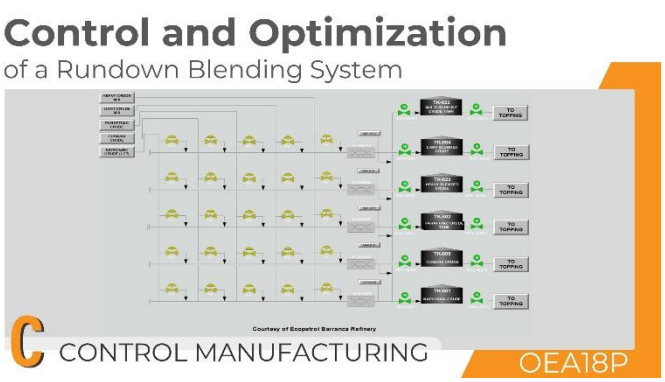


| | |
|---|---|
| **Topic ID** | **OEA18T** |
| **Title** | **Control and Optimization of a Rundown Blending System** |
| **Category** | **C-Control Manufacturing** |
| **eLearning Level** | **Basic** |

## Introduction

There are two methods of blending: batch in-line blending and multi-header rundown blending. Batch in-line blending combines in-line, and batches are blending. Batch in-line blending uses a single header while all blend components are proportionally and simultaneously conducted.

On the other hand, multiple-header rundown blending has more complex processes. It involves many processing units to feed into rundown headers, multiple control rooms, process operators, and control systems.

**This topic will describe two methods of blending; their examples and applications, offline, online, and regulatory blend control strategies; in-line blend certifications, etc.**

### Examples of Blending Methods

The examples of multiple header rundown blending are kerosene and diesel. Other blending methods include pipeline-to-tank-to-header blending and multi-tank multi-header blending, which includes naphtha blending.

### Blend Control Strategy and Optimization

It consists of offline control and optimization, online control and optimization, a regulatory blend control, and Offline control and optimization. Therefore, it is more suitable for multi-products and multi-periods batch in-line blending optimization. In contrast, online blend control and optimization are much more complex. Hence, it requires software customization to address the automation.

Besides, regulatory blend control manipulates the blend recipe by flow set-points which can be either manually input or downloaded using offline or online blend optimizers. Thus, it is important to explain the benefit of these blend control strategies and optimization methods over the two blending methods previously mentioned. The benefit matrix uses three categories: quality giveaways, recipe optimization, and inventory minimization, to distinguish the parameter between two blending methods: batch blending and rundown blending.

The course also discusses blending to tanks, ships, pipelines, and barges. Based on this two-benefit matrix comparison, each blending method requires regulatory blend control regardless of the blend control strategy.

### In-line Blend Certifications

Online analyzers should meet standards concerning in-line certification, accuracy, and calibration. In case of any complexity, there may be re-certification of gasoline. Refiners may use certified in-line blenders, so there may not be any need for blend tanks. There are many hurdles for in-line certification. For example, outdated blending system hardware, various software interfaces, etc.

### Summary

There are major differences in offline planning and optimization for batch and rundown blending systems. In addition, in-line certification is required for blending directly to ships, pipelines, and barges.

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

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