

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 853

Aluminum Alloy 3004

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

This Standard Reference Material (SRM), in the form of fine millings, is primarily for use in checking chemical methods of analysis. Material from the same lot is available in disk form as SRM 1240, and is intended primarily for use in calibration with optical emission methods of analysis.

Constituent	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	V	Ga	Zr
Certified Value, % by weight ¹	0.18	0.50	0.15	1.26	1.11	<0.001	0.004	0.052	0.018	0.017	0.018	0.002
Estimated Uncertainty ²	0.01	0.01	0.01	0.01	0.02	---	0.001	0.001	0.001	0.001	0.002	---
Method		Atomic Absorption	Atomic Absorption	Atomic Absorption	Atomic Absorption	Atomic Absorption	Atomic Absorption	Atomic Absorption	Emission Spectroscopy (ICP)	Emission Spectroscopy (ICP)	Atomic Absorption	Emission Spectroscopy (ICP)
Lab												
1	^a 0.18	0.50	0.15	1.28	1.12	<0.001	0.003	0.052	^b 0.018	^b 0.018	^b 0.020	^b 0.002
2	^c .18	.50	.15	1.25	1.11	<.001	.004	.051	.018	.016	.016	.002
3	^d .19	.49	.14 ^e .15	1.26	1.13 ^c 1.09	<.001	.004 ^c .005	.051 ^c .052	.018 .019	^e .016 .017	.018	.002

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

²The estimated uncertainty listed for a constituent 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 constituents.)

^aGravimetry

^bEmission spectroscopy, direct current plasma (DCP)

^cEmission spectroscopy, inductively coupled plasma (ICP)

^dSpectrophotometry

^eAtomic absorption spectroscopy

NOTE: Values of <0.0001 percent beryllium, <0.001 percent tin, and 0.001 percent lead are given for information only.

The overall coordination of the technical measurements leading to certification were 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
May 8, 1985

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

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PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this SRM was prepared under contract with NBS by the Aluminum Company of America, Alcoa Center, Pa., coordinated by D.J. Levin. Titanium was added for grain refinement of the alloy.

Homogeneity testing was performed by optical emission spectroscopy at the Aluminum Company of America, Alcoa Center, Pa., D.J. Levin and by J.A. Norris, Inorganic Analytical Research Division of NBS.

Millings representative of the certified portion of the lot were cut and blended at NBS to form a composite.

Cooperative analyses for certification were performed on composite samples in the following laboratories:

Aluminum Company of America, Alcoa Technical Center, Alcoa Center, Pa., D.J. Levin.

Kaiser Aluminum and Chemical Corporation, Pleasanton, California, H.J. Seim, J.M. Winkler, G.M. Calkins, and T.A. Palmer.

Reynolds Aluminum, Reynolds Metals Company, Richmond, Virginia, W.E. Pilgrim and J.F. Green.