

## Testing Fuel For Alcohol and Vapor Pressure

*Terry Crouch (IA)* - People who use auto fuel might want to test their fuel supply periodically for alcohol and, as warm weather approaches, for possible vapor lock caused by high volatility/high vapor pressure.

A popular method of alcohol testing is called the "Water Extraction Method". A graduated glass cylinder, usually 100 ML, is used for the test.

Place 100 ML of gasoline in the cylinder and add 10 ML of water. Shake the stoppered cylinder thoroughly for one minute and let stand for two minutes. If no alcohol is present the 10 ML of water will settle to the bottom. If alcohol is present the alcohol will drop to the bottom, along with the water, increasing the reading to more than 10 ML, depending on the amount of alcohol present.

A reading of approximately 17 ML in the lower phase indicates a presence of approximately 10% alcohol. Other levels of alcohol can be determined from the adjacent graph.

It should be remembered that while this test is reasonably accurate it does not identify the type of alcohol nor does it indicate the presence of ethers such as MTBE.

Some technicians have tried to develop "home made" vapor pressure testers. The precision of some of these devices has been called into question because of the exacting specifications required to replicate ASTM test procedures outside a laboratory setting.

Fuel test kits are also available to test the specific gravity of gasoline. Specific gravity provides a directional assessment of a fuel's overall volatility and its energy content.

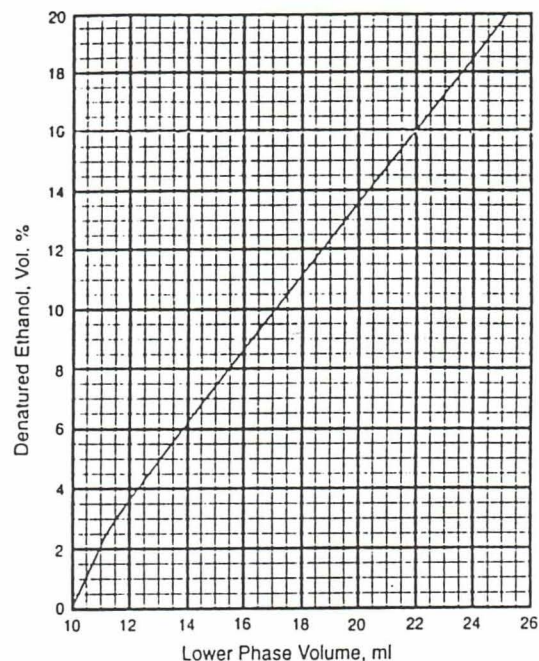
To test specific gravity, simply fill the graduated cylinder with 40 ML of fuel and insert the hydrometer into the level cylinder. Allow the hydrometer to stabilize and read the specific gravity. Temperature correction tables are provided to adjust for variation.

Higher specific gravity indicates more dense fuel while the reverse indicates less dense fuel. Fuels of less than 0.730 specific gravity are more prone to cause driveability problems in autos.

*Editor note: No indication was given for aircraft use.*

Generally speaking, fuels of lower specific gravity are more volatile, although this doesn't necessarily correlate with vapor pressure tests. The specific gravity also gives some indication of BTU content. The higher the specific gravity the greater the BTU content of the fuel. **Specific gravity does not indicate vapor pressure or octane ratings, however.**

Figure 4-8 Volume Percent of Denatured Ethanol in 10% Blend Water Extraction Method



## Canopy Latch Door Seal

*Terrance Scherman (IA)* - If you have the standard access door on your Long-EZ and you fly around in a colder climate like I do, this modification will greatly reduce the air coming into your cockpit. My Long-EZ had a large amount of air coming into the cockpit from the small crack where the lock, latch, and hinge are located. I did not have much air coming around the perimeter of the door.

My solution to the problem is simple and inexpensive. I cleaned the inside of the door, hinge, and latch then lubricated the areas that would move when the door was opened - around the hinge and latch. I used a small artist brush and painted a thin coating of lubricating oil onto these areas taking care not to get oil onto the non-moving surfaces. Any oil will work. I used old engine oil.

The last step is to put a bead of silicone inside of the door where the air was coming in. I did this with the door latch shut. Let the silicone seal cure for 24 hours. After the silicone is cured you will be able to open the door and latch and will have a well sealed opening.

# KCGIG 94

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