

Fractional Crystallization Introduction:

The technique of fractional crystallization is used by chemists to separate a mixture of dissolved substances (salts) in a solvent into its purified components (salts). This is accomplished by taking advantage of the variation of solubility of different salts in a given solvent with temperature. The solution containing the mixture is evaporated until the least soluble substance (salt) crystallizes out.

In this experiment you will be given a sample containing potassium dichromate $K_2Cr_2O_7$ and sodium chloride $NaCl$, both of which are water soluble ionic substances, with different solubilities at different temperatures. Sodium Chloride exhibits little change in solubility between the range of $0\text{ }^{\circ}C$ to $100\text{ }^{\circ}C$, while potassium dichromate solubility increases 16-fold over the same temperature range. This property can be used to separate a mixture of the two salts from a solution.