

Certificate of Analysis

STANDARD REFERENCE MATERIAL 59a

Ferrosilicon

ANALYSTS	Si	Fe	C Combustion- gravimetric	Mn	P Photometric	S Combustion- Iodate	Cu Photometric	Ni	Cr	Al	B	Ca
1	48.12 ^a	50.00 ^b	0.044 ^c	0.75 ^d	0.015	0.001 ^e	0.052 ^{e,f}	0.032	0.084 ^g	0.35 ^{h,i}	0.059 ^j	0.039 ^k
2	48.12 ^l	50.06 ^m	.044 ⁿ	.76 ^o	.016	.001 ⁿ	.051 ^p	.032	.079 ^q	.35 ^r	.063 ^s	.048 ^t
3	48.13 ^l	50.09	.050	.76	.017	.002	—	.039	.079	.35	.05	—
4	48.08 ^a	50.08 ^u	.045 ^v	.74 ^w	.015	—	.056 ^x	—	.076 ^g	.37 ^y	.060 ^z	.038 ^{z1}
5	48.07	50.00	.046 ^v	.76	.016	.003	.049 ^e	.028 ^e	{.080 ^{z2} .085 ^e }	.35	.057	.042 ^e
Average	48.10	50.05	0.046	0.75	0.016	0.002	0.052	0.033	0.080	0.35	0.058	0.042

^a 0.5g sample fused with Na₂O₂, double dehydration with HCl.
^b 1-g sample dissolved in nitrohydrofluoric acids and fumed with H₂SO₄. Iron precipitated with NH₄OH, acidified with HCl, reduced with SnCl₂ and titrated with standard solution of K₂Cr₂O₇.
^c Iron accelerator.
^d Persulfate-arsenite titration method.
^e Atomic absorption method.
^f Same value by isotope dilution.
^g Chromium oxidized with ammonium persulfate and titrated potentiometrically with ferrous ammonium sulfate solution.
^h Polarographic method.
ⁱ Same value by atomic absorption.
^j Isotope dilution.
^k Flame emission spectrophotometric method.
^l Double dehydration with HClO₄.
^m Iron reduced with SnCl₂ and titrated with standard solution of K₂Cr₂O₇.

ⁿ Iron and tin-coated copper accelerators.
^o Sodium pyrophosphate method.
^p Diethyldithiocarbamate photometric method.
^q Diphenylcarbazide photometric method.
^r Sodium hydroxide separation of aluminum, followed by titration with 1,2-diaminocyclohexanetetraacetic acid.
^s Azure C photometric method.
^t EDTA titration.
^u Iron titrated with standard solution of KMnO₄.
^v Combustion-conductometric method.
^w KIO₄ photometric method.
^x Neocuproine photometric method.
^y Cupferron-NH₄OH-Al₂O₃ gravimetric method.
^z Spectrographic method.
^{z1} Calcium precipitated as oxalate and titrated with standard solution of KMnO₄.
^{z2} Spectrometric method.

Washington, D. C. 20234
November 6, 1969

J. Paul Cali, Acting Chief
Office of Standard Reference Materials

List of Analysts

1. R. K. Bell, J. R. Baldwin, T. C. Rains, T. A. Rush, S. A. Wicks, E. R. Deardorff, W. R. Shields, E. J. Maienthal, T. J. Murphy, K. M. Sappenfield and L. Moore, Analytical Chemistry Division, Institute for Materials Research, National Bureau of Standards.
2. J. C. Cline and R. A. Pontello, Interlake Steel Corporation, Beverly, Ohio.
3. L. Risi, Shieldalloy Corporation, Newfield, New Jersey.
4. G. Porter, H. H. Hall and J. T. Waller, Ferroalloys Division, Union Carbide Corporation, Marietta, Ohio.
5. H. R. Grady, Vanadium Chemical Research, Foote Mineral Company, Exton, Pennsylvania.

Homogeneity testing was performed at NBS by S. D. Rasberry and C. Gifford and was found to be satisfactory for the elements certified.

The overall direction and coordination of the technical measurements leading to certification were performed under the chairmanship of O. Menis and J. I. Shultz.

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.

The material for this standard was furnished by the Interlake Steel Corporation, Beverly, Ohio.