SUISSE TECHNOLOGY PARTNERS

Product Data Sheet

Reference **M**aterial - RM

RA19 / 02

Aluminum Base (Type of Standard)
setting up sample (SUS)

Indicative Values

Element	Mass fraction [%]
Silicon (Si)	(1.0)
Iron (Fe)	(0.91)
Copper (Cu)	(0.43)
Manganese (Mn)	(1.1)
Magnesium (Mg)	(6.8)
Chromium (Cr)	(0.17)
Nickel (Ni)	(0.62)
Zinc (Zn)	(7.2)
Titanium (Ti)	(0.23)
Silver (Ag)	(0.20)
Beryllium (Be)	(0.01)
Bismuth (Bi)	(0.27)
Cadmium (Cd)	(0.05)
Cobalt (Co)	(0.32)
Gallium (Ga)	(0.07)
Indium (In)	(0.07)
Lithium (Li)	(0.01)
Vanadium (V)	(0.14)
Zirconium (Zr)	(0.27)

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

Manufacturing
This setting up sample is produced using a modified powder metallurgical processing route.

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 the rod. Depending on the mass fraction of the element, the relative standard deviation of 10 to 20 measurements within one disc is influenced by the material homogeneity and stability of the measurement instrument and is typically found to be as shown in the following table. Homogeneity in between discs of the same batch is not specified.

Table 1: Sample homogeneity for different elements in the reference material.

Si, Fe, Cu, Mn, Cr, Ni, Ti, Ag, Co, Ga, In, V, Zr	$\leq$ 1 % relative standard deviation
Mg, Zn, Be, Bi, Cd, Li	1 % - 3 % relative standard deviation

Analysis
The homogeneity analysis of this material was performed in our ISO/IEC 17025 accredited analytical laboratory (STS 0023) by spark optical emission spectroscopy. This is a setting up sample. Only homogeneity of this standard is analyzed. No concentration values are certified. The values given in brackets have been determined using spark source optical emission spectroscopy.

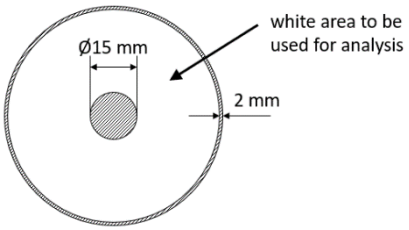
Description of Sample
This setting up sample is available in the form of discs (approx. Ø 60 x 40 mm).

Intended use and Stability

This setting up sample is primarily intended for use in spark optical emission spectroscopy. The use in other applications such as X-ray fluorescence spectrometry (XRF) or laser induced breakdown spectroscopy (LIBS) is also possible. This reference material shall mainly be used for drift correction over time. It shall not be used for instrument calibration. The material will remain stable for the period given below (data sheet validity) if it is stored in a dry (non-condensing) and clean environment at room temperature (≤ 40 °C).

Instructions for Use

Measurements should be made within a ring (see white area in the picture). For spark OES analysis, the surface of the material needs to be prepared by milling. The minimum area to be analyzed for spark OES, XRF and LIBS analysis is 30 mm^2. The values within one disc may be regarded as constant for this purpose.



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
Email: refmat@suisse-tp.ch
Internet: https://reference-materials.ch

Date of issue: 22-Oct-2024
Data sheet version 001: 22-Oct-2024
Data sheet is valid until: Oct / 2049