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6000 N. Teutonia Ave., Milwaukee, WI 53209
Telephone: (800) 558-9160 • (414) 438-3850
Fax: (800) 962-9591 • (414) 273-4979
Website: http://www.sigma-aldrich.com
E-mail: aldrich@sial.com

AL-221 TechnicalBulletin

Reuniting Separated Thermometer Columns

Mercury-filled Thermometers

This technique applies to most mercury thermometers regardless of temperature range, except deep immersion types.

Dry-ice Method:

1. Hold the thermometer in an upright position and gradually immerse the bulb in a solution of dry-ice and alcohol so that the mercury column retreats slowly into the bulb. Do not cool the stem or mercury column.
2. Keep the bulb in the solution until the main column as well as the separated portion retreats into the bulb.
3. Remove and swing thermometer in a short arc, forcing all the mercury into the bulb.

Caution:

Do not touch the thermometer bulb until the mercury emerges from the bulb into the column or immerse the stem or mercury column in the dry ice solution as it will freeze the mercury in the column and fracture the bulb.

Spirit-filled Thermometers

Centrifugal Method:

1. Force the liquid down the capillary using a centrifuge with a cup deep enough to apply centrifugal force below the liquid column.
2. Insert the thermometer, bulb down, in the centrifuge. Pad the bottom of the cup to prevent damage to the bulb.
3. Turn on the centrifuge for several seconds to force all the liquid past the separation.

Caution:

If the applied centrifugal force is not below the entire column, the liquid column will split forcing part of the liquid down and the rest upwards filling the expansion chamber.

Tapping Method:

A separated spirit-filled thermometer column can be reunited by brisk tapping until the separated liquid runs down to join the main column.

1. Hold the thermometer in an upright position and gently tap the stem above the liquid separation against the palm of the hand.
2. Continue tapping until the liquid above the separation breaks away from the wall of the capillary and runs down to join the main column.

Caution:

Wear a pair of cut-resistant gloves while performing this procedure in the event of breakage.