Gas Quality Analyzer

Test for High Fuel Vapor Pressure

⚠ Warning: To help prevent personal injury,

- **Observe normal precautions for working with flammable liquids. No: smoking, open flames, electrical sparks, etc. Have a Class B fire extinguisher available.**
- **Wear approved eye protection when using the tools in this Gas Quality Analyzer kit.**

1. Pour enough gasoline into plastic bottle to fill fuel cup. Tighten cover on plastic bottle, and pack bottle in ice for 10 minutes.
2. Pack fuel cup in ice for 10 minutes also, being careful to keep water out of fuel cup.
3. Fill thermos cup about 3/4 full with hot water (110° F).

Fuel Cup

4. Fill fuel cup with chilled gasoline to within 1/8" of top of cup. Quickly thread fuel cup to gauge/chamber assembly finger tight.
5. Place gauge/chamber assembly in hot water in thermos cup for about two minutes.
6. Remove thermometer. Hold thermos cup and cover assembly together, and with finger over thermometer hole, gently shake unit for a few seconds. **Important: Shaking unit violently can damage gauge.**
7. Hold unit upright and tap gauge lightly as you read pressure. Repeat Steps 6 & 7 until you get a stable reading. Immediately after last pressure reading, read water temperature, which should be 100° F for optimum results.

If water temperature is 100° F, the pressure that is read on the gauge is the **actual** fuel vapor pressure.

If water temperature is not 100° F, refer to the following fuel vapor pressure correction table to convert the test results.

Storage: Rinse fuel cup and air chamber in hot water after each use. Store unit with fuel cup removed from air chamber.

Fuel Vapor Pressure Correction Table

Pressure as Read	Gasoline Vapor Pressure Corrected to 100° F When Read at 98.0°	Gasoline Vapor Pressure Corrected to 100° F When Read at 102.0°	Gasoline Vapor Pressure Corrected to 100° F When Read at 104.0°
7.0	7.2	6.8	6.6
7.5	7.8	7.2	7.0
8.0	8.3	7.7	7.5
8.5	8.8	8.2	8.0
9.0	9.3	8.7	8.4
9.5	9.8	9.2	8.9
10.0	10.3	9.7	9.4
10.5	10.8	10.2	9.8
11.0	11.4	10.6	10.3
11.5	11.9	11.1	10.8
12.0	12.4	11.6	11.2
12.5	12.9	12.1	11.7
13.0	13.4	12.6	12.2
13.5	13.9	13.1	12.6
14.0	14.5	13.5	13.1
14.5	15.0	14.0	13.6
15.0	15.5	14.5	14.0

Test for Water in Gas Tank

1. Using a twisting motion, slide teflon tube up against handle of water test cable, exposing 4" of cable tip.
2. Coat exposed area of cable tip with water detection paste. Slide teflon tube down over tip. (This leaves a 4" space between cable handle and upper end of teflon tube.)

⚠ Caution: Water detection paste contains a potentially hazardous ingredient, calcium carbonate (471-34-1), which may cause irritation to eyes or skin upon prolonged or repeated contact.

3. Using a screwdriver, prop open vehicle's leaded fuel preventor door, if necessary. Insert coated cable end down into gasoline filler neck. Work cable down until tip of tube reaches bottom of tank. (This may require as much as 6' of cable.)
4. Push cable handle down against top of teflon tube to push coated cable tip out into gas tank.
5. Withdraw handle 4" from teflon tube to cover paste again.
6. Pull cable out of gas tank. Push tip out of end of tube.

Result: If the paste is a **brilliant red color,** there is enough water on the bottom of the gas tank to cause trouble. **Clean the tank.**

RVP Limits

ASTM Standard D439 for Motor Gasoline lists the following three volatility classes for sea level temperatures. For altitude, add 2.4° per 1000 ft. to the test location temperature. Refer for ASTM D439 for more information, including recommendations for U.S. localities throughout the year.

Volatility Class	ASTM	* EPA Regulation	EPA Regulation (10% Ethanol Blend)
A	9.0 PSI	9.0 PSI	10.0 PSI
B	10.5 PSI	9.5 PSI	10.5 PSI
C	11.5 PSI	10.5 PSI	11.5 PSI

* EPA regulations for fuel volatility (as measured by RVP) apply to gasoline sold at retail (in most areas) between June 1 and September 15 each year. Technicians should check with local authorities for specific requirements based on their area and colder temperatures.

Test to Detect Ethanol/Methanol

Gasoline blends containing excessive amounts of alcohol can affect driveability, emissions, fuel economy, and fuel system components. Generally, more than 5% methanol (wood alcohol), 10% ethanol (grain alcohol), 15% MBE (methyl-butyl ether), or 15% MTBE (methyl-tertiary-butyl ether) in the gasoline is considered excessive. Consult appropriate vehicle manufacturer for specific guidelines.

This test will detect alcohol in most cases, except MBE and MTBE, but it is not considered scientifically accurate, nor will it define the various alcohols that may be present.

1. Pour suspect gasoline into small clean beaker or glass container.
2. Fill graduated cylinder with gasoline to 10 ML mark.
3. Add 2 ML of water to graduated cylinder. (The water will immediately sink to the bottom of the cylinder and can be measured from that point.)
4. Put stopper in cylinder. Shake cylinder vigorously for one minute. Relieve built-up pressure by occasionally removing stopper. Alcohol will dissolve in water and drop to bottom of cylinder.
5. Place cylinder on flat surface and let it stand for one minute.
6. Take a reading near bottom of cylinder where the two liquids meet.

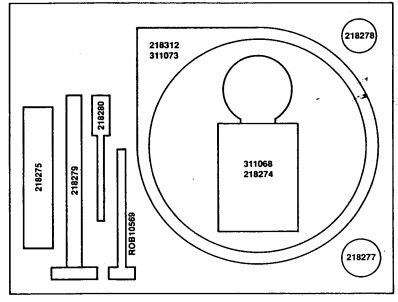
Result: Subtract 2 from the reading and multiply by 10. The result is the percentage of alcohol in the gasoline.

For example:

a. Reading is 3.1 ML: 3.1 - 2 = 1.1 x 10 = 11% alcohol

b. Reading is 2.0 ML: 2 - 2 = 0 x 10 = 0% alcohol

If the increase in volume is 0.2% or less, it may be assumed that the test gasoline contains no alcohol.



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