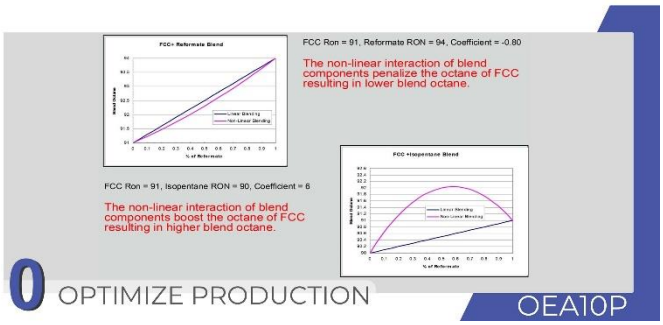
Blend Models



Topic ID	**OEA10T**
Title	**Blend Models**
Category	**O-Optimize Production**
eLearning Level	**Basic**

Introduction

The blending operations have evolved over time owing to the ever-growing competition between refineries and the advancement of technology. This has led to innovations in several strategies of blend technology. The main aim here is to increase the refining margins while keeping the physical properties of the blends unaffected.

The approach of this topic toward blending involves the following types of linear/nonlinear blend models, the linear combination of raw blend quantities, indexed quantities, and interactions with other blend quantities and the recipe.

Linear Blend Model

This is a method where the original values of the quantities are blended in their absolute values. This process is not affected by the presence of other components or their properties. In this model, raw qualities or indexed qualities can be mixed linearly. Simple tools and programs can be used as it is an easy model. The disadvantage of this model is that the blending values can depend on other variables and values, thus posing a difficult task in calculating parameters.

Qualities Blended Linearly

Qualities blended linearly are usually blended in their absolute values. These qualities are independent of the propriety of the various components involved. Thus, the composition or quality of a component does not affect the component quality.

Linearized Indexed Qualities

This is achieved by transforming the original value of quality into an index form. The quality transformed is then blended in that form. Qualities in the linearized form are non-interactive because they are not affected by other components in the process.

Nonlinear Blend Model

This is where the components and their composition determine the outcome of the blended quality. The quality of the blend also depends on other qualities like aromatics, olefins, benzene, etc., qualities of other components. The nonlinear blend model solely depends on the component interactions, unlike the linear blend model. Blended mathematics is truly achieved in this method. The model's main advantage is that it can be customized by adjusting the parameters in the variables. However, it is complex and difficult to program.

Reformulated Gasoline Blend Model

The rising demand in the market for reformulated gasoline has led to the development of flexible cracking operations, which increases the production of olefins and aromatics. This is a complex model that mainly focuses on the interaction of toxics and various volatile organic compounds.

Summary

The choice of the blending model depends on the availability of resources and expertise. Also, consider the complexity of the model when checking the quality of the blend.

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