NOTE.

The Separation and Determination of Copper and Nickel by Salicylaldoxime. By H. L. RILEY.

A RAPID and accurate method was required for separating and determining copper and nickel. The following shows that salicylaldoxime can be conveniently used for this purpose.

To a standard solution containing copper and nickel sulphates were added 1 g. of crystallised sodium acetate and 10 c.c. of glacial acetic acid, and the solution was diluted to 100 c.c. Excess of the 1% salicylaldoxime reagent (Ephraim, *Ber.*, 1930, **63**, 1928; Astin and Riley, this vol., p. 314), *i.e.*, sufficient to precipitate both the metals, was added. The precipitated copper compound was coagulated by stirring or allowed to stand over-night, filtered on a porous (No. 3) glass Gooch crucible, washed with cold water, dried at 100°, and weighed. To the filtrate (300—350 c.c.) was added dilute ammonia until it remained just acidic. The bright green nickel compound, $(C_7H_6O_2N)_2Ni$, which was precipitated, coagulated readily on stirring. It was collected and treated as above, washing being continued until the filtrate gave no reaction with ferric chloride solution. Theoretical factors, *viz.*, 0·18938 for copper, and 0·17742 for nickel, were employed. Seven different standard solutions were used and duplicate determinations were carried out with each. The nickel solutions were standardised by means of dimethylglyoxime. The following results were obtained.

Copper.			Nickel.			Copper.			Nickel.		
Wt. ppt., g.	Found, mg.	Actual.	Wt. ppt., g.	Found, mg.	Actual.	Wt. ppt., g.	Found, mg.	Actual.	Wt. ppt., g.	Found, mg.	Actual.
0·1323	25·05	25·12	—	—	—	0·0532	10·08	10·05	0·1386	24·59	24·55
0·1323	25·05		—	—	—	0·0530	10·04		0·1373	24·36	
0·1331	25·21	25·12	0·1383	24·54	24·55	0·0269	5·09	5·02	0·1384	24·55	24·55
0·1333	25·24		0·1382	24·52		0·0267	5·06		0·1385	24·57	
0·1326	25·11	25·12	0·0554	9·83	9·82	—	—		0·1389	24·64	24·55
0·1327	25·13		0·0554	9·83		—	—		0·1381	24·50	
0·1326	25·11	25·12	0·0275	4·88	4·91						
0·1321	25·02		0·0278	4·93							

The above method for the determination of nickel compared favourably with that employing dimethylglyoxime. It was extremely sensitive. The reagent gave a pronounced turbidity in a neutral solution containing 1 part of nickel in 1,000,000 parts of water, and a faint but definite turbidity with solutions containing 1 part in 10,000,000. The reagent has the advantage of being more soluble in water than dimethylglyoxime. Many of the common metals, *e.g.*, iron, silver, mercury, zinc, do not give precipitates with the reagent, so the above method could be readily adapted for the analysis of coinage and similar alloys. Cobalt, however, gives a precipitate with the reagent in neutral solution and would therefore interfere if present.—

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