

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-09	Polarized Light Microscopy Volatility Test using Gold Chloride in water with Concentrated Sodium Hydroxide Solution	
Effective Date:	November 20, 2006	Page 1 of 3

**Name of Procedure:**

Polarized Light Microscopy  
Volatility Test using Gold Chloride in water with Concentrated Sodium Hydroxide Solution

**Suggested Uses:**

Microcrystalline test for 3,4-methylenedioxyamphetamine (MDA), amphetamine, and methamphetamine.

**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 bottles  
Distilled water  
Sodium hydroxide  
Gold chloride  
Spot plate

**Formula for Preparing Reagent:**

**For gold chloride in water:**

1. Measure out 20 milliliters distilled water and place in a beaker.
2. Add 1.0 gram gold chloride.
3. Stir until dissolved.
4. Pour solution into a reagent bottle.
5. Properly label reagent bottle.

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-09	Polarized Light Microscopy Volatility Test using Gold Chloride in water with Concentrated Sodium Hydroxide Solution	
Effective Date:	November 20, 2006	Page 2 of 3

### **Formula for Preparing Reagent (continued):**

#### **For concentrated Sodium Hydroxide solution:**

1. Measure out 20 milliliters of water and pour into beaker
2. Add enough sodium hydroxide to obtain saturation (no more sodium hydroxide will dissolve in solution).
3. Pour solution in a reagent bottle.
4. Properly label reagent bottle.

### **Quality Control Check:**

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

### **Expiration Date of Chemical Reagent:**

The reagent can be used until depletion provided it is stored in an airtight reagent bottle.

### **Application of Procedure on Evidence:**

1. Place a small portion of the substance in a clean well of the spot plate.
2. Add 1 drop of the concentrated sodium hydroxide solution to the well and stir briefly.
3. Place one drop of the gold chloride/water reagent on a microscope slide.
4. Invert the slide over the well with the concentrated sodium hydroxide solution.
5. Let stand for a few minutes.
6. Reinvert the slide and view any crystal formation using the polarized light microscope.
7. 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 micro crystalline test.

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-09	Polarized Light Microscopy Volatility Test using Gold Chloride in water with Concentrated Sodium Hydroxide Solution	
Effective Date:	November 20, 2006	Page 3 of 3

**Safety Concerns (continued):**

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

Sodium hydroxide is caustic.

**Literature References:**

Chichilo, Peter, Paul A. Clifford, William Herwitz and Helen Reynolds, **Official Methods of the Association of Official Agriculture Chemist**, 10th edition, Washington: AOAC, 1965.

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