

# Directions for uniting fluid separation for all models of Temp-Chex™ liquid thermometers

Occasionally, fluid separation occurs during shipping or during normal use. This separation is evidenced by single or multiple breaks in the column, fluid reservoir at the bottom or expansion bulb at the top of the thermometer (Figure 1). If any of these are obvious or if the thermometer does not seem to be functioning properly, the following procedures should be followed to correct the problem.

Before attempting the following methods, the thermometer must be removed from the protective sleeve and glycol-filled vial (Figure 2). To remove the thermometer from the vial, hold the vial in an upright position and use a gentle twisting motion. CAUTION: THE THERMOMETER IS MADE OF GLASS AND CAN EASILY BE BROKEN. IT IS RECOMMENDED TO EITHER WRAP THE THERMOMETER IN PARAFILM OR WEAR RUBBER GLOVES BEFORE REMOVING THE THERMOMETER FROM THE VIAL.

## Centrifuge Method

The thermometer can be placed directly into a centrifuge or into a 15 mL centrifuge tube prior to placement into the centrifuge. Pack the thermometer, or centrifuge tube containing the thermometer, with bubble wrap or padding to avoid breakage. Spin at 1500 RPM for 7.5 minutes.

## Cooling Method

Prepare a solution of shaved ice and salt or CO<sub>2</sub> (dry ice) and alcohol. Place the thermometer bulb only in the solution. Keep the thermometer upright. Allow the liquid column to retreat into the bulb, swing the thermometer (bulb down) in an arc forcing the entrapped gas above the column. Allow the thermometer to warm slowly in an upright position. Incubator or refrigerator thermometers can also be placed in the freezer to decrease the temperature in order to draw fluid into the fluid reservoir.

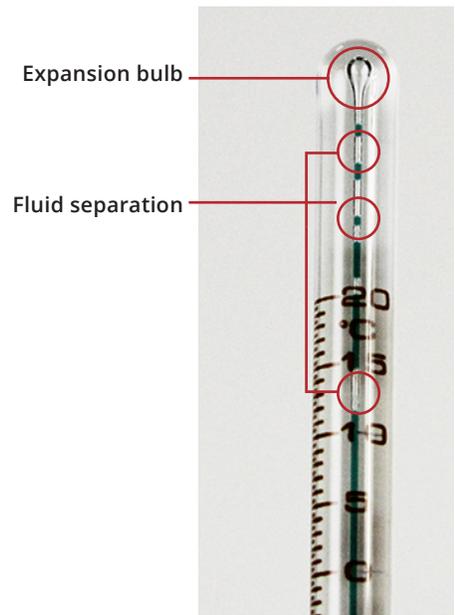


Figure 1. Fluid separation.

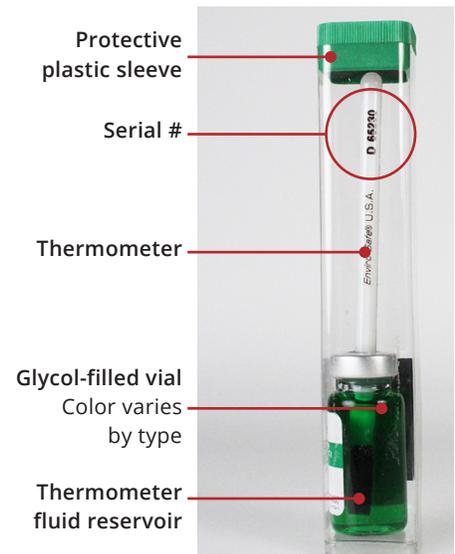


Figure 2. Temp-Chex thermometer.

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### Heating Method

Heat the thermometer bulb in an upright position away from your face in warm liquid, air or over a soft flame. Allow the liquid column to rise slowly until the separated position of the column enters the expansion bulb at the top of the thermometer. NOTE: FILLING THE EXPANSION BULB MORE THAN HALFWAY WILL BREAK THE THERMOMETER. Tap the thermometer GENTLY (if struck too hard, the fluid reservoir can break) while allowing the gas separating the column to rise to the top of the chamber. Allow the thermometer to cool slowly in an upright position.

After using one of the above methods, examine the thermometer for fluid separation. Repeat the procedure if separation is still evident. When the fluid is united, carefully reinsert the thermometer into the glycol-filled vial and replace the unit in the protective sleeve (Figure 2). It is good laboratory practice to check the thermometer against a thermometer of known accuracy after the procedure to unite the fluid is complete.

If the fluid cannot be reunited, contact Streck Technical Service at 800.843.0912.