National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 14g

Carbon Steel - (AISI 1078)

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

This Standard Reference Material (SRM) is in the form of chips sized between 0.50 and 1.18 mm sieve openings (35 and 16 mesh). SRM 14g is intended for use primarily in chemical methods of analysis.

Element	Certified Value,[1] % by wt.	Estimated Uncertainty[2]
Carbon	0.735	0.004
Manganese	.456	.008
Phosphorus	.006	.001
Sulfur	.019	.001
Silicon	.232	.005
Copper	.047	.003
Nickel	.030	.003
Chromium	.081	.004
Vanadium	.0008	.0001
Molybdenum	.011	.001
Aluminum	.025	.002

[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.

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. and P.A. Lundberg.

March 6, 1990
Gaithersburg, MD 20899

William P. Reed, Acting Chief
Office of Standard Reference Materials

(over)

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this SRM was provided by the Bethlehem Steel Corporation, Johnstown Plant, Johnstown, PA. Processing to chip size was performed by the Micro Tool Inc., Northampton, PA under a contract with NIST.

Homogeneity testing was performed at NIST by J.A. Norris, Inorganic Analytical Research Division.

Cooperative analysis for certification were performed in the following laboratories:

- Armco, Inc., Research & Technology, Middletown, Ohio, C.C. Borland, D.E. Gillum, T.M. Minor, G.D. Smith, R.L. Swigert, and H.P. Vail.

- Bethlehem Steel Corp., Homer Research Laboratory, Bethlehem, PA, D.A. Flinchbaugh, R. Hartranft, and J. Matyas.

- National Institute of Science & Technology, Inorganic Analytical Research Division, Gaithersburg, MD, J.A. Norris.

- Republic Engineered Steel, Inc., Canton, Ohio, B.Pitts, C. Stefan, J. Preston and T. Grant.

- Timken Company, Canton, Ohio, N.J. Stecyk.

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	Concentration, % by weight
Cobalt	(0.003)
Titanium	(<0.001))
Zirconium	(<0.001)