

National Bureau of Standards

Certificate of Analysis

Standard Reference Material C1257

High-Purity Aluminum (99.99+%)

(In Cooperation with the American Society for Testing and Materials)

This Standard Reference Material (SRM) is in the form of a disk approximately 63 mm (2 1/2 in) in diameter and 19 mm (3/4 in) thick, and is intended primarily for use with optical emission and x-ray fluorescence methods of analysis. (See ASTM Method E607). The following elements were measured and certified for SRM C1257.

<u>Element</u>	<u>Concentration¹ (μg/g)</u>	<u>Uncertainty² (μg/g)</u>	<u>Methods</u>
Iron	1.0	0.5	a,b,d
Magnesium	5	1	b,d
Silicon	2	1	b,c,d

Analytical Methods: a. Neutron Activation Analysis
b. Optical Emission Spectrometry
c. DC Plasma Emission Spectrometry
d. Electrothermal Atomic Absorption Spectrometry

¹The certified value listed for an element is the present best estimate of the "true" value based on the results of the cooperative program for certification.

²The estimated uncertainty listed for an element is based on judgment and represents an evaluation of the combined effects of method imprecision, possible systematic errors among methods, and material variability. (No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most elements.)

The overall coordination of the technical measurements leading to certification was performed under the direction of J.I. Shultz, Research Associate, ASTM-NBS Research Associate Program.

The technical and support aspects involved in the preparation, certification and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by W.P. Reed and R. Alvarez.

Gaithersburg, MD 20899
March 9, 1987

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(Over)

Elements other than those certified that may be present in this material are indicated below. These are not certified, but are given as additional information on the composition. They were detected by using various ultrasensitive techniques.

<u>Element</u>	<u>Concentration ($\mu\text{g/g}$)</u>	<u>Element</u>	<u>Concentration ($\mu\text{g/g}$)</u>
Beryllium	<1.0	Lithium	<1.0
Bismuth	<1.0	Manganese	<1.0
Boron	<1.0	Nickel	<1.0
Cadmium	<1.0	Sodium	<1.0
Calcium	<1.0	Tin	<1.0
Chromium	<1.0	Titanium	<1.0
Cobalt	<1.0	Vanadium	<1.0
Copper	<1.0	Zinc	<1.0
Gallium	<1.0	Zirconium	<1.0
Lead	<1.0		

PLANNING, PREPARATION, TESTING, AND ANALYSIS:

The material for this SRM was provided by the Aluminum Company of America, Alcoa Center, Pennsylvania.

Homogeneity testing was performed by the Aluminum Company of America, Alcoa Center, Pennsylvania, D.J. Levin. The material variability was well within the imprecision of the methods used.

Cooperative analyses for certification were performed in the following laboratories:

- Alcan International Ltd., Jonquiere, Quebec, Canada, F. Kimmerle.
- Aluminum Company of America, Alcoa Technical Center, Alcoa Center, Pennsylvania, D.J. Levin and J.L. Genna.
- Ledoux & Company, Teaneck, N.J., S. Kallmann and C.L. Maul.
- Reynolds Metals Company, Richmond, Virginia, W.E. Pilgrim.