

Melting Point Measurement: Mastering the Technique and Identifying an Unknown

Reading Experiment 3 (part D only) and Technique 9. Course Syllabus (for notebook format).
Instructions for the Mel-Temp apparatus (class Laboratory webpage).

General

The melting point of a solid is frequently used to assess its purity, and in some cases can be used to identify a compound. You will be taking melting points throughout this semester (and in CHEM 12B) as a means to determine the purity of the compounds isolated in various experiments.

Prelab

Include your **Name**, **Date**, and **Title** for the experiment, a statement of the **Purpose** of the experiment (what are the objectives?), and a brief **Outline** of the essential components of the procedure for Experiment 3, Part D. Show the structure and name for all of the compounds that are listed in Pavia, Exp 3, Part D, in a **Table of Physical Properties** along with the pertinent physical constants for these compounds - the melting-point ranges.

Procedure

You will begin by performing an exercise (not in *Pavia*) to practice measuring melting points using the Mel-Temp apparatus. You will measure the melting point (three times) of a pure solid - the melting point **standard** (the identity of the compound will be withheld, but you will be given a melting point range). You will record the melting point values on a form (that you will submit) as well as in your notebook. The goal is to consistently measure the melting point within a few degrees of the literature value—you will check your values with your instructor to ensure that your measurements are accurate.

Then, perform the procedure from *Pavia* 3D to identify an unknown solid by measuring the melting point of an unknown sample (labelled A-D), and by measuring the melting points of several mixtures that you prepare with your unknown.

To Complete the Experiment – Template Report

You will be provided with a document template to complete and submit. Your completed report will consist of the completed report template, the melting point form and the copies of your relevant notebook pages attached behind the template.