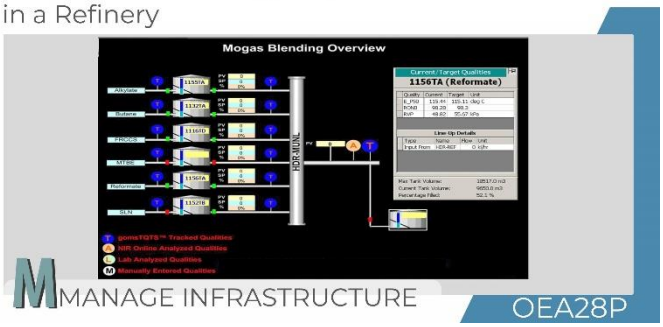
Fuel Blending Operations
in a Refinery



Topic ID	**OEA28T**
Title	**Fuel Blending Operations in a Refinery**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

Blending is an important process in determining the quality of fuel products and profit generation in a refinery.

It is done with the help of crude oil products. They are blended and utilized in the production of fuel oil blends, which have high market demand. This way, costs are kept low by using refinery products. Blending increases refinery margins without affecting the physical properties of the final products.

This topic will discuss product yields, types of blending, gasoline blending, diesel blending, kerosene blending, fuel oil blending, lube oil blending, naphtha blending, stationary batch tank lube in-line blending, moving batch tank lube in-line blending, etc.

Key features of Fuel Blending Operations

Product yield in a refinery is described as the actual yield obtained divided by the yield calculated theoretically. When crude oil is refined, it is divided into 114 various products. Most of the products are utilized in fuel blending and are not sold directly.

Gasoline, diesel, kerosene, lube oil, and fuel oil are the main blended products of the refinery. Gasoline used in cars and small vehicles is blended with tank-to-tank in-line blending using naphtha, butane, alkylates, and isopentane to make fuels.

Diesel, also known as middle distillate, is blended by rundown-to-tank and tank-to-tank in-line blending with the help of CDU middle distillates and hydrocracking steams. It results in light middle distillate for widespread use in marine diesel and heavy distillate fuel.

Kerosene blending is done by rundown-to-tank in-line blending with the help of CDU kerosene, hydrocracker kerosene, and light diesel. Ships, boilers, and furnaces use fuel oil that is blended by tank-to-tank in-line blending. Lube oils, which are used by vehicles and machines, are blended by tank-to-tank in-line blending with the help of refined base oils, synthetic base oils, and additives.

Naphtha blending helps in producing constant densities in feed tanks. Light naphtha may be derived from various sources such as fractionation from NGL (natural gasoline), crude oil distillation, etc. In addition, light naphtha and gasoline are blended directly.

In stationary batch tank lube in-line blending, the product demands are met quickly because the blending hours are short, but contamination is a big hazard issue. In moving batch tank lube in-line blending, the batch tank moves. It has fewer valves, so it uses less labor. As a result, the quality is controlled better in moving batch tanks.

Summary

Blending is an essential process in a refinery. It utilizes the stocks to meet the product specifications within budget and increases profit margins. Gasoline blending is more complex than others as it uses 6-12 stocks. Lube oil blending has complex piping and valves involved along with a large number of batches. Here, the batch size is small.

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