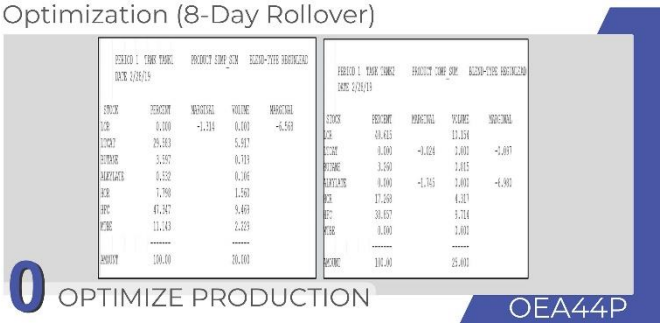
Multi-Product and Multi-Period Optimization (8-Day Rollover)



Topic ID	**OEA44T**
Title	**Multi-Product and Multi-Period Optimization (8-Day Rollover)**
Category	**O-Optimize Production**
eLearning Level	**Basic**

Introduction

A refiner aims to increase production while ensuring that specifications concerning petroleum products meet set standards. Mathematical programming models are used for this purpose. In addition, options concerning operations as well as a strategic investment are studied and analyzed.

The offline blend optimizer automatically performs the rollover process once the periods and days in it are set up with target blend products. The rollover process considers the demand for products, the supply of blend components, and their qualities.

Optimization of Built-In Case for the Multi-Period Blends Planning Model

Various planning models consider the relationship concerning the demand for different crude oil mixes for the same period. Here, the relationship for different time frames is bypassed. Therefore, advantages may be more if the mix demand correlation is considered for the same and different time frames.

Multi-Product Planning Model for Eight Days

Here, the planning horizon is eight days for various products. Several variables and constraints are evaluated for optimal performance.

Stock Tank Qualities

They consider various physical properties, pools, and the cost of the respective stocks to be blended. A product pool can be called a mixing tank. Its unit represents the final product to be marketed.

As per product specification requirements, a product must always meet set standards. In addition, it should be achieved at the lowest costs.

For instance, gasoline is a blend of different process streams: CDU, FCC, etc. Installing online analyzers is crucial to ensure the production of gasoline at the lowest costs. The gasoline produced must meet specifications as well.

Blend Qualities for All Grades

Care is needed to ensure that the blend quality for all grades is satisfactory; considering the nonlinear consequences on the physical properties of the blending oil, The mixing of different kinds of oil in a tank is bound to affect the physical properties.

Component Inventory

The measure and state of each oil tank vary with time. The refinery records values as blend components or product gasoline. These values are estimated by the plan for production. The planning objective may not include the financial price of carrying the product inventory over the given horizon (for eight days). If inventory errors such as insufficient gasoline are detected at any period, then the blend recipes have to be re-optimized.

Summary

The main aim of the multi-period model is to help in minimizing the price of blending, export, delivery, and general operations during the given horizon period. Therefore, for effective results using this model, continuous practice with lab exercises is advised.

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