

15. Light Filters for the Mercury Lamp.

By E. J. BOWEN.

THE following filters are an improvement on a previous list (Bowen, J., 1932, 2236) and have been found useful for photochemical work with the mercury lamp, from which a concentrated beam of light may be obtained by placing the filter of col. 2 of the table in a round flask (glass for the visible region and the 3660 Å. line, silica for the ultra-violet) of 10 cm. diameter (and 500 c.c. capacity) very near the lamp, followed by the other filters, the reaction cell being placed behind a diaphragm about 24 cm. from the lamp.

The nickel-cobalt sulphate filter, which transmits the ultra-violet while practically cutting off all the visible, infra-red, and the 3660 Å. line, is similar to that recommended by Bäckström (*Naturwiss.*, 1933, 13, 251), and must be particularly free from traces of iron salts. Salts of "Analar" standard (B.D.H. and Messrs. Hopkin and Williams, Ltd.) have been found suitable.

Mercury lines, Å.			
2480 2540	145 g. NiSO ₄ ·6—7H ₂ O + 41.5 g. CoSO ₄ ·7H ₂ O in 1 l. water; 10 cm.	Gaseous Cl ₂ at 1 atm.; 3 cm. 0.108 g. I ₂ + † 0.155 g. KI in 1 l. water; 1 cm.	
2650 2700		CCl ₄ , 2 mm.; † or HgCl ₂ * (45 g./l.) in water, 1 cm.	
2750 2805			
2895 2925 2970 3030			
3135			
3340		Uric † acid, satd. soln. in water; 1 cm. Potassium † hydrogen phthalate, 5 g./l. in water; 1 cm. Oxalic acid † soln. in water (20 g./l.); 1 cm. Or CuSO ₄ ·5H ₂ O in water (15 g./l.); 1 cm.	
3660		4.4 g. CuSO ₄ ·5H ₂ O + 150 c.c. NH ₄ OH (d 0.88) in 1 l. water; 10 cm.	2—3 mm. Chance's black " ultra-violet " glass.
4050			I ₂ in CCl ₄ (7.5 g./l.), 1 cm. + quinine hydrochloride in water † (10 g./l.), 2 cm.
4360			75 g. NaNO ₂ in 100 c.c. water; * 1 cm.
5460		13 g. CuSO ₄ ·5H ₂ O + 0.44 g. K ₂ Cr ₂ O ₇ + 50 c.c. conc. H ₂ SO ₄ in 1 l. water; 10 cm.	Corning glass 512, 5 mm.
5770 5790		Corning glass 344, 3.4 mm.	

* Renew occasionally.

† Renew frequently.