

DEPARTMENT OF COMMERCE

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 13c

BASIC OPEN-HEARTH STEEL, 0.6% CARBON

ANALYST*	C	Mn		P		S		Si							
	CARBON Direct combustion	MANGANESE 1. Bismuthate (FeSO ₄ -KMnO ₄) 2. Other methods		PHOSPHORUS 1. Alkali-Molybdate ^a 2. Gravimetric (Weighed as MgP 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	COPPER H ₂ S-CuS-CuO	NICKEL Weighed as nickel dimethylglyoxime	CHROMIUM FeSO ₄ -KMnO ₄ titration	VANADIUM	MOLYBDENUM	ARSENIC	ALUMINUM
1 -----	0. 583	0. 704	-----	0. 014	0. 012	0. 023	0. 022	0. 204	0. 154	0. 191	0. 050 ^e	0. 003 ^e	0. 003 ^d	-----	0. 017
2 -----	. 571	. 706	-----	. 013	. 012	. 024	. 021	. 198	. 160	. 197	. 055 ^e	. 004 ^e	. 002	0. 010 ^f	. 021
	. 575	. 705	-----	. 012	-----	. 025	. 025	{. 208 . 203 ^g }	. 155 ^h	. 190 ⁱ	. 052	-----	-----	-----	-----
4 -----	. 570	. 692	-----	. 013	. 020 ^j	-----	-----	. 207	. 168	-----	-----	-----	-----	-----	-----
5 -----	. 58	-----	0. 69 ^k	. 013	-----	-----	. 023	. 195	. 172	. 200 ⁱ	. 04	-----	-----	-----	-----
6 -----	. 569	. 692	. 700 ^l	. 011	. 012	. 022	. 022	. 192	. 17	. 18	. 05	. 003	-----	-----	-----
7 -----	. 572	. 697	-----	. 012	-----	. 024	. 025	. 203	. 171	-----	-----	-----	-----	-----	-----
8 -----	. 57	-----	. 71 ^m	. 015	-----	-----	. 022	. 19	. 169	. 21	. 06	-----	-----	-----	-----
9 -----	. 570	. 706	-----	. 013	-----	. 025	-----	. 202	. 164	. 202	. 061	-----	-----	-----	-----
Averages -----	. 573	. 700	. 700	. 013	. 012	. 023	. 023	. 200	. 165	. 196	. 053	. 003	. 003	. 010	. 019
General Averages	. 573	. 700	-----	. 013	-----	. 023	. 023	. 200	. 165	. 196	. 053	. 003	. 003	. 010	. 019

^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 Colorimetric by developing color with KCNS and SnCl₂.

^e Electrometric titration.

^f Distilled as AsCl₃, precipitated as As₂S₃, converted As₂S₃ to arsenate, precipitated as Ag₃AsO₄, dissolved in HNO₃ and titrated with KCNS.

^g Hydrochloric acid dehydration.

^h Determined electrolytically.

ⁱ Dimethylglyoxime precipitation, KCN titration.

^j Obtained same result by precipitation in FeCl₃ solution.

^k Bismuthate-Arsenite.

^l Persulphate-Arsenite.

^m Titrated electrometrically with mercurous nitrate.

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

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Director.