

# National Bureau of Standards

## Certificate of Analysis

### Standard Reference Material 1255a

### Aluminum Casting Alloy 356

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

This Standard Reference Material (SRM) is in the form of a disk, 64 mm (2 1/2 in.) in diameter and 19 mm (3/4 in.) thick. It is intended for use in optical emission methods of analysis.

The certified portion is that extending inward from the periphery 19 mm (3/4 in.). (The center portion, 25 mm (1 in.) in diameter, is not certified.) Note: For x-ray fluorescence methods of analysis, either cut or mask the specimen to include only the certified portion.

Element/Ingot <sup>3</sup>	1	2	3	4	5	6	7	Uncertainty <sup>2</sup> (of the certified value)
Silicon	7.21	7.21	7.22	7.24	7.22	7.20	7.22	0.02
Iron	0.14	0.14	0.14	0.14	0.13	0.14	0.13	.01
Copper	.12	.12	.12	.12	.12	.12	.12	.01
Zinc	.085	.081	.084	.083	.082	.084	.086	.002
Manganese	.054	.052	.053	.054	.052	.054	.052	.001
Chromium	.013	.012	.012	.012	.012	.013	.012	.001
Nickel	.017	.017	.018	.018	.018	.018	.017	.001
Titanium	.160	.157	.156	.156	.152	.150	.149	.005
Tin	.013	.013	.012	.013	.013	.013	.012	.001
Strontium	.019	.024	.017	.018	.019	.020	.017	.003
Vanadium	.024	.023	.024	.024	.024	.024	.024	.001
Lead	.017	.018	.017	.017	.018	.017	.017	.001
Magnesium	.37	.36	.36	.36	.37	.35	.36	.01

<sup>1</sup>The 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.

<sup>2</sup>The 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 within the ingot. (No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most elements.)

<sup>3</sup>The ingot designation refers to the single digit appearing after the SRM number as stamped on the SRM. This designation is used to differentiate among individual ingots prepared for this lot of material. Use only the column of certified values appropriate to the ingot number marked on a given SRM.

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.

**PLANNING, PREPARATION, TESTING ANALYSIS:**

The material for this SRM was prepared by the Aluminum Company of America, Alcoa Center, Pennsylvania, coordinated by D.J. Levin.

Homogeneity testing was performed by optical emission spectrometry at the Aluminum Company of America, Alcoa Center, Pennsylvania, D.J. Levin and at NBS by J.A. Norris and T.W. Vetter.

Cooperative analyses for certification were performed in the following laboratories:

- Aluminum Company of America, Alcoa Technical Center, Alcoa Center, Pennsylvania, D.J. Levin.
- Kaiser Aluminum & Chemical Corp., Center for Technology, Pleasanton, California, H.J. Seim, G.M. Calkins and M.A. Green.
- National Bureau of Standards, Inorganic Analytical Research Division, Gaithersburg, Maryland, J.A. Norris and T.W. Vetter.
- Reynolds Aluminum, Reynolds Metal Co., Metallurgical Laboratory, Richmond, Virginia, W.E. Pilgrim and J.F. Green.

**NOTE:** Values of 1 to 2 ppm beryllium and 0.016 percent gallium are given for information only.