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Certificate of Analyses

OF

B.C.S. No. 284 (S.S. No. 24)
LOW TUNGSTEN STEEL

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

The standard bars were specially prepared by Edgar Allen & Co. Ltd., Sheffield.

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6. Harrison, S., *A.Met., A.I.M.*, Kayser, Ellison & Co. Ltd., Sheffield.
7. Postlethwaite, R. T., Samuel Fox & Co. Ltd., Stocksbridge.
8. Rowley, E., James Neill & Co. (Sheffield) Ltd., Sheffield.

ANALYSES

Analyst No.	W %	C %	Si %	S %	P %	Mn %	Cr %	Mo %	V %
1	3·39	..	..	..	..	..	..	..	..
2	3·40	*0·18*	*0·22*	*0·037*	*0·019*	*0·08*	*0·10*	*0·02*	*0·03*
3	3·39	*0·18*	*0·21*	*0·040*	*0·017*	*0·06*	..	..	..
4	3·43	*0·20*	*0·23*	*0·034*	..	*0·07*	..	..	..
5	3·40	..	..	..	..	..	..	..	..
6	3·43	..	..	..	..	..	..	..	..
7	3·42	*0·18*	*0·22*	*0·033*	*0·017*	*0·06*	..	..	..
8	3·42	..	..	..	...	..	..	..	..
Average	3·41	..	..	..	..	..	..	..	..

The above figures are those which each Analyst has decided upon after careful verification. Only the average figure for Tungsten is standardized.

[P.T.O.

B.C.S. No. 284 (S.S. No. 24) LOW TUNGSTEN STEEL

NOTES ON METHODS USED.

TUNGSTEN.

Analysts Nos. 1, 2, 4, 5, 7 and 8 determined tungsten gravimetrically by the Standard method B.S. 1121 : Part 40 : 1959 : Nos. 2, 4, 7 and 8 determined the residual tungsten in the filtrate by colorimetric methods and added this to the figure obtained gravimetrically. Nos. 3 and 6 used the Standard absorptiometric method B.S. 1121 : Part 32 : 1954 with reduced sample weights.

Analysts Nos. 1, 2, 4, 5, 7 and 8 also used the Standard absorptiometric method and found 3·33%, 3·33%, 3·42%, 3·37%, 3·43% and 3·45% respectively. No. 3 also used the Standard gravimetric method combined with colorimetric determination of residual tungsten in the filtrate and found 3·41%. No. 8 using the same method without examination of the filtrate found 3·40%.

CARBON.

All Analysts determined carbon gravimetrically by combustion. All except No. 7 used the Standard method B.S. 1121 : Part 11 : 1948. No. 7 used a multi-factor weight method.

SILICON.

Analysts Nos. 2, 4 and 7 determined silicon gravimetrically by the Standard perchloric acid method B.S. 1121 : Part 10 : 1948. No. 3 used a molybdenum-blue method similar to the Standard method B.S. 1121 : Part 15 : 1949.

SULPHUR.

Analysts Nos. 2, 4 and 7 determined sulphur by combustion. No. 2 absorbed the sulphur gases in water and titrated with iodide/iodate solution. Nos. 4 and 7 absorbed in hydrogen peroxide and titrated with sodium borate (B.I.S.R.A. Methods of Analysis Committee, J. Iron Steel Inst., 1954, 177, 239). No. 3 determined sulphur gravimetrically by the Standard Method B.S. 1121: Part 1A: 1957.

PHOSPHORUS.

Analysts Nos. 2 and 7 determined phosphorus volumetrically. No. 2 used the Analoid method No. 21. No. 7 used a perchloric acid method incorporating arsenic removal with hydrobromic acid. No. 3 used a phosphovanadomolybdic acid colorimetric method including extraction of the coloured complex with amyl acetate.

MANGANESE.

Analyst No. 2 determined manganese volumetrically by titration with arsenite/nitrite after oxidation with persulphate/silver nitrate. Nos. 3 and 7 oxidized with persulphate/silver nitrate and completed absorptiometrically. No. 4 used the Standard absorptiometric method B.S. 1121 : Part 23 : 1951 depending on oxidation with periodate.

CHROMIUM.

Volumetric Analoid method No. 37.

MOLYBDENUM.

Thiocyanate colorimetric method (modification of Analoid method No. 42).

VANADIUM.

Volumetric method depending on oxidation with permanganate and titration with ammonium ferrous sulphate (Analoid method No. 34).

BUREAU OF ANALYSED SAMPLES, LTD.,
per P. D. Ridsdale,
Managing Director,
December, 1963.

Newham Hall,
Middlesbrough,
England.

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