

Analytical Reference Materials International



Certificate of Analysis Set-Up Standard



Grade: **QA 10**
Part Number (Q.A. NO.): **IARM 220G**

Certificate Date: **06/21/2017**

Certificate No.: **220G-06212017-SUS-F**

Interpretation of Data

1. AES and GD-MS methods and instrumentation were used to generate the values listed below, and emulate results derived from actual methods currently utilized in the analytical community.
2. This set-up standard has elemental compositions designed to provide drift correction for common aluminum alloys. They are not certified with respect to the true composition. This material is tested for superior homogeneity, so that reproducibility of spectral response will ensure accurate drift correction of calibration curves.

Si (0.0014)	Fe (0.0021)	Cu (0.0027)	Mn (0.00023)	Cr (0.000030)	Ni (0.000060)	Zn (0.0003)	Ti (<0.002)	Ag (<0.00001)
As (0.000012)	Au (<0.00001)	B (0.00057)	Ba (0.00022)	Be (<0.00001)	Bi (<0.00001)	Br (<0.00005)	Ca (0.000010)	Cd (<0.00001)
Ce (0.00034)	Cl (0.000045)	Co (<0.00001)	Cs (<0.00001)	Dy (<0.00001)	Er (<0.00001)	Eu (<0.00001)	F (<0.00005)	Ga (0.00014)
Gd (<0.00001)	Ge (<0.00005)	Hf (<0.00001)	Hg (<0.00001)	Ho (<0.00001)	I (<0.00001)	In (<0.00001)	Ir (<0.00001)	K (0.0000050)
La (0.00026)	Li (<0.00001)	Lu (<0.00001)	Mg (0.00087)	Mo (0.000015)	Na (0.000030)	Nb (<0.00001)	Nd (0.000055)	Os (<0.00001)
P (0.00060)	Pb (0.000015)	Pd (<0.00001)	Pr (0.000017)	Pt (<0.00001)	Rb (<0.00001)	Re (<0.00001)	Rh (<0.00005)	Ru (<0.00001)
S (0.000010)	Sb (0.000010)	Sc (<0.00001)	Se (<0.00005)	Sm (<0.00001)	Sn (<0.00001)	Sr (<0.00001)	Ta (<0.00001)	Tb (<0.00001)
Te (<0.00001)	Th (0.0000047)	Tl (<0.00001)	Tm (<0.00001)	U (0.000055)	V (0.00052)	W (0.000010)	Y (<0.00001)	Yb (<0.00001)
Zr (0.000088)								

("<" less than, "(" value not certified)

The International Standards Organization (ISO) definitions, expressed in ISO Guide 30-1992 list the following:

Certifying Body: A certifying body is any technically competent body (organization or firm, public or private) that issues a reference material certificate with detailed information as outlined in ISO Guide 31. The only generally-accepted certifying body in the United States for primary standards (Standard Reference Materials (SRMs)) is the U.S. Department of Commerce, National Institute of Standards & Technology (NIST), Gaithersburg, MD. All other certifying bodies in the United States produce Reference Materials (RMs) or Certified Reference Materials (CRMs).

Drift Samples: These are aluminum alloy samples with low trace element concentrations meant to simulate real production samples. Drift samples are very homogeneous but do not have certified values. They are used to determine whether the measuring instrument has drifted enough to require standardization.

Traceability: The traceability of the certified values is ensured by the comparative use of other internationally recognized certified reference materials produced by NIST, as well as use of CRMs from other suppliers.

Methods of Analysis: Analytical methods used for certification vary from classical wet chemistry to modern instrumental techniques. They include gravimetry, colorimetry, atomic absorption spectroscopy (AAS), inductively coupled plasma (ICP) optical emission spectroscopy, spark emission spectroscopy (OES), spectrochemical comparison, and metallographic techniques. In addition, to certify the Blank and High Purity (HP) standards, the Glow Discharge Mass Spectrometry (GDMS) technique is used. Generally, values below 0.5 ppm are not certified.

Selection of Materials: These standards are designed for use with direct reading optical emission spectrometers for spark emission analysis. These materials are produced by a direct chill, continuous cast method. Each finished disk measures 57 mm in diameter by 38 mm thick.

David Coler, General Manager

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