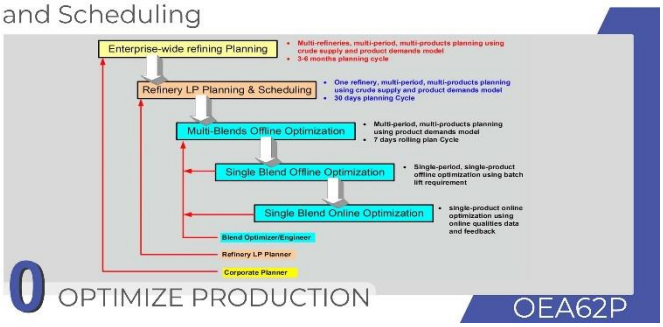
Refinery-Wide Planning and Scheduling



Topic ID	**OEA62T**
Title	**Refinery-Wide Planning and Scheduling**
Category	**O-Optimize Production**
eLearning Level	**Basic**

Introduction

A refinery produces many streams of different properties and grades. These streams need to be blended To have a commercial product. The refinery planning process consists of crude oil processing, optimization of the process, and safety. It also involves cost evaluation. Therefore, on-time representation is a significant scheduling challenge.

This topic will discuss the refinery planning process, feedforward and feedback, monthly plan and blend schedules, rollover planning, single-product blend optimization, etc.

Refinery Planning Process

The refinery planning process involves various factors. These are operation planning, cost evaluation, and cost estimation. Other units that play a significant role in this process planning are transportation and marketing units. Process planning can be on a daily, weekly, or monthly basis. It is concerned with the different blends required by the end-user. The blending of various chemical products plays a significant role in the refinery planning process. Here, feedforward and feedback processing planning is the control system. This enhances efficiency.

Process planning also involves a blending schedule. Again, linear programming is important here. Different planning periods may be considered, such as days, weeks, or months. For each period, economics, prices, marketing, lifting schedule of the finished product, blending schedule, yield, inventory levels, etc., are matters of concern. In addition, there are a few important factors: the availability of the processing equipment, efficiency of the plant, quality of the product, availability of raw crude, and economics.

Rollover Planning

Rollover planning is the planning that remains continued for a specified period. In other words, if a refinery has a monthly rollover plan, then all parameters would move to next month without any process changes. Inventory of the products and spare parts are vital for the process planning of a refinery. If the inventory is not considered, there may be failure/inefficient operation in refinery processes.

Variables Concerning Process Planning

The variables used here are: Product properties (depend on feed properties), feed flow rate (sum of all incoming stream rates), product flow rate (depends on feed properties and feed flow rate), feed properties (obtained from a combination of various streams using blending algorithms), etc.

Summary

The success of the refinery process will not occur without proper planning. Transport and marketing sections are important components of the planning process. A refiner uses linear programming (LP). Many operational features of a refinery are supervised by process experts. Hence, sometimes, a modeler and a user may not agree. Supervision of pipelines and distribution of crude oil are fundamental for the process planning of a refinery.

Options for eLearning This Topic

Mode of eLearning	Available?
Free Course	No
Refresher Course	Yes
Pick N Choose (Custom Curriculum)	Yes
Advanced Level Course	Yes
Structured MCOR Curriculum	Yes