

DEPARTMENT OF COMMERCE

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 5c

IRON C

| ANALYST. | CARBON. | | | | SILICON. | | TITANIUM (Color method.) | PHOSPHORUS. | | | | SULPHUR. | | MANGANESE. | | COPPER. | CHROMIUM. | MOLYBDENUM. | VANADIUM. |
|----------|--------------------|--------------------------|-----------|-----------|--------------------------------|-----------------------------------|-----------------------------|-------------------|----------------------|-----------------------------|--|-------------------|------------------|-------------|-----------------------------------|---------|-----------|-------------|-----------|
| | DIRECT COMBUSTION. | SOLUTION AND COMBUSTION. | GRAPHITE. | COMBINED. | DEHYDRATION BY SULPHURIC ACID. | DEHYDRATION BY HYDROCHLORIC ACID. | | ALKALI-MOLYBDATE. | MOLYBDATE REDUCTION. | WEIGHING PHOSPHO-MOLYBDATE. | AS MgP ₂ O ₇ FROM PHOSPHO-MOLYBDATE. | DIRECT OXIDATION. | MEINKE'S METHOD. | BISMUTHATE. | PERSULPHATE (Arsenite titration). | | | | |
| 1 | 2.61 | | 2.02 | 0.59 | 1.85 | 1.87 | 0.084 | 0.223 | | | | 0.049 | 0.052 | 0.822 | | 0.082 | | < .005 | |
| 2 | 2.67 | | 2.10 | .57 | | 1.79 | | .225 | | | | .050 | .053 | .823 | | .093 | < 0.02 | | < .005 |
| 3 | 2.65 | 2.64 | 2.18 | .47 | 1.80 | 1.81 | .082 | .231 | | | 0.227 | .054 | .049 | .774 | | .107 | | | |
| 4 | 2.69 | | 2.09 | .60 | | 1.86 | .084 | | 0.226 | 0.227 | | .053 | | .824 | | .078 | | | |
| 5 | 2.70 | | 2.12 | .58 | | 1.82 | .070 | .223 | | | | .048 | .048 | .817 | | .098 | | | |
| 6 | 2.62 | | | | 1.81 | 1.86 | .061 | .229 | | | | .051 | | .805 | 0.785 | .105 | | | |
| 7 | 2.63 | 2.68 | 2.08 | .55 | | 1.91 | | .222 | | | | .048 | .048 | .802 | | | | | |
| 8 | 2.70 | | 2.08 | .62 | 1.85 | | .09 | .229 | | | | .050 | | .80 | | | | | |
| 9 | 2.61 | | 2.18 | .43 | | 1.80 | .07 | .232 | | .230 | | .052 | .042 | .80 | | .090 | | | |
| 10 | 2.61 | | 2.10 | .51 | | 1.87 | .064 | .227 | | | | .048 | | .81 | | .092 | | | |
| Av. | 2.65 | 2.66 | | | 1.83 | 1.85 | | .227 | .226 | .229 | .227 | .051 | .049 | .809 | .793 | | | | |
| GEN. Av. | 2.65 | | 2.11 | .55 | 1.85 | | .073 | .227 | | | | .050 | | .806 | | .093 | < .02 | < .005 | < .005 |

¹ Same by Shimer's volumetric method.

INDEX TO ANALYSTS

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| <ol style="list-style-type: none"> 1. L. F. Witmer, Bureau of Standards. 2. Routine Laboratory, Bureau of Standards, F. H. Tucker in charge. 3. Porter W. Shimer & Son, Easton, Pa. 4. Booth, Garrett & Blair, Philadelphia, Pa. 5. F. G. Kelly, Tenn. Coal, Iron & Railroad Co. | <ol style="list-style-type: none"> 6. A. D. Shankland, Bethlehem Steel Co., South Bethlehem, Pa. 7. Saunders & Franklin, Providence, R. I. 8. H. E. Slocum, Jones & Laughlin Steel Co., South Side Department Laboratory, Pittsburgh, Pa. 9. W. D. Brown, Carnegie Steel Co., Duquesne Works. 10. I. A. Nicholas, Carnegie Steel Co., Clairton Works. |
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N. B.—As cast, this iron contained 3.85 per cent total carbon. 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.

Washington, D. C.