National Bureau of Standards

Certificate of Analysis

Standard Reference Material 728

Intermediate-Purity Zinc

This Standard Reference Material (SRM) is primarily intended for the calibration of instruments and the evaluation of of chemical methods used in the analysis of zinc materials. SRM 728 is in the form of pellets approximately 3mm in diameter (1/8 inch).

Element[1]	Certified Concentration, µg/g by wt.	Range of Values Reported[2] µg/g by wt.	Method of Analysis[3]
Lead	11.1	[10.8 - 11.7]	a,b
Copper	5.7	[5.3 - 6.3]	a,b
Iron	2.7	[2.1 - 3.5]	b,c
Cadmium	1.15	[1.1 - 1.2]	a,b
Silver	1.1	[0.8 - 1.3]	a,d
Thallium	(0.2)[4]	[0.15 - 0.17]	a
Tin	(0.02)	[0.013 - 0.032]	a

[1] Analysis by spark-source mass spectrometry, neutron activation, polarography, and/or flame emission spectrometry detected the following elements, which are listed with an estimated, conservative upper limit of concentration in µg/g:

Al (<3)	Co (<1)	Mn (<0.2)	Si (<0.5)
Sb (<0.7)	Cr (<0.01)	Ni (<0.3)	Sc (<0.3)
Ca (<0.1)	Mg (<0.01)	K (<1)	Na (<3)

The following elements were not detected by neutron activation; and, their estimated upper limits of detection in µg/g are:

As (<0.0004)	In (<0.02)	Rh (<0.3)
Ga (<0.002)	Ir (<0.006)	W (<0.00004)
Au (<0.0007)	Mo (<0.02)	V (<0.003)

Differences in etching practice (deep vs. light etch) may cause wide variations in the results obtained.

[2] The range of values reported is the extreme variation of the individual results reported by the methods of analysis used. The certified-concentration is based on considerations of the estimated systematic bias of each of the methods employed. From 5 to 15 individual determinations were made for each element certified.

[3] a. Isotope Dilution Spark-Source Mass Spectrometry (R. Alvarez and P.J. Paulsen)
b. Polarography (E.J. Maienthal)
c. Spectrophotometry (E.R. Deardorff)
d. Neutron Activation Analysis (B.A. Thompson and D.A. Becker)

[4] Values in parentheses are not certified as only one method of analysis was used, and are provided for information only.

November 16, 1987
Gaithersburg, MD 20899
(Revision of certificates
dated 7-9-68 and 10-1-81)

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

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This SRM has been issued to provide a homogeneous, well-characterized reference material for the analysis of pure zinc and analogous metals. It is especially useful where solution chemistry must be performed during the course of analysis.

The zinc was prepared by Cominco American, Inc. from a special lot of high-grade electrolytic zinc. Pellets were formed by melting a portion of this lot and pouring the molten metal into distilled water.

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 J.L. Hague.

CAUTION

Before use, it is recommended that possible surface contamination be removed by placing the specimens in dilute high-purity nitric acid for about one minute, followed by rinsing in distilled water.