Thermometer Separation Fixes

Separation in a thermometer's liquid can often be an issue. Thermometers can separate for several reasons. Vibrations, shipping and horizontal storage can cause this problem. The separated fluid in the column can be rejoined by following one of the methods below.

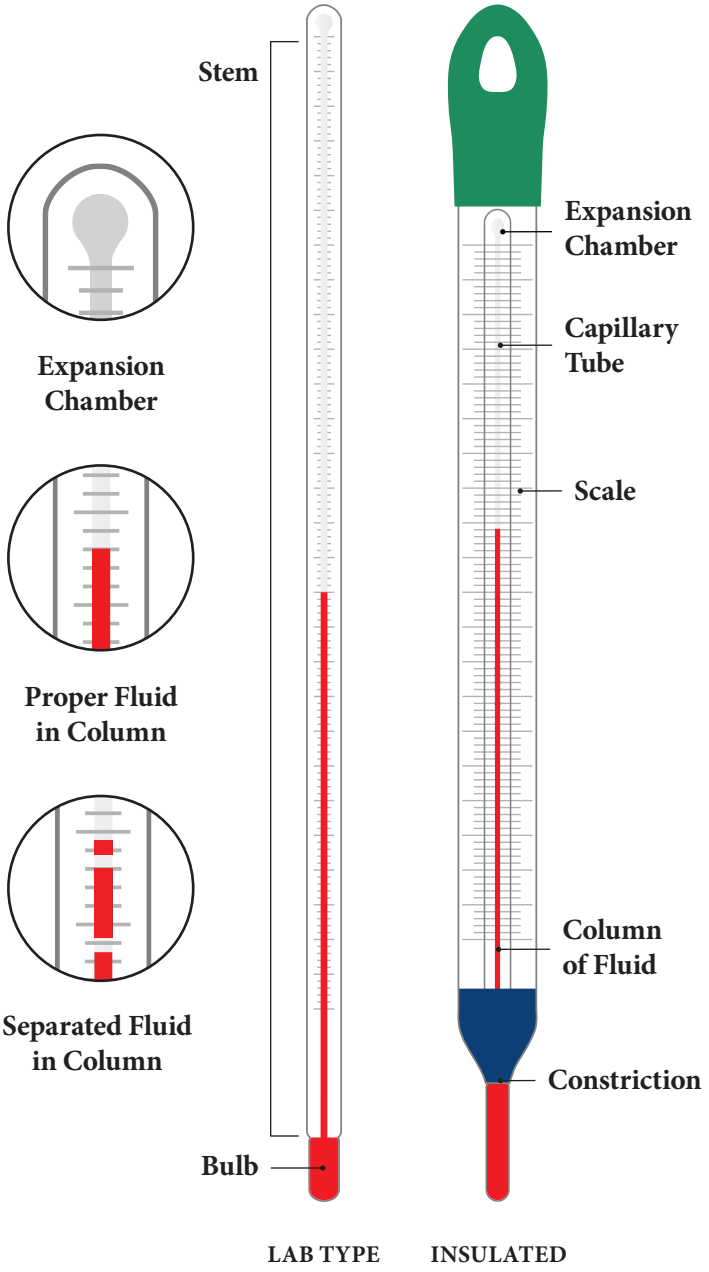
Caution! Follow these instructions and be gentle. The thermometer is made of glass and may break and cause injury.

1) Tapping: Hold the thermometer vertically, while grasping around the separated area, gently tap the bulb of the thermometer down in a vertical direction on a soft surface, such as a towel or piece of foam. The idea is to make the fluid slide down into the main portion of fluid.

2) Cooling: Immerse the thermometer's bulb in ice water. Ice water may not be cold enough, so you may have to use dry ice mixed with alcohol. This draws the liquid down into the bulb to get rid of air bubbles (the temperature of the bulb environment should be below the lowest temperature reading on the thermometer). When all the liquid has been drawn into the bulb, let the thermometer return to room temperature in a vertical position (place it into a rack, or test jar).

3) Heating: Glass thermometers have a small space at the top of the thermometer called the expansion chamber. Heat the thermometer slowly (do not to overheat it and force fluid to rise too quickly). A blow dryer may be used for this method. The liquid in the thermometer will reach the expansion chamber, pushing any bubbles into the expansion chamber. As soon as the solid portion of the liquid reaches the expansion chamber, remove the thermometer immediately from the heat and let it cool to room temperature in a vertical position (place it into a rack, or test jar).

You can also carefully use a an open flame and pass the thermometer over the flame in strokes to reach the desired temperature. Again, do not overheat! The temperature needs to exceed the maximum temperature reading on the scale. The liquid should not fill the expansion chamber completely, as this may cause the thermometer to shatter! The expansion chamber should not be filled with liquid by more than two-thirds. If the separation is too low in the column for this method, try another method first.



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