

Experiment No. 1

Aim of the experiment: Experiments involving laboratory technique: Recrystallization

Chemicals and glassware required: Acetanilide, distilled water, Erlenmeyer flask, boiling chips

Theory: Recrystallization (or Crystallization) is a technique used to purify solids. This procedure relies on the fact that solubility increases as temperature increases (you can dissolve more sugar in hot water than in cold water). As a hot, saturated solution cools, it becomes supersaturated and the solute precipitates (crystallizes) out. In a recrystallization procedure, an impure (crude) solid is dissolved in a hot solvent. As this solution is cooled, the pure product crystallizes out and the impurities stay dissolved.

Procedure: Acetanilide. Fetch about 1 g of dirty acetanilide. Place your weighed sample in a 125-ml Erlenmeyer flask and add a boiling chip. Heat about 50 ml of water to boiling in a separate flask (+ boiling chips) using a hot plate. Now, dissolve the solid in a minimal amount of boiling water. This is done by adding the solvent to the solute (not the other way around!) in small increments and bringing the solution to a boil. Start out with about 10 - 15 ml of water and add a few ml at a time until all the soluble stuff dissolves.

Note: Always add a boiling chip before heating any solvent or solution. Never add any solid to a liquid that is at or near its boiling point.