

# Analytical Reference Materials International

## Certificate of Analysis Set-Up Standard

Grade: QA 11

Part Number (Q.A. NO.): IARM 221A

Certification Date: 04/30/1999

Certificate No.: 221A-04301999-SUS-F

Revision Date: 01/22/2006

### Interpretation of Data

1. Values listed below reflect analysis results submitted by qualified analytical laboratories using methods and instrumentation that emulate actual methods currently utilized in the analytical community.
2. The chemical compositions are designed to provide drift correction for common alloys. They are not certified with respect to the true composition. This material is tested for superior homogeneity so that reproducibility of spectral response can assure accurate drift correction of calibration curves.
3. The "Inter-laboratory Analysis Program" (ILAP) utilized in the establishment of the data is an ongoing program with permanent membership.

**Important: A "User Registration Card" accompanies all shipments. This card should be completed immediately upon receipt of materials with the appropriate user information. This is the only way in which ARMI can guarantee customer updates or possible data modifications!**

|                           |                             |                            |                         |                           |                         |                           |
|---------------------------|-----------------------------|----------------------------|-------------------------|---------------------------|-------------------------|---------------------------|
| <u>Antimony</u><br>(0.01) | <u>Beryllium</u><br>(0.005) | <u>Bismuth</u><br>(---)    | <u>Boron</u><br>(---)   | <u>Calcium</u><br>(0.03)  | <u>Cadmium</u><br>(---) | <u>Chromium</u><br>(0.2)  |
| <u>Cobalt</u><br>(0.2)    | <u>Copper</u><br>(0.6)      | <u>Gallium</u><br>(0.03)   | <u>Iron</u><br>(0.2)    | <u>Lead</u><br>(---)      | <u>Lithium</u><br>(---) | <u>Magnesium</u><br>(4.8) |
| <u>Manganese</u><br>(0.4) | <u>Nickel</u><br>(---)      | <u>Phosphorus</u><br>(---) | <u>Silicon</u><br>(0.2) | <u>Silver</u><br>(---)    | <u>Sodium</u><br>(---)  | <u>Strontium</u><br>(---) |
| <u>Tin</u><br>(---)       | <u>Titanium</u><br>(0.1)    | <u>Vanadium</u><br>(---)   | <u>Zinc</u><br>(6.7)    | <u>Zirconium</u><br>(---) |                         |                           |

**Traceability:** All members of the "Inter-Laboratory Analysis Program" (ILAP) validate test methods and instrument performance utilizing SRMs produced by the National Institute of Standards and Technology (NIST), as well as other Certified Reference Materials and Reference Materials produced by recognized certifying bodies from around the world.


The International Standards Organization (ISO) definitions, expressed in ISO Guide 30-1981-(E) list the following:

**Certifying Body:** A technically competent body (organization or firm, public or private) that issues a Reference Material Certificate. The only generally accepted certifying body in the United States is the U. S. Department of Commerce, National Institute of Standards & Technology (NIST), Gaithersburg, MD.

**Inter-Laboratory Analysis Program (ILAP):** Although ASTM Standard E691-87 applies to inter-laboratory studies to "Determine the Precision of a Single Test Method", it is also a well thought out and logical plan for conducting an inter-laboratory program involving multiple techniques. Therefore, the planning, conducting, analyzing protocol, and treatment of data resulting from this inter-laboratory program were performed utilizing the guidelines established in ASTM E691-87.

**Methods of Analysis:** In view of the fact that the "Inter-Laboratory Analysis Program" entails a wide variety of test methods, the method utilized is an Optical Emission method.

**Selection of Materials:** A "batch" or "series" is defined as a single bar of one continuous length. Each member of the ILAP is furnished a solid sample from a specific location on the batch bar. Because of the sampling procedure, the determination of homogeneity is a product of the overall statistics generated during analysis.

Certified by:   
William D. Britt, President/General Manager  
Analytical Reference Materials International

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