

What Octane Rating of Gasoline Should I use?

By: Ralph Seekins

Question: I recently bought my first new car, a Ford Focus. I've been told I should use premium fuel because it's better for my car. However my owner's manual says to use 87 octane regular gasoline. With today's gas prices, is there really any benefit to using premium?

Answer: Your owner's manual is right. Your vehicle's engine was designed and built to run on unleaded 87 octane regular gas. However, if your advisor is from my generation, there was a time when vehicles had carburetors (my grandkids call it the "olden days") that premium (higher octane rated) gas did have some benefit over regular gas.

Octane rating is a measure of the resistance of gasoline to detonation in internal combustion engines that use spark plugs to ignite the air/gas mixture. The higher the octane rating, the lower the chance for a too-early explosion – called engine spark knock. Higher performance engines operate with a higher compression ratio (the air/gas mixture is compressed into a smaller area thereby causing more pressure and heat) so they require a slower burning (higher octane) fuel. That's not the case for your car or for most modern cars on the highway today.

All manufacturers now utilize a number of sensors, an on-board computer and fuel injectors to accurately control the air/gas mixture under all imaginable temperature and environment conditions. These components work together to make sure that every time the cylinders in your car's engine fire the fuel is completely burned. As a result, you get maximum fuel economy, maximum performance and the cleanest possible emissions. 87 octane gas explodes quicker than 91 octane gas. So if you use 91 octane gas when your vehicle is designed for 87 octane, you're paying about 20 cents per gallon more than you need to and are probably sending unburned fuel into the exhaust system. That unburned fuel can cause problems in the catalytic converter and other components of the emissions control system.

Here's what the Federal Trade Commission says: "In most cases, using a higher octane gasoline than your owner's manual recommends offers absolutely no benefit. It won't make your car perform better, go faster, get better mileage or run cleaner." Most manufacturers would tell you exactly the same thing.

So, who does need premium gasoline? Sitting on our showroom is a supercharged Mustang Cobra GT. Whoever buys that car simply MUST use 91 or higher octane rated gasoline. With 87 octane gasoline, when the owner stomps the pedal to the metal, the supercharger force-feeds fuel into the engine and even the sophisticated electronic system that adjusts engine timing can't

keep pace with the super-fast increase in pressure. Instead of a clean, fast, eye-popping getaway, the car will stumble and rattle – not a good thing for the car or for the driver’s ego.

However, in your case, there is absolutely no benefit in using premium gasoline. All you are doing is wasting your money while stressing the exhaust system. **JUST USE REGULAR 87 OCTANE!**