

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 12c

BASIC OPEN HEARTH STEEL, 0.4% CARBON

ANALYST*	C	Mn	P		S		Si	COPPER H ₂ S-CuS-CuO	NICKEL Weighed as nickel dimethylglyoxime	CHROMIUM FeSO ₄ -KMnO ₄ titration	VANADIUM	MOLYBDENUM	ARSENIC	
	CARBON Direct combustion	MANGANESE I. Bismuthate (FeSO ₄ -KMnO ₄) 2. Other methods	PHOSPHORUS I. Alkali-Molybdate 2. Gravimetric (Weighed as Mg ₂ P ₂ O ₇ after removal of arsenic)	SULPHUR I. 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	0.416	0.408	0.016	0.015	0.035	0.034	0.046	0.016	0.007	0.003	0.003 ^e	0.001 ^e		
2	.417	.410	.015	.015	.034	.035	.045	.011	.009	.005 ^d	.003 ^d	.001 ^e	0.012 ^e	
3	.413	.405	0.412 ^f	.017	.016	.037	.035	.051	.020	.004	.003	.004	.003	.018 ^e
4	.415	.415	.412 ^b	.017		.037	.036	{.042 ⁱ .044	.012					
5	.413	.414			.016	.035	.035	.044	.013					
6	.423		.405 ^f	.015	.015	.037 ^j	.036	{.046 ⁱ .046 ^k						
7	.420			.016		.037	.037	.046	.02	.008	.007			
8	.420	.404		.014	.015	.036 ^l	.037	{.048 ⁱ .047	.012		.006			
9	.420		.412 ^f	.015		.037		.043	.015		.004			
10	.417	.408	.403 ^f	.017	.014	.036	.036	.042	.015	.004				
11	.422	.413		.016		.036	.037	.051						
Averages	.418	.410	.409	.016	.015	.036	.036	.046	.015	.006	.005	.003	.002	.015
General Averages	.418	.409	.016	.036	.036	.046	.015	.006	.005	.003	.002	.015		

^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 Value obtained by standardization of titrating solution against sodium oxalate through KMnO₄ and Na₂S₂O₃.

^c Colorimetric.
^d Electrometric titration.
^e Distilled as AsCl₃, precipitated as As₂S₃, converted As₂S₃ to arsenate, precipitated as Ag₃AsO₄, dissolved in HNO₃, and titrated with KCNS.
^f Bismuthate-arsenite.
^g Weighed as As₂S₃.

^h Persulphate-arsenite.
ⁱ Dissolved in HNO₃ and H₂SO₄.
^j Meineke's method.
^k Double hydrochloric acid dehydration.
^l Precipitated in FeCl₃ solution.

*LIST OF ANALYSTS

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| 1. James I. Hoffman, Bureau of Standards. | 7. A. Sloan, Watertown Arsenal, Watertown, Mass. |
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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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