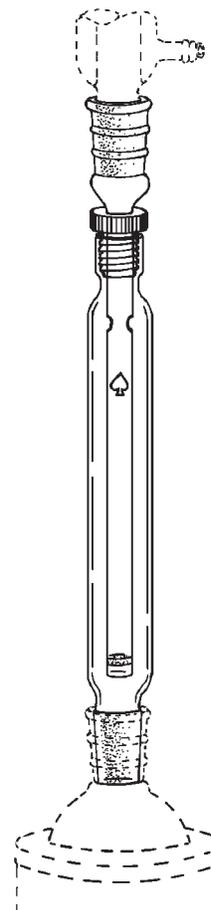


OPERATING INSTRUCTIONS FOR ACE #5879 COLUMN, CHROMATOGRAPHIC, KAUFFMAN¹

OPERATION:

1. Use a long-stemmed funnel or a roll of paper taped to a funnel so that the bottom extends below the holes in the sides of the column.
2. Load sand about 5mm high as a support for the absorbent.
3. Load absorbent dry, using an amount in the table below, tapping the column to settle it.
4. Load sand about 5mm high above the absorbent.
5. Place the sample mixture on the top of the sand. Hard lumps or large crystals should be broken up first.
6. Place a disc of paper, fiberglass or sintered glass on top of the sample to diffuse falling solvent and prevent sample from floating.
7. Wipe off outside of column and joints carefully. (Installation of Teflon sleeves on all joints is recommended.)
8. Assemble column in outer jacket with boiling flask.
9. Pour solvent thru inner tube and allow most of it to drain into the flask.
10. Heat solvent to vigorous boiling. Regulate heat to obtain steady flow thru column of condensate. A "head" of solvent above the sample may be used, but must be controlled to avoid overflow thru the holes, or a dry boiling flask. More solvent may be added at any time. Holes in the packing due to expansion of air are normal, as are water droplets appearing in the reflux condenser.
11. When it seems appropriate, turn off heat, cool extract, filter the first fraction, and use recovered solvent further. Alternatively, begin use of a more polar or higher boiling solvent.
12. Push down and tamp sample sticking to sides of column, if necessary.
13. Separate the apparatus for cleaning. If time permits, dry absorbent packing in a hood, then pour out the dry packing into a disposal bag or foil. The wet absorbent may be tapped out, if desired, by striking the column upside down on a soft surface.



SUGGESTED CAPACITIES

Size Columns	SMALL	MEDIUM	LARGE
Sample Load	0.1-5g	0.3-15g	1-50g
Solvent Quantity	25-100 mL	75-300 mL	200-1000 mL
Adsorbent Charge	5-25g	10-75g	20-200g

If it is desired to use non-flammable solvents, the following are suggested in order of increasing elusive power:

- a. 1,1,2-trichlorotrifluoroethane (Freon TF), bp 48°
- b. methylene chloride, bp 45°
- c. chloroform, bp 62°
- d. trichloroethylene, bp 87°
- e. 1,2-dichlorobenzene, bp 178°

¹ J.M. Kauffman, C.O.Bjorkman, J. CHEMICAL EDUCATION, 53.33, (1976)