DEPARTMENT OF COMMERCE

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 10c

BESSEMER STEEL, 0.4% CARBON

ANALYST.	CARBON (DIRECT COMBUSTION).	SILICON (SULPHURIC ACID DEHYDRATION).	PHOSPHORUS.		SULPHUR.			MANGANESE.		COPPER (H_2S—CuS—CuO).	CHROMIUM.	NICKEL.	VANADIUM.
			ALKALI MOLYBDATE.	OTHER METHODS.	GRAVIMETRIC DIRECT OXIDATION (final precipitation in reduced solution).	EVOLUTION. ZnS-IODINE (theoretical sulphur titre[b]).	EVOLUTION. OTHER METHODS.	BISMUTHATE ($FeSO_4$—$KMnO_4$).	OTHER METHODS.				
1[o]	.417	.092	.107	.105[a]	.037	.037		1.13		.018	.01	.01	Trace
2	.410	.094	.108	.106[a]	.040		.040[c]	1.11		.024	.01		<.007[l]
3	.406	.094	.104	.103[e]	.040[d]	.038		1.14	1.13[f]	.02			
4	.415	.089		.107[a]	.038[d]	.037		1.12		.017			
5	.423	.097	.105		.037		.031[c]			.020			
6	.409	.099	.103		.037	.039			1.13[g]	.028[h]			
7		.085			.039[n]	.039			1.10[g]	.009			
8	.423	.094[i]	.108	.107[k]	.039	.039		1.14	1.15[j]				
9	.415	.096[i] / .095	.108	.108[m]	.040	.037		1.14		.019			
10	.410	.089	.106		.040		.040	1.15	1.14[g]				
11	.413	.097			.035	.036		1.15		.021			
AVERAGE	.414	.093	.106	.106	.038	.038	.037	1.14	1.13	.020	.01	.01	<.007
GENERAL AVERAGE.	.414	.093	.106		.038	.038		1.13		.020	.01	.01	<.007

[a] Weighed as $Mg_2P_2O_7$.

[b] Value obtained by standardization of titrating solution against sodium oxalate through $KMnO_4$ and $Na_2S_2O_3$.

[c] Titrating solution standardized against another similar steel.

[d] Same result obtained by precipitation in $FeCl_3$ solution.

[e] Reduced with ammonium bisulphite and precipitated at 85° C.

[f] Bismuthate—Arsenite.

[g] Persulphate—Arsenite.

[h] $Na_2S_2O_3$—CuS—CuO.

[i] Drown's method.

[j] Ford-Williams method.

[k] Weighed yellow precipitate.

[l] Electrometric titration.

[m] Permanganate titration.

[n] Precipitated in $FeCl_3$ solution.

[o] Arsenic=0.01%.

INDEX TO ANALYSTS

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

Washington, D. C.

S. W. STRATTON,
Director.