

Silcolloy®

Providing corrosion resistant silicon barrier coatings, ideal for acidic, oxidative, and high purity environments.

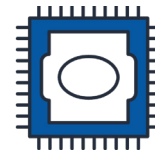
Overview

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

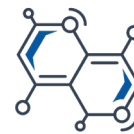
- 3D non-line-of sight process coats all complex geometries including designs with high aspect ratios and small orifices.
- Achieve exotic material performance at a fraction of the price.
- Fight corrosion with a non-reactive, pure barrier.



Semiconductor



Stack & Flare



Chemical Process



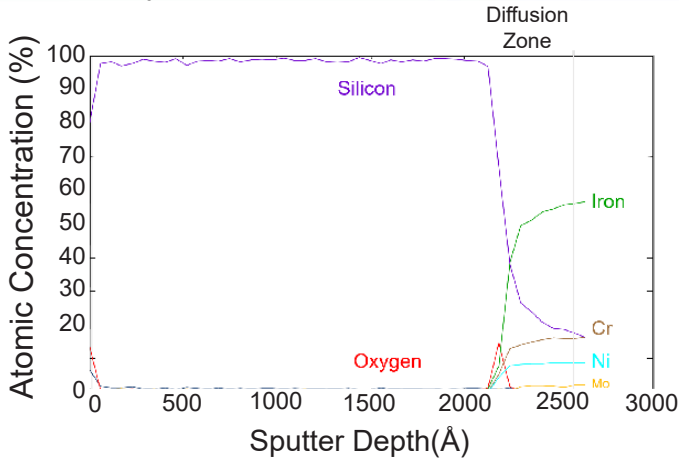
Oil & Gas/Refining

Silcolloy® Properties

Coating Structure:	Hydrogenated amorphous silicon (a-Si:H)
Deposition Process:	Thermal chemical vapor deposition (not plasma-enhanced)
Maximum Temperature:*	Advertised properties, before crystallization: 720° C Melting: 1410° C
Substrate:	Compatibility: Stainless steel, exotic alloys, ceramics Size: Typical parts up to 80" (203 cm), contact us for larger jobs. Geometry: Any shape, including complex geometries
Typical Thickness:	180 - 800 nm
Hydrophobicity (contact angle):	≥40°
Allowable pH Exposure:	0 - 8

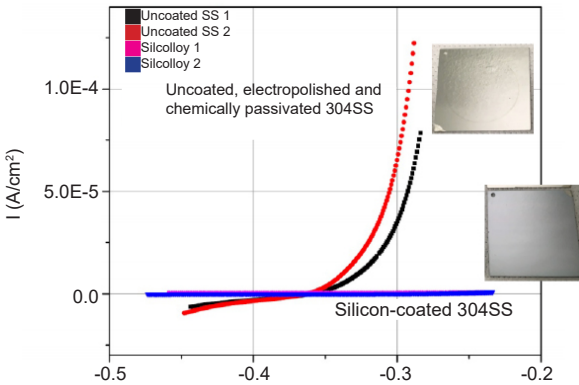
CHEMICALLY COMPATIBLE

The amorphous silicon structure applied by the Silcolloy process provides excellent barrier properties in a variety of applications.



CORROSION RESISTANT

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



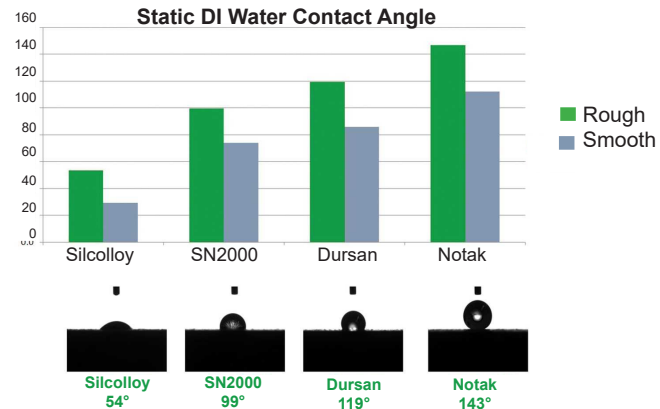
PURE

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

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

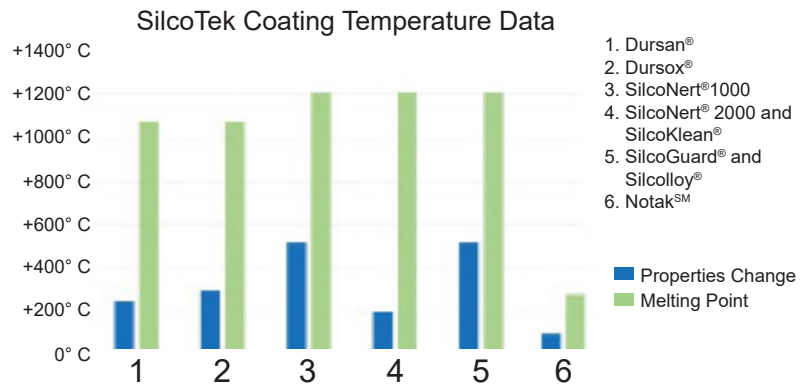
HYDROPHOBICITY COMPARISON

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



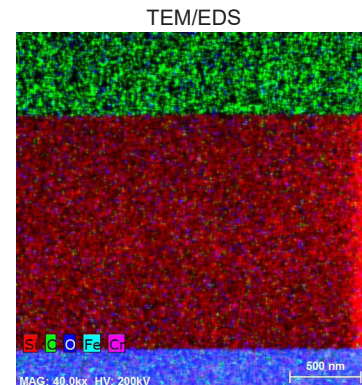
HIGH-TEMPERATURE STABLE

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



UNIFORM

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





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*Silcolloy® refers to the Silcolloy® process, which is a thermal chemical vapor deposition process that we perform to enable your parts to have the properties identified above.