

Drug Chemistry Section
Drug Chemistry Procedure Manual
Effective Date: August 3, 1998

Modification of C-14
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Supersedes: September 1, 1996

Name of Procedure:

Thin-Layer Chromatography
Sulfuric Acid Visualizing Reagent

Suggested Uses:

A visualizing reagent or detection reagent must be used in Thin-Layer Chromatography if the compound or compounds are not distinguishable by their own color. A range of colors is obtained with compounds of various types when reacted with sulfuric acid. Refer to pp. 145-146, **Clarke's Isolation and Identification of Drugs**, and pp. 631-649, "Spot Tests: A Color Chart Reference for Forensic Chemists", (see **Literature References**) for color formations with various drugs.

Apparatus Needed to Perform Procedure Including Preparation of Reagent:

Fume hood
Graduated cylinder
Eye protection
Balance
Laboratory coat
Gloves
Spray bottle
Air compressor
Funnel
Spatula
Bottles
Tygon or rubber tubing
Concentrated sulfuric acid
Ethanol

Formula for Preparing Reagent:

1. Gradually add 10 milliliters of concentrated sulfuric acid to 90 milliliters of ethanol.
2. Place in spray reagent bottle.
3. Properly label spray reagent.

Quality Control Check:

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:

This spray reagent can be used to depletion.

Application of Procedure on Evidence:

1. Place well-dried TLC plate in hood.
2. Activate hood.
3. Using the air compressor and spray bottle, apply a fine mist of the visualizing reagent to the TLC plate.
4. Place the TLC plate in a hot oven and allow time for the color formation to take place.
5. Compare the known standard and the compound in question for their size, shape, color and position on the TLC plate.
6. Record the results of your observation.

Safety Concerns:

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

Eye protection and laboratory coat should be worn when visualizing the TLC plate.

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Literature References:

Randerath, Kurt, **Thin Layer Chromatography**, New York, Academic Press, 1968.

Moffat, A.C., **Clarke's Isolation and Identification of Drugs**, 2nd Ed., The Pharmaceutical Press, 1986, pp. 145-146 & 166-177.

Johns, S.H., "Spot Tests: A Color Chart Reference for Forensic Chemists", *Journal of Forensic Science*, July, 1979, pp. 631-649.

This procedure has been used in the Drug Chemistry Section since 1971.