U. S. DEPARTMENT OF COMMERCE

National Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE 124B

OUNCE METAL

ANALYST*	Cu (Electrolytic)	Zn (ZnS-ZnO)	Sn	Pb (Weighed as $PbSO_4$)	NICKEL (Weighed as nickel dimethylglyoxime)	IRON	ANTIMONY	SULFUR	PHOSPHORUS	SILICON	ALUMINUM	
1	[a] 83.67	5.38	[b] 4.91	4.63	0.75	[c] 0.26	[d] 0.20	[e] 0.041 [f] 0.041	[g] 0.014	[h] 0.013	[i] 0.003	
	[a] [j] 83.67	5.39	[k] 4.94	[l] 4.66	.75	[c].26	[m].21	[n].039	[o].014	[p].008	[q].004	
3	[r] 83.68 [r] 83.71	5.41	[s] 4.94	4.64	[t].76	[u] [v].25	[m].20	[f].040	[o].015	[p].014	[w].001	
4	[a] 83.70	[x] 5.40	[y] 4.93	[z] 4.63	[z1].76	[z2].25	[z3].20	[n].042	[g].015	[z4].013	[z4]<.01	
Averages	**83.69**	**5.40**	**4.93**	**4.64**	**0.76**	**0.26**	**0.20**	**0.041**	**0.015**	**0.012**	**0.003**	

[a] Five-gram sample dissolved with 55 ml of HNO_3 (1:1). Solution digested on a steam bath overnight, filtered, and the precipitate washed with hot HNO_3 (1:99). Filtrate diluted to 350 ml, 2 drops of 0.1 *N* HCl added, and solution electrolyzed overnight by the use of a current density of 0.5 amp/dm². Metastannic-acid precipitate and paper treated with HNO_3-H_2SO_4. Tin, antimony, and arsenic volatilized by HBr-Br_2, and residual copper determined by electrolysis.

[b] Distillation-cupferron method. See J. Research NBS **33**, 307 (1944) RP1610.

[c] $SnCl_2$-$K_2Cr_2O_7$ method.

[d] Antimony separated by distillation from a 5-g sample, precipitated with H_2S, and titrated with $KMnO_4$ as described in J. Research NBS **21**, 95 (1938) RP1116. $KMnO_4$ standardized on high-purity antimony.

[e] Weighed as $BaSO_4$.

[f] Combustion-iodate method.

[g] Molybdenum-blue photometric method.

[h] Tin, antimony, and arsenic volatilized by HBr-$HClO_4$ treatment. Double dehydration with $HClO_4$ with intervening filtration.

[i] Aurin tricarboxylic acid method.

[j] Same value obtained by depositing copper in the presence of tin in an HNO_3-HF solution of a 1-g sample.

[k] Tin reduced with lead and titrated with iodine.

[l] Electrodeposited and weighed as PbO_2.

[m] Metastannic acid precipitate separated, and digested in H_2SO_4. Solution diluted, reduced with tartaric acid and Sb titrated with $KMnO_4$.

[n] Evolution method; titration with iodine.

[o] Phosphomolybdate titrated with standard alkali and acid.

[p] H_2SO_4 dehydration.

[q] Weighed as $AlPO_4$.

[r] Copper deposited in the presence of tin in an HNO_3-HF solution of a 1-g sample.

[s] Tin reduced with iron in the presence of added antimony and titrated with KIO_3.

[t] Same value obtained cyanometrically.

[u] Iron reduced with zinc, and titrated with ceric sulfate.

[v] Same value obtained by reducing iron in sulfuric acid solution with Cu and H_2S, and titrating with ceric sulfate.

[w] Mercury cathode, 8-Hydroxyquinoline method.

[x] Same value obtained by the potassium ferrocyanide method.

[y] Tin reduced with iron and titrated with iodine.

[z] Same value obtained by the lead chromate method.

[z1] Same value obtained by colorimetric and by spectrographic methods.

[z2] Iron reduced with $SnCl_2$ and titrated with $KMnO_4$. Same value also obtained by spectrographic analysis.

[z3] $KMnO_4$ titration as in footnote (m). Same value also obtained by pyridine-iodide colorimetric method and by spectrographic determination.

[z4] Spectrographic determination.

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