A corrosion resistant silicon barrier coating ideal for acidic, oxidative, and high purity environments.

Overview

Silcolloy® (US Patent 7,070,833) is a chemically protective, corrosion resistant, multi-layered barrier of amorphous silicon. Applied via chemical vapor deposition (CVD), Silcolloy is the ideal choice for protecting stainless steels, exotic metals, glass, ceramics and other alloys from acidic attack or for preventing unwanted compounds from entering the process stream.

Features & Benefits

• 3D non-line-of-sight process coats all complex geometries and small orifices
• Achieve exotic material performance at a fraction of the price
• Fight corrosion with a non-reactive, pure barrier

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substrate compatibility*</td>
<td>SS alloys, ceramics, glass, titanium, most exotic metals, TIG/MIG welds, vacuum-nickel brazed areas</td>
</tr>
<tr>
<td>Allowable temp. range*</td>
<td>-210 °C to +1410 °C</td>
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<tr>
<td>Thickness</td>
<td>180-800 nm</td>
</tr>
<tr>
<td>Allowable pH exposure</td>
<td>0-8</td>
</tr>
<tr>
<td>Lubricity (coefficient of friction)</td>
<td>0.7</td>
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<tr>
<td>Hydrophobicity (contact angle)</td>
<td>60°</td>
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<tr>
<td>Wear resistance</td>
<td>14.00 (304 stainless steel: 13.81)</td>
</tr>
</tbody>
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* Contact technical service
Data

**Acid Corrosion Resistance**
Silcolloy® protects stainless steel against corrosive attack from even the strongest acids.

**Crevice Corrosion**
Silcolloy acts as a barrier to prevent pitting and crevice corrosion.

**Adhesion**
Our CVD process ensures a molecularly bonded coating that will not flake or peel.

**Lifecycle Cost**
Silcolloy offers a significantly lower lifecycle cost compared to exotic materials.

**Semiconductor-Related Corrosion**
High purity, corrosion resistant Silcolloy is ideal for gas delivery and chamber systems.

**Acid Corrosion Comparative Results**
Silcolloy shows minimal pitting while uncoated stainless steel shows significant crevice corrosion.

**High Purity**
Multilayer silicon surface prevents leaching of metal ions into process streams.