Reference Material Certificate

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Aluminium Base (Type of Standard)

Certified Values

Element	Mass content [%]	Uncertainty [%]
Silicon (Si)	0.2904	± 0.0078
Iron (Fe)	0.3941	± 0.0071
Copper (Cu)	0.0095	± 0.0006
Manganese (Mn)	1.163	± 0.015
Magnesium (Mg)	1.500	± 0.028
Chromium (Cr)	0.0006	± 0.0001
Nickel (Ni)	0.0035	± 0.0002
Zinc (Zn)	0.0105	± 0.0006
Titanium (Ti)	0.0043	± 0.0003
Beryllium (Be)	0.000015	± 0.000008
Lead (Pb)	0.0102	± 0.0004
Tin (Sn)	0.0004	± 0.0001
Zirconium (Zr)	0.0003	± 0.0001

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.

Manufacturing
This certified reference material for the analysis of aluminum and its alloys is produced using continuous casting out of a single melt.

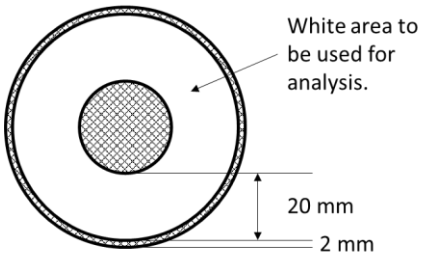
Homogeneity
Homogeneity testing is performed by means of spark emission spectroscopy. Tests involve making multiple measurements on individual samples taken at regular intervals along the entire length of each cast rod. Depending on the mass content of the element, the relative standard deviation of 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
This reference material was analysed by the accredited laboratory of former Pechiney Research Center in Voreppe (COFRAC accreditation number 1-1656). At least two primary chemical or radiochemcal methods of analysis are used to determine each of the certified elements listed on the certificated.

Description of Sample
This reference material is available in the form of discs (approx. Ø 55 x 33 mm).

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.

Dr. Benedikt Moser
CTO

Patrik Bachmann
Head of Inorganic Analytics

Suisse Technology Partners Ltd.
Querstrasse 5
8212 Neuhausen am Rheinfall
Switzerland

Phone: +41 52 551 11 00
Fax : +41 52 551 11 99
Email: refmat@suisse-tp.ch
Internet: https://reference-materials.ch

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