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 C1292

High-Alloy White Cast Iron

(Ni-Hard, Type IV)

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

This Standard Reference Material (SRM) is in the form of disks, approximately 32mm (1 1/4 in) in diameter and 19mm (3/4 in) thick. SRM C1292 is intended for use in optical emission and x-ray spectrometric methods of analysis.

Constituent	Certified Value[1] Percent by Weight	Estimated[2] Uncertainty
Carbon	3.47	0.02
Manganese	0.55	.01
Phosphorus	.049	.001
Sulfur	.016	.001
Silicon	.59	.01
Copper	.36	.01
Nickel	5.04	.02
Chromium	11.4	.1
Vanadium	0.041	.005
Molybdenum	.25	.01

[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.)

Metallurgical Condition: The specimens were chill cast by a rapid unidirectional solidification technique.

Certified Portion: The certified portion for each specimen is that extending upward 16mm (5/8 in) from the chill cast or test surface (the largest surface opposite the numbered surface). Only this portion was analyzed in the cooperative program for certification.

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.

January 14, 1985
Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(over)

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this standard was provided and prepared by the American Cast Iron Pipe Company, Birmingham, Ala. A water-cooled, copper-plate mold assembly was used in the preparation of the chill castings.

Extensive homogeneity testing was performed at the National Bureau of Standards by optical emission analysis, J.A. Norris; by x-ray fluorescence analysis, P.A. Pella, J.R. Sieber, and A. Marlow; by D.E. Brown and B.I. Diamondstone; and R.K. Bell, ASTM/NBS Research Associate Program.

Cooperative analyses for certification were performed in the following laboratories:

American Cast Iron Pipe Company, Birmingham, Ala., R.N. Smith, J.B. Hobby, L.J. Moore, D.R. Denney and R.G. Moffett.

General Motors Research Laboratories, Analytical Chemistry Department, Warren, Mich.; L.L. Lewis, N.M. Potter, R.B. Loranger, H.E. Vergosen, M.P. Balogh, and R.L. Passeno.

National Bureau of Standards, Inorganic Analytical Research Division, Gaithersburg, Md., D.E. Brown, B.I. Diamondstone, T.A. Rush, and R.K. Bell, ASTM/NBS Research Associate Program.