U. S. Department of Commerce
Malcolm Baldrige
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards
Certificate of Analysis
Standard Reference Material 362
AISI 94B17 Steel (Modified)

This standard is in the form of chips sized between 16- and 35-mesh sieves. It is intended for use in chemical methods of analysis.[a]

Element	Percent, by weight	Element	Percent, by weight
Carbon	0.160	Aluminum (Total)	0.09_5
Manganese	1.04	Niobium	.29
Phosphorus	0.041	Tantalum	.20
Sulfur	0.0360 ± 0.0003*	Boron	.0025
Silicon	.39	Lead	$.0004_8$
Copper	.50	Zirconium	.19
Nickel	.59	Antimony	.013
Chromium	.30	Silver	.0011
Vanadium	.040	Calcium	$.0002_1$
Molybdenum	.068	Magnesium	$.0006_8$
Tungsten	.20	Cerium	.0019
Cobalt	.30	Neodymium	$.0007_5$
Titanium	.084		
Arsenic	$.09_2$		
Tin	.016		

[a]This material also is available in the form of disks, SRM 1262, 31 mm (1 1/4 in) in diameter and 19 mm (3/4 in) thick for optical emission and x-ray spectrometric analysis; rods, SRM 1096, 6.4 mm (1/4 in) in diameter and 102 mm (4 in) long for the determination of gases in metals by vacuum fusion and neutron activation methods of analysis; and rods, SRM 662, 3.2 mm (1/8 in) in diameter and 51 mm (2 in) long for application in microchemical methods of analysis such as electron probe microanalysis, spark source mass spectrometric analysis, and laser probe analysis.

CERTIFICATION: The value listed for a certified element is the present best estimate of the true value based on the results of the cooperative analytical program. The value listed is not expected to deviate from the true value by more than ±1 in the last significant figure reported; for a subscript figure, the deviation is not expected to be more than ±5. *Sulfur certification is based on results of SSMS-ID at NBS, and on results of IDMS at JAERI.

The overall direction and coordination of the technical measurements at NBS leading to certification were performed under the direction of O. Menis, B. F. Scribner, J. I. Shultz, and J. L. Weber, Jr.

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.

George A. Uriano, Chief
Office of Standard Reference Materials

Washington, D.C. 20234
February 24, 1981
(Revision of Certificates
dated 7-27-70 and 1-8-76)

(over)

PLANNING, PREPARATION, TESTING, ANALYSIS: Material from the same melt is available in a variety of forms to serve in checking methods of analysis and in calibrating instrumental techniques.

The material for this standard was vacuum melted and cast at the Carpenter Technology Corporation, Reading, Pennsylvania, under a contract with the National Bureau of Standards. The contract was made possible by a grant from the American Iron and Steel Institute.

The ingots were processed by Carpenter Technology Corporation to provide material of the highest possible homogeneity. Following acceptance of the composition based on NBS analyses, selected portions of the ingot material were extensively tested for homogeneity at NBS by D. M. Bouchette, S. D. Rasberry, and J. L. Weber, Jr. Only that material meeting a critical evaluation was processed to the final forms.

Chemical analyses for certification were made on composite samples. For certain elements, however, and based on previous experience, only one composite sample was analyzed with the results applied to the other forms of the material.

Cooperative analyses for certification were performed in the analytical laboratories of Allegheny Ludlum Steel Corporation Research Center, Brackenridge, Pennsylvania, R. B. Fricioni; Inland Steel Co., East Chicago, Indiana, R. W. Bley and J. E. Joyce; Republic Steel Corporation, Canton, Ohio, R. W. Jones; and the Youngstown Sheet and Tube Co., Youngstown, Ohio, L. E. Chalker.

Analyses were performed in the Analytical Chemistry Division of the National Bureau of Standards by the following: J. R. Baldwin, R. K. Bell, R. W. Burke, T. E. Gills, L. T. McClendon, B. A. Thompson, and S. A. Wicks.

ADDITIONAL INFORMATION ON THE COMPOSITION: Certification is made only for the elements indicated. This standard contains 40 elements and information on the elements not certified may be of importance in the use of the material. Although these are not certified, values are presented in the following table for the remaining elements.

Value from a single laboratory

Element	Percent, by weight	Element	Percent, by weight
Bismuth	(0.002)	Lanthanum	(.001)
Gold	(<.00005)	Praseodymium	(.0003)
Selenium	(.0012)	Hafnium	(.0003)
Tellurium	(.0011)	Nitrogen	(.00404)
Zinc	(.0005)	Oxygen	(.00107)
Hydrogen	(<.0005)		
Strontium	[a]-(<.0005)		
Iron (By difference)	(95.3)		

[a]Dash indicates "not detected." Value in parenthesis following the dash is the conservative "upper limit" of detection.

Approximate value from heat analysis

Germanium	[0.002]