

▲ Who should attend?

Graduate engineers and supervisory staff from the operations, technical and planning departments of refineries or corporate offices involved in the operation and projects regarding heavy ends of the crude oil barrel.

▲ Duration
5 days

▲ Dates & Location
Non-scheduled

May only be organized for a single company

▲ Tuition Fees
To be agreed upon

▲ Course Coordinator
Bernard Léry

Ref. **RPC / REF2**

REFINING MODULE 2

Processing of heavy cuts

OBJECTIVES

To get an overview of the different refining processes available to upgrade heavy cuts of the barrel.

At the end of the session, the participants:

- understand the differences between the various refining conversion processes from a planning, operation and investment points of view
- have acquired the basics to start operating those conversion units and/or to initiate recommendations for investment plan on heavy cuts
- get current update on developments in the industry regarding heavy cuts processing.

COURSE CONTENT

OVERVIEW OF CONVERSION PROCESSES 0.5 day

Origins and characteristics of conversion unit feeds

Different types of conversion: principles, performances, utilization ranges, economics:

- Thermal cracking processes
- Catalytic cracking without hydrogen
- Catalytic cracking with hydrogen

THERMAL CONVERSION PROCESSES 0.75 day

Visbreaking: - integration in the refinery, scheme, operating conditions
- effects on quantity and stability of heavy fuel oils

Delayed coking: - process characteristics, scheme, products valuation

Flexicoking: - principle, integration in the refinery

CATALYTIC CRACKING 1.75 days

Main fluid catalytic cracking processes

Catcracking feed characteristics

Mechanisms of catalytic cracking reactions and mode of action of FCC catalysts

Yields and characteristics of FCC effluents with overview of purification treatments

FCC products upgrade: propylene recovery, alkylation, MTBE and gasoline pool, LCO hydrotreatment

Analysis of FCC operating balances

Summary of operating parameters in the reaction section and in the regenerator

Incidents and outlines of operating procedures

FCC modifications to treat residues: R2R, HOC, ...

DISTILLATE HYDROCRACKING 1.25 days

Different reactions of the hydrocracking process

Hydrocracking catalysts

Hydrocracking process: scheme, operating conditions

Analysis of hydrocracking operating balances

Associated unit: hydrogen production

Products valuation

RESIDUE HYDROCRACKING 0.5 day

Overview of existing processes to upgrade vacuum residues: hydrotreatment, hydroconversion

Associated units

Refinery configurations with deasphalter

LUBE BASE STOCKS MANUFACTURE 0.25 day

Classification and required properties of base oils

Main lube base stocks manufacturing schemes: vacuum distillation unit, deasphalting, extraction, dewaxing, hydrofinishing

Other products: white oils, paraffins, waxes