SUISSE TECHNOLOGY PARTNERS

Reference Material Certificate

122/04

Aluminium Base (Type of Standard)
Al pure (99.95-99.8% Al), Set 120

Certified Values

Element	Mass content [%]	Uncertainty [%]
Silicon (Si)	0.0362	± 0.0014
Iron (Fe)	0.0610	± 0.0020
Copper (Cu)	0.0169	± 0.0008
Manganese (Mn)	0.0161	± 0.0008
Magnesium (Mg)	0.0141	± 0.0012
Chromium (Cr)	0.0191	± 0.0008
Nickel (Ni)	0.0177	± 0.0008
Zinc (Zn)	0.0197	± 0.0010
Titanium (Ti)	0.0191	± 0.0008
Silver (Ag)	0.0148	± 0.0007
Arsenic (As)	0.0063	± 0.0005
Boron (B)	0.00012	± 0.00005
Barium (Ba)	0.0127-0.0187	± 0.0007
Beryllium (Be)	0.00059	± 0.00009
Bismuth (Bi)	0.0144	± 0.0008
Calcium (Ca)	0.00023-0.00033	± 0.00004
Cadmium (Cd)	0.0049	± 0.0003
Cerium (Ce)	0.0103	± 0.0008
Cobalt (Co)	0.0152	± 0.0008
Gallium (Ga)	0.0231	± 0.0010
Mercury (Hg)	0.0087	± 0.0005
Indium (In)	0.0150	± 0.0010
Lanthanum (La)	0.0161	± 0.0010
Lithium (Li)	0.00027-0.00041	± 0.00004
Molybdenum (Mo)	0.0104	± 0.0010
Sodium (Na)	0.0031-0.0059	± 0.0007
Phosphorus (P)	(0.006)	
Lead (Pb)	0.0076	± 0.0005
Antimony (Sb)	0.0088	± 0.0006
Tin (Sn)	0.0100	± 0.0008
Strontium (Sr)	0.00011	± 0.00005
Thallium (Tl)	0.0133	± 0.0008
Vanadium (V)	0.0165	± 0.0008
Tungsten (W)	0.0081-0.0102	± 0.0005
Zirconium (Zr)	0.0142	± 0.0010

The uncertainty reported is the result of standard deviation of all results multiplied with a factor of two and represents approximately the 95% confidence interval.

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

This certified reference material has elements with a range. Individually certified values for those elements are available on S-certificates only.

Manufacturing
This standard is produced using six strand hot top vertical continuous casting out of single melt.

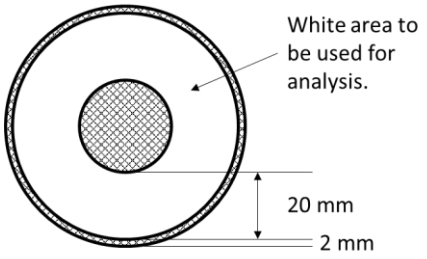
Homogeneity
Homogeneity testing is performed by means of spark emission spectroscopy. Tests involve making multiple measurements on individual samples taken at regular intervals along the entire length of each cast rod. Depending on the mass content of the element, the relative standard deviation of 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.

Analysis
The values listed in this analysis certificate are the results of multiple analyses performed in our chemical analysis laboratory which is an accredited test facility for aluminium alloys according to the international standard ISO 17025. The analyses are based on established wet chemical procedures.

Description of Sample
This reference material is available in the form of discs.

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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