U. S. Department of Commerce
Frederick B. Dent
Secretary

National Bureau of Standards
Richard W. Roberts, Director

PREPRINT

National Bureau of Standards Certificate of Analysis

Standard Reference Material 291

Cr-Mo Steel (ASTM A-213)

Element	Certified Value[a]	Range of Reported Results[b]
	P-e-r-c-e-n-t	b-y W-e-i-g-h-t
Carbon	0.177	0.175 to 0.180
Manganese	$.55_0$	.546 to .56
Phosphorus	.008	.008 to .009
Sulfur	.020	.019 to .021
Silicon	$.23_0$	.225 to .237
Copper	.047	.046 to .048
Nickel	.065	.060 to .071
Chromium	1.33	1.32 to 1.35
Molybdenum	0.53_8	0.533 to 0.547
Aluminum (total)	$.00_2$	.0017 to .004

a/ The value listed for an element is the present best estimate of the "true" value based on the results of the cooperative analytical program. The value is not expected to deviate from the "true" value by more than ± 1 in the last significant figure reported. For a subscript figure, the deviation is not expected to be more than ± 5.

b/ Maximum variability from a minimum of four independent results (means).

The material for this SRM was obtained from the United States Steel Corporation, Duquesne Works, Duquesne, Pa.

Cooperative analyses for certification were performed in the analytical laboratories of the United States Steel Corporation, Gary Works, by E. W. Shipley, Geneva Works by G. K. Stewart, and Fairless Works by P. O. Ecelberger; and the Armco Steel Corporation, Research Center by M. Dannis and R. L. LeRoy.

Analyses for certification were performed in the NBS Analytical Chemistry Division by S. A. Wicks.

The overall direction and coordination of the technical measurements leading to certification by NBS were performed by J. I. Shultz.

The technical and support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Office of Standard Reference Materials by R. E. Michaelis.

Washington, D. C. 20234
March 27, 1975

J. Paul Cali, Chief
Office of Standard Reference Materials