



PE091:

Natural Gas Processing:

Dehydration, Refrigeration and Fractionation Optimization

Training Description:

This intensive course is designed to familiarize technical professionals with the design and operation of several common gas plant processing blocks. The course will explain dehydration systems used in typical field gathering and plant facilities, including a review of options available. The course will explain on mechanical propane refrigeration systems typically used in Hydrocarbon Dewpoint and NGL Recovery systems, including a review of design and performance enhancements. The course will also discuss on tower operations and troubleshooting used in absorption and fractionation services, with optimization and key performance indicators discussed for each tower in each application. The course is aimed at engineers, technologists and operators involved in the operation and optimization of gas processing facilities.

Training Objectives:

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

- ✓ Identify chemical composition of natural gas
- ✓ Identify basic terminology (Atom, Chemical Compounds and Molecules, Physical Compounds, Relative Atomic Mass, Relative Molecular Mass, The Mole, Valence and Mixture)
- ✓ Know the Gas Properties
- ✓ Identify the gas processing schemes
- ✓ Understand gas process flow
- ✓ Understand Water Hydrocarbon System Behaviors
- ✓ Identify Gas Dehydration Systems and its components
- ✓ How to operate and trouble shoot Gas Dehydration Systems

Training Designed for:

This course is intended for all Engineers, Technologists, Senior Operators and Operators who are directly working and involved in operation and optimization of gas processing facilities.

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 to Basics of Gas Processing
- ❖ Basic Terminology
 - Elements and Atoms
 - Chemical Compounds and Molecules
 - Physical Compounds
 - Relative Atomic Mass (Weight)

- Relative Molecular Mass (Weight)
- The Mole
- Valence
- Mixture
- ❖ **Basic Hydrocarbon Nomenclature**
 - Classification of Hydrocarbons
 - Paraffin Series
 - Olefin or Ethylene Series
 - Acetylene or Alkyne Series
 - Diolefins Series
 - Aromatic (Benzene) Series
 - Naphthene Series

DAY TWO:

- ❖ **Paraffin Hydrocarbon Compounds**
 - Radicals
 - Alcohols
 - Mercaptans
 - Other Carbon-Sulfur Compounds
 - Organic Nitrogen Compounds – Amines
 - Glycols
- ❖ **Hydrocarbon Fluids**
 - Types of Fluids
 - Volume
 - Pressure
 - Temperature
 - Basic Gas Laws

DAY THREE:

- ❖ **Gas Properties**
 - Physical Properties of Gas Mixtures
 - Chemical Composition of Natural Gas
- ❖ **Analysis of Gas Mixtures**
- ❖ **Introduction to Natural Gas Processing Industry**
 - Definitions
 - General Gas Plant Process Schemes
 - Types of Gas Plants

DAY FOUR:

- ❖ **Gas Dehydration Unit Operation**
- ❖ **Water Hydrocarbon System Behavior**
 - Water Content in Natural Gas
 - Water Dew Point
 - Dew Point Depression
 - Hydrate Control in Natural Gas Systems

DAY FIVE:

- ❖ Gas Dehydration Systems
 - Absorption Using Liquid Desiccants
 - Hydrate Inhibition in Low Temperature Processing Plant
 - Hydrate Inhibition in Gas Pipelines
 - Adsorption Using Solid Desiccants
 - Expansion Refrigeration
- ❖ 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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