

Certificate of Analysis

STANDARD REFERENCE MATERIAL 53e

Lead-Base Bearing Metal (84Pb-10Sb-6Sn)

R. K. Bell

(This material also is available in solid form as SRM 1132, primarily for application in optical emission and x-ray spectrometric methods of analysis)

ANALYSTS	Sb	Sn	Cu	Bi	As	Ni	Fe
	Distillation Titration	KIO ₃ Titration	Photometric	Photometric	Photometric	Photometric	Photometric
1	{10.22 ^a } {10.24 ^b }	{5.83 ^c } {5.86 ^d }	0.053 ^e	0.052 ^f	0.058 ^g	0.004	<0.001
2	{10.28 ^h } {10.30 ^b }	5.83 ⁱ	{.055 ^j } {.056 ^h }	.052 ^{k,h}	.056 ^l	.003	-----
3	10.27 ^b	5.83	.051 ^h	.051 ^f	.057	.003	< .001
Average	10.26	5.84	0.054	0.052	0.057	0.003	<0.001

^aAntimony separated by distillation, precipitated with H₂S, and titrated with standard KMnO₄ solution.

^bH₂SO₄-H₂SO₃-KBrO₃ method.

^cTin reduced with nickel, and SnCl₂ titrated with KIO₃.

^dTin separated by distillation, precipitated with cupferron, ignited to SnO₂ and weighed.

^eCupric bromide-photometric method.

^fThiourea photometric method.

^gArsenic precipitated with hypophosphorous acid and determined by the molybdenum-blue photometric method.

^hAtomic absorption method.

ⁱTin reduced with iron, and SnCl₂ titrated with KIO₃.

^jNeocuproine photometric method.

^kSodium diethyldithiocarbamate photometric method.

^lArsenic extracted as AsCl₃ and determined by the molybdenum-blue photometric method.

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List of Analysts

1. R. K. Bell, Analytical Chemistry Division, Institute for Materials Research, National Bureau of Standards.
2. J. H. Kanzelmeyer and J. J. Aldrich, St. Joseph Lead Company, Zinc Smelting Division, Monaca, Pennsylvania.
3. L. W. Anderson and D. J. Henrie, American Smelting and Refining Company, South Plainfield, New Jersey.

Homogeneity testing of this material and SRM 1132 was performed at NBS by R. K. Bell and S. D. Rasberry, and was found to be satisfactory for the elements certified.

The material for this standard was prepared by Alcan Metal Powders, Inc., Elizabeth, New Jersey, as alloy SAE 13. The material was atomized to powder, sized between 170 and 325 mesh sieves, and thoroughly blended.

The overall direction and coordination of the technical measurements leading to certification were performed under the chairmanship of O. Menis and J. I. Shultz.

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 R. E. Michaelis.