

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 15b

BASIC OPEN HEARTH STEEL, 0.1% CARBON

ANALYST	C	Mn		P		S		Si	COPPER H ₂ S-CuS-CuO	NICKEL Weighted as nickel dimethylglyoxime	CHROMIUM FeSO ₄ -KMnO ₄ titration	VANADIUM	MOLYBDENUM	ARSENIC
	CARBON Direct combustion	MANGANESE 1. Bismuthate (FeSO ₄ -KMnO ₄) 2. Other methods	PHOSPHORUS 1. Alkali-Molybdate ^a 2. Gravimetric (Weighed as Mg ₂ P ₂ O ₇ after removal of arsenic)	1. SULPHUR Gravimetric (Direct oxidation and final precipitation in reduced solution) 2. SULPHUR Evolution with HCl (1:1) ZnS-Iodine (theoretical sulphur titre ^b)	SILICON Sulphuric acid dehydration									
1	0.101	0.559		0.031	0.031	0.040	0.039	{ 0.290 .289 ^c }	0.148	0.088	{ 0.066 .058 ^d }	0.004 ^d	0.005 ^d	
2	.101	.568		.033	.032	.039	.039	.296	.153	.089	.070 ^e	.005 ^e	.004 ^d	0.008
	.107	.560	0.560 ^f	.033		.036	.035	.298	.152		.06	.004	.001 ^d	
4	.104	.560	.557 ^g	.032	.029	.038 ^h	.037	{ .281 .286 ⁱ }	.150 .143 ^j		.062 ^k			
5	.100		.56	.032 ^l		.040		.292 ^c	.136 ^m	.09 ⁿ	.065			
6	.10	.555		.033		.036		.285	.144	.082	.064			
7	.101	.558		.031	.030	.036 ^o	.037	.291	.147		.068			
8		.555		.033		.038 ^o	.038	.293	.145 ^m	.070 ⁿ	.055			
9	.102		.557 ^f	.031		.038	.040	{ .299 .296 ⁱ }	.137	.076		.006		
10	.096			.033		.040	.038	.294 ^c	{ .146 .142 ^m }		.072			
Averages	.101	.559	.559	.032	.031	.038	.038	.292	.145	.083	.064	.005	.003	.008
General Averages	.101	.559		.032	.031	.038	.038	.292	.145	.083	.064	.005	.003	.008

^a Precipitated at 40° C., washed with a 1 per cent solution of KNO₃ and titrated with alkali standardized by means of B. S. benzoic acid and the 23:1 ratio.
^b Values obtained by standardization of titrating solution against sodium oxalate through KMnO₄ and Na₂S₂O₃.
^c HNO₃-H₂SO₄.

^d Colorimetric.
^e Electrometric titration.
^f Persulphate-arsenite.
^g Ford-acetate method.
^h Obtained same result by precipitation in FeCl₃ solution.
ⁱ HCl dehydration.
^j Na₂S₂O₃ precipitation.

^k Stead's method.
^l Standardized titrating solution against standard steel.
^m Finished electrolytically.
ⁿ Finished by KCN titration.
^o Precipitated in FeCl₃ solution.

*LIST OF ANALYSTS

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| 1. J. I. Hoffman, Bureau of Standards. | 6. W. T. Hartley, Atlas Alloy Steel Corp., Dunkirk, N. Y. |
| 2. Ferrous laboratory, Bureau of Standards, W. C. Fedde and C. P. Larrabee, analysts. | 7. L. P. Chase, Illinois Steel Co., South Chicago, Ill. |
| 3. J. L. Culton, Carnegie Steel Co., Duquesne, Pa. | 8. A. Sloan, Watertown Arsenal, Watertown, Mass. |
| Andrew S. McCreath & Son, Harrisburg, Pa. | 9. E. E. Edris, Lebanon Steel Foundry, Lebanon, Pa. |
| J. F. Lantz, The Bethlehem Steel Co., Bethlehem, Pa. | 10. E. J. Daggett, Chicago, Burlington & Quincy Railroad Co., Aurora, Ill. |

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

GEORGE K. BURGESS,
Director.

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