

THE POWER OF OCTANE

The need for ethanol as a clean, affordable source of octane became even more apparent in 2020, as the pandemic hit U.S. and global fuel markets. While the price of regular unleaded gasoline fell, the price of premium gasoline remained elevated, particularly at the retail level. As a result, the price spread between premium and regular grades of gasoline spiked to the highest level in at least 25 years.

Ethanol's blending octane rating of 114 AKI is significantly higher than the ratings of the competing petroleum-based octane sources, the supplies of which have become constrained in recent years. Additionally, aromatic hydrocarbons like benzene are toxic and worsen air pollution.

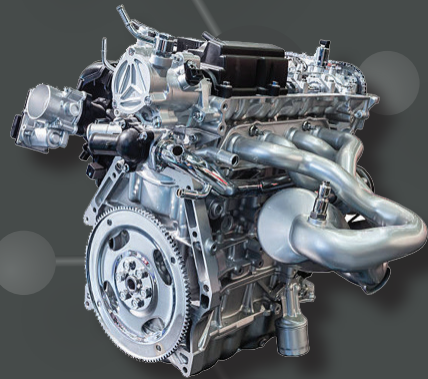
Over the last 10 to 15 years, refiners have largely optimized their processes to reduce hydrocarbon-based octane production to take advantage of ethanol's properties. Today, most regular gasoline in the U.S. is produced using blendstock with an octane rating of 84, which is then upgraded to a rating of 87 by adding 10 percent ethanol. This allows refiners to increase throughput of hydrocarbon blendstock at lower cost. Higher blends like E15 and E30 offer an even greater octane boost when blended on top of today's regular gasoline.

Ethanol's octane boost provides a little fun in addition to improving the quality of our nation's fuel. The Tuatara, a flex fuel vehicle manufactured by SSC, became the fastest production car on the planet in 2020. It twice hit an average speed of 316 mph to claim the title. The engine boasts 1,750 horsepower when operating on high octane E85, and on one run it hit 331 mph, breaking the top speed of a Bugatti!

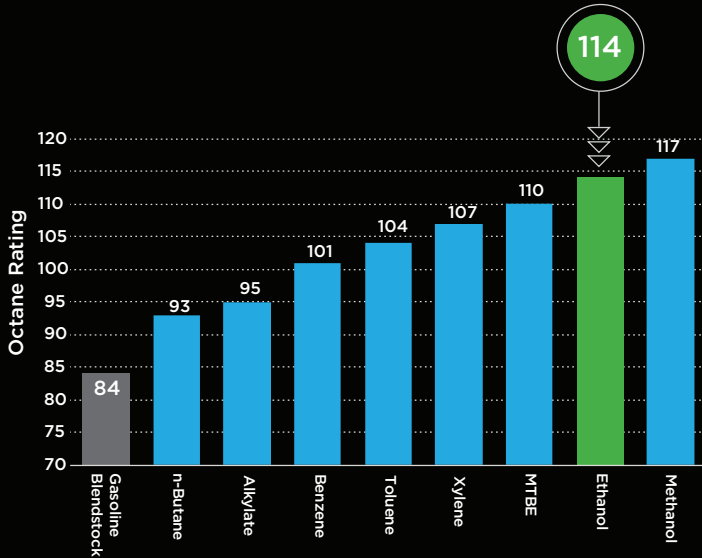


WHAT IS OCTANE AND WHY IS IT IMPORTANT?

A fuel's **OCTANE RATING** is the measure of its ability to resist “knocking” in the engine, which is caused when the air/fuel mixture detonates prematurely during combustion. According to the U.S. Department of Energy, “Using a lower octane fuel than required can cause the engine to run poorly and can damage the engine and emissions control system over time. It may also void your warranty.”

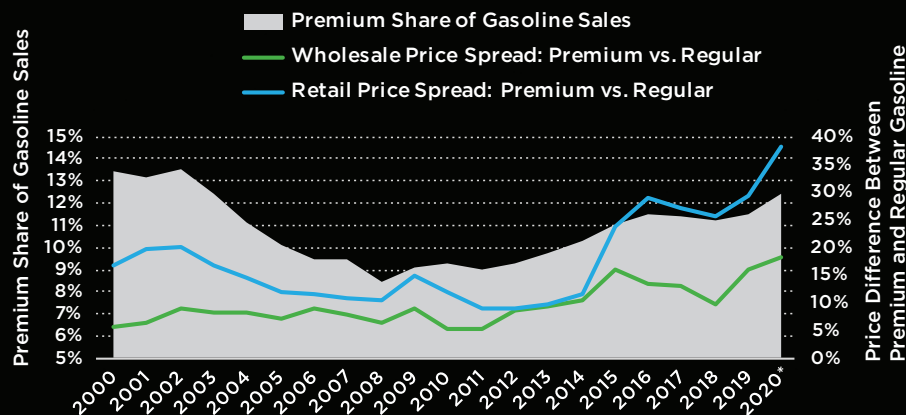


BLENDING OCTANE RATINGS OF VARIOUS GASOLINE OCTANE BOOSTERS



Source: U.S. Department of Energy

PREMIUM GASOLINE: SHARE OF SALES AND PRICE DIFFERENCE VS. REGULAR



Source: Argus Media * Based on Jan.-Aug. 2020 data