

14014

# Bureau of Standards

## Certificate of Analyses

OF

STANDARD SAMPLE No. 16b

### BASIC OPEN-HEARTH STEEL, 1.0% CARBON

ANALYST *	C	Mn	P		S		Si	COPPER H <sub>2</sub> S-CuS-CuO	NICKEL Weighed as nickel dimethylglyoxime	CHROMIUM FeSO <sub>4</sub> -KMnO <sub>4</sub> titration	VANADIUM	MOLYBDENUM	ARSENIC	ALUMINUM
	CARBON Direct combustion	MANGANESE I. Bismuthate (FeSO <sub>4</sub> -KMnO <sub>4</sub> ) 2. Other methods	PHOSPHORUS I. Alkali-molybdates <sup>a</sup> 2. Gravimetric (Weighed as Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> 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)	SILICON Sulphuric acid dehydration								
1	1.02	0.384	0.026	0.025	0.030	0.029	0.078	0.017	0.002	0.006 <sup>o</sup>	0.004 <sup>o</sup>	0.002 <sup>d</sup>		0.007
2	1.01	.380	.025	.025	.032	.028 <sup>o</sup>	.075	.016	.002	.009 <sup>f</sup>	.005 <sup>f</sup>	.005 <sup>g</sup>	0.008 <sup>h</sup>	.009
	1.00	.38	0.39 <sup>i</sup>	.025	.031	.030	.077 <sup>j</sup>	.015						
4	1.03	.39	.026		.032	.031	{.081 .075 <sup>k</sup> }	.018 <sup>l</sup>	.003	.006				
5	1.00	.378	.378 <sup>m</sup>	.025	.027	.031	.030	.086	.019	.005	.007	.002	.005	.014 <sup>n</sup>
6	1.01	.372	.024		.032		.077	.016		.005				
7	1.01	.376	.379 <sup>i</sup>	.026	.030	.029	.079	.013						
8	1.02	.384	.385 <sup>i</sup>	.026	.025	.029	.030	{.085 <sup>j</sup> .083}	.019		.006			
Averages	1.01	.381	.383	.025	.026	.031	.030	.080	.017	.003	.007	.004	.004	.011
General Averages	1.01	.381	.025	.026	.031 <sup>†</sup>	.030	.080	.017	.003	.007	.004	.004	.011	.008

<sup>a</sup> Precipitated at 40° C., washed with a 1 per cent solution of KNO<sub>3</sub> and titrated with alkali standardized by means of B. S. benzoic acid and the 23:1 ratio.  
<sup>b</sup> Value obtained by standardization of titrating solution against sodium oxalate through KMnO<sub>4</sub> and Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>.  
<sup>c</sup> Colorimetric.

<sup>d</sup> Colorimetric by developing color with KCNS and SnCl<sub>2</sub>.  
<sup>e</sup> After annealing, 0.032 per cent sulphur was obtained.  
<sup>f</sup> Electrometric titration.  
<sup>g</sup> Weighed as MoO<sub>3</sub>.  
<sup>h</sup> Distilled as AsCl<sub>3</sub>, precipitated as As<sub>2</sub>S<sub>3</sub>, converted As<sub>2</sub>S<sub>3</sub> to arsenate, precipitated as Ag<sub>3</sub>AsO<sub>4</sub>, dissolved in HNO<sub>3</sub> and titrated with KCNS.

<sup>i</sup> Persulphate-arsenite.  
<sup>j</sup> Drown's method.  
<sup>k</sup> HCl dehydration.  
<sup>l</sup> Precipitated with H<sub>2</sub>S and finished by electrolysis.  
<sup>m</sup> Bismuthate-arsenite.  
<sup>n</sup> Weighed as As<sub>2</sub>S<sub>3</sub>.  
<sup>†</sup> Recommended value.

### \*LIST OF ANALYSTS

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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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