

Heat exchangers and fired heaters

Function and Issue Resolution

Introduction

The operation and troubleshooting of heat transfer equipment frequently used in the oil and gas sector are reviewed in this training seminar, Course N Carry Heat exchangers and Fired Heaters: Function and Issue Resolution. The equipment used for heat transfer that will be covered includes fired heaters, compact heat exchangers, and shell and tube exchangers.

This Course N Carry training event will teach you the fundamentals of fluid flow and heat transfer, enabling you to increase heat exchanger efficacy and prolong equipment life. Along with air-cooled and plate exchangers, participants will also learn how to operate and troubleshoot shell and tube heat exchangers.

An understanding of the design parameters of fired process heaters and associated equipment will be gained from this Course N Carry training event. Other important subjects include operations and troubleshooting, instrumentation and controls, corrosion and fouling, and pollution mitigation. Techniques to increase safety, run lengths, and efficiency are covered in the session. We'll go over how to use contemporary diagnostic and control tools in a process heater to adjust draft or any other significant variable.

The main points of this Course N Carry training seminar are:

- The construction, functionality, and diagnosis of shell and tube heat exchangers
- The construction, use, and diagnosis of plate heat exchangers
- The design, functionality, and diagnosis of air-cooled heat exchangers
- Fired heater types, functions, and troubleshooting
- Factors influencing how well fired heaters operate

Objectives

By the time this Course N Carry training seminar ends, you'll know how to:

- Assess the heat transfer equipment's performance.
- Determine the heat exchangers' optimal operating practices.
- Determine the issues with heat exchangers and provide fixes
- Determine the safest ways to operate heaters that are fired.
- Determine the issues with fired heaters and suggest fixes.

Training Methodology

Round table discussions will be held for some of the subjects covered in this interactive lecture-style training session on Course N Carry Heat exchangers and Fired Heaters. To emphasise the main points of the course and introduce the attendees to contemporary best practices, a lot of case study and relevant video content is used.

Exercises and discussion sessions are included in this Course N Carry training event to help refinery delegates get an important grasp of heater factors, operational circumstances, and troubleshooting.

Organizational impacts

This Course N Carry training seminar will assist the organisation in the following ways:

- Increasing personnel skill levels to improve plant reliability
- Reducing emissions of pollutants through efficient functioning
- Boost the plant's efficiency
- Prolonging the equipment's life for heat transfer
- Emphasis on safe work procedures
- Gain more proficiency in troubleshooting to save time and money.

Personal Impact

Participants will gain personally from this in the following ways:

- Expanding their understanding of heat-transfer apparatus
- Reducing loss and boosting fiscal gains
- Helping to maintain excellent plant safety records and compliance with emissions
- Enhancing their capacity to address issues with heat transfer apparatus
- Improving their ability to adjust to evolving technology
- Improving their foundational understanding of the contemporary controls for heat transfer equipment

Who should attend?

All staff members involved in the maintenance and troubleshooting of Heat exchangers and Fired Heaters are targeted for this Course N Carry training session.

A wide range of professionals can benefit from this Course N Carry training course, but the following are particularly noteworthy:

- Operators and Supervisors
- Leaders of Process Plant Shifts
- Technicians in Environmental and Safety

- Engineers for Maintenance

Course Outline

Day 1

Fundamentals of Combustion and Heat Transfer

- Radiation, Convection, and Conduction
- Fouling and Heat Transfer
- Reactions of Combustion
- Excess Air and Combustion Efficiency in Lean, Rich, and Stoichiometric Burning
- Diffusion and Premixed Combustion Methods for NOx Reduction

Day 2

Heat exchangers with shell and tubes

- Heat exchanger types
- Principal Elements of Tube and Shell Heat Exchangers
- Shell and tube heat exchanger operation: factors influencing the heat exchangers' performance
- Shell and Tube Heat Exchanger Troubleshooting

Day 3

Small Heat Exchangers

- The principal elements of air-cooled heat exchangers and how they work
- Troubleshooting Air Cooled Heat Exchangers
- Types of Plate Heat Exchangers, Their Main Components
- Factors Affecting Compact Heat Exchanger Performance
- How Plate Heat Exchangers Work
- Fixing Plate Heat Exchanger Problems

Day 4

Parts and Function of Combustion Heaters

- Using Fired Heaters
- Components of Burning Fires
- Handling a Fired Heater's Controls and Responding to Unusual Operating Circumstances

Day 5

Factors Affecting the Performance of Fired Heaters

- Monitoring and Troubleshooting
- Increasing Fired Heater Efficiency
- Monitoring Performance, Draft, Coking, and Skin Temperature Issues with Fired Heaters