Training - Fuel Manufacturing - In Line Blending Optimization

AUTOOFF-EN-P | **Face-to-face only** | **3 days**

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

Level
Skilled

Public
Engineers, managers, technical and operating staff interested or involved in product manufacturing

Objectives
Attendees will be able to implement the following skills:

- List the standard tests relating to the specifications of gasoline, diesel and fuel oil mixtures, specifying the impact of each of the bases on each property
- Explain the working principle of the application of mixtures taking into account the associated laws and their limits
- List the sources of possible malfunctions of the application and, after analysis, the necessary corrective measures

Pedagogical & technical resources
Training content is fully adapted to the refinery blending optimization tool, which is done under confidentiality agreement

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer, including blended simulations
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GASOLINES, DIESEL FUELS, HEAVY FUELS SPECIFICATIONS — 0.5 day

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 day

Nature, origin and characteristics of the bases.
Additives: best practices for additivation - Properties optimized by additives.

BLENDING LAWS USED BY THE OPTIMIZER — 0.75 day

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 day

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 — 0.5 day

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 day

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.