

U. S. DEPARTMENT OF COMMERCE

National Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE 86 B

ALUMINUM ALLOY

(CASTING)

ANALYST*	COPPER Electrolytic	IRON Volumetric	ZINC H <sub>2</sub> S-ZnS-ZnO	SILICON	MANGANESE	TITANIUM Colorimetric	GALLIUM	VANADIUM
1.....	7. 87	1. 54	1. 51	<sup>a</sup> 0. 47	<sup>b</sup> 0. 013	0. 033	0. 014	0. 004
2.....	<sup>c</sup> 7. 84	1. 52	1. 49	<sup>d</sup> 45	<sup>e</sup> . 014			
3.....	7. 88	1. 52	1. 51	<sup>f</sup> 47				
4.....	7. 89	1. 56	<sup>h</sup> 1. 49	<sup>i</sup> 47	<sup>j</sup> 014	. 03		. 003
5.....	7. 88	1. 52	<sup>h</sup> 1. 52	<sup>a</sup> 47 <sup>d</sup> 46	<sup>j</sup> 015	. 031		
6.....	7. 88	1. 53	<sup>h</sup> 1. 51	<sup>k</sup> 47	<sup>j</sup> 012	. 033		
.....	7. 85	1. 54	1. 49	<sup>g</sup> 48	<sup>m</sup> 013			
.....	7. 89	1. 55	1. 51	<sup>l</sup> 46	<sup>e</sup> 013	. 033		. 002
.....	7. 88	1. 51	1. 48	<sup>i</sup> 46	<sup>j</sup> 012			
Averages.....	7. 87	1. 53	1. 50	0. 47	0. 013	0. 032	0. 014	0. 003

Calcium, magnesium, and zirconium were not detected by analyst 1 in procedures sensitive to about 0.001 percent. Analyst 5 reported 0.001 percent of chromium.

<sup>a</sup> Sodium hydroxide-sulfuric acid method.  
<sup>b</sup> Bismuthate (FeSO<sub>4</sub>-KMnO<sub>4</sub>).  
<sup>c</sup> Iodide-thiosulfate method.  
<sup>d</sup> Mixed acid method.  
<sup>e</sup> Periodate-colorimetric.  
<sup>f</sup> Electrolysis in sodium hydroxide solution.

<sup>g</sup> Fusion method. Solution in mixed acids, dehydration with H<sub>2</sub>SO<sub>4</sub>. Impure silica fused with Na<sub>2</sub>CO<sub>3</sub>, melt dissolved in H<sub>2</sub>SO<sub>4</sub> and solution evaporated to fumes.  
<sup>h</sup> ZnHg(CNS)<sub>2</sub> method.  
<sup>i</sup> Average of results obtained by methods (<sup>a</sup>)-(<sup>d</sup>).

<sup>j</sup> Persulfate-arsenite method.  
<sup>k</sup> Same value obtained by the sodium hydroxide-perchloric acid method and method (<sup>d</sup>).  
<sup>l</sup> Sodium hydroxide-perchloric acid method.  
<sup>m</sup> Persulfate-colorimetric.

\* LIST OF ANALYSTS

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|--|---|
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| 2. W. R. Kramer and V. A. Stenger, Dow Chemical Co., Midland, Mich.                    | 6. J. J. Aldrich, the National Smelting Co., Cleveland, Ohio.                                   |
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| 4. H. V. Churchill and R. W. Bridges, Aluminum Company of America, New Kensington, Pa. | 8. U. S. Navy Yard, Philadelphia, Pa.   |
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WASHINGTON, July 24, 1943.

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