



National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 1276a

Cupro-Nickel (CDA 715)

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

This Standard Reference Material (SRM) is in the form of a disk, approximately 32 mm (1 1/4 in) in diameter and 19 mm (3/4 in) thick, and is intended for use in optical emission and x-ray spectrometric methods of analysis.

| Element | Certified Value ¹ Percent by Weight | Estimated ² Uncertainty |
|------------|---|---------------------------------------|
| Copper | 67.5 | 0.5 |
| Nickel | 30.8 | .2 |
| Iron | 0.56 | .03 |
| Zinc | .038 | .006 |
| Lead | .004 | .001 |
| Manganese | 1.01 | .05 |
| Antimony | 0.0004 | .0001 |
| Tin | .023 | .004 |
| Phosphorus | .006 | .002 |
| Cadmium | .0002 | .0001 |
| Selenium | .0005 | .0001 |
| Magnesium | .12 | .02 |
| Cobalt | .045 | .007 |

¹The 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.

²The estimated uncertainty listed for a constituent represents an evaluation of the combined effects of method imprecision, possible systematic errors among methods, and material variability and is based on judgment. No attempt was made to derive exact statistical measures of imprecision because several methods were used in the determination of most constituents.

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 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.

June 30, 1989
Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

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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.

| Element | Percent by weight |
|---------|-------------------|
| Ag | (0.004) |
| As | (\leq .001) |
| B | (0.0001) |
| Bi | (\leq 0.0001) |
| Cr | (0.0002) |
| S | (0.008) |
| Si | (0.001) |
| Tc | (0.0002) |
| Ti | (0.0002) |

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this SRM was provided to NIST by Revere Copper and Brass, Inc., New Bedford, Massachusetts and was processed to final form by DK Associates, Buffalo, New York.

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

Analyses for certification by comparison with the prior lot of material was performed at NIST by P.A. Pella and A.F. Marlow, Gas and Particulate Science Division and by L.E. Creasy, Axel Johnson Metals, Inc., Lionville, Pennsylvania.