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Case Study – Producing High Octane Gasoline in Northern America

Background

Cestoburn® is a manganese-based octane improver for gasoline. Using Cestoburn® allows refineries to reduce levels of aromatics and olefins in gasoline, which allows refinery units to operate at lower severity and increases the size of the gasoline pool.

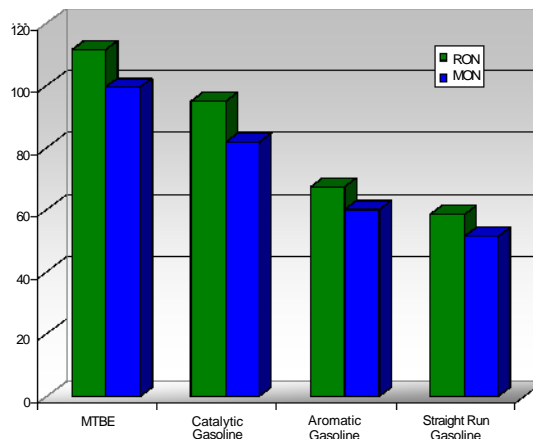
A case-study was performed at a modern refinery in Northern America in which Cestoburn® was added to various gasoline blends. The results were convincing – Cestoburn® significantly and economically increases octane number.

Test Procedure & Blending Components

The following blending components were available to the refinery. Gasoline blends are mixtures of these components.

	RON	MON
MTBE	111.6	99.6
Catalytic Gasoline	95.0	81.9
Aromatic Gasoline	67.5	60.2
Straight Run Gasoline	58.7	51.6

Blending Component Octane Numbers



Gasoline Blends and Results

The octane number was determined for each blend with, and without, Cestoburn®. Cestoburn® was added to all gasoline blends at the 18 mg Mn/liter level. This manganese level is recommended for maximum performance and system compatibility, and is approved for use in North America. The change in RON was measured, and is listed in the table below.

	MTBE	Catalytic Gasoline	Aromatic Gasoline	Straight Run Gasoline	RON	RON (+ Cestoburn®)	Δ
Blend 1	10%	60%	20%	10%	90.1	92.3	+2.2
Blend 2	---	75%	25%	---	90.1	92.6	+2.5
Blend 3	10%	90%	---	---	95.1	96.8	+1.7

Analysis

As can be seen, the RON increased by approximately 2.5 numbers in all blends with the addition of Cestoburn®. Interestingly, however, is that Cestoburn® was effective in increasing the octane of the catalytic gasoline while MTBE was not. This is shown in the following graph:

Conclusion

As is demonstrated in this case-study, Cestoburn® is an effective octane booster, and can increase octane number much more effectively, and at lower cost, than MTBE.

Addition of MTBE and Cestoburn®

