Name of Procedure:

Thin-Layer Chromatography
T_2 Developing Solvent

Suggested Uses:

The T_2 Thin-Layer Chromatography Developing Solvent is used to separate and identify organic compounds. Suggested uses of this TLC solvent include opium alkaloids, opiate alkaloids and ergot alkaloids.

Apparatus Needed to Perform Procedure Including Preparation of Reagent:

Thin-Layer Chromatography Plates
    Silica gel GF - fluorescent indicator
    Thickness: 250 microns
Developing tank
Micro pipets
UV light (long and short wave)
Fume hood
Gloves
Eye protection
Laboratory coat
Graduated cylinders
Reagent bottle
Funnel
Porcelain spot plate
Spatula
Cyclohexane
Acetone
Diethylether
Diethylamine

Formula for Preparing Reagent:

1. Measure out 35 milliliters of cyclohexane, 30 milliliters of acetone, 30 milliliters of diethylether, and 5 milliliters of diethylamine.

2. Pour measured solvents into reagent bottle and mix well.

3. Properly label reagent bottle.

Quality Control Check:

A quality control check of this reagent will be performed using a known standard of LSD and following the application procedure listed below.

Expiration Date of Chemical Reagent:

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

Application of Procedure on Evidence:

1. A sample of the unknown (approximately 1-2 milligrams) is placed in the well of a porcelain spot plate and several drops of a suitable solvent are added to dissolve the sample.

2. A known standard (approximately 1-2 milligrams) is also dissolved in the well of a spot plate with several drops of a suitable solvent. (Known standard is selected after visual observation and/or a series of preliminary tests).

3. With a capillary pipet, several microliters of the unknown and standards solutions are placed side by side approximately 5 millimeters from the bottom of the TLC plate.

4. Add T_2 solvent to the developing tank to a depth of approximately 2 millimeters and allow several minutes for atmosphere to equilibrate.

Application of Procedure on Evidence (continued):

5. Allow all the spotting solvent to evaporate from the TLC plate.

6. Place the TLC plate in the developing tank and close the lid.

7. Allow the TLC plate to develop to the top of the plate.

8. Remove the TLC plate from the developing tank and allow the solvent to dry.

9. Visualize with UV light or an appropriate visualizing reagent.

10. Record results.

Safety Concerns:

Always wear eye protection, gloves and a laboratory coat when preparing this TLC solvent.

Literature References:

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

Moffat, A.C., **Clarke's Isolation and Identification of Drugs**, London, The Pharmaceutical Press, 1986, pp. 166-177.

Tandon, Ramni, J., **Separation of Lysergic Acid Diethylamide/Lysergic Acid Methyl Propylamide and Some Opium Alkaloids**, New York Police Department Scientific Research Division, New York.

This procedure has been used in the Drug Chemistry Section since 1985.