U. S. DEPARTMENT OF COMMERCE

National Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE 85A

ALUMINUM ALLOY

(WROUGHT)

ANALYST*	Cu	Mg	Mn	Ni	Cr	IRON	SILICON	ZINC	TITANIUM Colorimetric	CALCIUM	GALLIUM	LEAD	VANADIUM	TIN	
	Electrolytic	$NaOH-Mg_2P_2O_7$	Persulfate-arsenite	Weighed as nickel dimethylglyoxime											
1	[a] 2.48	1.56	[b] 0.66	0.41	[c] 0.233	[d] 0.204	[e] 0.113	[f] 0.021	0.016	[g] 0.01	[h] 0.01	[i] 0.002	[j] 0.001	[k] <0.001	
	2.46	1.58	.66	.41	[m] .23	[n] .208	[o] .11	[f] .019	.014						
	[l] 2.48														
	[l] 2.47	1.60	.67	.40	.24	[n] .20	[o] .12	[p] .015	.02						
4	2.46	[q] 1.59	[r] .66	[s] .42	[t] .228	[s] .21	[u] .12		.014						
5	2.48	1.61	[v] .67	.40	[m] .226	[w] .211	[o] .113	[p] .023	.017						
							[e] .111								
6	[l] 2.48	1.59	.67	.40	[m] .230	[x] .210	[o] .111								
7	2.48	1.57	.66	.41	.23		.108								
8	2.49	1.56	.65	.42	[m] .232	[y] .213	.116	[p] .018	.014						
Averages	2.48	1.58	0.66	0.41	0.231	0.208	0.114	0.019	0.016						

[a] Five-gram sample dissolved in sulfuric-nitric-hydrochloric acids. Solution fumed. First cathode deposit dissolved and replated.
[b] Potentiometric titration.
[c] Persulfate oxidation and potentiometric titration with ferrous ammonium sulfate solution standardized with potassium dichromate.
[d] Copper removed by electrolysis and nickel with dimethylglyoxime. Iron precipitated in tartrate solution with $(NH_4)_2S$. Precipitate dissolved, iron precipitated with ammonium hydroxide, subsequently reduced with stannous chloride and titrated with potassium dichromate.
[e] Solution in NaOH.
[f] ZnS-ZnO.
[g] Calcium and magnesium precipitated as phosphates. Precipitate dissolved and calcium sulfate precipitated in alcoholic solution. Precipitate dissolved, calcium precipitated as oxalate and weighed as CaO.
[h] Cupferron method. See, NBS J. Research NBS 15, 585 (1935) RP853.
[i] Electrolytic.
[j] Peroxide-colorimetric method.
[k] Tin not detected in sulfides precipitated from a 30-g sample by the formic acid-hydrogen sulfide procedure.
[l] Iodide-thiosulfate method.
[m] Persulfate oxidation and titration with ferrous sulfate-permanganate.
[n] Iron reduced with H_2S and titrated with $KMnO_4$.
[o] Tri-acid decomposition.
[p] $ZnHg(CNS)_4$ method.
[q] Same value obtained by the oxine-colorimetric method.
[r] Periodate-colorimetric method.
[s] Colorimetric.
[t] Diphenylcarbazide-colorimetric method.
[u] Solution in NaOH. Silico-molybdate colorimetric method.
[v] Persulfate-arsenite-nitrite method.
[w] Iron separated as sulfide in tartrate solution, reduced with zinc and titrated with permanganate.
[x] Copper removed as the sulfide. Iron in the filtrate precipitated as ferrous sulfide. Precipitate dissolved in HCl, solution oxidized with $KMnO_4$, and iron determined by the $SnCl_2$-$K_2Cr_2O_7$ method.
[y] Iron reduced with H_2S and titrated with $Ce(SO_4)_2$.

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