

# Bureau of Standards

## Certificate of Analyses

OF

STANDARD SAMPLE No. 24

### VANADIUM STEEL, 0.15% VANADIUM

CASTING FURNISHED BY UNION STEEL CASTING CO., PITTSBURGH, PA.

ANALYST.	CARBON.			SILICON.		PHOSPHORUS.				SULPHUR.			MANGANESE.						VANADIUM.	NICKEL.	CHROMIUM.	COPPER.	MOLYBDENUM.
	DIRECT COMBUSTION.	SOLUTION AND COMBUSTION.	COLORIMETRY.	DROWN METHOD.	OTHER METHODS.	ALKALI MOLYBDATE.	MOLYBDATE REDUCTION.	AS Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> FROM YELLOW PRECIPITATE.	AS Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> AFTER ACETATE SEPARATION.	OXIDATION.	EVOLUTION (CuS-Iodine).	OTHER METHODS.	FORD (Weighing as Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> ).	FORD-WILLIAMS.	LEAD PEROXIDE-SODIUM ARSENITE.	BISMUTHATE.	COLOR (Persulphate).	OTHER METHODS.					
1.	.356				.319				.032	.029		.029 <sup>a</sup>	.67						.143	.009	.007	.022	.006
2.								.036											.147				
3.									.036										.16				
4.	.362	.357			.308				.033	.024	.023					.67			.14 <sup>b</sup>	.16			
5.		.35			.318 <sup>c</sup>	.037					.028					.66			.16				
6.	.333	.347			.307	.311	.037			.024	.021			.678 <sup>d</sup>					.124				
7.	.368		.36	.288		.037				.023		.67							.15	.15			
8.		.350	.36	.275		.035	.037			.027		.650			.655				.161				
9.	.330			.310		.036				.029			.68						.140				
10.	.331	.338		.296			.030			.025	.026 <sup>e</sup>						.689 <sup>f</sup>		.16	.154			
11.	.372			.300			.037			.036				.695					.168				
12.	.337			.306	.294		.032			.028	.028	.650		.660					.143				
Av.	.348	.348	.360	.297	.308	.036	.034	.036	.034	.025	.027	.027	.66	.66	.679	.675	.657	.689	.15	.009	.007	.022	.006
GEN. Av.	.350			.303		.035				.027			.669						.15	.009	.007	.022	.006

<sup>a</sup> Na<sub>2</sub>S—Iodine.

<sup>b</sup> Regarded by analyst as the better result.

<sup>c</sup> Swedish method.

<sup>d</sup> Titrated against arsenious acid.

<sup>e</sup> ZnS—Iodine.

<sup>f</sup> Persulphate—As<sub>2</sub>O<sub>3</sub>.

### INDEX TO ANALYSTS

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- Porter W. Shimer, Easton, Pa.
- Booth, Garrett & Blair, Philadelphia, Pa.
- Wm. H. Keen, Firth Sterling Steel Co., Washington, D. C.
- Geo. A. Hopkins, American Steel and Wire Co., Pittsburg, Pa.
- George M. Berry, Halcomb Steel Co., Syracuse, N. Y.
- R. J. Wysor, Carnegie Steel Co., Duquesne, Pa.

- J. Lloyd Uhler and E. Urban, Union Steel Casting Co., Pittsburg, Pa.
- C. M. Johnson, The Crucible Steel Co. of America, Park Works, Pittsburg, Pa.
- H. J. Force and Charles H. Farnham, Delaware, Lackawanna & Western R. R.
- F. T. Kopp, Midvale Steel Co., Philadelphia, Pa.
- E. A. Loos, Carpenter Steel Co., Reading, Pa.

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

S. W. STRATTON,  
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