

BRAMMER STANDARD COMPANY, INC.

Provisional Certificate of Analysis

BS 1018

Certified Reference Material for Carbon Steel Grade 1018 - UNS Number G10180

| Estimated Analysis ¹ | | Estimated Analysis ¹ | |
|--------------------------------------|--------|---------------------------------|--------|
| Analysis listed as percent by weight | | | |
| Al | 0.03 | Nb | <0.005 |
| As | <0.005 | Ni | 0.11 |
| B | <0.005 | O | 0.002 |
| C | 0.19 | P | 0.013 |
| Ca | <0.005 | Pb | <0.005 |
| Co | <0.05 | S | 0.026 |
| Cr | 0.18 | Si | 0.23 |
| Cu | 0.13 | Sn | <0.05 |
| Fe | [98.2] | Ti | <0.005 |
| Mg | <0.005 | V | 0.001 |
| Mn | 0.80 | W | <0.005 |
| Mo | 0.05 | Zr | <0.05 |
| N | 0.010 | | |

¹ The estimated value listed is the present best estimate of the true value. Values are given in weight percent.

Form: This CRM is machined in the form of a disc approximately 38 mm in diameter and 19 mm thick by Brammer Standard Company, Inc.

A detailed final certificate of analysis will be supplied by October 26, 2018.