Reference Material Certificate

637C/01

Aluminum Base (Type of Standard)

Certified Values

Element	Mass content in [%]	Uncertainty in [%]
Silicon (Si)	1.569	0.031
Iron (Fe)	0.377	0.008
Copper (Cu)	0.379	0.010
Manganese (Mn)	0.304	0.008
Magnesium (Mg)	1.468	0.021
Chromium (Cr)	0.3514	0.0073
Nickel (Ni)	0.1026	0.0023
Zinc (Zn)	0.0011	0.0004
Titanium (Ti)	0.0648	0.0014
Gallium (Ga)	0.0495	0.0014
Lead (Pb)	0.0200	0.0006
Tin (Sn)	0.0022	0.0003
Vanadium (V)	0.0291	0.0009
Zirconium (Zr)	0.0515	0.0011

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

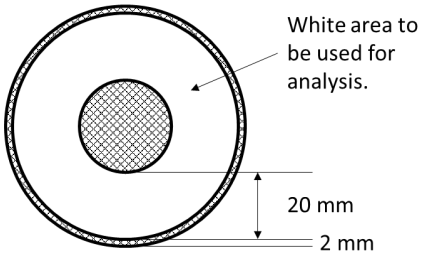
Homogeneity
Homogeneity testing is performed by means of spark emission spectroscopy. Tests involve making multiple measurements on individual samples taken at regular intervals along the entire length of each cast rod. Depending on the mass content of the element, the relative standard deviation of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

Description of Sample
This reference material is available in the form of discs (approx. 60mm diameter and 26mm 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.

Dr. Benedikt Moser
CTO

Patrik Bachmann
Head of Chemical 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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Certificate version 003: 12-Jan-2022
This certificate is valid until: Sep-2082