

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 5b

IRON C

ANALYST.	CARBON.				SILICON.		TITANIUM.		PHOSPHORUS.				SULPHUR.		MANGANESE.			Ni, V, Mo.		
	TOTAL.				DROWN METHOD.	OTHER METHODS.	COLOR METHOD.	GRAVIMETRIC.	ALKALI-MOLYBDATE.	MOLYBDATE REDUCTION.	WEIGHING PHOSPHO-MOLYBDATE.	AS Mg ₂ P ₂ O ₇ FROM PHOSPHO-MOLYBDATE.	OXIDATION.	EVOLUTION (Cob-Iodine).	FORD-WILLIAMS.	PERSULPHATE (Arsenite Titration).	BISMUTHATE.		COPPER.	CHROMIUM.
	DIRECT COMBUSTION.	SOLUTION AND COMBUSTION.	GRAPHITE.	COMBINED.																
1.....	2.71	.....	2.19	.52	.....	1.83	.070	.....	.190	.....	.....	.....	.033	.031 ^a	.....	.....	.712 ^b	.070	.....	.....
2.....	2.69	2.67	2.16	.53	.....	1.85	.071	.....	.200	.....	.....	.....	.037	.033 ^a	.....	.....	.724	.062	.032	Tr.
3.....	2.68	2.67	2.20	.48	1.82	.....	.....	.105 ^c	.....	.....	.196	.....	.032	.035	.703	.....	.712	.....	.....	.....
4.....	2.67	2.66	2.13	.54	1.88	1.88	.....	.066	.....	.209	.....	.....	.035	.033	.720 ^d	.....	.736	.056	.....	.....
.....	2.75	2.79	2.21	.58	.....	1.82	.....	.080	.....	.....	.190	.....	.036	.034	.....	.....	.....	.....	.....	.....
.....	2.69	2.69	2.14	.55	1.84	1.84	.....	.062 ^c	.....	.188	.....	.....	.036	.....	.745	.....	.....	.....	.....	.....
7.....	2.73	2.72	2.17	.56	1.88	.....	.075	.....	.189	.....	.....	.....	.041	.032	.....	.....	.717	.060	.....	.....
8.....	2.77	2.78	2.22	.56	1.83	.....	.....	.....	.199	.....	.200	.....	.037	.035	.722	.....	.....	.....	.....	.....
9.....	2.80	2.79	2.25	.55	1.83	.....	.....	.....	.....	.198	.....	.....	.036	.036	.720	.....	.720	.....	.....	.....
10.....	2.72	2.76	2.24	.52	1.83	.....	.070	.070	.195	.....	.194	.....	.036	.....	.....	.71	.700	.070	.....	.....
11.....	.....	2.79	2.26	.53	1.84	.....	.080	.....	.....	.....	.194	.....	.037	.....	.690	.70	.690	.080	.....	.....
Av.....	2.72	2.73	2.20	.54	1.84	1.84	.073	.077	.195	.198	.196	.193	.036	.034	.717	.705	.714	.066	.032	Tr.
Gen. av.	2.726				1.84		.075		.196				.035		.714					

^a Evolution—H₂O₂—BaSO₄.^b With arsenite titration.^c Shimer's volumetric method.^d Including .009 recovered from filtrate.

NOTE.—In several instances the values given above for carbon by direct combustion are those obtained by reburning the oxides resulting from combustion of the iron. Only three analysts of the seven who reburned found additional carbon, not exceeding 0.02 per cent.

INDEX TO ANALYSTS.

1. John R. Cain, Bureau of Standards.
2. L. F. Witmer, Bureau of Standards.
3. Porter W. Shimer, Easton, Pa.
4. Booth, Garrett & Blair, Philadelphia, Pa.
5. A. S. McCreath & Son, Harrisburg, Pa.
6. Geo. C. Davis, Philadelphia, Pa.

7. Saunders & Franklin, Providence, R. I.
8. George P. Vanier, Pennsylvania Steel Co., Steelton, Pa.
9. H. E. Slocum, Jones & Laughlin Steel Co., South Side Department Laboratory, Pittsburgh, Pa.
10. W. D. Brown, Carnegie Steel Co., Duquesne Works.
11. I. A. Nicholas, Carnegie Steel Co., Clairton Works.

N. B.—As cast, this iron contained 3.37 per cent total carbon and 2.75 per cent graphite, thus approximating the original C of the American Foundrymen's Association. Most of the loose graphite was purposely blown out in preparing the sample, but its loss has affected in no way the nature of the compounds existing in the iron, which are those proper to the iron as cast.

S. W. STRATTON,
Director.

Jan., 1914.

Washington, D. C.