

# National Bureau of Standards

## Certificate of Analysis

### Standard Reference Material 1219

#### Cr16 - Ni2 (AISI 431)

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

This Standard Reference Material (SRM) is in the form of a disk, approximately 34 mm (1 5/16 in) in diameter and 19 mm (3/4 in) thick, and is intended for use in calibrating optical emission and x-ray spectrometric methods of analysis. Material from the same lot is also available in the form of chips as SRM 343a and is intended for use in checking chemical methods of analysis.

<u>Constituent</u>	<u>Certified Value<sup>1</sup></u> <u>Percent by Weight</u>	<u>Estimated<sup>2</sup></u> <u>Uncertainty</u>
Carbon	0.149	0.005
Manganese	.42	.01
Phosphorus	.026	.002
Sulfur	.001	- - -
Silicón	.545	.007
Copper	.162	.005
Nickel	2.16	.03
Chromium	15.64	.06
Vanadium	0.056	.004
Molybdenum	.164	.005
Nitrogen	.078	.002

<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 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.)

NOTE: Material for this SRM was processed from the same ingot as SRM 343a. Homogeneity examination and selected analyses indicated no significant differences between the chip and disk material.

The overall coordination of the technical measurements leading to certification was performed under the direction of J.I. Shultz, Research Associate, ASTM-NBS 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.

Gaithersburg, MD 20899  
September 18, 1985

Stanley D. Rasberry, Chief  
Office of Standard Reference Materials

(Over)

**PLANNING, PREPARATION, TESTING, ANALYSIS:**

The material for this SRM was provided by Carpenter Technology Corporation, Ft. Washington, Pa.

Homogeneity testing was performed at NBS by B.I. Diamondstone, R. C. Gauer, and J.A. Norris of the Inorganic Analytical Research Division and by R.K. Bell, ASTM-NBS Research Associate Program.

Cooperative analyses for certification were performed in the following laboratories:

Allegheny Ludlum Steel Corporation, Brackenridge Chemical Laboratory, Brackenridge, Pa.; A.I. Fulton, C.W. Hartig, R.M. Crain, and G. Bergstrom.

Armco Inc., Research and Technology, Middletown, Ohio; C.C. Borland, O. Brezny, J.D. Holland, J.W. Leeker, G.D. Smith, R.L. Swigert, B.J. Young, N.G. Sellers, and D.E. Gillum.

Bethlehem Steel Corporation, Sparrows Point Plant, Sparrows Point, Md., D.E. Keuski and R.P. Sells.

Carpenter Technology Corporation, Carpenter Steel Division, Reading, Pa., T.R. Dulski.

Colt Industries, Crucible Research Center, Pittsburgh, Pa., G.L. Vassilaros and C.J. Byrnes.

Colt Industries, Specialty Metals Division, Syracuse, N.Y.; R. Wlodarczyk and H.P. Mortimer.

National Bureau of Standards, Inorganic Analytical Research Division, Gaithersburg, Md., B.I. Diamondstone, R.C. Gauer and R.K. Bell, ASTM-NBS Research Associate Program.

Elements other than those certified are present in this material as indicated below.

These elements are not certified, but are given as additional information on the composition.

<u>Element</u>	<u>Percent, by Weight</u>
Aluminum	(0.001)
Boron	(<.001)
Cobalt	( .04)
Lead	(<.0001)
Niobium	( .01)
Tin	( .008)
Titanium	(<.001)
Tungsten	( .02)