

# Recrystallization and Melting Pt. Online Lab Submission

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Class: Chem 1212

Section: Mondays, 10:30 AM – 1:25 PM

## Report Sheet

Unknown Number: 406

Mass of paper: 0.638g

Mass of unknown + paper: 1.657g

Mass of unknown: 1.019g

Mass of empty watch glass 51.093g

-- **New Unknown received** -- previous sample lost

Mass of dried unknown and watch glass: 31.668g

Approximate melting range: 115.7°C – 119.6°C

Approximate melting point: 117.7°C

A. Mixed Melting Range of unknown with **Acetanilide**: 115.8°C–119.4°C

B. Mixed Melting Range of unknown with **Toluic Acid**: 105.7°C – 119.2°C

The unknown is likely *Acetanilide*

## Pre-Lab Questions

1. Solubility is how much substance (the solute) can be dissolved into another substance (the solvent) to create a solution.
2. 3.13 g can dissolve in 25 mL at 100°C 0.613 g can dissolve in 25 mL at 10°C
3. The chemicals are irritants and some are toxic when ingested.
4. The filter paper goes into the labelled bin at the back of the room.
5. Percent Recovery =  $\frac{2.61g}{3.12g} \times 100\% = 83.7\%$

## Post-Lab Questions

1. The process of recrystallization is slow at first, beginning with some very small particles forming alongside the edges of the glass in room temperature. Dunking the flask into ice-cold water speeds this process up by

cooling the solution, and more particles form, before settling to the bottom of the flask.

2. Raising the temperature allows all the solute to dissolve, separating itself from the charcoal. Increasing temperature increases solubility, and the amount of solute we are using probably won't all dissolve into a flask of water.
3. Waiting a week lets the excess water evaporate, leaving behind only the recrystallized materials.
4. Mixed melting point is the melting point of a mixture of two substances. This is used to confirm the identity of an unknown because we can mix the unknown with a known, and reliably predict when the substance should melt. If the substance melts too early, or takes too long to finish melting, then our unknown is unlikely to be the same as the known substance.
5. Suction Filtration is done by hooking a flask under a funnel (lined with filter paper), and attaching a vacuum to the flask. The vacuum will continuously suck air through the filter paper, forcing particles smaller than the filter through. A mixture of solids / liquids is then poured into the funnel, allowing the liquid to be sucked to the flask below, leaving behind the solid. Suction Filtration is used to separate solids and liquids.
6. N/A -- I was provided with a different unknown for the second half of the experiment, as my watch glass had gone missing.