MAIN EDITION

BUREAU OF ANALYSED SAMPLES LTD

BRITISH CHEMICAL STANDARD CERTIFIED REFERENCE MATERIAL

CERTIFICATE OF ANALYSIS

BCS-CRM No. 263/2

5% MAGNESIUM ALUMINIUM ALLOY

Specifications B.S. 1473: NB6, NR6: 1972, B.S. 1475: NG6: 1972

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

CO-OPERATING ANALYSTS

INDEPENDENT ANALYSTS

1 COPPINS, W. C., *MSc*, *FRIC*,
Ridsdale and Co. Ltd., Middlesbrough.

GOVERNMENT DEPARTMENT

2 NICHOLLS, H. A., *FRIC*,
Materials Quality Assurance Directorate, Bragg Laboratory, Sheffield.

ANALYSTS representing MANUFACTURERS and USERS

3 CLARKE, J., International Alloys Ltd., Aylesbury.

ANALYSTS representing MANUFACTURERS and USERS (cont.)

4 HOBBS, R. S., *BTech*, *PhD*, *ARIC*,
Alcan International Ltd., Banbury.

5 HODGES, J. H. G. Birmetals Ltd., Birmingham.

6 JACKSON, H., *AMCT*, *ARIC*,
British Aluminium Co. Ltd.,
Chalfont Technological Centre, Gerrards Cross.

7 MEW, W. E. *BSc*, *ARIC*, BKL Alloys Ltd., Birmingham.

ANALYSES

Mean of 4 values - mass content in %.

Analyst No.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	*Be*
1	0.14	0.27	0.020	0.36	4.71	0.074	0.055	0.020	...
2	0.15	0.26	0.018	0.37	4.64	0.078	0.057	0.022	*<0.001*
3	0.15	0.25	0.017	0.37	4.66	0.076	0.057	0.024	*0.001*
4	0.15	0.25	0.019	0.35	4.71	0.069	0.057	0.024	...
5	0.13	0.27	0.019	0.38	4.65	0.074	0.053	0.020	*0.0006*
6	0.14	0.26	0.020	0.36	4.72	0.077	0.057	0.023	*0.0009*
7	0.14	0.24	0.020	0.36	4.62	0.069	0.059	0.02	...
M_M	**0.14**	**0.26**	**0.019**	**0.36**	**4.67**	**0.074**	**0.056**	**0.022**	...
s_M	0.01	0.02	0.002	0.01	0.04	0.004	0.002	0.002	...

The above figures are those which each Analyst has decided upon after careful verification.
Figures in bold type certified, figures in small italic type only approximate.
M_M: Mean of the intralaboratory means. s_M: standard deviation of the intralaboratory means.

CERTIFIED VALUES (Cv)

mass content in %

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
Cv	**0.14**	**0.26**	**0.019**	**0.36**	**4.67**	**0.074**	**0.056**	**0.022**
C(95%)	0.01	0.02	0.002	0.01	0.04	0.004	0.002	0.002

The half width confidence interval **C**(95%) = $\frac{t \times s_M}{\sqrt{n}}$ where "t" is the appropriate two sided Student's t value at the 95% confidence level for "n" acceptable mean values.

For further information regarding the confidence interval for the certified value see ISO Guide 35:2006 sections 6.1 and 10.5.2.

BCS-CRM 263/2 5% MAGNESIUM ALUMINIUM ALLOY

NOTES ON METHODS USED

SILICON

All Analysts except No. 7 determined silicon photometrically. Nos. 1, 2, 4, 5 and 6 used molybdenum-blue methods, Nos. 4 and 6 following the procedure of the Standard Method B.S. 1728: Part 12: 1961. No. 3 used a molybdenum-yellow method. No. 7 determined silicon gravimetrically by the Regelsberger method.

IRON

Analysts Nos. 1, 2, 3, 4 and 7 determined iron photometrically. Nos. 1, 2, 3 and 4 used, 1, 10-phenanthroline according to the Standard Method B.S. 1728: Part 8: 1957, whereas No. 7 used potassium thiocyanate. Nos. 5 and 6 determined iron by atomic-absorption spectroscopy.

Analyst No. 3 also used atomic-absorption spectroscopy and found 0.26%. No. 6 also determined iron photometrically according to the B.S. method and found 0.26%.

COPPER

Analysts Nos. 1, 3, 4, 5, 6 and 7 determined copper by atomic-absorption spectroscopy. No. 2 determined copper photometrically with *bis*-cyclohexanone oxalyldihydrazone.

Analyst No. 2 also used atomic-absorption spectroscopy and found 0.017%.

MANGANESE

Analysts Nos. 1 and 4 determined manganese by oxidation with persulphate/silver nitrate and titration with arsenite/nitrite solution according to the Standard Method B.S. 1728: Part 9: 1957. No. 2 determined manganese photometrically after oxidation with periodate. Nos. 3, 5, 6 and 7 used atomic-absorption spectroscopy.

Analyst No. 6 also determined manganese photometrically with periodate according to the Standard Method B.S. 1728: Part 10: 1957 and found 0.36%.

MAGNESIUM

Analysts Nos. 1, 2, 3, 4 and 7 determined magnesium complexometrically by titration with CDTA (Nos. 1 and 4) or EDTA (Nos. 2, 3 and 7). Nos. 5 and 6 used atomic-absorption spectroscopy.

Analyst No. 3 also used atomic-absorption spectroscopy and found 4.64%.

CHROMIUM

Analysts Nos. 1, 4 and 6 determined chromium photometrically with diphenylcarbazide according to the Standard Method B.S. 1728: Part 16: 1968. Nos. 2, 3 and 7 used atomic-absorption spectroscopy. No. 5 used flame emission spectroscopy.

Analyst No. 6 also used atomic-absorption spectroscopy and found 0.080%.

ZINC

All Analysts determined zinc by atomic-absorption spectroscopy.

TITANIUM

All Analysts determined titanium photometrically. Nos. 1, 4, 5 and 6 used chromotropic acid according to the Standard Method B.S. 1728: Part 13: 1964. Nos. 2, 3 and 7 used hydrogen peroxide.

BERYLLIUM

Analyst No. 2 determined beryllium photometrically with Eriochrome cyanine R. Nos. 3 and 5 used atomic-absorption spectroscopy. No. 6 used direct-reading emission spectroscopy.

DESCRIPTION OF SAMPLE

Bottles of 100g chips graded 1700-250 micron (10-60 mesh) for chemical analysis.

INTENDED USE & STABILITY

The sample is intended for the verification of analytical methods, such as those used by the participating laboratories, for the calibration of analytical instruments in cases where the calibration with primary substances (pure metals or stoichiometric compounds) is not possible and for establishing values for secondary reference materials.

It will remain stable provided that the bottle remains sealed and is stored in a cool, dry atmosphere. When the bottle has been opened the lid should be secured immediately after use. If the contents should become discoloured (e.g. oxidised) by atmospheric contamination they should be discarded.

TRACEABILITY

The traceability of this BCS-CRM to the SI is ensured by the use of either stoichiometric analytical techniques or methods which are calibrated against pure metals or stoichiometric compounds.

NEWHAM HALL, NEWBY,
MIDDLESBROUGH, ENGLAND, TS8 9EA
Email: enquiries@basrid.co.uk
Website: www.basrid.co.uk

For BUREAU OF ANALYSED SAMPLES LTD

R.P. MEERES,
Managing Director

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