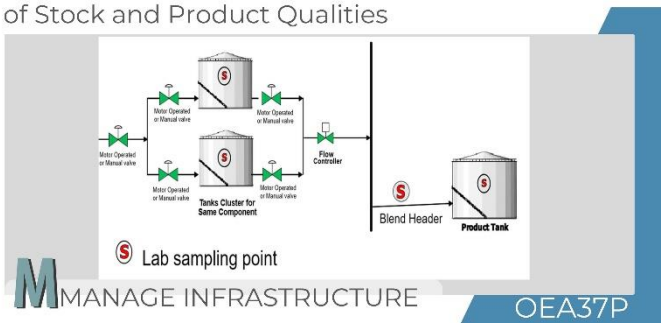

Topic ID	**OEA37T**
Title	**Lab Analysis of Stock and Product Qualities**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

In-line or continuous blending involves mixing several feedstocks in real-time with quality verified by installed analyzers. For in-batch productions, predetermined volumes of stock are sent into a mixing tank, and after mixing, samples are taken for laboratory analysis.

This topic will discuss lab sampling points for blending, parameters for measuring lab analysis load, typical refinery lab analysis load distribution, a justification to reduce lab analysis load, lab analysis schedules for 300 KBD refinery

A case study of lab analysis load, a gasoline blender case study, designation of qualities for lab analysis, lab analysis load and yearly cost, economic incentive to reduce lab analysis load, etc.

Laboratory Sampling Points for Blending

They should be chosen appropriately as inaccurate sample information can cause a considerably large loss of revenue. The sample points for laboratory analysis should therefore be at locations displaying actual flowing conditions. Sample points should be at points of isokinetic conditions and not launch tubes or dead legs. For blending done in-tank, samples are taken out of the tank after mixing to determine if quality specifications are met. Blending is repeated if the product is not truly homogenous.

Parameters for Measuring Laboratory Analysis Load

The workload for a particular laboratory is measured using the following criteria:

- The number of samples to be analyzed per day.
- The number of quality tests to be done per sample.
- The number of sample sources.

Refinery Laboratory Analysis of Load Distribution

An increase in the refinery laboratory workload leads to an increase in the laboratory analysis cost and, consequently, the production costs of the refinery. Therefore, the laboratory analysis cost (LAC) is a function of the product of the load measurement parameters.

Justification to Reduce Laboratory Analysis Load

Reduction in production costs remains a top priority for a refiner. As the cost of laboratory analysis increases, a reduction in the load is imperative and justified.

Laboratory Analysis Schedule for a 300KB/D Refinery

Unlike the increased cost savings attributed to the in-line blending system, the cost of laboratory analysis in a refinery producing three hundred thousand barrels per day stands at almost six million USD yearly.

Economic Benefits of Reducing the Laboratory Analysis Load

Consider a refinery with 11 stock tanks, seven product tanks, and 10 qualities to be analyzed without an installed online analyzer. A 50% reduction in stock tank analysis yields a 20% decrease in laboratory cost analysis.

Summary

The old method of measuring tank qualities is not suitable for running stock tanks.

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