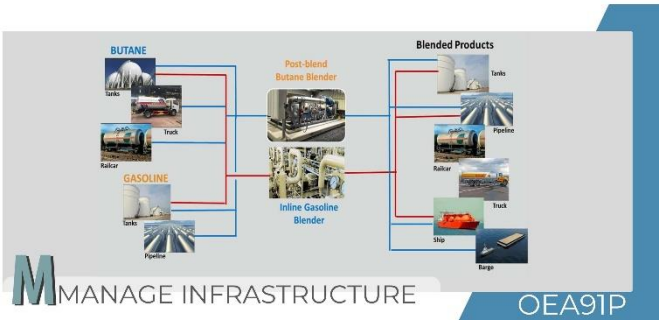
Butane Blending



Topic ID	**OEA91T**
Title	**Butane Blending**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

The blending of Butane with gasoline is done to enhance RVP (Reid Vapor Pressure). It is a light liquid stream. Because of high Octane, Butane is preferred for gasoline blending. Here, there is a limitation of high RVP. Because of the RVP limit, during the summer period, there is no butane blending into gasoline. Hence, there is an excess of Butane during this period.

This topic will discuss the concept of butane blending, Gasoline properties, and seasonal RVP specs, Butane blending economics, source, and destination of Butane, Blend Models, benefits calculator, and commercial Butane Blender,

The topic also discusses gasoline specs, component properties, seasonal and regional RVP specs, Butane Blender feeds and destinations, seasonal Gasoline price changes, deterministic solution of blend models, etc.

Concept of Butane Blending

RVP is enhanced due to the mixing of Butane into RFG (reformulated gasoline). There is a limit concerning RVP in gasoline. This serves as a constraint for butane blending. Because of this constraint, a refiner should do butane blending carefully. Blending benefit depends on Butane and gasoline price spread.

By volume, gasoline may be blended with two to three percent butane. The volume of Butane also depends on before blending RVP. Maximum benefits from butane blending may be derived during the transition period between the hot and cold seasons.

During this time, up to ten percent butane may be blended with gasoline. Therefore, during winter times, there may be a high value of RVP.

Technics blending utility is available with Green Bay and Milwaukee refineries. They consist of duplex sampling loops and an online RVP analyzer. Here, it is possible to have 0.05 percent butane blending. That is very tight dosing. This facility is capable of delivering homogenized, on-time, and on-spec products within 1.3 kPa. If there is one psi increase in RVP, the online analyzer may increase butane blending by 0.5 percent. Hence, there may be saving worth a million USD. Expenditure on online analyzers can be regained soon.

Butane is used as a fuel, a gas for refrigeration, a liquid for cigarette lighters, home heating, etc. Being utilized as refinery fuel is its end-use. Here, product value is the least. Therefore, this kind of usage should be avoided. Upon distillation, different crude oil grades produce the same amount of Butane. Then it is sent to another unit as a wet gas stream.

For a gasoline blend, the RVP blend index is used to assess the influence of high RVP components like pentane and Butane. Therefore, RVP and Octane number (ON) play a significant role in gasoline blending.

Summary

RVP depends on temperature. RVP specs vary from summer to winter. They also vary as per the refinery location. RVP may vary from six psi to twelve psi. For N-butane, RVP may be up to 46 psi. For blending purposes, low-value normal Butane is preferred by the refiner.

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