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DETERMINING THE PRESENCE OF ETHYLENE GLYCOL IN ENGINE OIL

NOTE: Bright sun, heat or freezing may damage the indicator tubes in this kit – store at room temperature. A faint pink color may develop around the plug in one end of the indicator tube. This color should be eliminated when the air/liquid is expelled from the tube in step #5. Regardless of the storage conditions, if the medium in the tube is clear, the tube is acceptable.

1. Remove one of the ten glass vials from the carton.
2. Fill the supplied eyedropper pipette approximately $\frac{3}{4}$ full of the sample oil and add it to the contents in the vial to an amount equal to the volume of liquid in the vial.



3. Replace the cap on the vial and shake it vigorously for approximately 20 seconds. Remove the cap and place the vial upright on a flat surface. Allow sufficient time for the two liquids to separate.



4. Remove one of the indicator tubes and locate the scratch marks on either end of the tube. Carefully break off the ends of the tube. **CAUTION:** Protect fingers and eyes when breaking off ends of the indicator tubes!



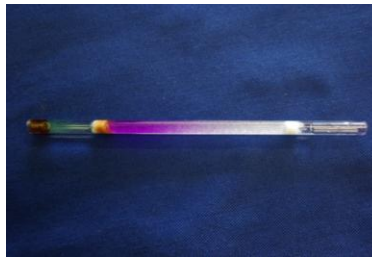
5. Place the rubber suction bulb over one end of the indicator tube. Squeeze the bulb fully, expelling any excess liquid in the tube onto a small paper towel or tissue (disregard any purple color that may form on the towel). Use the towel/tissue to absorb any moisture residue on the tip of the tube. While continuing to squeeze the bulb, insert the open end of the tube into the liquid at the bottom of the glass vial.



- Slowly release the suction bulb allowing the clear extract from the bottom of the vial to flow slowly to the top of the indicator tube. When the liquid just passes the top felt plug (approximately 2mm), remove the suction bulb from the indicator tube. Do not allow any more liquid to enter the indicator tube and NEVER allow any liquid to enter the suction bulb!



- Remove the indicator tube from the vial and wipe the lower end with a paper towel. Lay the tube on a flat surface and do not disturb it for 15 minutes. The test results will develop in the lower end of the Indicator tube. Disregard any tan or brown color that may form immediately above or below the felt plug. This band of color, anywhere from 2 to 4 mm long, will not increase in length, but will gradually darken to brown or black-brown and may have a dark purple base. This reaction will have no effect on the quality of the test.



INTERPRETING THE RESULTS

NEGATIVE TEST: No color, other than the band of color described in step 7, develops in the indicator tube within the prescribed 15 minute rest period.

POSITIVE TEST: A faint pink color begins to develop at the base of the indicator tube. The developing pink color may begin within a few seconds, or take several minutes. The length and darkness of the color as it changes from pink to purple is an indication of the glycol concentration. Weaker concentrations take longer to develop, are lighter in color, and the length of the color in the tube will be shorter. A Semi-Quantitative estimate of glycol concentration may be determined by comparing the color developed (at the 15 minute interval) with the concentration chart shown below: Disregard color changes that occur after the 15 minute interval.

CONCENTRATION CHART

	1000ppm
	500ppm
	100ppm
	50ppm

A Glycol Sample of 500 ppm is provided in the vial with the RED Cap. This sample is provided if you wish to make a visual test of a positive sample. DO NOT ADD ANY OIL. Simply insert the tube into the liquid and proceed as described in steps 5 through 7 above.