National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 15h

Basic Open-Hearth Steel, 0.1% Carbon

(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). It is intended for use primarily in chemical methods of analysis.

Element	Certified Value[1] wt %*	Estimated[2] Uncertainty
Carbon	0.076	0.002
Manganese	0.373	0.009
Phosphorus	0.005	0.001
Sulfur	0.019	0.001
Silicon	0.008	0.003
Copper	0.013	0.002
Nickel	0.017	0.004
Chromium	0.018	0.003
Vanadium	<0.001	----
Molybdenum	0.009	0.001
Aluminum (total)	0.061	0.005

[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 for samples of 0.5 g or more. (No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most constituents.)

* wt % = mg/kg x 10^{-4}

This Certificate of Analysis has undergone editorial revision to reflect program and organizational changes at NIST and at the Department of Commerce. No attempt was made to reevaluate the certificate values or any technical data presented on this certificate.

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 original preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by R.E. Michaelis. Revision of this certificate was coordinated through the Standard Reference Materials Program by P.A. Lundberg.

Gaithersburg, MD 20899
June 22, 1993
(Revision of certificate dated 3-20-84)

Thomas E. Gills, Acting Chief
Standard Reference Materials Program

(over)

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this standard was provided by the Bethlehem Steel Corp., Bethlehem, PA. Homogeneity testing was performed in the Inorganic Analytical Research Division at NIST by D.E. Brown and R.K. Bell, Assistant Research Associate, ASTM/NIST Research Associate Program.

Cooperative analyses for certification were performed in the following laboratories:

Bethlehem Steel Corporation, Sparrows Point Plant, Sparrows Point, MD, F.T. Kowalczyk.

Colt Industries, Crucible Research Center, Pittsburgh, PA, G.V. Vassilaros and C.J. Byrnes.

Colt Industries, Crucible Specialty Metals Division, Syracuse, NY, R.J. Wlodarzyk and H.W. Mortimer.

Copperweld Steel Co., Warren OH, M.M. Hosler and A. Selak.

Republic Steel Corp., Central Alloy District, Canton, OH, B.B. Pitts, S. Spino, Jr., and E. Hoffman.