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**Certificate of Analysis  
Part No. B2751  
Carbon Steel Chip Standard**

Certificate Number 120308  
Date 18 April 2013  
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**% Carbon**

**Mean = 0.470%**  
**One sigma = 0.004%**  
**Two sigma = 0.008%**  
**Range = 0.463 – 0.478%**

**%Sulphur**

**Mean = 0.021%**  
**One sigma = 0.001%**  
**Two sigma = 0.002%**  
**Range = 0.019 – 0.023%**

**PPM Nitrogen**

**Mean = 104 PPM**  
**One sigma = 2 PPM**  
**Two sigma = 4 PPM**  
**Range = 100 – 108 PPM**

Method of analysis is ASTM E 1019-03, ARI 033 and ARI 034

**Primary Standards Employed:**

NIST 50c, 368, 100b, 12h, 346a, 2160  
BAM 284-2, 035-1, 084-1  
JSS 102-6, 602-9, 150-15  
NCS HC11001, NS13007, NS13016

**Notes**

The mean analytical values were derived by a number of data sets, (n=50), by various instrumentation meeting ASTM E 1019-03. The precision values represent the standard deviation, two times the standard deviation (k=2, 95% confidence limit), and complete range of analysis data.

The material used in production of this standard was sampled in accordance with ARI 032. The samples used for round robin testing were selected in accordance with ARI 014. The above values relate only to the material used to produce this standard.

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 is a Certified Reference Material (CRM), and is traceable to the above-mentioned standards. For good laboratory practice it is recommended that all standards be verified prior to use.

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Certified January, 2009