

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 22b

BESSEMER STEEL, 0.6% 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 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	0.674	0.942		0.083	0.083	0.041	0.041	0.123	0.009	0.003	0.002 ^c	0.005 ^c	0.001 ^d	0.004 ^e
2	.678			.083	.085	.040	.041	.115						
3	.67	.93		.083		.041	.040	.123	.010					
4	.661	.942	.939 ^f	.084		.040	.040	.115		.002			.002 ^d	
5	.68		.93 ^g	.085		.044 ^h	.043	.128	.012 ⁱ					
6	.669	.923		.086	.085	.041	.042	.123	.008		.003		.003	
7	.679	.935	.928 ^f	.082		.044	.044	.124	.007 ⁱ					
8	.684	.929		.084		.041	.042	.122	.008					
9	.67	.947		.084		.041		.122 .13 ⁱ						
Averages	.674	.935	.932	.084	.084	.041	.042	.123	.009	.003	.003	.005	.002	.004
General Averages	.674	.935		.084		.041 ^k	.042	.123	.009	.003	.003	.005	.002	.004

^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 Electrometric titration.
^d Determined colorimetrically by development of color with SnCl₂ and KSCN.
^e Distillation as AsCl₃, precipitation as As₂S₃, conversion to Ag₃AsO₄ and titration with KSCN.
^f Persulphate-arsenite.
^g Bismuthate-arsenite.

^h Precipitated in FeCl₃ solution.
ⁱ Finished by electrolysis.
^j Drown's method.
^k 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.