MAIN EDITION

British Chemical Standards

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Bureau of Analysed Samples, Ltd.

Certificate of Analyses

B.C.S.*/S.S.† No. 468

AUSTENITIC STAINLESS STEEL

Prepared under rigorous laboratory conditions and, AFTER STANDARDIZATION BY ANALYSTS IN GREAT BRITAIN, issued by the Bureau of Analysed Samples Ltd.

The standard bar was specially prepared by Edgar Allen, Balfour Ltd., Sheffield.

ANALYSES

Analyst No.	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Co %
1	0.151	1.13	1.45	0.014	0.025	18.60	8.90	0.034
2	0.150	1.14	1.45	0.017	0.024	18.69	8.83	0.032
3	...	1.14	...	...	...	...	8.77	...
4	...	...	1.47	...	...	18.63	8.78	...
5	0.148	1.11	...	0.016	...	...	...	...
6	0.150	...	...	...	0.024	...	...	...
7	0.155	1.14	1.48	0.016	0.026	18.67	8.88	0.034
8	0.155	1.12	...	...	...	...	...	...
9	...	1.17	...	0.016	0.026	...	...	...
10	0.154	1.14	1.48	0.016	0.027	18.73	8.82	0.036
11	...	...	1.49	0.016	0.026	...	...	...
12	...	...	1.47	0.017	...	18.76	8.84	...
13	...	...	...	...	...	...	...	0.035
14	0.152	...	...	...	...	18.71	...	...
15	...	...	1.48	...	0.028	18.74	...	...
Average	**0.152**	**1.14**	**1.47**	**0.016**	**0.026**	**18.7$_0$**	**8.83**	**0.034**

The above figures are those which each analyst has decided upon after careful verification.

*British Chemical Standard – chips for chemical analysis.
†Spectroscopic Standard – disc sample for spectroscopic analysis.

[P.T.O.

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NOTES ON METHODS USED

CARBON

Analysts Nos. 1, 5 and 10 determined carbon by non aqueous titration according to the British Standard Carbon Method 4*. Nos. 2 and 8 used high frequency combustion/infrared absorption. No. 6 used an automatic coulometric apparatus and No. 7 a low pressure method. Analyst No. 14 determined carbon gravimetrically according to the British Standard Carbon Method 1*.

Analysts Nos. 10 and 14 also used high frquency combustion/infrared absorption and found 0.153% and 0.152% respectively.

SILICON

Analysts Nos. 1, 2, 3, 7, 8 and 10 determined silicon gravimetrically after double dehydration with perchloric acid according to the British Standard Silicon Method 1*. Nos. 5 and 9 used the British Standard Silicon Method 4* which involves the formation and photometric measurement of the molybdenum blue complex.

Analyst No. 9 also used the British Standard Silicon Method 1* and found 1.16%.

MANGANESE

All analysts except No. 15 determined manganese photometrically after oxidation with periodate according to the British Standard Manganese Method 2*. No. 15 used the British Standard Manganese Method 1* in which manganese is determined titrimetrically with ammonium ferrous sulphate after a zinc oxide separation and oxidation with persulphate/silver nitrate.

PHOSPHORUS

All analysts except No. 9 determined phosphorus photometrically as phosphovanadomolybdate according to the British Standard Phosphorus Method 2*. No. 9 used a titrimetric method after separation as phosphomolybdate.

SULPHUR

Analyst No. 1 determined sulphur gravimetrically after chromatographic separation on an alumina column (Nydahl, Anal. Chem., 1954, **26,** 580). The remaining analysts used combustion methods. Nos. 2 and 15 absorbed in hydrogen peroxide solution and titrated with borate. No. 6 used an automatic coulometric apparatus. Nos. 7 and 10 used high frequency combustion/infrared absorption. Nos. 9 and 11 absorbed in water and dilute hydrochloric acid respectively and titrated with iodate.

CHROMIUM

All analysts determined chromium by titration with ammonium ferrous sulphate after oxidation with persulphate/silver nitrate. No. 1 followed the procedure of the Analoid Method No. 37 and Nos. 4, 7, 10, 12 and 14 used the British Standard Chromium Method 1*.

NICKEL

All analysts except No. 12 determined nickel by titration after separation with dimethylglyoxime. No. 1 dissolved the precipitate in dilute sulphuric acid, boiled with excess of ferric sulphate and titrated with dichromate (Analoid Method No. 62). Nos. 2 and 4 dissolved and titrated with EDTA and Nos. 3, 7 and 10 completed cyanometrically according to the British Standard Nickel Method 1*. Analyst No. 12 used a dimethylglyoxime photometric method.

COBALT

Analysts Nos. 1 and 10 determined cobalt photometrically with nitroso-R salt after separation with 1-nitroso 2-naphthol according to the British Standard Cobalt Method 2*. Analysts Nos. 2, 7 and 13 used atomic absorption spectrometry.

*Methods for Sampling and Analysis of Iron, Steel and Other Ferrous Metals, B.S. Handbook No. 19, first published 1970 by the British Standards Institution, 2 Park Street, London, W1A 2BS.

NEWHAM HALL,
MIDDLESBROUGH,
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