MELTING POINT AND BOILING POINT DETERMINATION

EXPERIMENTAL TECHNIQUES REQUIRED

Melting point determination (T 4), Boiling point determination (T 5)

EXPERIMENTAL PROCEDURE

1. MELTING POINT DETERMINATION

Do not touch the thermometer or other equipment while it is hot.
Ensure the digital thermometer is turned off when not in use.

For your solid sample, make sure you record the unknown number.
Look at the solid sample carefully and describe what you see. Is it a powder or is it crystalline? If it is crystalline, are the crystals big or small and do they have a characteristic shape ? Is the solid coloured ? Does the solid have any odour ?
Determine the melting point of your solid using the electric melting point apparatus (Mel-Temp) as described the melting point determination technique page (T4). For efficiency, you should carry out an initial rapid determination to get an approximate melting point. To ensure accuracy, you should then carry out at least two separate melting point determinations until you get consistent measurements. Record the melting points as a range (please note that you should never average the measured values).

CLEAN UP

- Glass melting point capillary tubes will be collected in a specially marked container in the waste fumehood.
- The sample vials must be capped and then placed in the box labelled “Used Vials”

2. BOILING POINT DETERMINATION

Work in a fumehood
Do not touch the thermometer or other equipment while it is hot.
Keep your unknown capped whenever possible.

For your liquid sample, record the unknown number, the state, colour and note any odour. Determine the boiling point of your liquid unknown using the micro-reflux boiling point method as described in the boiling

point determination document (T 5). Remember to make sure to remove the magnetic stirrer bar from the boiling point test tube.

Don't forget to apply a correction for the reduced atmospheric pressure in Calgary. To ensure accuracy, you should carry out at least two separate boiling point determinations on your unknown sample and report the values as a range (please note that you should never average the measured values).

CLEAN UP

- Make sure to remove the magnetic stirrer bar from the boiling point test tube.
- Once cool, samples from the test tubes used in the boiling point measurement should be emptied into the organic waste drum.
- The sample vials must be capped and then placed in the box labelled “Used Vials”

REPORT

Before writing any Chem 351 laboratory report, we strongly recommend that you review section 9 in the introductory section of the student laboratory manual that discusses how to write reports and/or from “writing reports” on the course website. Students often don’t get the grades they would like because they make errors that are addressed in that section of the manual. These are avoidable errors.

The report for this experiment is to be completed in the very simple template provided.

Nothing more is required for this report; you are not required to identify the compounds.

Remember that more is not necessarily better. It is important to be accurate and concise rather than verbose and vague. Proper English should be used and the report should be written in your own words. The accuracy of your results is important.