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Cryoscope operation - calibration techniques

- **Sample size** is important because different sample sizes may require different adjustments or calibrations. A 2ml or 2.5ml pipette should be used for reliable accuracy.

- **Sample and Standard preparation** must be uniform. Initial temperatures must be as close as possible for best results. Standards should be refrigerated if the samples are refrigerated.

- **Standards preparation.** Before using a standard solution, gently invert and rotate the bottle several times to mix its contents thoroughly. Pour into a separate vessel from which to pipette. Do not pipette directly from the standard bottle. Standard solutions should not be used from bottles less than one quarter full and should not be used if more than two months old once opened.

- **Calibration should not be attempted until repeatability has been proven**. This is accomplished by presenting the same calibration standard to the instrument several times (thaw out the exact same sample to room temperature to eliminate instability of the std solution).

- To avoid **contamination and evaporation** samples should not be exposed for any length of time. Gently wipe the thermistor and stir wire downwards only, in between tests to avoid carry over or wash by doing a measurement with the new standard to be presented.

- **Calibration procedure** It is always best to average the readings of 3 or 4 pipette standards. Accuracy should be +/- 0.002'C. Any first reading may be slightly off due to residual contamination of the probe, and an occasional sample will produce an irregular result, this should be disregarded.

- A **Pre-Calibration** should be carried out in the event of the following. Large changes in the calibration, if the thermistor is changed or if confusion is experienced in the calibration procedure.

- As the instrument is calibrating to a standard the **actual reading of the display should be noted** to determine whether another std is required to be presented. First gently mix the std. Solution. Then present two of std A and then std B. Then measure Std A and B. Repeat the calibration procedure if greater accuracy is required.

Anthony Vigilante - Engineer - Director