

Fuel Manufacturing - In Line Blending Optimization

3.00 days

APD/AUTOOFF

Overview

AUDIENCE

Managers, technical and operating staff interested or involved in product manufacturing.

PURPOSE

This course provides a thorough understanding of the product manufacturing principles: in line blending monitored by a global optimizer.

LEARNING OBJECTIVES

Upon completion of the course, the participants will be able to:

list the key specifications for each product and predict the impact of each component on each property, describe the blending laws used for each product, and explain how they should be used, monitor a blend thanks to the optimizer, and take the necessary actions required by the optimizer messages.

PREREQUISITE

Knowledge of the specifications and of the constituents of the petroleum products.

WAYS AND MEANS

Training content is fully adapted to the refinery blending optimization tool, which is done under confidentiality agreement.

Agenda

GASOLINES, DIESEL FUELS, HEAVY FUELS SPECIFICATIONS

0.50 d

Normalized tests used to check specifications.

Specifications: main constraints for the optimizer.

Optimization of the blend: notion of give-away and identification of the key constraints.

BASES & ADDITIVES

0.25 d

Nature, origin and characteristics of the bases.

Additives: best practices for additisation - Properties optimized by additives.

BLENDING LAWS USED BY THE OPTIMIZER

0.75 d

Density, octane numbers, cetane numbers, vapor pressure, distillation, cloud point, flash point, viscosities, sulfur.

Analyzers: principle; sampling loop; Tank Quality Integration (TQI).

Particular case of properties optimized by additives (case of CFPP for Diesel fuel).

BLEND OPTIMIZATION: SP95 & ADO MANUFACTURING

0.75 d

Check of base properties - The optimizer requires all the base properties.

Ratio constraints due to inventory constraints.

Quality constraints (specifications).

Economic optimum.

Follow up of the blending with the main process view of the application.

BLEND MONITORING

0.50 d

Different steps in the calculation of the optimizer - Dynamic optimization of the application.

Algorithm principle: integration cycles, optimization cycles, dynamic regulation.

Blend manufacturing: how to treat infeasibilities.

UPSETS - STUDY CASES

0.25 d

Often result from wrong inputs. Identification of the origin of the problem and corrective measures .

Switch of the optimizer in "model mode" in case of analyzer failures during the blend.