


<p style="text-align: center;">KLM Technology Group</p> <p>Practical Engineering Guidelines for Processing Plant Solutions</p>		<p>Page 1 of 5</p> <p>Rev 1.0</p>
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Improving the Performance and Reliability of Fired Heaters and Boilers

Introduction

The success of every company depends of each employee's understanding of the key business 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. Training and development is an investment in future success - give yourself and your employees the keys to success


It is strategically important that your operations team understands the fundamentals of process unit operations concepts. This is the difference between being in the best quartile of operational ability and being in the last quartile. There is vast difference in the operational ability of operating companies and most benchmarking studies have confirmed this gap in operational abilities.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts is very beneficial in closing the gap if you are not in the best quartile, or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operational principles is the most effective way to obtain the desired results. Training and learning should be an on going continuous life long goal.

Course Objective

This course will guide the participates to develop key concepts and techniques for the optimization of fired heaters. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Many aspects of fried heaters operations and management can be improved including, energy utilization, product improvements, furnace tube life, and safety. This cannot be achieved without first an understanding of basic fundamental principles of design and operation. These principles need to be understood in advance of operating and trouble shooting a process unit operation for the manager or problem solving to be effective.

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This seminar focuses on the core building blocks of the fired heater systems, equipment and economics. This program will emphasize fired heater unit operation fundamentals, safe utilization of these fundamentals by operations and maintenance personnel, and equipment troubleshooting techniques. This program can be 3-5 days depending on the needs analysis of the participants.

Outline

Introduction

- Overview of the Chemical Processing Industry

Review of Process Incidents

- Safety for the Chemical Processing Groups

Fundamentals of Petroleum Chemistry


- Description of a Hydrocarbon Molecule
- Types of Hydrocarbon Molecules
- Chemistry of Combustion

Introduction to Process Equipment

- Distillation
- Absorption
- Heat Exchange
- Reactors
- Pumps
- Compressors

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Introduction to Fired Heater

- General Types
- Fire Box
- Convection
- Stack
- Burners

Fired Heater Engineering

- Fluid Flow
- Heat Transfer
- Fuels
- Design Guidelines

Introduction to Refinery Fired Heaters

Introduction to Olefins Fired Heaters

Introduction to VCM Fired Heaters

Improve the Efficiency of Fired Heaters

- Excess Air
- Burner Types
- Flame types


Introduction to Fired Heater Control

Introduction to Fired Heater Boilers

- Boiler Film

Fired Heater Safety

- Boiler Case Study

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Revamping Fired Heaters

- Upgrade Convection Section
- Upgrade instrumentation and Controls
- Maximizing furnace life
- Designing for improved maintenance

Reducing NOx Emissions


Conclusions

Who Should Attend:

- People who are making day to day decisions regarding operation, design, and economics of processing plants;
 1. Operation Supervisors,
 2. Maintenance Supervisors,
 3. Senior Plant Supervisors,
 4. Operations Engineers
 5. Process Support Engineers,
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject matter

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<p>KLM Technology Group</p> <p>Practical Engineering Guidelines for Processing Plant Solutions</p>	 The logo for KLM Technology Group is contained within a rectangular border. On the left side of the border is the text 'KLM' in a large, bold, red font. To the right of this, the words 'Technology' and 'Group' are stacked vertically in a smaller, blue font.	<p>Page 5 of 5</p> <p>Rev.1</p>
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What you can expect to gain:

- An detailed overview of furnace operations, processes and economics
- Gain an understanding of the equipment of a process furnace
- Gain an understanding of the refinery, Olefin and VCM furnaces

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