IFP Training

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

Training - Operation of a Multiple-Draw Distillation Column

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

This course provides a deeper understanding of the working principle and operational tuning of multiple-draw-off distillation columns through a hands-on experience

Level

Skilled

Public

Console operators, production supervisors, shift supervisors in charge of multiple-draw-off columns: crude oil atmospheric and vacuum distillation unit, fractionation towers of cracking units

Objectives

Attendees will be able to implement the following skills:

- Specify the operating principles of multi-rack distillation columns
- Explain the role and importance of each of the control loops involved in the process control system
- Explain the adjustment of product qualities with regard to the use of setting parameters

Pedagogical & technical resources

- Use of a virtual column modeled on CORYS IndissPlus dynamic simulator
- Exercises are conducted in small groups of 2 to 3 participants, each group operating its own virtual column. Each exercise includes: a pre-discussion of the problem; definition of the target exercise objective; adequate time to run the virtual columns; open analysis of the results, shared with all participants; and practical conclusions related to the operation of the columns
- Attendees are invited to bring descriptions of their specific column control strategies for group discussion and analysis. Conclusions drawn from the exercises on the simulator can be transposed to other actual control schemes
- The content of the exercises can be customized to the needs and specific features of the client site
- 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

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OPERATING PARAMETERS OF THE SIMULATED CRUDE DISTILLATION COLUMN — 1 day

Analysis of the column: instrumentation, control loops, and analyzers. Analysis of various operating conditions and the significance of each operating parameter:

- Material balance, concepts of cut points, quality and fractionation capability.
- Total and partial pressures, pressure profiles along the column.
- Feed temperature, over flash and energy consumption.
- Role and operating parameters of the strippers, and stripping ratios.
- Energy balance, heat extraction by pumparounds, and partial condensation, overflash.
- Overhead condensation: and various control systems.
- Liquid and vapor traffics, fractionation zone and heat transfer zones.
- Temperature profiles.

MODIFYING CUT POINTS — 2 days

Control of the mass balance, and characteristics of the products.
Change in the side streams flow rates - Change in the overhead cut flow rate.
Practice changing the cut point between two side streams to meet quality specifications.
Tuning the operating parameters of the strippers; vapor, reboiling, stripping ratio, and flash point.

ADJUSTING ENERGY BALANCE — 1 day

Modifying heat rates extracted by pumparounds: effects of changes to flow rates, internal traffics and properties of side streams.
Change in the transfer line temperature, and energy consumption. Influence of pressure and the consequence on feed heater and top degassing.
Consequence of changes to the energy balance, liquid and vapor traffics, and their effect on fractionation capability.

TUNING THE COLUMN — 1 day

Adjusting the quality of the products.
Optimization criteria for the energy balance: adjustment of the pumparounds to get the desired fractionation capability.
Influence of the main disturbances: feed flow rate, stripping steam - Influence of a change in the crude oil quality.
Specific features of other multiple-draw columns like vacuum columns and other fractionators.
Management of the different requirements (cut points, specification of cuts...) depending on the control scheme implemented for any column studied.

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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