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Note

Variations in the manufacture of commercial silica gel plates

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Brinkmann silica gel plates (silica gel F₂₅₄, Merck), 250 μ m thick, have been used routinely and with complete satisfaction in this laboratory for the past eight years, chiefly for the thin-layer chromatography of chlorpromazine metabolites¹⁻³. To ensure an adequate supply at all times we have always purchased in large volume.

Recently we received a shipment of plates whose texture was much smoother and whose running time was greatly reduced. Our compounds resolved well in the first dimension but resolved extremely poorly in the second, accompanied by a large irregularity in the solvent front. The color-developing spray no longer penetrated the silica gel as evenly as before but ran easily and caused vertical rivulets. The spots were no longer clearly visible from the sorbent side of the plate but were brighter when viewed from the rear.

When we inquired of Brinkmann, we were informed that no changes had been made in the formulation of the sorbent. Subsequently, we spent about six anguished months trying to elucidate the source of variation in results. The cost in material, labor and time was incalculable. Many of the samples which were lost were irreplaceable.

Another entire order of plates produced the same results. Again inquiry was made of Brinkmann, whereupon we were referred to Merck*. We were finally informed that a "minor" change had been made in the particle size of the silica, but that it was so insignificant that it was unnecessary to notify purchasers. It was suggested that we increase our drying time between the first and second dimensions and also increase the circulation of air around the plates while drying. It was also suggested that the vehicle in our color-developing spray be changed to facilitate drying on the plate.

Following this, with considerable time and labor, we have been successful in improving the resolution of chlorpromazine metabolites satisfactorily by adjusting the drying conditions to include greater air circulation around the plates and to increase drying time. No change was made in our spray and considerably more time is taken to spray very finely to prevent running.

May we respectfully suggest that hereafter even the most "insignificant" changes in formulation or manufacture be brought to the attention of the purchasers. Such notification could save countless hours of work, considerable sums of money, untold stress to the chromatographer—and possibly save irreplaceable material.

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