



National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 1129

Solder

(63Sn - 37Pb)

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

This Standard Reference Material (SRM) is in the form of atomized powder and sized between 75 and 45 micrometers (200 and 325 mesh size sieves) respectively. It is intended for use in chemical methods of analysis.

| <u>Element</u> | <u>Percent by Weight</u> ¹ | <u>Estimated Uncertainty</u> ² |
|----------------|---------------------------------------|---|
| Tin | 62.7 | 0.1 |
| Antimony | 0.13 | .01 |
| Arsenic | .055 | .005 |
| Bismuth | .13 | .01 |
| Cadmium | .006 | .001 |
| Copper | .16 | .01 |
| Nickel | .010 | .002 |
| Silver | .075 | .005 |
| Gold | .0175 | .0005 |

¹ The 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.

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. No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most constituents.

The overall direction and coordination of the technical measurements leading to certification were performed under the direction of J.I. Shultz, Research Associate, ASTM/NIST 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.L. McKenzie.

May 8, 1989
Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(over)

Elements other than those certified may be present in this material as indicated below. These are not certified, but are given as additional information on the composition.

| <u>Element</u> | <u>Concentration, percent by weight</u> |
|----------------|---|
| Iron | (<0.001) |
| Zinc | (< .001) |

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this SRM was provided by Federated-Fry Metals, Altoona, Pennsylvania, under a contract with the National Institute of Science and Technology.

Homogeneity testing was performed at NIST by G.A. Sleater, P.A. Pella, and A.F. Marlow, Gas and Particulate Science Division.

Cooperative analyses for certification were performed in the following laboratories:

- Asarco, Inc., East Helena, Montana, K. Kramlick.
- Asarco, Inc., Hayden Plant, Hayden, Arizona, G. Drew.
- Doe Run Company, Mining and Milling Division, Viburnum, Missouri, G.J. Fox.
- Federated-Fry Metals, Altoona, Pennsylvania, M.A. Stalter.
- Ledoux and Company, Teaneck, New Jersey, S. Kallmann and C.L. Maul.
- Multicore Solders, Inc., Richardson, Texas, R.L. Gilbert.
- Texas Instruments, Inc., Dallas, Texas, T. Skidmore.