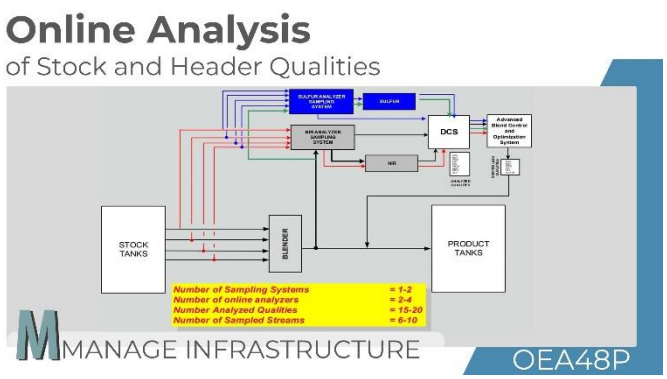

Topic ID	**OEA48T**
Title	**Online Analysis of Stock and Header Qualities**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

Modern oil refineries have incorporated the online analysis system, and it consists of sensors, chemical analyzers, and other relevant parameter measurement devices. They are installed in the pipelines at various points.

This topic will discuss the online analysis system, discrete analyzers, multiplexed sampling systems, integrated multi-analyzer systems, sampling methods, online analyzers, sampling points, analyzers and qualities for gasoline products, typical multiplexed analyzers, the hybrid online analysis system, etc.

Discrete Analyzers

Discrete analyzers are still widely used due to the commitment to following standard ASTM and other formal sampling methods. Each analyzer measures a single oil property. Therefore, multiple analyzers are required to measure different properties at various points to ensure optimum and correct blending. The cost required for sample analysis is quite high in this case. The repair/maintenance expenditure is also high.

Multi-Analyzer Systems

Multi-analyzer systems are beneficial in refineries. Multi-analyzer systems are capable of measurement of various oil properties simultaneously. Using them reduces the capital cost. In addition, the data acquired is more manageable and presentable. A near-infrared analyzer is widely used to determine the oil quality at different processing stages in the refineries. Near-infrared spectroscopy is used on different petroleum products such as gasoline, diesel, etc. It is capable of measuring aromatics, olefins, paraffin, and other fuel-related parameters.

Sampling Methods Used in Refineries

An in-situ technique is often employed in oil industries for random and regular sampling to examine the sample for quality assurance. The probe, sensor, or flow-measuring device is inserted into the pipe or channel, keeping in view the functionality and direction of flow. The reading of the sensor or analyzer is then monitored. This method is scientifically recommended due to the intactness of the sample's integrity, accuracy, and avoidance of sample preparation.

The extractive sampling method is based on the extraction of the stock or other processed oil and determining quality parameters. The method has many risks associated with it. Because the flow rate of the sample must be maintained for monitoring, it must be ensured that the sample is bubble-free. Also, the molecular integrity of the sample must be maintained.

Summary

Different analyzers such as pH sensors, infrared or near-infrared spectrometers, and humidity content analyzers are integrated with the control system and display setup to visualize real-time stock properties.

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

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