Olin Brass Alloy C19720 is a dispersion strengthened, high conductivity copper alloy with mechanical and physical properties identical to Olin Brass C19700. C19720 was developed by modifying the chemistry of C197 in order to produce an alloy with improved reliability at elevated temperatures. C197 performs well up to 115°C, however, C19720 will maintain at least 70% of its initial stress after exposure to 125°C for 3000 hours and 150°C for 1000 hours. C19720 is an ideal fit for active contact applications in automotive power distribution where high current-carrying capability and good strength are required.

### Chemical Composition

<table>
<thead>
<tr>
<th>Element</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper¹</td>
<td>Remainder</td>
</tr>
<tr>
<td>Iron</td>
<td>0.05-0.50%</td>
</tr>
<tr>
<td>Magnesium</td>
<td>0.06-0.20%</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.05-0.15%</td>
</tr>
<tr>
<td>Tin</td>
<td>0.20% max</td>
</tr>
<tr>
<td>Zinc</td>
<td>0.20% max</td>
</tr>
<tr>
<td>Nickel</td>
<td>0.10% max</td>
</tr>
<tr>
<td>Lead</td>
<td>0.05% max</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.05% max</td>
</tr>
</tbody>
</table>

¹ Cu plus Named Elements, 99.5%

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### Physical Properties

#### Density

- **English Units**: 0.319 lb/in³ @ 68°F
- **Metric Units**: 8.84 g/cm³

#### Thermal Conductivity

- **English Units**: 185 BTU-ft/ft²-hr-°F
- **Metric Units**: 320 W/m·°K

#### Electrical Resistivity

- **English Units**: 13 ohm circ mils/ft
- **Metric Units**: 2.16 microhm-cm

#### Electrical Conductivity (annealed)

- **English Units**: 80% IACS*
- **Metric Units**: 0.464 megamho/cm

#### Modulus of Elasticity

- **English Units**: 17,200,000 psi
- **Metric Units**: 118 kN/mm²

#### Thermal Capacity (Specific Heat)

- **English Units**: 0.090 Btu/lb/°F @ 68°F
- **Metric Units**: 377.1 J/kg · °K at 293 K

#### Coeff. Of Thermal Expansion

- **English Units**: 68-212°F (20-100°C)
- **Metric Units**: 9.60 PPM/°F

*International Annealed Copper Standard

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### Mechanical Properties

#### Temper¹

<table>
<thead>
<tr>
<th>Temper</th>
<th>Tensile Strength</th>
<th>Yield Strength²</th>
<th>% Elongation²</th>
<th>Typical 90° Bend Formability GW/BW³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ksi</td>
<td>N/mm²</td>
<td>ksi</td>
<td>N/mm²</td>
</tr>
<tr>
<td>1/2 Hard</td>
<td>53-63</td>
<td>365-435</td>
<td>48</td>
<td>330</td>
</tr>
<tr>
<td>Hard</td>
<td>60-70</td>
<td>415-480</td>
<td>60</td>
<td>415</td>
</tr>
<tr>
<td>Extra Hard</td>
<td>67-73</td>
<td>460-505</td>
<td>67</td>
<td>460</td>
</tr>
</tbody>
</table>

¹ Mechanical properties subject to change. All temps listed are made to a Tensile Strength specification unless otherwise noted.

² Nominal Values

³ DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness <0.020” (0.4mm) thick, 11/16 (17.5mm) wide.

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**Figure 1: C19720 Stress Relaxation Performance.**

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