

Calibrating an Alcohol-filled Thermometer

Lab Guide

Task

Calibrate the alcohol-filled thermometer or temperature probe.

What You Need

- Alcohol-filled thermometer or temperature probe
- 100-mL distilled water
- 500 mL beaker
- 400-mL crushed ice

What to Do

1. Stir together 100 mL of water and 400 mL of crushed ice in the beaker to make an ice-water bath.
2. Let the ice-water bath sit for 10 to 15 minutes so that it reaches its lowest temperature.
3. Put the bulb of the thermometer into the bath. Gently move the thermometer around in the ice-water bath.
4. Leave the thermometer in the water for three minutes.
5. Read the temperature without removing the bulb of the thermometer from the water.
6. Let the thermometer stay in the water sample for one more minute.
7. Read the temperature again. If the temperature has not changed, go to Step 8. If the temperature has changed since the last reading, repeat Step 6 until the temperature stays the same.
8. The thermometer should read between -0.5° and 0.5° C.
9. If the alcohol-filled thermometer or meter with probe does not read the proper temperature, notify your teacher. Alcohol-filled thermometers do not have an adjustment and must be replaced if they do not read temperature with the expected accuracy ($\pm 0.5^{\circ}$ C). Some temperature meters and probes may have adjustments for calibration. Follow the instructions that came with your probe to calibrate. If your probe cannot be calibrated, it must be replaced.

