery, with a special emphasis on Fluidized Catalytic Crackers, Hydrotreaters and Catalytic Reformers
- ✓ Catalyst Evaluation Techniques
- ✓ An understanding of Reactor and Catalyst interaction
- ✓ The operation, control and trouble shooting of a reactors and associated equipment
- ✓ An overview of reactors, practical solutions as well as theory
- ✓ An understanding of essential reaction concepts
- ✓ Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of reactor operations
- ✓ To tailor your approach to specific design, analysis and troubleshooting problems

Training Designed for:

This course is intended for all Process Engineers, Production Engineers, Section Heads, Senior Operators, Shift Controls, Shift Supervisors, Technicians, Plant Operators, Maintenance Personnel, Laboratory Analysts, Chemist Engineers and those who are connected with catalyst and process reactors.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
 - Refinery Overview
 - Chemistry Overview
- ❖ Alkylation
 - Introduction
 - History
 - Process Overview
 - Process Chemistry
 - Feedstock, Reaction, Catalyst
 - Process Variables
 - Common Problems
 - Advance in Cat Development
 - Catalyst Evaluation Techniques
 - Summary

DAY TWO:

- ❖ Hydrogenation
 - Introduction
 - History
 - Process Overview
 - Process Chemistry
 - Feedstock, Reaction, Catalyst
 - Process Variables
 - Common Problems
 - Advance in Cat Development
 - Catalyst Evaluation Techniques
 - Summary
- ❖ Dehydrogenation
 - Introduction
 - History
 - Process Overview
 - Process Chemistry
 - Feedstock, Reaction, Catalyst
 - Process Variables
 - Common Problems
 - Advance in Cat Development
 - Catalyst Evaluation Techniques
 - Summary

DAY THREE:

- ❖ Isomerization



- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

❖ Hydrocracking and De-Alkylation

- Introduction
- History
- Process Overview
- Process Chemistry Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

DAY FOUR:

❖ Fluidized Catalytic Cracking

- Introduction
- History
- Process Overview
- Process Chemistry Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

❖ Hydro-Treating/Hydrodesulfurization

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

DAY FIVE:

- ❖ **Catalytic Reforming**
 - Introduction
 - History
 - Process Overview
 - Process Chemistry
 - Feedstock, Reaction, Catalyst
 - Process Variables
 - Common Problems
 - Advance in Cat Development
 - Catalyst Evaluation Techniques
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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