

Organic Chemistry I Lab (CHEM 217L)

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Active learning Exercise: Melting Point

Post Lab Questions:

1) One of the most common causes of inaccurate melting points is too rapid heating of the melting point bath. Under these circumstances, how will the observed melting point compare with the true melting point?

Rapid heating of the melting point bath will provide insufficient time for the capillary to equilibrate with the heated block which will result in the melting point range appearing more narrower than the true melting point range and the melting temperature will appear higher than the true melting point.

2) What effect would incomplete drying of a sample (for example the incomplete removal of a recrystallization solvent) have on the melting point?

The incomplete drying of a sample, for example if the removal of a recrystallization solvent is incomplete then the melting point of that solid will end up being lower than its expected melting point.

3) Why is it important to pack the sample tightly in the melting point capillary?

It is important to pack the sample tightly in the melting point capillary in order to avoid the formation of air pockets that would result in a time lag for heat transfer which would then cause the crystals to heat unevenly.

4) Why is it important to heat the melting point bath or block slowly and steadily when the temperature gets close to the mp.?

It is important to heat the melting point bath or block slowly and steadily when the temperature gets close to the expected melting point so that the exact temperatures of the first water droplet and last crystal disappearance can be accurately recorded to determine the melting point range.

