



National Bureau of Standards

Certificate of Analysis

Standard Reference Material 8j

Bessemer Steel (Simulated), 0.1% Carbon

	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo
ANALYST	Combustion-chromatographic	Persulfate-Arsenite	Spectrophotometric	Combustion-Titration	Perchloric acid dehydration	Spectrophotometric	Spectrophotometric			Spectrophotometric
1	0.081 ^a	0.505 ^b	0.098	0.077 ^c	0.059 ^d	0.022 ^e	0.114	0.048 ^f	0.015 ^g	0.037
2	.080	.500	.095 ^h	.076	.048 ^d	.018 ^e	.110 ⁱ	{.048 ^j .046 ^k }	.016 ^k	.038
3	.082	.505	{.094 ^l .095 ^h }	.077 ^c	{.056 ^d .060 ^r }	.020 ^m	{.116 ⁿ .115}	.046 ^o	.014 ^p	.041
4	.080	{.509 .508 ^q }	{.095 ^h .094}	.078 ^c	{.063 ^d .065 ^r }	.020 ^m	{.110 ⁿ .113}	.046 ^s	.015 ^t	.038
Average	0.081	0.505	0.095	0.077	0.058	0.020	0.113	0.047	0.015	0.038

^a 1-g sample, tin-coated copper accelerator.

^b Potentiometric titration.

^c 1-g sample burned in oxygen at 1425 °C and sulfur dioxide absorbed in starch-iodide solution. Iodine liberated from iodide by titration, during the combustion, with standard KIO₃ solution.

^d Double dehydration.

^e Diethylthiocarbamate photometric method.

^f Chromium separated from the bulk of the iron in a 10-g sample by NaHCO₃ hydrolysis, oxidized with peroxydisulfate, and titrated potentiometrically with ferrous ammonium sulfate.

^g Vanadium separated as in (f), oxidized with HNO₃ and titrated potentiometrically with ferrous ammonium sulfate.

^h Alkali-molybdate.

ⁱ Same value obtained by gravimetric method.

^j Diphenylcarbazide photometric method.

^k Atomic absorption spectrometry.

^l Gravimetric - Mg₂F₂O₇.

^m Neocuproine photometric method.

ⁿ Dimethylglyoxime gravimetric method.

^o Peroxydisulfate oxidation - Fe(NH₄)(SO₄)₂ - KMnO₄ titration.

^p FeSO₄·(NH₄)₂ S₂O₈·KMnO₄ titration.

^q KIO₄ photometric method.

^r Silicomolybdate photometric method.

^s Chromium oxidized with peroxydisulfate and titrated amperometrically with ferrous ammonium sulfate.

^t KMnO₄-KNO₂-Urea-Fe(NH₄)₂(SO₄)₂.

The material for the preparation of this standard was prepared at the Carpenter Technology Corporation, Reading, Pennsylvania.

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.

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J. Paul Cali, Chief
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