

DEPARTMENT OF COMMERCE

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 7

IRON E

ANALYST.	CARBON.				SILICON.		TITANIUM.		PHOSPHORUS.				SULPHUR GRAVIMETRIC.	MANGANESE.			COPPER.	CHROMIUM.	NICKEL.	VANADIUM.
	TOTAL.		GRAPHITE.	COMBINED.	DEHYDRATION BY SULPHURIC ACID.	OTHER METHODS.	COLOR METHOD.	VOLUIMETRIC (SHIMER).	ALKALI-MOLYBDATE.	MOLYBDATE REDUCTION.	WEIGHING PHOSPHO-MOLYBDATE.	AS % OF FROM PHOSPHO-MOLYBDATE.		FORD-WILLIAMS.	PERSULPHATE (Arsenite-titration).	BISMUTHIATE.				
	DIRECT COMBUSTION.	SOLUTION AND COMBUSTION.																		
1	2.18		1.80	.38		2.26	.102		.875			.872	.051		.447	.022	.010	.016	.075	
2	2.18	2.18	1.75	.43		2.23	.098		.865	.856	.853		.052		.444	.020	.015	.015	.075	
3	2.13	2.14	1.77	.36	2.20			.086		.873		.890	.052	.445	.445	.025				
	2.17	2.17	1.82	.35	2.24	2.24		.101		.846	.845		.047		.450	.014	.019		.084	
5	2.25		1.88	.37	2.19			.086		.864		.887	.050	.430	.425	.443		.012	.072	
6	2.23		1.81	.42	2.20	2.21	.09		.846			.864	.053		.449	.455			.06	
7	2.18		1.78	.40	2.16				.859		.860		.049	.445	.447					
8	2.23	2.23	1.86	.37	2.19					.845	.845		.052		.445					
9	2.24		1.87	.37	2.17		.10		.861		.864		.054		.45	.44	.022			
Av	2.20	2.18	1.82	.38	2.19	2.24	.095	.094	.862	.855	.859	.873	.051	.440	.441	.446	.021	.014	.016	.073
Gen. Av	2.19				2.21		.095		.862					.444						

* Gravimetric method.

NOTE.—In all but two or three instances the values given above for carbon by direct combustion are those obtained by reburning the oxides resulting from combustion of the iron. In only one instance, No. 3, did the carbon found on reburning exceed 0.03 per cent.

INDEX TO ANALYSTS

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| 1. L. F. Witmer, Bureau of Standards. | 6. Robert C. Price, Miller School, Va. |
| 2. F. H. Tucker, Bureau of Standards. | 7. George P. Vanier, Pennsylvania Steel Co., Steelton, Pa. |
| 3. Porter W. Shimer & Son, Easton, Pa. | 8. H. E. Slocum, Jones & Laughlin Steel Co., South Side Department Laboratory, Pittsburgh, Pa. |
| 4. Booth, Garrett & Blair, Philadelphia, Pa. | 9. W. D. Brown, Carnegie Steel Co., Duquesne Works. |
| 5. J. P. Harris, Tennessee Coal, Iron & Railroad Co., Ensley, Ala. | |

N. B.—Most of the loose graphite was purposely blown out in preparing this 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.

Washington, D. C.

June, 1917.