THE POWER OF OCTANE

Automakers and consumers alike continue to demand higher octane fuels. Each year, auto manufacturers produce more turbocharged, higher-compression engines that need higher-octane gasoline to operate efficiently. This is the sort of marketplace dynamic that demands ethanol as a clean, affordable source of octane—a need that will only intensify as automakers contend with more stringent fuel economy requirements moving forward.

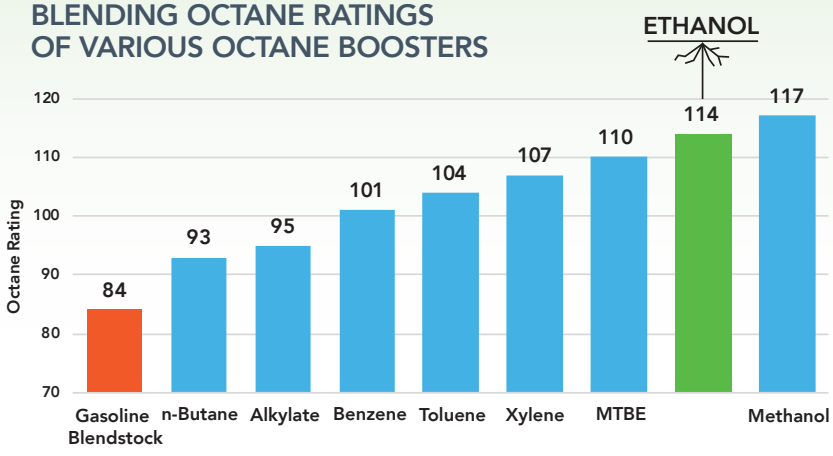
Ethanol's blending octane rating of 114 is significantly higher than the ratings of the main petroleum-based octane components. Moreover, aromatic hydrocarbons such as benzene and toluene may raise octane, but they worsen air pollution and are highly toxic—that's why the use of certain aromatics is strictly limited by U.S. EPA.

Refiners have largely optimized their processes to take advantage of ethanol's properties. Today, most regular gasoline in the United States is produced using blendstock with an octane rating of 84, which is then upgraded to a rating of 87 by adding 10 percent ethanol. In the future, refiners may continue to reduce the octane rating of the gasoline blendstock to 82 or 83 as E15 becomes more ubiquitous. This allows refiners to reduce crude oil imports and increase the throughput of hydrocarbon blendstock at a lower cost.

Demand for sources of octane is expected to continue to grow, driven by the utilization of advanced vehicle engines, tighter gasoline specifications and sulfur limits, and the expansion of E15. Rising demand and tightening supplies of octane are reflected by the growing price spread between regular gasoline (87 octane) and premium (91-94 octane).

Octane demand could be propelled further by policies that compel the use of mid-level ethanol blends such as E25 or E30 to meet future fuel economy and emissions standards. RFA continues to push for an expanded future role for high-octane, low-carbon ethanol and we continue our work with policymakers to highlight the benefits of such fuels—especially as ethanol moves toward net-zero emissions.

BLENDING OCTANE RATINGS OF VARIOUS OCTANE BOOSTERS



Source: U.S. Dept. of Energy

What is OCTANE?

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."