

Reference Material Certificate

618/01

Aluminium Base (Type of Standard)

EN AW-6063, EN AW-AMg0.7Si

Certified Values

Element	Analytical Methods used for Certification	Mass content ¹⁾ in [%]	Uncertainty ²⁾ in [%]
Silicon (Si)	a, e	0.500	0.017
Iron (Fe)	a, b, e, f	0.201	0.005
Copper (Cu)	a, b, c, d, f	0.0364	0.0004
Manganese (Mn)	a, b, f	0.0895	0.0012
Magnesium (Mg)	a, b, f	0.588	0.010
Chromium (Cr)	a, b, c, d, f	0.0087	0.0002
Nickel (Ni)	a, b, c, d, f	0.0050	0.0001
Zinc (Zn)	a, b, c, d, f	0.0134	0.0003
Titanium (Ti)	a, b, c, d, e, f	0.0225	0.0006
Bismuth (Bi)	b, c, d	0.0140	0.0005
Calcium (Ca)	b	(0.0006)	
Gallium (Ga)	a, b, c, d	0.0117	0.0002
Lead (Pb)	b, c, d, f	0.0026	0.0002
Tin (Sn)	a, b, c, d	0.0148	0.0006
Vanadium (V)	a, b, c, d	0.0169	0.0004
Zirconium (Zr)	a, b, c, d	0.0013	0.0002

¹⁾ Unweighted mean value of the means of accepted sets of data (consisting of at least 5 but usually 6 single results), each set being obtained by a different digestion and / or method of measurement.

²⁾ The half width confidence interval C(95%) is an expression of the uncertainty of the certified value, where $C(95\%) = (t \times S_M / \sqrt{n})$ and "t" is the appropriate two sided Student's t value at the 95% confidence level for "n" acceptable mean values.

Values in brackets () are not certified but given for information only.

Analytical Methods used for Certification:

- a ICP-OES, digestion with caustic soda
- b ICP-OES, digestion with acid
- c ICP-MS, digestion with acid
- d ICP-MS, closed vessel digestion with acid
- e Spectrophotometry
- f FAAS, digestion with acid

Abbreviations:

- ICP-OES – Inductively coupled plasma - optical emission spectrometry
- ICP-MS – Inductively coupled plasma - mass spectrometry
- FAAS – Flame atomic absorption spectrometry

Manufacturing

This certified reference material for the analysis of aluminium and its alloys has been thoroughly tested for homogeneity and analysed in the analytical laboratory of Suisse Technology Partners Ltd, Neuhausen, Switzerland, which is accredited as a test facility for aluminium and its alloys in accordance with the international standard ISO 17025. This standard is produced using single strand continuous casting out of single melt followed by extrusion.

Homogeneity

Homogeneity testing is performed by means of spark emission spectroscopy. Tests involve making multiple measurements on individual samples taken at regular intervals along the entire length of each cast rod. Depending on the mass content of the element, the relative standard deviation of multiple measurements between discs or within one disc is typically found between 0.3% - 1% for alloying and other elements and 0.5% - 5% for trace elements.

Description of Sample

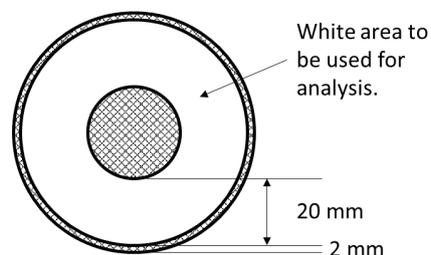
This reference material is available in the form of discs (approx. 60mm diameter and 25mm height)

Intended use and Stability

This certified reference material is primarily intended for use in spark optical emission spectroscopy. Other applications are X-ray fluorescence spectrometry (XRF) and classical wet chemical procedures. The minimum sample size for wet chemical analysis is 0.2g. The material will remain stable for the period given below (certification validity) if it is stored in a dry and clean environment at room temperature.

Instructions for Use

Calibration measurements should be made within a ring between 2mm and 22mm from the edge of the CRM face. For wet chemical analysis chips have to be prepared by turning or milling of the sample surface.



Traceability

Traceability of the certified mass contents to the SI (Système International d'Unités) is ensured by calibration using certified standard solutions or pure metals or substances of known stoichiometry.

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This certificate is valid until: Nov-2093