

U. S. DEPARTMENT OF COMMERCE

National Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE 65B

BASIC ELECTRIC STEEL, 0.3% CARBON

ANALYST*	C	Mn		P		S		Si					
	Direct combustion	Bismuthate (FeSO ₄ -KMnO ₄)	Persulphate-Arsenite	Gravimetric (Weighed as Mn ₂ P ₂ O ₇ after removal of arsenic)	Alkali-molybdate ^a	Gravimetric (Direct oxidation and final precipitation in reduced solution)	Evolution with HCl (1-1) ZnS-oxime (theoretical sulphur titre) ¹	Sulphuric acid dehydration	COPPER H ₂ S-CuS-CuO	NICKEL Weighed as nickel dimethylglyoxime	CHROMIUM FeSO ₄ -KMnO ₄ titration	VANADIUM	MOLYBDENUM Colorimetric
1.....	0.293	0.726	0.725	0.028	^a 0.030	0.011	0.012	^d 0.349	^e 0.201	0.053	^f 0.044	^h 0.003	0.006
2.....	.291		.727	.032	.033	.012	.013	^d .335	.210	^h .054	.043		
3.....	.30		.718	.034			.016	.33	.19	.058	.049	.003	ⁱ .009
4.....	.296		^j .732		^j .031		^k .011	^l .332	.206	^m .05	^j .033		
5.....	.300		^j .724		.032		.014	.350	^e .203	^m .050	.043	ⁿ .004	.004
6.....	.289	.724		.031	^j .031	.013	^j .014	.351	^e .199	.054	.041	ⁿ .004	.006
7.....	.297		^j .722		^j .031		^j .013	^l .340	.210	.054	.041		
8.....	.292	.721		.031	.030	.015	.014	^d .348	^e .205	.049	.044		
9.....	.287	.725	^j .73		.033	.011	.011	.334	.220	^h .046	.043	.007	.006
Average.....	.294	.724	.725	.031	.031	.012	.013	.341	.205	.052	.042	.004	.006
General average.....	0.294	0.725		0.031		0.012		0.341	0.205	0.052	0.042	0.004	0.006

^a Precipitated at 40° C., washed with a 1-percent solution of KNO₃, and titrated with alkali standardized by the use of National Bureau of Standards acid potassium phthalate and the ratio 23NaOH:1 P.
^b Value obtained by standardizing the titrating solution by means of sodium oxalate through KMnO₄ and Na₂S₂O₈.
^c Colorimetric method. See J. Research NBS 26, 405 (1941) RP1386.

^d Double dehydration.
^e Finished by electrolysis.
^f Potentiometric titration.
^g Perchloric acid dehydration.
^h Glyoxime precipitate titrated with standard KCN solution.
ⁱ Weighed as PbMoO₄.
^j Titrating solution standardized by the use of a standard steel.

^k Sample ignited in a stream of oxygen, and sulfur titrated as H₂SO₄.

^l Nitric-sulfuric acid dehydration.

^m Glyoxime precipitate ignited and weighed as NiO.

ⁿ Colorimetric method.

* LIST OF ANALYSTS

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The metal for the preparation of this standard was furnished by the Glover Machine Works, Marietta, Ga.

This standard is not recommended for colorimetric carbon determinations because of uncertainty as to the condition of the carbon.

LYMAN J. BRIGGS, *Director.*

Washington, April 30, 1942.