Short Communications

A simple method for the preparation of thin layer chromatography plates

In our laboratory there was a need for large plates for thin layer chromatography as well as for plates of varying sizes to fit available solvent jars and chambers. Large plates would allow many samples to be run at once or a large amount of any one sample can be used for recovery of its chromatographic fractions. Commercially available spreaders and those described in the literature[1,2] are usually limited to use with a

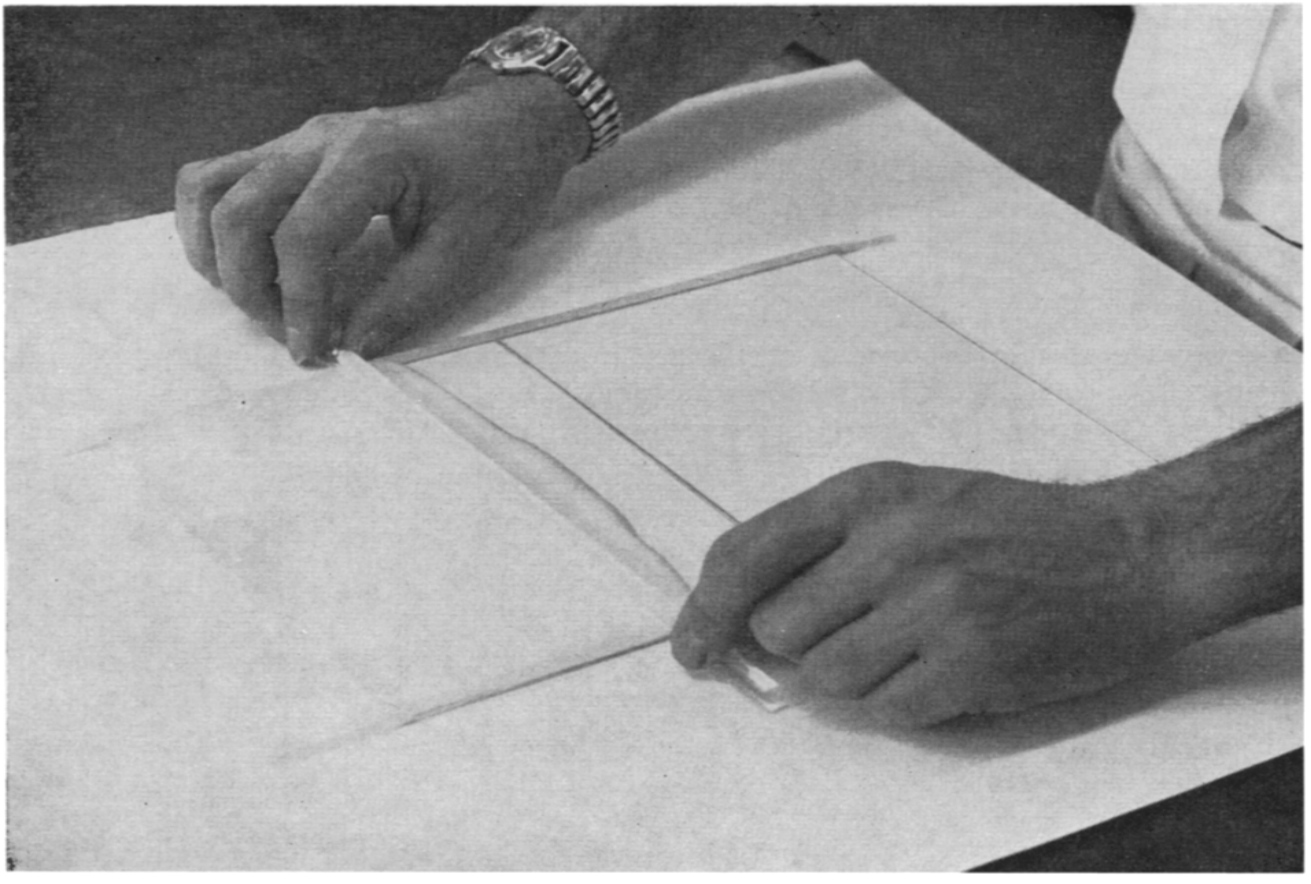

Fig. 1. Applying silica gel coating to glass plates.

single width of glass. The former are somewhat expensive and the latter are often difficult to construct.

An inexpensive and rapid technique has been devised for applying a uniform layer of silica gel on almost any size rectangular glass plate. The method involves

the application of narrow strips of adhesive tape to the opposite edges of a plate; the thickness of the tape determines the thickness of the silica gel coating. The plates are kept from moving during the coating process by lapping the tape over onto the supporting surface. An amount of Silica Gel G (Merck, Germany) slurry sufficient to cover the plate is prepared by the regular technique[1,2] and then poured along an untaped edge of the plate. A thick uniform glass rod is then used to draw the silica gel slurry along the plate. To prevent any silica gel from flowing over the sides, the glass rod is held in such a manner that the thumbs of the hands ride along the taped edges (Fig. 1). The rod glides, not rolls, on the surface of the tape. If there is any imperfection in the coating and the slurry has not begun to harden, it is possible to draw a clean rod over the surface again. After the plates have been air dried for about ten minutes, the tape is carefully removed, and the plates are oven dried and activated in the usual manner[1,2].

At the present time plates as large as 15 in. by 19 in. are made routinely. Smaller sized ones are prepared by taping 3, 6 or even 9 plates together and coating them all at one time. This operation can be carried out on a large blotter rather than on a bare table top so that any excess slurry falling over the edge of the plate is dried instantly and does not creep back on to the plate. The blotter and surplus silica gel can be disposed of simultaneously.

Thousands of plates of all sizes have been prepared in this manner and they perform as well as, if not better than, those prepared by using a commercial spreader. Masking tape ("Scotch" brand No. 202, Minnesota Mining and Manufacturing Co.) usually in 1/2 in. or 1/4 in. widths is used for the smaller plates; for the larger ones 1/2 in. wide surgical adhesive tape is preferred. Other tapes can be used but the ordinary cellophane tape was unsatisfactory because the adhesive tended to remain on the glass plate. The actual thickness of the coating is not quite as critical as one might believe, but very thin layers do tend to amplify minor imperfections in the coating and too thick a coating often gives a poor chromatographic resolution. Thicker coatings of silica gel can be made by using two or more layers of tape.

The technique is quickly learned and has the advantages of simplicity, versatility and economy.

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[1] E. G. WOLLISH, M. SCHMALL AND M. HAWRYLYSHYN, *Anal. Chem.*, 33 (1961) 1138.
[2] H. K. MANGOLD, *J. Am. Oil Chemists' Soc.*, 38 (1961) 708.

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