

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL		
Procedure B-02	Polarized Light Microscopy 5% Mercuric Chloride with optional 0.05N Hydrochloric Acid Solution	
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**Name of Procedure:**

Polarized Light Microscopy  
5% Mercuric Chloride with optional 0.05N Hydrochloric Acid Solution

**Suggested Uses:**

Microcrystalline test for heroin and caffeine.

**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  
Mercuric chloride  
Distilled water  
Concentrated hydrochloric acid

**Formula for Preparing Reagent:**

**For 5% mercuric chloride reagent:**

1. Weigh out 1.5 grams of mercuric chloride.
2. Mix the mercuric chloride with 30 milliliters of distilled water (giving 5% W.V.) .
3. Pour prepared solution in a reagent bottle.
4. Properly label reagent bottle.

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

#### **For 0.05N Hydrochloric Acid solution:**

1. Measure out 1 milliliter of concentrated hydrochloric acid.
2. Mix the hydrochloric acid with 250 milliliters of distilled water.
3. Pour prepared solution in a reagent bottle.
4. Properly label reagent bottle.

### **Quality Control Check:**

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

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

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

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

**Heroin:** A small sample portion of the sample is placed on a microscope slide and a edge of the drop under non-polarized and/or polarized light.

**Note:** The test can also be done by mixing the sample with a drop of dilute hydrochloric acid first and then adding the mercuric chloride reagent.

**Caffeine:** A small portion of the sample is placed on a microscope slide and a drop of mixture. The crystals are observed under non-polarized and/or polarized

Record Results.

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### **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.

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

### **Literature References:**

Butler, William P., **Methods of Analysis**, Internal Revenue Service, Publication No. 341 (Rev. 6-67).