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## Certificate of Analysis Part No. B2615 Hydrogen and Carbon in Titanium Pin Standard

Certificate Number 616A  
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**% Carbon**  
**Mean = 0.0072**  
**One Sigma Standard Deviation = ± 0.0006**  
**Expanded Uncertainty = ± 0.0012**  
**(k=2, @ 95% confidence) (n=32)**

**% Hydrogen\***  
**Mean = 0.0290**  
**One Sigma Standard Deviation = ± 0.0015**  
**Expanded Uncertainty = ± 0.0030**  
**(k=2, @ 95% confidence) (n=40)**

Method of Analysis is ASTM E 1941-10, E 1447-09 ARI 033, and ARI 036  
Primary (NMI) Standards used for traceability:  
NIST SRM 2454\*, 2432, 2431, 649,  
BCS CRM 356, 357

\*NOTE: THE HYDROGEN VALUE CERTIFIED IS HIGHER THAN ANY KNOWN PRIMARY REFERENCE STANDARD AVAILABLE FOR COMPARISON.

#### Notes:

The mean analytical values were derived by separate data sets showing traceability to the above-mentioned reference standards and reported in mass fraction. The precision values represent the estimated uncertainty derived from the data sets and may not represent your testing capabilities. Refer to your test method for the expanded method derived uncertainty if needed. When necessary, professional judgment is applied toward consideration of data and statistical information. This certificate cannot be reproduced except in full.

The material used in production of this standard was identified in accordance with ARI 032. The samples for round robin testing were selected in accordance with ARI 014. The above values relate only to the material used to produce this standard. This bottle consists of 25g material in .25g pins (nominal) and is to be used directly from the bottle without preparation. Multiple pins may be used per test method requirements.

Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Elemental Microanalysis Ltd be liable for incidental or consequential damages.

This Reference Material (working standard) is traceable to the above-mentioned standards. For good laboratory practice it is recommended that all standards be verified prior to use.

Certified, August 30, 2016

Elemental Microanalysis Ltd