

## Alloy UNS C18000

Materion Brush Performance Alloys' UNS C18000 is a low cost copper nickel silicon chromium alloy with high electrical and thermal conductivity possessing good strength and hardness. Typical applications include resistance welding equipment and injection mold and blow mold cores and cavities.

### CHEMICAL COMPOSITION (weight percent)

| Alloy      | Nickel    | Silicon   | Chromium  | Copper  |
|------------|-----------|-----------|-----------|---------|
| UNS C18000 | 1.8 – 3.0 | 0.4 – 0.8 | 0.1 – 0.8 | Balance |

### PHYSICAL PROPERTIES

| Elastic Modulus       | Melting Point (Solidus) | Density   | Thermal Expansion  | Thermal Conductivity (100 °C) | Heat Capacity (100 °C)        |
|-----------------------|-------------------------|---|--|-------------------------------|-------------------------------|
| 18,500 ksi<br>130 GPa | ~1900 °F<br>~1040 °C    | .318 lb/in <sup>3</sup><br>8.81 g/cm <sup>3</sup> | 9.72x10 <sup>-6</sup> in/in °F<br>17.5 x 10 <sup>-6</sup> °C <sup>-1</sup> | 130 BTU/hr-ft.°F<br>225 W/m·K | .095 BTU/lb.°F<br>0.398 J/g·K |

### TYPICAL MECHANICAL PROPERTIES\*

| 0.2% Offset Yield Strength | Ultimate Tensile Strength | Elongation | Hardness            |
|----------------------------|---------------------------|------------|---------------------|
| 75 ksi<br>520 MPa          | 95 ksi<br>655 MPa         | 14%        | 92 HRB<br>(~15 HRC) |

\*Properties may vary by shape and thickness.

### FORMS AVAILABLE

Rounds, square and rectangular bars, plate and forged rings.

### SPECIFICATIONS

Meets RWMA Class 3.

### RELATED INFORMATION

Additional information on C18000 and MoldMAX products can be obtained by calling 800-375-4205.

### North American Service Centers – Sales Inquiries

For strip, wire and rod under 0.4" (10 mm) diameter

#### Elmhurst, IL

TOLL FREE: 800.323.2438  
LOCAL: +(1) 630.832.9650  
FAX: +(1) 630.832.9657

For plate, tube, bar, and rod 0.4" (10 mm) diameter and over

#### Warren, MI

TOLL FREE: 800.521.8800  
LOCAL: +(1) 586.772.2700  
FAX: +(1) 586.772.2472

### International Sales Offices

#### CHINA/HONG KONG

TEL: +852.2318.1960/1907  
[brushalloysHK-info@materion.com](mailto:brushalloysHK-info@materion.com)

#### INDIA/PUNE

TEL: +(91) 99606.33744  
[brushalloysIN-info@materion.com](mailto:brushalloysIN-info@materion.com)

#### SINGAPORE/ASEAN

TEL: +(65) 6842.4456  
[brushalloysSG-info@materion.com](mailto:brushalloysSG-info@materion.com)

#### CHINA/SHANGHAI

TEL: +(86) 21.5237.2328  
[brushalloysCN-info@materion.com](mailto:brushalloysCN-info@materion.com)

#### JAPAN

TEL: +(81) 33.230.2961  
[brushalloysJP-info@materion.com](mailto:brushalloysJP-info@materion.com)

#### TAIWAN, R.O.C.

TEL: +(886) 2.2747.8800x121  
[brushalloysTW-info@materion.com](mailto:brushalloysTW-info@materion.com)

#### GERMANY

TEL: +(49) 711.830.930  
[brushalloysDE-info@materion.com](mailto:brushalloysDE-info@materion.com)

#### REPUBLIC OF KOREA

TEL: +(82) 32.811.2171  
[brushalloysKR-info@materion.com](mailto:brushalloysKR-info@materion.com)

#### UNITED KINGDOM @ IRELAND

TEL: +(44) 118.930.3733  
[brushalloysUK-info@materion.com](mailto:brushalloysUK-info@materion.com)

To obtain a complete list of Materion's global distributor/agent network, visit us online at [www.materion.com/BrushAlloys/ContactUs](http://www.materion.com/BrushAlloys/ContactUs).



#### Materion Brush Performance Alloys

6070 Parkland Boulevard  
Mayfield Heights, OH 44124 USA  
phone: 216.486.4200 fax: 216.383.4005  
email: [BrushAlloys-info@materion.com](mailto:BrushAlloys-info@materion.com)

#### MATERION CORPORATION

[www.materion.com/alloys](http://www.materion.com/alloys)  
**AD0054\_0311**  
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