

dipped in a solution of ferric chloride (0.5 %). Blue spots formed on a yellow background; the chromatograms are not stable due to the diffusion of the blue colour, which is less rapid if the sheets are dried before being dipped in ferric chloride solution.

The reaction is positive also with other substances, such as pyrocatechol, resorcinol, hydroquinone<sup>5</sup> and ascorbic acid, and may be used for detecting other reducing compounds.

Further applications of this reaction will be reported in due course.

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### **A sample-solvent evaporator for paper chromatography**

In preparing a chromatogram before development in a suitable solvent system, one applies a liquid sample along a starting line, or as a spot, with a pipette held in one hand and with the tube containing the sample, as well as a source of air, usually a glass pipette connected to a compressed air line, for evaporating solvent as the sample is applied to the paper, held in the other hand. This procedure is unwieldy and offers several possible sources of difficulty. For one thing, there may occur excessive spread of the starting line band resulting in wide bands, or excessively spread spots, on the finished chromatograms making analysis difficult if not impossible. When one attempts to restrict the spread of the starting line band by applying the air jet to the paper immediately after applying the sample, there is danger that the air jet will cause the spray of sample from the tip of the application pipette to the paper. This results in annoying extraneous spotting of the chromatogram. At best, it is difficult to apply such liquid samples in a uniform manner and without excessive spread of the starting line band.

This report describes an apparatus which circumvents the difficulties described by allowing efficient continuous evaporation of the solvent contained in a sample which is applied to the starting line of various widths of chromatograms. This unit is presented in Fig. 1. It is made of a section of  $\frac{1}{4}$  in. (O.D.) brass tubing plugged at one end and into which are drilled holes of 0.040 in. diameter, spaced  $\frac{1}{4}$  in. apart. Sliding sleeves of  $\frac{1}{4}$  in. (I.D.) permit any number of holes to be exposed depending upon the width of chromatogram to be processed. The open end of the tubing is connected to a compressed air line, or to a nitrogen line, and air is thus allowed to

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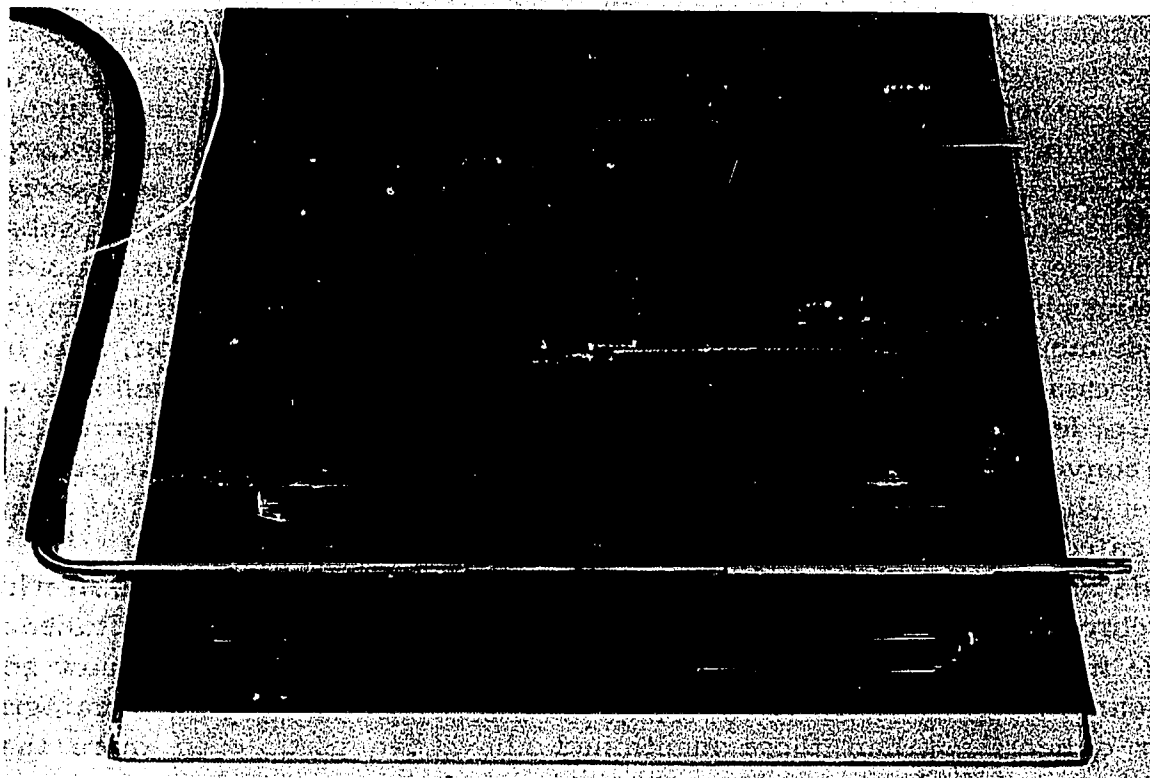


Fig. 1. Continuous sample-solvent evaporator.

pass through only those holes not covered by the sleeves.

The paper chromatogram upon which the sample is to be applied is placed across the glass rods so that the starting line is directly over, but not touching, the exposed holes of the unit. The sleeves are adjusted to accommodate the width of the chromatogram, the air stream is started, and the sample is applied directly to the paper. As the sample is applied, the stream of air coming from the unit beneath the paper, evaporates the solvent in the sample. This procedure allows the sample to be applied to the paper more rapidly and with less difficulty. At the same time the unit prevents excessive spread of solvent at the starting line.

This unit is economical and offers the advantages of simplicity in design, construction, and operation.

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