

# National Bureau of Standards

## Certificate of Analysis

### Standard Reference Material 107c

#### (Ni-Cr-Mo Cast Iron)

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

This material is in chip form sized between 0.8 mm and 1.4 mm sieve openings (20 and 14 mesh). It is intended for use in chemical methods of analysis.

This standard contains an appreciable amount of graphitic carbon and should be mixed gently before use.

<u>Element</u>	<u>Percent, by weight<sup>1</sup></u>	<u>Estimated<sup>2</sup> Uncertainty</u>
Total carbon	2.99	0.06
Graphitic carbon	1.98	.03
Manganese	0.480	.009
Phosphorus	.079	.005
Sulfur	.059	.004
Silicon	1.21	.01
Copper	0.205	.002
Nickel	2.20	.03
Chromium	0.693	.005
Vanadium	.015	.003
Molybdenum	.83	.01
Titanium	.019	.002

<sup>1</sup>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.

<sup>2</sup>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 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 R.E. Michaelis and W.P. Reed.

Washington, D.C. 20234  
May 16, 1983

George A. Uriano, Chief  
Office of Standard Reference Materials

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#### PREPARATION, TESTING, ANALYSIS:

The material for this SRM was prepared at the American Cast Iron Pipe Company, Birmingham, Alabama.

Homogeneity testing was performed at the American Cast Iron Pipe Company by chemical and spectrochemical analyses (R.N. Smith and W.R. Kennedy). Tests were made on samples taken before and following casting of the hollow cylinders that ultimately were chipped for the final material.

Following the chipping of the material, homogeneity testing was performed at NBS by B.I. Diamondstone, D.E. Brown and R.K. Bell. The material variability was within the methods imprecision.

Cooperative analyses for certification were performed in the following laboratories:

American Cast Iron Pipe Co., Birmingham, Alabama, R.N. Smith, J.B. Hobby, L.J. Moore, H.C. Sparks and D.R. Denney.

Inland Steel Co., Indiana Harbor Works, East Chicago, Indiana, J.E. Joyce.

National Bureau of Standards, B.I. Diamondstone, D.E. Brown, J.A. Norris, and R.K. Bell, ASTM/NBS Research Associate Program.

Sharon Steel Corp., Sharon, Pennsylvania, N.J. Williams.

SRM 107c