

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 1218

Low Carbon and Sulfur Silicon Steel

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

This Standard Reference Material (SRM) consists of a single disk, approximately 32 mm (1 1/4 in) in diameter and 19 mm (3/4 in) thick. SRM 1218 is intended for use in optical emission and x-ray spectrometric methods of analysis.

<u>Constituent</u>	<u>Percent, by Weight¹</u>	<u>Estimated Uncertainty²</u>
Carbon	0.0029	0.0003
Manganese	.014	.001
Sulfur	.0011	.0002
Copper	.003	.001
Chromium	.006	.001
Aluminum	.005	.001

¹The 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.

²The 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 were 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
November 27, 1984

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

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PLANNING, PREPARATION, TESTING, ANALYSIS

The material for this SRM was provided by Allegheny Ludlum Steel Corporation, Brackenridge, Pa. Homogeneity testing was performed at NBS: optical emission analysis, J.A. Norris; chemical analysis, D.E. Brown, B.I. Diamondstone and R.K. Bell, ASTM-NBS Research Associate Program.

Cooperative analyses for certification were performed in the following laboratories:

Allegheny Ludlum Steel Corporation, Research Center, Brackenridge, Pa.; W.D. Heavner.

Armco Inc., Research & Technology, Middletown, Ohio; C.C. Borland, J.D. Holland, D.A. Kopp, J. W. Leeker, G. D. Smith, R.L. Swigert, and P.A. Wombold.

Howmet Turbine Components Corporation, Technical Center, Whitehall, Mich.; T. Thornton.

Inland Steel Company, Indiana Harbor Works, East Chicago, Ind.; D.E. Smith.

Leco Corporation, St. Joseph, Mich.; R.B. Fricioni.

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

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.

<u>Element</u>	<u>Concentration % by weight</u>
Ni	(0.002)
P	(.002)
Ti	(.004)
Zr	(.002)
Co	(.002)
Mo	(.003)
V	(<.001)
Si	(3.2)
Ca	(.0005 - .0035)*

*Calcium is heterogeneously distributed in this material.