

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE NO. 9c

BESSEMER STEEL, 0.2% CARBON

ANALYST*	C	Mn	P		S		Si	COPPER H ₂ S-CuS-CuO	NICKEL Weighed as nickel dime thyl- glyoxime	CHROMIUM FeSO ₄ -KMnO ₄ titration	VANADIUM	MOLYBDENUM	ARSENIC
	CARBON Direct combustion	MANGANESE I. Bisulfate (FeSO ₄ - KMnO ₄) 2. Other methods	PHOSPHORUS I. Alkali-Molybdate ^a 2. Gravimetric (Weighed as Mg ₂ P ₂ O ₇ after removal of arsenic)	1. SULPHUR Gravimetric (Direct oxidation and final precipitation in re- duced solution)	2. SULPHUR Evolution with HCl (1:1) ZnS-Iodine (theoretical sulphur titre ^b)	SILICON Sulphuric acid dehydra- tion							
1.....	0.200	0.663	0.095	0.095	0.037	0.037	0.046	0.020	0.002	0.007	0.004	0.005	-----
2.....	.206	.660	.097	.095	.036	.037	.045 ^c	.020	.005	.004	.007	.005	0.008
3.....	.198	.664	.094 ^d	-----	.036 ^e	-----	.050 ^f	.025	-----	.007	-----	-----	-----
4.....	.20	.67	.095	-----	.036	.038	.048	.02	-----	-----	-----	-----	-----
5.....	.205	.669	-----	.094	.036	.035	.043	.017	-----	-----	-----	-----	-----
-----	.204	-----	.67 ^g	.096	.036	.035	.049	-----	-----	-----	-----	.002 ^h	-----
7.....	.206	.668	.673 ^g	.097	.036	-----	.048	.017 ⁱ	-----	-----	-----	-----	-----
8.....	.200	-----	.66 ^g	.098	.040	.039	.045	-----	-----	-----	-----	-----	-----
9.....	.201	.669	.674 ^g	.097	.036	.034	.047	.016	-----	.008	-----	.002	.009
10.....	.202	.668	.667 ^g	.096	.036	.034	.048	.018	.003	.008	-----	.003	-----
11.....	.205	.67	.67 ^g	.098	.035	.036	.049	.023	-----	-----	-----	-----	-----
Averages.....	.202	.667	.669	.096	.036	.036	.047	.020	.003	.007	.006	.003	.009
General Averages..	.202	.668	-----	.096	.036	.036	.047	.020	.003	.007	.006	.003	.009

^a Precipitated at 40° C., washed with a 1 per cent solution of KNO₃ and titrated with alkali standardized by means of B. S. benzoic acid and the 23 : 1 ratio.

^b Value obtained by standardization of titrating solution against sodium oxalate through KMnO₄ and Na₂S₂O₅.

^c Hydrochloric acid dehydration.

^d Reduction of molybdate and titration with KMnO₄.

^e Precipitated in FeCl₃ solution.

^f Solution in nitric and sulphuric acids.

^g Persulphate-arsenite.

^h KSCN colorimetric.

ⁱ Na₂S₂O₃-CuS. Finished by electrolysis.

* LIST OF ANALYSTS

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- Paul R. Tyson, The Carpenter Steel Co., Reading, Pa.
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- The Pennsylvania Railroad System, Dr. M. E. McDonnell, chief chemist, Altoona, Pa.
- H. E. Slocum, Jones & Laughlin Steel Corp., Pittsburgh, Pa.
- G. C. Whitaker, Wim Chemical Society, Cleveland, Ohio.
- W. F. Muehlberg, Newburgh Steel Works, Cleveland, Ohio.
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This standard is not recommended for colorimetric carbon determinations, because of uncertainty as to the condition of the carbon.

GEORGE K. BURGESS,
Director.

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