Experiment 10: Melting Point

Understand how column chromatography can be used to selectively identify and isolate substances from a mixture. Apply chromatography to the isolation of naturally occurring organic substances, including chlorophyll and natural pigments.

Preparations

Read: Experiment 10 - Isolation of Analgesic Components (page 79)
Technique - Filtration
Technique - Melting Point

Do: Prepare your lab notebook:
- State experiment objectives (for each part assigned)
- List materials used w/ properties (solvents used in previous experiments do not need to be repeated)
- Make a procedures bullet list (for each part assigned)

Intended Learning Outcomes

* Define or explain: melting point, melting point range, phase transitions, and eutectics.
* Understand the invariance of melting points and the wide range possible make mp data a reliable method of identifying a substance.
* Know melting point is one of the first and simplest methods chemists use to identify substances.
* Explain why chemists determine the melting point ranges of samples. (To identify unknown compounds, to determine the purity of the samples, and to characterize new compounds.)
* Predict the relative melting point of two substances based on the functional group family each belongs to.
* Explain how soluble and insoluble impurities will alter a melting point range.
* Explain how a melting point capillary is filled and how an accurate melting point range is obtained.
* Know a mixture of two or more substances will always have a lower melting point than either component.
* Know melting point depression is a measure of the purity of a sample.

Report

Prepare a report for this experiment according to this experiments report description for the parts we accomplished. Include the questions with answers for this experiment, except any your instructor tells you to omit.