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Note

Chromatogram sprayer with disposable jet

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During experiments in which thin-layer chromatograms were sprayed with Neatan (E. Merck, Darmstadt, G.F.R.), a proprietary plastic preparation used for preservation and storage of the layers[1], conventional chromatogram sprayers of several designs tended to become blocked by the reagent. Even prompt cleaning with tetrahydrofuran[1] was not always successful; moreover, passage of this solvent through the sprayer was an unpleasant procedure, despite using a fume hood. The only really satisfactory cleaning method was overnight incineration in a glassware cleaning oven. All the sprayers tested contained regions which were not readily accessible to chemical and mechanical cleaning agents, and consequently were potentially liable to cross-contamination of spray solutions. The present design avoids both blockage and cross-contamination problems. The inner jet is disposable, and all parts which come in contact with the spray solution can be rapidly cleaned using a pipe cleaner or small brush.

The apparatus (Fig. 1) consists of a length of 8-mm medium wall tubing (1) connected to a size 7/16 conical glass joint (2) mounted concentrically inside a SQ 24 screw thread joint (3). The conical glass joint carries the plastic inner jet (4), which is an unmodified white polypropylene tip as supplied for use with Oxford Sampler Micropipettes (Catalogue No. 810; Boehringer, London, Great Britain). The internal diameter is about 0.4 mm at the tip. It was the narrowest and most conveniently shaped pipetting tip tested, and is resistant to virtually all likely spray reagents. The outer jet (5), made from 12-mm tubing, is gripped by tightening the screwcap (6) onto the silicone rubber ring (7). The outer jet may, if desired, be indented at three or four points around its periphery to facilitate accurate concentring of the two jets, and can be moved in and out to achieve optimum spraying conditions. At both screw joints, silicone rubber rings (7 and 11) are protected from possible contact with reagents by PTFE washers (8 and 12). The spray is operated by connecting it to the compressed air supply and blocking the finger hole (14). The reservoir tube (15) may be replaced by any convenient vessel, provided it is vented. The apparatus is simple, robust and foolproof, and can be constructed from readily available materials by a competent glassworker.

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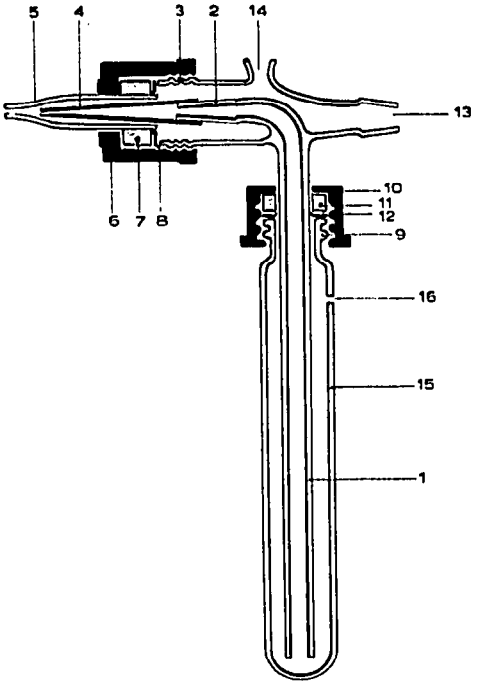

Fig. 1. Design of the chromatogram sprayer. (1) 8-mm medium wall tubing; (2) CNB 7 conical glass joint; (3) SQ 24 screw thread joint; (4) plastic inner jet; (5) glass outer jet; (6) QC 24/12 screw cap; (7) QR 24/11 silicone rubber ring; (8) QW 24/11 PTFE washer; (9) SQ 18 screw thread joint; (10) QC 18/11 screw cap; (11) QR 18/7 silicone rubber ring; (12) QW 18/7 PTFE washer; (13) connection for compressed air supply; (14) finger hole; (15) reservoir tube; (16) vent hole. Recommended operating pressure 18–25 p.s.i. (1.2–2.5 atm). Numbers refer to "Quickfit" brand items contained in the catalogue of Jobling Laboratory Division, Stone, Staff., Great Britain.

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REFERENCE

1 Anonymous, *Neatan*, E. Merck, Darmstadt.