
Question 6: What is your main blending limit for gasoline for both summer and winter specs?

ABIGAIL SLATER (HollyFrontier)

Gasoline blending specifications are vast and different in various geographical areas. The common blending limit that taxes both summer and winter specifications are volatility specifications. Depending on the gasoline blend, Reid Vapor Pressure (RVP), Total vapor over liquid (TV/L), and distillation (typically T10 and T50) can be limiting in both seasons.

We see that RVP is typically more limiting in the summer season. This can be managed by butane blending. Some refineries will store or sell butane during the summer and blend butane during the winter. The second biggest limit in the summer is typically T10 of the distillation, as many of the gasoline components in the blend are heavier due to the lower RVP limit.

Additionally, TV/L is more limiting in the winter season. As refineries attempt to take advantage of the higher RVP limit during the winter, the TV/L limit will generally be reached prior to reaching the RVP limit. The second biggest limit in winter is typically T50, as many of the gasoline components in the blend are lighter to take advantage of the higher RVP limit.

Other limits that occur during both seasons are octane and benzene limits. Octane must be managed by the refiner's overall octane pool. This can be done by manipulating octane producing units within the refinery (Naphtha Reforming, Isomerization, Alkylation, etc.). Benzene limits are sometimes present and can be reduced by benzene saturation units and proper naphtha splitting (for example, ensuring benzene pre-cursors stay out of dehydrogenating units such as Naphtha Reformers).

Gasoline limits can be impacted by crude slate, refinery configuration, fractionation efficiency, and desired product slate. As gasoline specifications change with Tier 3, NAAQS, increased ethanol blending, etc. and more pressure is put on the gasoline blends, then the limits can shift between the different volatility specs.

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Summer: RVP typically managed by butane blending

Winter: Total vapor over liquid (TV/L) & minimum distillation in winter, also managed by butane blending

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