

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-04	Polarized Light Microscopy Gold Chloride in 20% Acetic Acid with optional 0.05N Hydrochloric Acid Solution	
Effective Date:	November 20, 2006	Page 1 of 3

**Name of Procedure:**

Polarized Light Microscopy  
Gold Chloride in 20% Acetic Acid with optional 0.05N Hydrochloric Acid Solution

**Suggested Uses:**

Microcrystalline test for cocaine and phencyclidine (PCP).

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

Polarized Light Microscope  
Fume hood  
Gloves  
Eye protection  
Laboratory coat  
Spatula  
Microscope slides  
Weighing paper  
Graduated cylinder  
Glass stirring rod  
Glass beaker  
Reagent bottle  
Glacial acetic acid  
Distilled water  
Gold chloride  
Concentrated hydrochloric acid

**Formula for Preparing Reagent:**

**For Gold Chloride in 20% Acetic Acid:**

1. Measure out 40 milliliters of water in a graduated cylinder.
2. Add glacial acetic acid to the 40 milliliters of water in the graduated cylinder and bring to a total volume of 50 milliliters to make a 20% acetic acid solution.
3. Add the 1.0 gram of gold chloride from the ampule to the 20% acetic acid solution.
4. Stir until dissolved.

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-04	Polarized Light Microscopy Gold Chloride in 20% Acetic Acid with optional 0.05N Hydrochloric Acid Solution	
Effective Date:	November 20, 2006	Page 2 of 3

5. Pour prepared solution in reagent bottle.
6. Properly label reagent bottle.

**For 0.05N Hydrochloric Acid solution:**

1. Measure out 250 milliliters of water and place in a beaker.
2. Measure out 1.0 milliliter of concentrated hydrochloric acid and combine it with the 250 milliliters of water.
3. Pour solution into a reagent bottle.
4. Properly label reagent bottle.

**Quality Control Check:**

Check the reagents with a known standard of cocaine using the application procedure listed below.

**Expiration Date of Chemical Reagent:**

The reagent can be used until depletion provided they are stored in airtight reagent bottles.

**Application of Procedure on Evidence:**

1. Place a small portion of crushed substance on a microscope slide.
2. Place one drop of 0.05N hydrochloric acid solution on the substance on the microscope slide and mix them together (**Optional Step**).

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-04	Polarized Light Microscopy Gold Chloride in 20% Acetic Acid with optional 0.05N Hydrochloric Acid Solution	
Effective Date:	November 20, 2006	Page 3 of 3

**Application of Procedure on Evidence (continued):**

3. Place one drop of gold chloride/20% acetic acid reagent on the substance.
4. View the crystal formation using a polarized light microscope.
5. 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 the microcrystalline test.

Hydrochloric acid is a strong oxidizing agent and corrosive.

Always dispose of used microscope slides in a broken glass container.

**Literature References:**

Bureau of Narcotics and Dangerous Drugs Seminar, 1970.

Moore, Richard A., and Stanley P. Souse, **Analytical Manual**, Laboratory Division, Bureau of Narcotics and Dangerous Drugs, United States Department of Justice.