

DRUG CHEMISTRY SECTION TECHNICAL PROCEDURE MANUAL	
Procedure B-05	Polarized Light Microscopy Free Acid using 2% Sodium Hydroxide And 5% Sulfuric Acid Solutions
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Name of Procedure:

Polarized Light Microscopy
Free Acid using 2% Sodium Hydroxide and 5% Sulfuric Acid Solutions

Suggested Uses:

Microcrystalline test for barbiturates.

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 pipet and bulb
Reagent bottles
Sodium hydroxide
Distilled water
Concentrated sulfuric acid

Formula for Preparing Reagent:

For 2% Sodium Hydroxide solution:

1. Weigh out 0.5 gram of sodium hydroxide and place in a graduated cylinder.
2. Add enough distilled water to bring the total volume to 25 milliliters.
3. Stir until dissolved.
4. Pour solution in a reagent bottle.
5. Properly label reagent bottle

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For 5% Sulfuric Acid solution:

1. Measure out 95 milliliters distilled water in a graduated cylinder.
2. Add concentrated sulfuric acid to the graduated cylinder to read a total volume of 100 milliliters.
3. Pour solution into reagent bottle.
4. Properly label reagent bottle.

Quality Control Check:

Check the reagent with a known barbiturate standard 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:

1. Place a small portion of the crushed substance on a microscope slide.
2. Place a drop of the 2% sodium hydroxide solution on the substance.
3. Place a drop of the 5% sulfuric acid solution on the dissolved substance.
4. View the crystal formation using the 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.

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

Sulfuric acid is a strong oxidizing agent and corrosive.

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Sodium hydroxide is caustic.

Literature References:

Developed by Chemist J.R. Daniel of the North Carolina State Bureau of Investigation

Drug Chemistry Laboratory: in use in the laboratory since 1975.