This training course is offered under the **Alliance4Training** brand

Training - Crude Oil and Vacuum Distillation

DADSV-EN-P | **Face-to-face only** | **5 days**

This course provides a deeper understanding of the operating and monitoring of atmospheric and vacuum distillation units

Level
Skilled

Public
Engineers, senior operation personnel and technical supervisors interested or involved in the operation, optimization and monitoring of crude oil atmospheric distillation and residue vacuum distillation units

Objectives
Attendees will be able to implement the following skills:

- Give the meaning of the operating parameters of the atmospheric and vacuum distillation units
- Identify the controls and adjustment variables of the columns with multiple racks
- Specify the operational optimization points of these units
- Explain the logic of protecting this type of unit in the event of an incident

Pedagogical & technical resources

- Applications, teamwork, case studies and interactive workshops based on typical real situations
- Possible use of a generic dynamic simulator for crude oil distillation unit operation issues
- The duration and content of the training course can be customized to the needs of the client site and the profile of the participants
- Possible contribution of experienced staff reporting his industrial experience of the operation on a daily basis
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

IMPACT OF CRUDE OIL QUALITY ON PRODUCTS — 0.5 day

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Tuning of the volatility of petroleum fractions in view of their end-use: constraints and flexibility of cut points; principal problems related to quality.
Crude oils: properties (TBP analysis), product yields, related margins.
Main schemes for crude oil fractionation.

OPERATING CONDITIONS OF AN ATMOSPHERIC & VACUUM DISTILLATION UNITS — 2 days

Material balance: cut points, product characteristics, separation quality, fractionation capability.
Top condensation and pressure in the column - Partial pressures.
Feed vaporization: inlet temperature, overflash.
Product side stripping.
Heat balance of the column - Pumparounds and heat integration.
Modern internals for crude oil distillation column.

DESALTING & CORROSION CONTROL — 0.5 day

Corrosion by sulfur, naphthenic acids and mineral salts.
Crude oil desalting: purpose, functioning of the desalter, operating variables and troubleshooting.
Downstream neutralizing treatment: purpose, advantages and drawbacks.
Controlling corrosion at the head of topping column and anticorrosion techniques.

SAFETY & ENVIRONMENTAL CONCERNS — 0.5 day

Process risks: H2S, inflammability, auto-inflammation.
Risks related to main equipment: furnace, pumps, vacuum system.
Heat recovery optimization and energy consumption.
Efficient and low energy consumption vacuum equipment (steam ejector vs. liquid ring pump).

PROCESS CONTROL, OPERATION & TROUBLESHOOTING OF MULTI-DRAW-OFF COLUMNS — 1 day

Different control systems in atmospheric and vacuum distillation columns, using flowrate, level or temperature control.
Cut point control: modification of flowrate of a cut and consequences on the column.
Impact of the preflash on the operation of the furnace and the atmospheric column.
Separation control: tuning of the separation selectivity, consequences on the column and on the heat recovery system.
Influence of pressure and pressure control.
Case studies on overall control setup of these two distillation columns and disturbances.
Maximizing the performances of the unit under constraints or limit conditions.
Start-up - Shutdown - Troubleshooting.

DISTURBANCES & TROUBLESHOOTING — 0.5 day

Case studies (in groups) related to disturbances and incidents; detection, consequences and corrective actions:

- Stripping shutdown.
- Failure of one pumparound pump, of the furnace.
- Loss of part of the feed, etc.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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