Overview

The Silcolloy® coating process results in a chemically protective, corrosion resistant, multi-layered barrier of amorphous silicon (patent info at www.silcotek.com/IP). Applied by a chemical vapor deposition (CVD) process, the Silcolloy® process is the ideal choice for protecting stainless steels, exotic metals, glass, ceramics and other alloys from corrosive attack or for preventing unwanted compounds from entering the process stream.

Key Applications and Benefits

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

Silcolloy® Specifications

<table>
<thead>
<tr>
<th><strong>Coating Structure:</strong></th>
<th>Hydrogenated amorphous silicon (a-Si:H)</th>
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</thead>
<tbody>
<tr>
<td><strong>Deposition Process:</strong></td>
<td>Thermal chemical vapor deposition (not plasma-enhanced)</td>
</tr>
<tr>
<td><strong>Maximum Temperature:</strong></td>
<td>1410° C*</td>
</tr>
<tr>
<td><strong>Substrate:</strong></td>
<td>Compatibility: Stainless steel, exotic alloys, ceramics Up to 78” (198 cm)</td>
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<tr>
<td></td>
<td>Size: Up to 78” (198 cm)</td>
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<tr>
<td></td>
<td>Geometry: Any shape, including complex geometrics</td>
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<tr>
<td><strong>Typical Thickness:</strong></td>
<td>180 - 800 nm</td>
</tr>
<tr>
<td><strong>Hydrophobicity (contact angle):</strong></td>
<td>$\geq 40^\circ$</td>
</tr>
<tr>
<td><strong>Allowable pH Exposure:</strong></td>
<td>0 - 8</td>
</tr>
</tbody>
</table>

*Contact technical service
CHEMICALLY COMPATIBLE
The amorphous silicon structure applied by the Silcolloy® process provides excellent barrier properties in a variety of applications.

HYDROPHOBICITY COMPARISON
Silcolloy® offers a general purpose moisture barrier that improves hydrophobicity over uncoated stainless steel.

CORROSION RESISTANT
The Silcolloy® process produces a continuous, pinhole-free corrosion barrier to aggressive acidic conditions.

HIGH-TEMPERATURE STABLE
The Silcolloy® process provides coatings inert at temperatures up to 1410°C, allowing high temperature analytical or general barrier applications.

PURE
The Silcolloy® process produces a chemically pure layer that improves compatibility between your equipment and process stream.

Element | Coating Contents
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Aluminum | <20 ppm
Chromium | 0 ppm
Iron | <100 ppm
Nickel | <10 ppm
SilcoTek Silicon CVD Coating | 99.98% purity

UNIFORM
The Silcolloy® process produces a uniform, inert, amorphous silicon surface.