National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 94c

Zinc-Base Alloy
(Die-Casting)

This Standard Reference Material (SRM) is intended for use in chemical methods of analysis. SRM 94c is the second portion of the same lot of material that was used for SRM 94b; however, it has a finer chip size. SRM 94c passes through a No. 16 sieve and is retained on a No. 20 sieve, whereas SRM 94b passed through a No. 10 sieve and was retained on a No. 16 sieve. The original lot was divided into the two portions and each was reblended to improve the homogeneity of aluminum. No other element was found to vary between the two portions.

Element	Analysts						Recommended Value
	1	2	3	4	5	6	
Aluminum (94b)	4.04[a]	4.05[b]	4.07[b]	4.10[c]	4.05[b]	4.10[d]	4.07
Aluminum	4.10						4.13*
Copper (electrolytic)	1.01	1.01	1.02	1.00	1.00[e]	1.01	1.01
Magnesium	0.042[f]	0.042[f]	0.043[g] 0.044[h]	0.042[i]	0.043[j]	0.040[k]	0.042
Iron	0.018[l]	0.015[m]		0.02[n]	0.018[o]	0.019	0.018
Manganese	0.013[p]	0.014[p]		0.015[q]	0.012[p]	0.014[p]	0.014
Lead	0.006[r,s]	0.006[t,s]		0.006[h]	0.006[u]	0.005[v]	0.006
Nickel	0.006[w]	0.005[w]	0.006[w]		0.007[w]		0.006
Tin	0.006[x]	0.005[y]		0.006[h]	0.006[z]	0.005[a']	0.006
Cadmium	0.002[r]	0.002[t]		0.004[h]	0.002[u]	0.002[b']	0.002

*Estimated value based on assumption that the difference, 0.06% Al between the result obtained by analyst (R.K. Bell) and the average of all analysts is the same for 94c as for 94b. (Control result on 94b rerun by analyst 1 gave a value of 4.03).

Check results for copper and magnesium were made and identical values were obtained on 94b.

Source: The metal for the preparation of this standard was furnished by The New Jersey Zinc Co.

This Certificate of Analysis has undergone editorial revision to reflect program and organizational changes at NIST and at the Department of Commerce. No attempt was made to reevaluate the certificate values or any technical data presented on this certificate.

The technical and support aspects involved in the original certification and issuance of this SRM were coordinated through the Standard Reference Materials Program by J. Paul Cali. Revision of this certificate was coordinated through the Standard Reference Materials Program by P.A. Lundberg.

Gaithersburg, MD 20899
December 16, 1994

Thomas E. Gills, Chief
Standard Reference Materials Program

(over)

METHODS

[a]Mercury cathode-H_2S in 0.01 N acid solution-8-hydroxyquinoline method, "Methods for Chemical Analysis of Metals," p. 439 (1950). American Society for Testing and Materials, Philadelphia, PA.
[b]Mercury cathode-aluminum oxyquinolate method.
[c]Mercury cathode method-NH_4OH-Al_2O_3 method.
[d]Benzoate-8-hydroxyquinoline-NH_4OH-Al_2O_3 method.
[e]100-g sample. First deposit of copper dissolved in HNO_3 and redeposited.
[f]Direct diammonium phosphate method. $Mg_2P_2O_7$ corrected for Mn. (See ASTM methods E-47)
[g]Direct diammonium phosphate method.
[h]Mercury cathode method (ASTM method E47-45).
[i]Spectrochemical analysis (ASTM method E-2 SM 8-1).
[j]Mercury cathode method. $Mg_2P_2O_7$ corrected for Mn.
[k]Direct diammonium phosphate method. $Mg_2P_2O_7$ corrected for Ca and Mn.
[l]Orthophenanthroline-photometric method.
[m]NH_4CNS-photometric method.
[n]Iron reduced with zinc and titrated with $KMnO_4$.
[o]Iron and copper precipitated in a 100-g sample with cupferron. Copper removed by electrolysis and iron reduced with H_2S and titrated with $KMnO_4$.
[p]Periodate-photometric method.
[q]Persulfate-arsenite method.
[r]Polarographic method. Determination made by J.K. Taylor.
[s]Same value obtained by the electrolytic-PbO_2 method.
[t]Polarographic method.
[u]Dithizone-Photometric method.
[v]Electrolytic-PbO_2 method.
[w]Dimethylglyoxime-photometric method.
[x]Tin reduced with lead and titrated with potassium iodate.
[y]Tin precipitated in 50 and 100-g samples with MnO_2 in HNO_3 solution, reduced with iron, and titrated with iodine.
[z]Tin precipitated in a 30-g sample with cupferron, distilled with HBr, and titrated with KIO_3.
[a']Tin reduced with antimony and titrated with iodine.
[b']ASTM sulfide method (E47-45).

ANALYSTS

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