**DESCRIPTION**
An alloy of 49% Cobalt, and 2% Vanadium, balance Iron, Hiperco 50 and Hiperco 50A have the highest magnetic saturation of all soft-magnetic alloys and excels in applications where this attribute is needed. Hiperco 50 maintains its strength after heat treating making it your best choice for applications that experience high forces (e.g. rotating parts).

**APPLICATIONS**
Special Motors for the Aerospace Industry (e.g. applications where high magnetic saturation and high strength is required with as little weight as possible); Electromagnets for medical applications (e.g. to focus beams for radiation therapy in medical radiology applications); Electrical Generators; Specialty Transformers (e.g. electrical circuits and magnetic circuits where frequencies must be varied); Pole Pieces for Electromagnets; Magnetic Bearings (e.g. applications where rotating parts are levitated); High Magnetic Flux Devices and Instruments.

**TYPICAL DC MAGNETIC PROPERTIES - 0.014" STRIP**

<table>
<thead>
<tr>
<th>Property</th>
<th>Hiperco 50</th>
<th>Hiperco 50A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturation Induction</td>
<td>24,000</td>
<td>24,000</td>
</tr>
<tr>
<td>Maximum Permeability</td>
<td>12,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Coercive Force - Oersteds</td>
<td>0.9</td>
<td>0.4</td>
</tr>
<tr>
<td>Coercive Force - A/m</td>
<td>72</td>
<td>32</td>
</tr>
</tbody>
</table>

**PHYSICAL PROPERTIES** (Hiperco 50 & 50A)

- Density: 0.293 lb/cu in
- Specific Gravity: 8.12
- Curie Temp: 1720 °F, 938 °C
- Melting Point: 2600 °F, 1427 °C
- Electrical Resistivity: 41 micro-ohm-cm, 240 ohm-circ mil/ft
- Thermal Conductivity: 0.29 W/cm °C, 200 BTU-in/sq. ft-°F
- Specific Heat: 0.10 Cal/g-°C, 0.10 BTU/lb-°F
- Thermal Expansion: 5.6 ppm/°F(75°F to 932°F), 10.2 ppm/(25°C to 500°C)

**MECHANICAL PROPERTIES**

- Tensile Strength: 118 ksi, 814 MPa
- Yield Strength: 63 ksi, 435 MPa
- Elongation: 9%

**CHEMISTRY**

<table>
<thead>
<tr>
<th>Element</th>
<th>Hiperco 50</th>
<th>Hiperco 50A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>Bal</td>
<td>Bal</td>
</tr>
<tr>
<td>Nickel*</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Cobalt</td>
<td>49 nom.</td>
<td>49 nom.</td>
</tr>
<tr>
<td>Chromium</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Carbon</td>
<td>0.025</td>
<td>0.025</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.15</td>
<td>0.15</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- ASTM A801 Alloy Type 1

**FORMS AVAILABLE**

- Hiperco 50 Strip/Coil: 0.004" - 0.020"
- Hiperco 50 Plate: 0.50" - 5.00"
- Hiperco 50A Rod: 0.50" - 3.00"

Hiperco 50 & 50A supplied unannealed. If you do not see the size or form you require listed above, please call us. We add new stock material frequently, and may have the size and form you need.

**Material Locator**

Ed Fagan Inc also specializes in locating exotic materials. So, if you can’t locate that hard-to-find material you need... Put EFI’s material locator service to work for you!

**THE MATERIALS YOU NEED, WHEN YOU NEED THEM**

- Toll free: 800.348.6268
- www.edfagan.com
- sales@edfagan.com

1. Hiperco 50 and Hiperco 50A Trademark Carpenter Technology Corp., Reading PA
Materials Locator

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