

panel controls include: 0 to 180-minute programming timer; 0 to 30-minute cool-down timer; pilot lights marked "programming," "recovery," "ready"; automatic-manual mode-selector switch. Time requirements for temperature programming and cool-down, determined experimentally, are set on the timer dials; the selector switch is set to "automatic." Temperature is programmed by selecting the initial and final temperatures and rate of rise. The sample is then injected and program action is initiated. At the end of the programmed run, a relay activates a solenoid valve that opens the intake and exhaust dampers of the column oven and shuts-off oven heat. The cool-down timer determines the length of time that the dampers are to remain open; it is set to allow the oven temperature to fall 10° to 15°C below the initial temperature to compensate for residual heat from the oven and for insulation. After the dampers close, a preset internal timer provides a period for dissipation of this residual heat, permitting the oven and circulating air to reach equilibrium. A second internal preset timer then turns-on the oven heat for a short isothermal soak at the initial temperature. The

"ready" light indicates that the column is at equilibrium at the initial temperature and ready for the next run.—D.J.P. (Barber-Colman Co., Dept. S460, Rockford, Illinois)

Remote reference junction, expedites pH measurements and titrations at high temperatures or with incompatible solutions. Junction is filled with a compatible electrolyte and used to make an electrical salt bridge to a reservoir containing the calomel electrode. Electrical contact between sample solution and electrolyte in the reference junction and reservoir is made through a porous plug of sintered ceramic, sealed into the glass at the tip of the tube. Above the plug is a fitting for 0.25-inch (6.25-mm) bore Tygon tubing. Any suitable container serves as the reservoir in which the reference electrode is immersed. Junction can be used in situations in which chloride ions or mercurous ions in a standard calomel reference electrode react with the solution being measured or titrated, introducing unknown errors. If the temperature of the sample solution is higher than the safe limit of the reference electrode, the new junction serves to keep the

electrode within its most reliable working range; if the temperature of the sample changes while the pH is being measured, the time normally spent waiting for the elements of the reference electrode to come to equilibrium is saved. (The electrolyte reservoir can be thermostated if necessary.) For setups being used to monitor the pH of a system that would be likely to foul or clog the reference electrode, the electrode can be kept safely in a clean electrolyte. (Ability to vary the head of electrolyte in the tube of the reference junction makes it easy to keep the liquid junction in the sample free from clogging.) List: \$7.50.—D.J.P. (Fisher Scientific, Dept. S457, 413 Fisher Building, Pittsburgh, Pa. 15219)

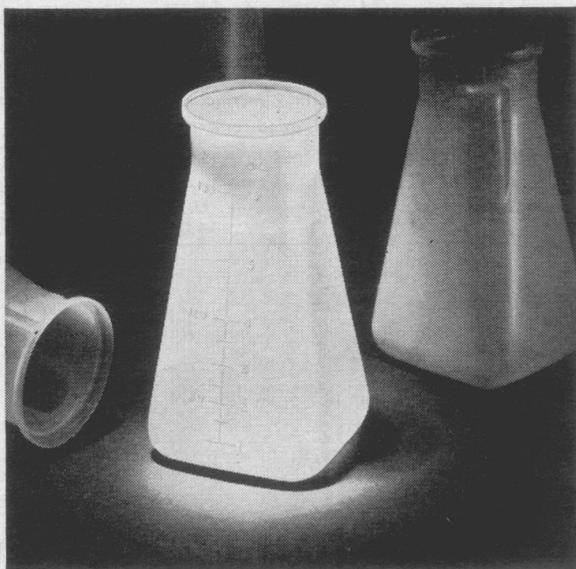
Specific gravities of liquids within the range 0.5500 to 3.0500 are made photoelectrically by the Speegrav. Essentially an electronic balance equipped with a microammeter, it provides direct readings within 0.0005 sp. gr.; by estimation, within 0.0001 sp. gr. In principle, the instrument is an accurate electronic balance using a plummet immersed in the test liquid. The plummet is suspended by a fine wire and stirrup from a beam with a slit to allow light to pass from source to a photocell. As the plummet seeks different levels in fluids of varying densities, the beam and slit move and increase or decrease passage of light to the photocell; cell output is then measured by the meter. Ranges are changed by addition or removal of precision weights, which increase or decrease weight on the beam. Effective length of the meter scale is thus spread to about 6 m. Within any one range, the entire meter scale indicates only small differences in specific gravity (for example, 0.600 to 0.650), so that precision is high with a relatively short, fixed meter scale. Readings are repeatable within 0.00025 sp. gr. on the 0-to-50- μ a taut-band meter. Solid-state circuitry throughout. A-c supply regulated; fluctuations in line voltage to 20 percent do not affect accuracy. Meter scale reads directly in sp. gr. units; other scale plates, such as the Alcohol-meter, Baumé, Brix, and Fatty Oil scales, available on special order. Weights are supplied in sets with the instrument or as optional accessories. Operating manual, with appropriate reference tables, is standard equipment.—D.J.P. (Aloe Scientific, Div. of Brunswick, Dept. S449, 1831 Olive St., St. Louis, Mo. 63103)

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