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SUBJECT: OCTANE BOOSTERS

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IMPORTANT INFORMATION ON OCTANE BOOSTERS

A fuel octane number is a measure of the combustion properties of the gasoline in internal combustion engines. In gasoline engines, the fuel and air are compressed and are meant to ignite as a result of spark ignition. When the fuel and air mixture is compressed it can detonate before the timed spark and cause what is commonly referred to as “knock” or “pre-ignition”. In some cases this is a minor annoyance and in some cases can cause catastrophic engine damage.

The octane rating scale traditionally runs from 0 to 100 where an octane rating of 0 is given in reference to n-heptane and an octane number of 100 is given to iso-octane. Certain refinery products such as reformat and BTX can be blended with straight-run gasoline to produce a fuel with an acceptable octane rating. Oxygenates and metallic chemicals can also be added to improve octane rating of fuel, and these are typically found in aftermarket octane boosters.

METALLIC OCTANE BOOSTERS

Tetraethyl lead is the classic metallic octane booster and is very highly effective, but its use is extremely limited today due to toxicity concerns. Iron and manganese compounds like ferrocene or MMT are still used, and can be found in some aftermarket fuel products. These metallic compounds are very effective at improving combustion stability and eliminating knock, but may also cause damage to after-treatment devices such as catalysts.

For newer automobiles with these after-treatment devices, using a higher octane base fuel, oxygenates, or other non-metallic octane improvers are a safer alternative to metallic octane improvers.



OCTANE BOOSTERS