

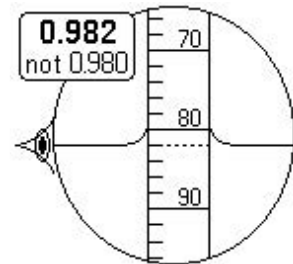
# How to read a Hydrometer (0.900 - 1.000)

## Before using the hydrometer

- Make sure both the hydrometer and hydrometer jar are clean.
- If the liquid to be tested is not at room temperature, allow it to reach room temperature before testing.
- Pour the liquid carefully into the hydrometer jar to avoid the formation of air bubbles. Do this by pouring it slowly down the side of the jar.
- Stir the liquid gently, avoiding the formation of air bubbles.

## Taking a Reading

- Carefully insert the hydrometer into the liquid, holding it at the top of the stem, and release it when it is approximately at its position of equilibrium.
- Note the reading approximately, and then by pressing on the top of the stem push the hydrometer into the liquid a few millimeters and no more beyond its equilibrium position. Do not grip the stem, but allow it to rest lightly between finger and thumb. Excess liquid on the stem above the surface can affect the reading.
- Release the hydrometer; it should rise steadily and after a few oscillations settle down to its position of equilibrium.
- If during these oscillations the meniscus is crinkled or dragged out of shape by the motion of the hydrometer, this indicates that either the hydrometer or the surface of the liquid is not clean. Carefully clean the hydrometer stem. If the meniscus remains unchanged as the hydrometer rises and falls, then the hydrometer and liquid surface are clean, and a reading can be taken.
- The correct scale reading is that corresponding to the plane of intersection of the horizontal liquid surface and the stem. This is not the point where the surface of the liquid actually touches the hydrometer stem. Take the reading by viewing the scale through the liquid, and adjusting your line of sight until it is in the plane of the horizontal liquid surface. Do not take a reading if the hydrometer is touching the side of the hydrometer jar.

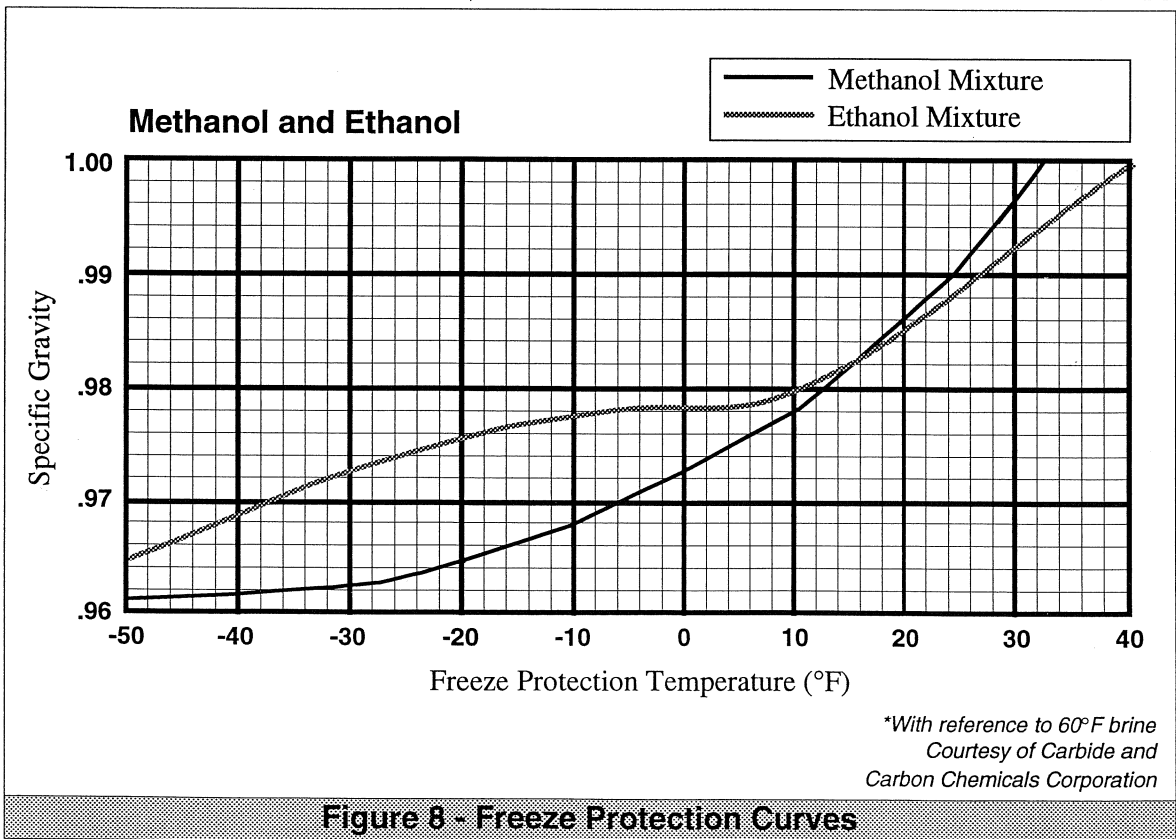
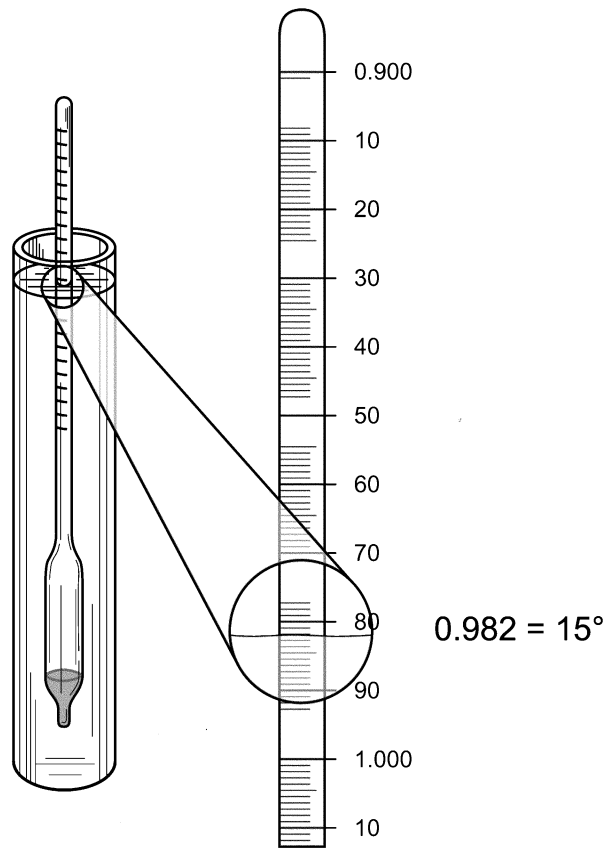


## Taking the Temperature

- Using a suitable thermometer, take the temperature of the liquid immediately after taking the hydrometer reading.
- If there is any chance of a change in the temperature of the liquid it is safer to take the temperature both before and after the hydrometer reading. A difference of more than 1°C means that the temperature is not stable, and the liquid should be left to reach room temperature.
- If the temperature of the liquid is not the same as that on the hydrometer scale, the hydrometer reading should have a correction due to temperature applied.

## Handling the Hydrometer

- The hydrometer should never be held by the stem, except when it is being held vertically.
- When holding the stem, always hold it by the top, as finger-marks lower down can affect the accuracy of the instrument.
- Always handle with care.



**Figure B - Freeze Protection Curves**