



## 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 <sup>1</sup> Percent by Weight	Estimated <sup>2</sup> Uncertainty
Copper	67.5	0.3
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

<sup>1</sup>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.

<sup>2</sup>The 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	( $\leq 0.0001$ )
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.