

Training - Understanding the Operation of Refining Processes



PRORAF-EN-P



Face-to-face only



5 days

To bring an in-depth understanding on the running, operation and follow-up of the performances of the different crude oil refining processes

Level

Skilled

Public

Engineers and executives in contact with refinery operators but who are not directly involved in the production unit operation: laboratory personnel, people from the programming or piloting departments, process control, maintenance, research centers, HSE departments.

Objectives

Attendees will be able to implement the following skills:

- Recognize the diagram of the main manufacturing processes
- List the characteristics of the fillers and products of these processes
- Qualitatively evaluate the influence of the main driving parameters of the main manufacturing processes
- Point out the specific problems related to safety, health, and environmental protection in relation to the operation of the units

Pedagogical & technical resources

The efficiency of the training is guaranteed by numerous practical applications related to the operation of these processes that highlight the role of the operating parameters, the specific points in the follow-up and some key-sequences of the operation

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

Responsible

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

CRUDE OIL ATMOSPHERIC & VACUUM DISTILLATIONS

0.75 day

Adjustment of the quality of the cuts: material balance and cut points; side stream stripping.

Pumparounds: principle, relation with the fractionation capability, crude preheating and energy consumption.

Corrosion, corrosion control and desalting.
Vacuum systems: operation, failure and remedies.

GASOIL DESULFURIZATION & SULFUR CHAIN

1 day

Role of hydrotreatments in refining, chemical reactions and catalysts.
Means used for a deep desulfurization: role and compared importance.
Hydrogen consumption and parameters of the hydrogen balance management in the refinery.
Operating parameters of Claus process and unit reliability.
Treatment of Claus stack gas and control of the sulfur emissions to the atmosphere.

CATALYTIC REFORMING & ISOMERIZATION

0.75 day

Bifunctional catalyst and sequence of the reforming reactions in the different reactors.
Severity: effect on the material balance and the qualities, hydrogen production and the catalyst.
Discontinuous and continuous regeneration: successive steps, layout of the regeneration tower of the RR.
Separation of the isomerase by distillation or chromatography: impact on the octane number.

FLUID CATALYTIC CRACKING

0.75 day

Conversion: impact of the feed quality and the operating conditions.
Heat balance, temperature optimization and coke production management.
Pressure balance: catalyst circulation, fluidization and combustion safety.
Regenerator operation: complete or incomplete combustion, advantages, incidents.
Potential malfunctions and impact on the environment.

ALKYLATIONS

0.25 day

Technology of reactors and operating conditions corresponding to the acids HF or H₂SO₄.
Conducting the acid inventory: consumption and regeneration of acid.
Neutralization and purification of the products exiting the unit.

HYDROCRACKING & PRODUCTION OF HYDROGEN

0.75 day

Material balance and characteristics of the cracking products.
Operating parameters, process operation, temperature and safety automation control.
Production of hydrogen: efficiency, purity and energy consumption.

VISBREAKING

0.25 day

Feed structure and stability of the cracked residue.
Follow-up of the evolution of the visbreaking furnace, skin temperature of tubes and decoking.

COKER

0.5 day

Delayed coking, fluid, fluid with avec gasification.
Technology of coke drums and layout of the valve manifolds. Main decoking steps.
Conversion and recycle ratio at the fractionator. Operating parameters and follow-up of coking in the furnace tubes.

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