

7. Dishes that are large enough and deep enough to float and manipulate the supporting films. We use a Stender dish, 100 × 50 mm, with a fitted cover (Arthur H. Thomas Catalog No. 3836-Q50). Dissecting dishes of similar size will serve the purpose, but require some sort of cover such as a watch glass or foil to protect the film and water surface between manipulations.

8. Aerosol type duster (convenient but not essential).

9. Paper of index card weight.

10. Silica gel, large mesh, color indicator.

11. Glacial acetic acid.

12. High grade absolute ethanol.

13. Deionized and/or glass-distilled water.

14. Glass Petri dishes, for drying films and regenerating silica gel (100 × 20 mm dishes are suitable).

15. Tweezers with very fine points. We favor the curved type (Dumont No. 7), but straight types (such as Dumont No. 5) may be used. Dumont stainless steel tweezers sharpened to especially fine points are available from E. F. Fullam (No. 5, Catalog No. 11040; No. 7, Catalog No. 13140).

16. Miscellaneous laboratory items including various sizes of Erlenmeyer flasks, small beakers, lintless wipers (tissues or cloths), and aluminum foil.

Equipment Required

1. A small drying or all-purpose oven that can be regulated to within a few degrees of 55°C.

2. A vacuum evaporator rigged with carbon electrodes.

3. A small adjustable fluorescent lamp, e.g. Bausch and Lomb No. 31336601 (available from laboratory supply companies).

4. A magnetic stirrer and some small stirring bars.

Procedure

1. Preparation of Formvar Solution. Prepare a 0.4% solution of Formvar in ethylene dichloride (dichloroethane), cover tightly with aluminum foil, and stir slowly overnight on a magnetic stirrer. This concentration is a starting point, and it is usually necessary to further dilute the solution with solvent until films of the desired thickness can be cast. Films that are gold, red, green, or other interference colors are cast from solutions that are too concentrated and require further dilution with ethylene dichloride. Uneven films with swathes of interference colors suggest that the stirring has been inadequate.

Solutions that have produced satisfactory films may produce unsatisfactory ones on long standing without stirring. Most textbooks