

Department of Commerce

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 30a

CHROME-VANADIUM STEEL

MATERIAL FURNISHED BY BETHLEHEM STEEL CO., SOUTH BETHLEHEM, PA.

ANALYST.	CARBON.	SILICON.		PHOSPHORUS.	SULPHUR.	MANGANESE.			COPPER.	NICKEL.	CHROMIUM.			VANADIUM.	
	DIRECT COMBUSTION.	SULPHURIC ACID DEHYDRATION.	OTHER METHODS.	ALKALIMOLYBDATE.	OXIDATION. ^e	BISMUTHATE.	BISMUTHATE AFTER REMOVAL OF Cr.	OTHER METHODS.			P. & HYDROLYSIS AND FUSION METHOD.	PERSULPHATE OXIDATION.	PERMANGANATE OXIDATION.	P. & HYDROLYSIS AND FUSION METHOD.	JOHNSON'S AND OTHER METHODS.
1	0.283	0.234		0.021	0.034		0.804		0.069	0.116	1.02	1.03	1.01	0.20	
2	.294	.234		.020	.035		.822		.067	.120	1.03	1.03		.21	
3	.293	.233		.022	.035		.798				1.02	1.03		.19	
4	.274	.231		.020 ^c	.034			0.815 ^e	.062	.130			1.02		0.22
5	.292	.226	0.228 ^a	.019	.030	0.813	.822		.070		1.06	1.04		.21 ^k	
6	.295	.212	.021	.037	.817	.806	.836 ^f	.066	.11		1.03	1.06		.22 ^l	
7	.288	.230	.224	.018	.036		.787	.760 ^g	.070	.123	1.02		1.00	.18	.20
8	.292	.221 ^a	.021	.034	.795		.791 ^h	.054	.125				1.00	.22 ^m	
9	.280	.237 ^b		.028			.820	.814 ⁱ	.056	.122				.20 ⁿ	
10	.304	.226		.018	.031		.771	.811 ^j	.058		1.01		1.01	.21	.20 ^m
AVERAGE	0.290	0.231	0.224	0.020	0.033	0.808	0.804	0.805	0.064	0.121	1.03	1.04	1.01	0.20	0.21
GENERAL AVERAGE	0.290	0.228		0.020	0.033	0.805			0.064	0.121	1.02			0.21	

^a Hydrochloric acid solution and dehydration.

^b Perchloric acid dehydration.

^c Johnson's method. Jour. Ind. Eng. Chem. II, 113.

^d The average of the results reported by seven analysts for *Evolution Sulphur* was 0.033%.

^e Oxidation by lead peroxide.

^f Ford-Williams method.

^g Cain's method.

^h Persulphate oxidation.

ⁱ Periodate colorimetric method.

^j William's method.

^k Selective oxidation of vanadium by boiling with nitric acid. Jour. Ind. Eng. Chem. II, 632.

^l Obtained 0.21% by hydrochloric acid reduction of the vanadium.

^m Method of Cain and Hostetter.

ⁿ Precipitated as lead vanadate.

Total iron determined, 97.38% per cent.

INDEX TO ANALYSTS

- L. F. Witmer, Bureau of Standards.
- J. I. Hoffman, Bureau of Standards.
- Routine Laboratory, Bureau of Standards, F. H. Tucker in charge.
- C. M. Johnson, The Crucible Steel Co. of America, Pittsburgh, Pa.
- G. L. Kelley, Nicetown Laboratory, Midvale Steel and Ordnance Co., Philadelphia, Pa.

- A. D. Shankland, Bethlehem Steel Co., Bethlehem, Pa.
- Thomas J. Prescottore, Baldwin Locomotive Works, Philadelphia, Pa.
- F. C. Langenberg, Watertown Arsenal, Watertown, Mass.
- H. H. Willard, University of Michigan, Ann Arbor, Mich.
- G. H. Corey and A. M. Smoot, Ledoux & Co., New York City.

S. W. STRATTON,
Director.

Washington, D. C.

July 10, 1919.