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Physical Methods, Apparatus, etc.

ABSTRACTS OF CHEMICAL PAPERS

Electrolytic Cell for Use with the Mercury Cathode. A. D. Melaven. (Ind. Eng. Chem. (Anal. Edition), 1930, 2, 180.)—The difficulty experienced in removing the electrolyte from the mercury cathode in the electrolytic-amalgam method of separation of metals (e.g. of aluminium or magnesium from iron) without resolution of the amalgam, is overcome by the use, as electrolytic cell, of a cylindrical glass vessel with a conical base fitted with a 2-way cock. This cock is connected by rubber tubing filled with mercury with a levelling bulb in which connection is made with the rest of the circuit by means of a copper wire, while the other outlet is constricted in the form of a burette tip. In operation, the area of the mercury cathode is adjusted by raising or lowering the levelling tube, the solution added, the anode inserted and the circuit closed. When electrolysis is complete, the mercury surface is lowered to the top of the stop-cock and the electrolyte drained off through the other outlet, care being taken that the anode is always below the surface of the electrolyte, so that the circuit remains closed.

J. G.

Mounting Media for Microscopic Work. J. M. Preston. (Nature, 1930, 125, 563.)—A medium giving a refractive index of 1.42 when liquid, rising to 1.47 when hard, which is very useful for unstained cellulose materials (n=1.52 to 1.54), has the following composition:—Cellulose nitrate (extra low viscosity type—Nobel's H.X.2), 25; triacetin, 25; methyl ethyl ketone, 50 per cent. The medium is applied in the same manner as Canada balsam and allowed to harden either with or without heat. During the hardening process the ketone evaporates, and the refractive index rises from the lower to the upper value. Other media containing various plasticisers in place of triacetin may be used in special cases, and give an extended range.

				Refractive Index.	
				Liquid.	Hardened.
Cellulose nitrate, methyl etl	hyl k	etone ar	$^{\mathrm{1d}}$		
Triacetin	• •			1.417	1.471
Resorcinol diacetate	e			1.435	1.517
Benzyl alcohol				$1 \cdot 442$	1.525
Tricresyl phosphate				1.448	1.545
Benzophenone				1.461	1.573
Euparal				1.481	1.525
Canada balsam				1.530	1.545

Cellulose acetate may be used in place of cellulose nitrate, and is found to give somewhat lower values of the refractive index with the same plasticiser. To obtain a sufficiently fluid medium more dilute solutions must be used than with the nitrate.

Mountants for Biological Tissues. W. Marshall. (Nature, 1930, 125, 564.)—The mountant of highest refractive index that can conveniently be used is a saturated solution of sulphur and arsenious sulphide in methylene iodide. It is of a canary yellow colour and has refractive index 1.804. It appears to be stable, but the mounts in this medium need ringing. A higher refractive index (1.87) is obtained with a solution of phosphorus in methylene iodide, but the golden yellow liquid soon becomes cloudy on exposure to air.