

**Name of Procedure:**

Preliminary Tests  
Froehde's Reagent

**Suggested Uses:**

The Froehde's reagent consists of a solution of molybdic acid and concentrated sulfuric acid. (Color formation is due to oxidation/reduction/substitution reactions to aromatic ring systems).

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

Fume hood  
Gloves  
Eye protection  
Laboratory coat  
Pipet with bulb  
Graduated cylinder  
50ml beaker  
Glass stirring rod  
Sulfuric acid (concentrated)  
Molybdic acid  
Funnel  
Reagent bottle  
Porcelain spot plate  
Spatula  
Hot plate

**Formula for Preparing Reagent:**

1. Measure out 10 milliliters of concentrated sulfuric acid and heat.
2. Dissolve 50 milligrams of molybdic acid (or sodium molybdate) in sulfuric acid with heating and stirring.
3. When cooled, pour solution into a reagent bottle.
4. Properly label reagent bottle.

**Quality Control:**

A quality control check of this reagent will be performed using a known standard of heroin and following the application procedure listed below.

**Expiration Date of Chemical Reagent:**

The Froehde's reagent should be prepared every 30 days.

**Application of Procedure on Evidence:**

1. Place 1-2 drops of the reagent into a clean well on a spot plate.
2. With a spatula, add approximately 0.1 milligram of the unknown powder/tablet to the reagent in the spot plate.
3. Observe color produced.
4. Record results.

**Safety Concerns:**

Always wear eye protection, gloves and a laboratory coat when preparing this reagent.

Eye protection and a laboratory coat should be worn when using this reagent for color tests.

Sulfuric acid is a strong oxidizing agent and corrosive.

**Literature References:**

Butler, William P., **Methods of Analysis**, IRS Publication #341, 1966, p. 136.

Moffatt, A. C., ed., **Clarke's Isolation and Identification of Drugs**, 2nd Ed., Pharmaceutical Press, London, 1986.