

**Name of Procedure:**

Extractions and Separations  
Separation of Cocaine Hydrochloride and Nicotinamide

**Suggested Uses:**

This procedure is used to separate mixtures of cocaine hydrochloride and nicotinamide in order to isolate cocaine base. The procedure can be applied to mixtures of the two compounds that also contain other water soluble materials.

**Apparatus Needed to Perform Procedure Including Preparation of Reagent:**

Fume hood  
Gloves  
Eye protection  
Laboratory coat  
Ethyl Ether  
Sodium Hydroxide  
Sodium Sulfate, anhydrous  
Reagent bottles  
Pipets, glass, disposable  
Rubber bulbs  
Spatulas, small  
Beaker  
Filter paper  
Centrifuge, Hamilton Bell, Vanguard V6000  
Centrifuge tubes, 15ml polypropylene  
Magnesium Sulfate

**Formula for Preparing Reagent:**

**5% Sodium Hydroxide Reagent**

1. Weigh out 5 grams of sodium hydroxide.
2. Dissolve in 100 milliliters of water.
3. Pour solution into a reagent bottle.
4. Properly label reagent bottle.

**Expiration Date of Chemical Reagent:**

Reagent may be used until depletion if it is properly stored in an airtight reagent bottle.

**Application of Procedure on Evidence:**

1. Place 50-100 milligrams of powdered sample into a centrifuge tube and add 7-8 milliliters of water.
2. Add one drop of sodium hydroxide reagent, mix well, and centrifuge for 1-2 minutes.
3. Remove aqueous layer by using a disposable pipet or by decanting, leaving a solid material in the bottom of the centrifuge tube.
4. Wash the solid material with 2-3 milliliters of water and discard the washing.
5. Extract the solid material in the centrifuge tube with 2-3 milliliters of ethyl ether and filter the ether into a beaker. Repeat this extraction as needed.
6. Dry the ethyl ether using sodium sulfate or magnesium sulfate.
7. Evaporate the ethyl ether, yielding cocaine base.

**Safety Concerns:**

Sodium hydroxide is caustic and can cause chemical burns. Ethyl ether is extremely flammable.

**Literature References:**

Shriner, R. L., Fuson, R. C., Curtin, D. Y., **The Systematic Identification of Organic Compounds**, 5th Ed., Wiley and Sons, New York, 1964, pp. 67-85.