

U. S. DEPARTMENT OF COMMERCE

National Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE 8e

BESSEMER STEEL, 0.1% CARBON

Furnished by Jones and Laughlin Steel Corporation

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
	Direct combustion	Bismuthate (FeSO ₄ -KMnO ₄)	Persulphate-arsenite	Gravimetric (Weighed as Mg ₂ P ₂ O ₇ after removal of arsenic)	ALKALI-MOLYBDATE [†]	Gravimetric (Direct oxidation and final precipitation in reduced solution)	Evolution with HCl (1-1) ZnS-Iodine (theoretical sulphur titre) [‡]	Sulphuric acid dehydration					
1	0.071	0.420	0.420	0.099	0.099	0.081	0.079	0.014	0.009	0.003	0.004 [°]	0.003 [°]	0.001 ^d
2	.073		.425	.101	{.099 [°] .102	.080	{.080 [°] .077	.012 ^f	.010	.003	.006	.001	.001
3	.072		.42	.098	.097	.082	{.082 ^h .083 ^g	.010 ⁱ	.005 ^j	.005	.004 ^d	.003	.002
4	.076		.42 ^k		.105 [°]	.082	.083 ^h	.018 ^f	.013 ^j				
5	.075	.412	.42		.103	.081	{.081 [°] .078	.011	.008	.007	.005 [°]		
6	.075	.415	.420 ^k	.097	.096	.082	.081	.013	.009	.003			
7	.071	.420		.099	.099 [°]	.079	.078 ^h	.017 ^l	.006	.002 ^m	.004	.003 ^d	.001
8	.074	.422	.425		.100		.082 ^h	.014 ⁱ	.009 ^j	.003 ^m	.006	.002	.001 ^d
9	.076	.418	.425	.098	.096	.077	.077	.011 ⁱ	.005	.002 ⁿ			<.001 ^d
10	.073		.41		.101	.082	.081	.011	.010 ^j		.003		.002 ^d
Averages	.074	.418	.421	.099	.100	.081	.080	.013	.008	.004	.005	.002	.001
Recommended values	0.073	0.420		0.099		0.081		0.013	0.008	0.004	0.005	0.002	0.001

^a Precipitated at 40° C, washed with a 1-percent solution of KNO₃ and titrated with alkali standardized by the use of National Bureau of Standards acid potassium phthalate and the 23:1 ratio.

^b Value obtained by standardizing the titrating solution by means of sodium oxalate through KMnO₄ and Na₂S₂O₅.

^c Potentiometric titration.

^d Colorimetric.

^e Titrating solution standardized by use of a standard steel.

^f Sulphuric-nitric acid dehydration.

^g Sample ignited in a stream of oxygen and sulphur titrated as H₂SO₄.

^h H₂S absorbed in ammoniacal CdCl₂ solution.

ⁱ Perchloric acid dehydration.

^j Finished by electrolysis.

^k Bismuthate-arsenite method.

^l HCl-H₂SO₄ dehydration.

^m Glyoxime precipitate titrated with standard KCN solution.

ⁿ Copper removed with aluminum wire and nickel titrated with standard KCN solution.

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.

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Director.

Washington, D. C.

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