National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 600

Bauxite (Australian-Darling Range)

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

This Standard Reference Material (SRM) is in the form of fine powder (nominal particle size < 0.08 mm) and is intended for use in evaluating chemical and instrumental methods of analyses.

(Analyses are based on samples dried to constant weight at 105 °C.

Constituent	Certified Value[1] Percent by Weight	Estimated Uncertainty[2]
Al_2O^3	40.0	0.4
Fe_2O_3	17.0	.3
SiO_2	20.3	.4
TiO_2	1.31	.04
ZrO_2	0.060	.009
P_2O_5	.039	.007
V_2O_5	.060	.007
Cr_2O_3	.024	.004
CaO	.22	.02
MgO	.05	.01
MnO	.013	.004
ZnO	.003	.002
K_2O	.23	.02
Na_2O	.022	.007
SO_3	0.155	0.006
Loss on Ignition[3]	20.5	.2

[1]The certified value listed for a constituent is the present best estimate of the "true" value. The certified values are given as the oxide on an equivalent weight basis and assume stoichiometry in the form of compounds listed.

[2]The 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 for samples 1.0 g or more. No attempt was made to derive exact statistical measures of imprecision.

[3]Determined by igniting to constant weight at 1075 °C.

Gaithersburg, MD 20899
January 2, 1991
(Revision of certificate dated 12-17-88)

William P. Reed, Acting Chief
Standard Reference Materials Program

(over)

ADDITIONAL INFORMATION ON THE COMPOSITION

Constituents other than those certified are present in this material as indicated below. They are not certified, but given as additional information on the composition.

Constituent	Concentration, Percent by weight
CuO	(0.002)
Ga_2O_3	(0.01)

PLANNING, PREPARATION, TESTING, AND ANALYSIS:

The base material for this SRM is from the Darling Range, Australia. It was provided by Alcoa of Australia through the courtesy of B.M. Scott, Kwinana, Australia, and R.A. Kramer, Alcoa, U.S.A.

Homogeneity testing was performed at NIST by G.A. Sleater, using x-ray fluorescence, in the Gas and Particulate Science Division, Center for Analytical Chemistry.

Cooperative analyses for certification were performed in the following laboratories:

- Alcan International, Arvida Research & Development Centre, Quebec, Canada, F.M. Kimmerle.
- Aluminum Company of America, Alcoa Center, Pennsylvania, J.L. Genna.
- Chemistry Centre (WA) Perth, Western Australia, M.B. Costello.
- Comalco Research Centre, Thomastown, Victoria, Australia, T. Hamilton.
- National Institute of Standards and Technology, Gaithersburg, Maryland, G.A. Sleater, W.R. Kelly and K.E. Murphy.
- Reynolds Aluminum, Reynolds Metal Company, Richmond, Virginia, C.D. Davis.

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

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

The update and revision of this Certificate of Analysis was coordinated through the Standard Reference Materials Program by T. E. Gills.