

Reid Vapor Pressure (RVP) in Fuel.

Vapor pressure in fuel is the measure of how quickly the fuel will evaporate. A higher RVP will allow the fuel to vaporize more rapidly and a lower RVP ensures that the fuel will not evaporate as quickly. Chapter 119 Motor Vehicle Fuel Volatility Limit requires that the Reid Vapor Pressure (RVP) of gasoline sold in Maine from May 1 to September 15 of each year shall not exceed 9.0 pounds per square inch (psi). The Fuel Volatility Limit further limits the RVP of all gasoline sold in York, Cumberland, Sagadahoc, Androscoggin, Kennebec, Knox and Lincoln counties. The RVP in those counties shall not exceed 7.8 psi from May 1 to September 15 of each year.

Oxygen Content in the fuel.

Oxygen in the form of oxygenates is added to gasoline to increase octane (octane is a measure of the anti-knock quality of the fuel) in the place of lead. In Reformulated gasoline (RFG) the oxygen is also required to ensure that the gas burns more completely thereby ensuring fewer emissions of Hydrocarbons and Nitrogen Oxides. Maine opted-out of the Federal RFG program due to groundwater contamination from MTBE and began using a lower RVP conventional fuel. Subsequently, the levels of MTBE in the fuel were significantly reduced.

During calendar year 2000, MTBE was present in all gasoline shipments containing oxygenates, alone or in formulations containing one or more of the following oxygenates: Tertiary Amyl Methyl Ether (TAME), Ethyl Tertiary Butyl Ether (ETBE), Tertiary Butyl Alcohol (TBA), Methanol and t-Butanol. MTBE was found in most of the gasoline in most cases far below the levels found in RFG. TAME was the second most-used oxygenate. In some cases, there was a combination of up to three different oxygenates in one load of gasoline delivered to the bulk terminals. This is apparently a common occurrence in gasoline, according to the Maine Petroleum Association.

For the first quarter of calendar year 2001 MTBE and TAME were the only two oxygenates found in the fuel and once again there was always MTBE in conjunction with the TAME.

Sulfur in Fuel.

Sulfur in gasoline is detrimental to the performance of the catalytic converter in your vehicle. The sulfur coats the inside of the catalytic converter preventing it from working properly. Sulfur levels in the fuel from 2000 and the first quarter of 2001 have remained consistently lower than the national average of 330 ppm.

Aromatics in fuel

Aromatics are another way to increase octane in gasoline instead of using oxygenates. An increase in aromatics was expected when we stopped using RFG. The data collected for the year 2000 did show an increase in aromatics. An increase in aromatics results in increased air toxics primarily from the combustion of gasoline as opposed to evaporation. One of the ways RFG achieved air toxics reductions was the reduction of aromatics in the fuel.

Benzene in fuel.

Benzene is a known carcinogen and a direct byproduct of the combustion process. In RFG benzene is capped at 1.0 % by volume in the fuel and with the reduction in aromatics the tailpipe and the evaporative emissions of Benzene were greatly reduced. The data for 2000 showed that benzene did not greatly increase with the change to conventional fuel. There were some higher levels in some shipments of fuel, but overall the levels stayed well below the 1.0 % by volume.

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