



Ethanol's History

Ethanol's history in the automobile industry dates back to the 1880s when Henry Ford built one of his first automobiles and fueled it with ethanol. Today more than 30 percent of U.S. motor fuels contain ethanol, which is sold primarily as **E-10 (10 percent ethanol to 90 percent gasoline)**. Ethanol is a high octane, biodegradable alcohol produced from renewable resources such as grain or wood. Because ethanol contains 35 percent oxygen by weight, it reduces tail pipe emissions of carbon monoxide. Ethanol is blended with low octane fuel to produce a blend that is comparable to other fuels. Since the enactments of the Clean Air Act Amendments of 1990, oxygenates (compounds that contain oxygen like ethanol) have been required in RFG gasoline and have met the growing demand for ethanol blended fuel. To properly store and distribute ethanol-blended gasoline, precautionary measures must be taken to prevent product contamination.

Product Contamination

Ethanol mixes with water in all proportions. Conventional gasoline does not have a high tolerance for water, which quickly separates to the tank bottom. In ethanol-blended gasoline, phase separation occurs when the water reaches a saturation point and the ethanol/water mix "falls out" of the gasoline.

Phase Separation

The amount of water that causes phase separation will vary with temperature. At 60 degrees Fahrenheit (F), water can be absorbed by E10 up to 0.5 volume percent before phase separation occurs (about 3.8 teaspoons per gallon or 5 gallons per 1,000 gallons). Once phase separation occurs, the ethanol/water phase will fall to the bottom leaving the low octane blended gasoline at the top. The ethanol/water phase results in a leaner combustion mixture that will cause engine failure or damage if distributed to the consumer. If the ethanol/water phase is above the UST pump suction, this phase also will be dispensed to consumer vehicles where immediate engine failure will occur. Because of phase separation, tanks must be properly prepared for conversion and subsequently maintained

More information on our Web-Site:

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