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## Letter to the Editor

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### Liquid carbon dioxide as a chromatographic eluent.

#### Preliminary thin-layer chromatographic experiments

Sir,

A recent note<sup>1</sup> concludes with a statement: "Attempts to introduce a commercial apparatus based on such a principle (flame-ionization detector) in TLC, *eg.* the Iatrosan TH-10 (Iatron Labs., Tokyo, Japan), in our opinion have failed so far, because of the high background level due to the organic solvents left on the layer".

As a long-time user<sup>2</sup> of the Iatrosan thin-layer chromatography (TLC)-flame-ionization detection (FID) system I wish to record that this statement is false and misleading. All of the organic solvents (*e.g.*, diethyl ether, chloroform, benzene, methanol, hexane, etc.) commonly used for lipids evaporate readily at room temperature in approximately 15 min. In our laboratory 2-3 min in an oven at 110°C is normal treatment. Even in the difficult case of heavy petroleum fractions 5 min at 120°C is satisfactory<sup>3</sup>. Ammonia, formic acid and acetic acid used at the 0.1-1.0% level in the solvents to modify polarity also evaporate readily under these conditions. In our laboratory all solvents are reagent quality or better and are distilled in glass prior to use.

Extracts of natural products often contain a variety of low-level or minor components not detectable by ordinary TLC methods of visualization. These may give some baseline disturbances, but this has nothing to do with solvent residues and in fact emphasizes the sensitivity of the Chromarod TLC-FID system. One case of a compound giving incomplete combustion (phytic acid) is recorded<sup>4</sup>. The normal practice of periodic cleaning of Chromarods in nitric acid, washing, and scanning immediately prior to sample application ensures that no buildup of incomplete combustion products remains to interfere in subsequent runs<sup>5</sup>. Chromarods may be re-used several hundred times.

Carbon dioxide is produced by either compressing brewery fermentation gases, or by combustion of heavy petroleum fuel cuts. The latter would seem to be a potential source of contamination with the polycyclic hydrocarbons for which liquid carbon dioxide is recommended as an eluent.

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