

UNITED STATES DEPARTMENT OF COMMERCE
WASHINGTON, D. C.

National Bureau of Standards
Certificate of Analyses

Standard Sample 85B
Aluminum Alloy
(Wrought)

ANALYST	COPPER Electrolytic	MAGNESIUM NaOH-Mg ₂ P ₂ O ₇	MANGANESE Photometric	IRON Photometric	CHROMIUM Photometric	SILICON	NICKEL Photometric	ZINC ZnS-ZnO	TITANIUM Photometric	LEAD Weighed as PbO ₂	GALLIUM	VANADIUM Photometric
1.....	^a 4.00	1.50	^b 0.61	^c 0.23	^d 0.208	^e 0.17	^f 0.087	0.030	0.023	0.023	^g 0.018	0.006
2.....	3.98	1.49	^h .61	ⁱ .24	^j .205	^k .18	.091	^l .027	.020	.022	^m .019	.006
3.....	ⁿ 4.00	^o 1.50	^h .61	{ ⁱ .23 ^o .24	^p .206	^q .18	{ ^r .077 ^s .078	{ ^t .032 ^u .033	.022	{ ^v .020 ^w .023		
4.....	{ ^x 3.97 4.03	^u 1.48	^h .61	ⁱ .23	^j .232	^e .17	.086	.026	.022	.017		
5.....	3.98	1.49	^v .61	^w .24	^x .21	^v .17	^f .079	^s .026	.024	^s .016		
6.....	3.99	{ ^u 1.49 1.50	^h .61	^w .24	^j .21	^k .19	^t .087	{ ^y .034 ^z .036	.022	.027	^k .02	
7.....	3.99	^u 1.49	^b .63	^z .24	^j .208	^q .19	.086	^s .030	.022	^s .022		
Average.....	3.99	1.49	0.61	0.24	0.211	0.18	0.084	0.030	0.022	0.021	0.019	0.006

^a Three-gram sample dissolved in sulfuric-nitric-hydrochloric acids. Solution evaporated to fumes of sulfuric acid, diluted and filtered. Silica treated with H₂SO₄-HF and the residual solution combined with the first filtrate. First cathode deposit dissolved and replated.

^b Persulfate oxidation and potentiometric titration with sodium arsenite solution standardized with potassium permanganate.

^c SnCl₂-K₂Cr₂O₇ method.

^d Persulfate oxidation and potentiometric titration with ferrous ammonium sulfate solution standardized with potassium dichromate.

^e Solution in NaOH, double HClO₄ dehydration with intervening filtration.

^f Dimethylglyoxime-gravimetric method.

^g Gallium extracted with ether, precipitated with cupferron, and ignited to the oxide. See NBS J. Research 16, 585 (1935) RP853.

^h Periodate method.

ⁱ Ortho-phenanthroline method.

^j Diphenylcarbazide method.

^k Gravimetric method.

^l ZnHg(CNS)₂ method.

^m 8-hydroxyquinoline-photometric method.

ⁿ Iodide-thiosulfate method.

^o Magnesium oxyquinolate precipitation, and titration by the KBr-KBrO₃-Na₂S₂O₃ method.

^p Persulfate oxidation and titration with ferrous sulfate and potassium dichromate with diphenylamine sulfonate as indicator.

^q Molybdisilicic acid-photometric method.

^r Polarographic method.

^s Dithizone-photometric method.

^t Zinc oxyquinolate precipitation after H₂S separation of copper, and titration by the KBr-KBrO₃-Na₂S₂O₃ method.

^u Ethylenediaminetetraacetic acid (Versene) titration method.

^v Persulfate-arsenite method.

^w Iron reduced with H₂S and titrated with KMnO₄.

^x Persulfate oxidation and titration with ferrous sulfate-permanganate.

^y Tri-acid decomposition.

^z Bypyridine-photometric method.

List of Analysts

- Nonferrous Laboratory, National Bureau of Standards, R. K. Bell in charge. Analysis by E. E. Maczkowske and L. A. Machlan.
- J. R. Churchill, Aluminum Company of America, New Kensington, Pa.
- R. B. Beckett, Aluminum Laboratories, Ltd., Arvida, Quebec, Canada.

- G. B. Wengert and P. F. Reigler, The Dow Chemical Co., Midland, Mich.
- C. J. Clausen, Jr., Kaiser Aluminum and Chemical Corporation, Spokane, Wash.
- R. L. Vitek and J. W. Mierzwa, Apex Smelting Co., Cleveland, Ohio.
- K. C. Braun, American Smelting and Refining Co., South Plainfield, N. J.

The aluminum alloy for the preparation of this standard was furnished by the Aluminum Company of America.

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WASHINGTON, D. C., May 9, 1957. *red 6/21*

A. V. ASTIN, Director.