Alloy 800
Technical Datasheet

Nickel Iron Chromium Alloy

Typical Applications
• Furnace components
• Steam / hydrocarbon reforming components
• Petrochemical furnace cracker tubes
• Electrical heating elements
• Heat exchangers
• Power generation
• Pressure Vessels
• Hydrocarbon plants

Product Description
Alloy 800 is a nickel chromium iron alloy which is typically used in high temperature service applications where resistance is required from the effects of high temperature corrosion such as oxidation and carburization. Common applications include power generation, heat-treatment furnaces and hydrocarbon processing plants. With good creep and stress rupture properties the material retains good metallurgical stability at high temperature. Three alloys are available - Alloy 800, 800H & 800HT.

Key features
• Excellent high temperature strength
• Oxidation, carburization and sulfidation resistance
• Good creep-rupture properties
• Metallurgical stability in long-term applications at high temperatures

Related material specifications
• ASTM B407, B514, B366, B408, B564
• ASME SB407, SB514, SB366, SB408, SB564

Availability
Bar, tube, strip, plate, sheet

Weldability
Good.

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>Alloy 800</th>
<th>Ni</th>
<th>Cr</th>
<th>Fe</th>
<th>C</th>
<th>Al</th>
<th>Ti</th>
<th>Al+Ti</th>
<th>Mn</th>
<th>S</th>
<th>Si</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>30.0</td>
<td></td>
<td></td>
<td>39.5</td>
<td>0.15</td>
<td>0.15</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max</td>
<td>35.0</td>
<td></td>
<td></td>
<td>23.0</td>
<td>0.10</td>
<td>0.60</td>
<td>0.60</td>
<td>1.20</td>
<td>1.50</td>
<td>0.015</td>
<td>1.0</td>
<td>0.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Alloy 800HT</th>
<th>Ni</th>
<th>Cr</th>
<th>Fe</th>
<th>C</th>
<th>Al</th>
<th>Ti</th>
<th>Al+Ti</th>
<th>Mn</th>
<th>S</th>
<th>Si</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>30.0</td>
<td></td>
<td></td>
<td>39.5</td>
<td>0.06</td>
<td>0.15</td>
<td>0.15</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max</td>
<td>35.0</td>
<td></td>
<td></td>
<td>23.0</td>
<td>0.10</td>
<td>0.60</td>
<td>0.60</td>
<td>1.20</td>
<td>1.50</td>
<td>0.015</td>
<td>1.0</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th></th>
<th>Tensile Strength (ksi)</th>
<th>72.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield Strength (ksi)</td>
<td>25.0</td>
<td></td>
</tr>
</tbody>
</table>

Technical Assistance
Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

www.smithmetal.com  sales@smithmetal.com