

National Bureau of Standards Certificate of Analyses

OF

STANDARD SAMPLE 8F BESSEMER STEEL, 0.1% CARBON

ANALYST*	C	Mn		P		S		Si	COPPER H ₂ S-CUS-CuO	NICKEL Weighed as nickel dimethyl- glyoxime	CHROMIUM FeSO ₄ -KMnO ₄ titration	VANADIUM	MOLYBDENUM Colorimetric	NITROGEN
	Direct combustion	Bismuthate (FeSO ₄ -KMnO ₄)	Persulfate-Arsenite	Gravimetric (weighed as Mg ₂ P ₂ O ₇ after removal of arsenic)	Alkali-Molybdate ^a	Gravimetric (direct oxidation and final precipitation in reduced solution)	Evolution with HCl (1-1) ZnS-Iodine (theoretical sulfur titre) ^b	Sulfuric acid dehydration						
1.....	0. 072	0. 422	0. 419	0. 096	0. 096	0. 079	0. 078	0. 013	0. 009	0. 004	0. 004	0. 003	0. 001	0. 015
2.....	. 074	. 412	. 420	.....	. 100	. 081	^e 0. 080	. 013	. 008	. 004	^e 0. 004	^e 0. 002	. 002	^f 0. 015
3.....	. 074	. 416	. 418	.....	. 099	. 080	^e 0. 079	. 013	^e 0. 007	^h 0. 003	^h 0. 004	.....	. 001	^f 0. 015
4.....	. 071	.....	. 421	. 098	. 099	. 081	. 080	. 013	. 009	. 004	. 003	.....	.....	ⁱ 0. 016
5.....	. 070	.....	. 43	.....	. 098	. 081	. 081	ⁱ 0. 013	^h 0. 009	^h 0. 003	^h 0. 004	.....	.....	^k 0. 018
6.....	. 074	^{lm} . 430	.....	.....	^m 0. 094	.....	ⁿ 0. 082	^o 0. 013	^e 0. 009	. 002	. 007	.....	.....	^p 0. 013
Averages.....	0.073	.420	.422	.097	.098	.080	.080	.013	.009	.003	.004	.003	.001	.015
Recommended values.....	0.073	0.421		0.097		0.080		0.013	0.009	0.003	.004	0.003	0.001	0.015

^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 ratio 23NaOH:1 P.
^b Value obtained by standardizing the titrating solution by means of sodium oxalate through KMnO₄ and Na₂S₂O₈.
^c Potentiometric titration.
^d Determination made by Vernon C. Holm, by the vacuum-fusion method. See NBS J. Research 7, 375 (1931) RP346.

^e Titrating solution standardized by use of an empirical factor.
^f Colorimetric semimicro Kjeldahl method.
^g Finished by electrolysis.
^h Colorimetric method.
ⁱ Solution-distillation method. Sample dissolved in sulfuric-phosphoric acid mixture.
^j Perchloric acid dehydration.
^k Solution-distillation method. Sample dissolved in diluted HCl (1-1). Determination made by

Homestead Works Laboratory, Carl Ruhe, chief chemist.
^l Bismuthate-arsenite method.
^m Titrating solution standardized by use of a standard steel.
ⁿ Sample ignited in oxygen, gases passed into H₂O₂ and H₂SO₄ titrated with standard NaOH.
^o Sulfuric-nitric acid dehydration.
^p Solution-distillation method. Sample dissolved in diluted HCl (1-1).

*LIST OF ANALYSTS

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| <p>1. Ferrous Laboratory, National Bureau of Standards. Analysis by John L. Hague and Albert S. Johnson.</p> <p>2. Jones and Laughlin Steel Corp., H. E. Slocum, director of chemical laboratories. Analysis by Pittsburgh Works, J. D. Ritz, chief chemist.</p> <p>3. Jones and Laughlin Steel Corp., H. E. Slocum, director of chemical laboratories. Analysis by Aliquippa Works, D. J. Hallisey, chief chemist.</p> | <p>4. W. F. Muehlberg, American Steel and Wire Co., Central Laboratory, Cleveland, Ohio.</p> <p>5. C. E. Nesbitt, Carnegie-Illinois Steel Corp., Edgar Thomson Works, Braddock, Pa.</p> <p>6. W. F. Lantz, Bethlehem Steel Co., Bethlehem, Pa.</p> <p>The steel for the preparation of this standard was furnished by the Jones and Laughlin Steel Corporation.</p> |
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