



 814-353-1778
 814-353-1697
Silcod@SilcoTek.com



Frequently Asked Questions

General Questions

Do I need to pre-clean my parts prior to sending them to SilcoTek® for coating?

Can SilcoTek® coat assemblies like valves, regulators, and flow controllers?

Are SilcoTek's coatings RoHS and REACH compliant? What about their MSDS sheets?

Ordering

Where can I order parts already coated by SilcoTek?

How can I receive pricing for custom surface treatment?

How do I select the most appropriate treatment for my application?

Coating Properties

Why do Silco'd treated pieces have different colors?

What are the operating temperatures for SilcoTek treated surfaces?

How thick are SilcoTek coatings?

Design, Fabrication and Installation of Coated Parts

Can I weld my parts after coating?

Will brazing impact the quality of the coating?

How tightly can the tubing be bent?

Do SilcoTek coatings change the roughness of the surface?

Can sealing surfaces be coated?

Can ferrules be treated?

Coating non-Steel Substrates

What materials can be surface treated?

Will you re-deactivate my SilcoNert® 2000 treated glass liners or SilcoNert® 1000 metal liners after I clean them?

What is the maximum temperature limit for SilcoNert 2000 deactivated glass?

Why is SilcoNert® 2000 on glass gold in color?

Can SilcoTek® coat fritted liners?

Can SilcoTek coat aluminum substrates?

How do I select the most appropriate treatment for my application?

The following definitions explain the various treatments currently available and their recommended applications:

SilcoNert® 1000 (Silcosteel®)

A general-purpose passivation layer for steel and stainless steel.

SilcoNert® 2000 (Siltek®/Sulfinit®)

The ultimate passivation of treated surfaces, from glass to high nickel alloys of steel. A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds, mercury, and other reactive chemicals.

Silcolloy®

A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, or seawater. Also a tremendous oxidation-resistant barrier.

SilcoKlean®

Dramatically reduces carbon coke buildup on stainless steel components.

SilcoGuard®

Greatly reduces outgassing from components of ultra-high vacuum systems.

Dursan®

Our most versatile coating. Ideal for corrosion resistance in pH 0-14 environments but also highly inert for low-level (ppm) sampling. Ideal for harsh processing or analytical environments, Dursan also offers 2x the wear resistance of bare 316 stainless steel.

Dursox™

A ceramic-like silicon oxide (SiO) film. Ideal for protecting parts when the carbon content of Dursan is not desirable.

[\[back to top\]](#)

What materials can be surface treated?

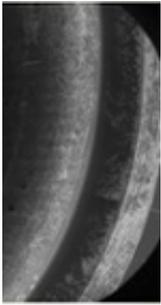
Virtually all alloys of stainless steel, ceramic, and most glass materials can be treated. Some other metallic materials, such as nickel, brass, copper, and aluminum, are incompatible with the high (400°C) temperatures used in the process, and should not be treated.

Note: carbon steel, F22 or similar carbon steel, is not recommended for coating in corrosion resistant applications. Treated carbon steel may rust in corrosive environments. Avoid corrosive environments when using treated carbon steel in inert sampling applications.

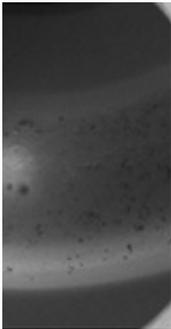
[\[back to top\]](#)

Can sealing surfaces like CF, face seal, threaded and compression fittings be coated?

Yes! SilcoTek coatings are proven to withstand compression and shear stress common to CF, face seal, and threaded sealing systems.



FESEM (Field Emission Scanning Electron Microscopy) image of the coated pre-sealed surface shows the coating conforms to the sealing area. The raised surfaces of the face seal gland area can be seen. SilcoTek coatings conform to surface contours and small orifices.



After making the metal-to-metal face seal per manufacturers instruction, a second FESEM image of the post sealing surface shows no scarring or scratching, only trace particulate from the silver gasket.

[\[back to top\]](#)

Can ferrules be treated?

SilcoTek does not recommend coating ferrules as we have found this may lead to leaking problems

after coating.

[\[back to top\]](#)

What are the operating temperatures for SilcoTek treated surfaces?

Maximum temperatures usually will be dictated by the construction material (glass, stainless steel, etc.), not by the surface treatment. In general, temperatures should not exceed those listed in Table I. Temperatures greater than 450°C for SilcoNert®2000 (formerly Sulfinert® or Siltek®) and Dursan® treated surfaces or greater than 1000°C for SilcoNert®1000 (formerly Silcosteel®), Silcolloy®, or SilcoGuard® treated surfaces can be used under certain conditions. Heat treatment of parts before applying a Silcolloy, SilcoNert1000, SilcoGuard, coating extends the maximum temperature limit (determined by the base substrate). Please contact technical support at 814-353-1778, for additional information.

SilcoTek® coatings are stable to the following temperatures in an inert atmosphere:

SilcoNert® 2000

SilcoNert® 1000

Silcolloy®

SilcoGuard®

SilcoKlean®

Dursan®

Dursox™

450°C

1000°C

1000°C

1000°C

1000°C

450°C

450°C

[\[back to top\]](#)

How can I receive pricing for custom surface treatment?

[Click here to request a quotation](#) for custom surface deactivation of sample pathway components, inlet liners, etc. Please forward a scaled drawing or photograph detailing the product to be treated. Upon receipt of this completed worksheet, SilcoTek's Technical Staff will contact you with a quotation, typically within 1 business day or less.

When you are ready to send items to SilcoTek for treatment, contact technical support at 814-353-1778 or email SilcoD@SilcoTek.com to request a sales order number. When submitting parts for treatment, remember that parts must be completely disassembled, and components that cannot withstand the high (400°C) temperatures associated with the process (rubber o-rings, brass, etc.) must be removed. Note that SilcoTek cannot assume liability for damaged parts due to process heat. See your quote for specific disclaimers.

[\[back to top\]](#)

How will SilcoTek surface treatments work in my acidic environment?

SilcoNert 1000 and SilcoNert 2000 treated materials have improved corrosion resistance, but Silcolloy (formerly Silcosteel®-CR) and Dursan surface treatments are optimized to enhance resistance to many common acids; providing a 10-fold improvement in corrosion resistance, compared to untreated stainless steel, and a 4-fold improvement compared to SilcoNert 1000 coated stainless steel.

Note: carbon steel, F22 or similar carbon steel, is not recommended for coating in corrosion resistant applications. Treated carbon steel may rust in corrosive environments. Avoid corrosive environments when using treated carbon steel in inert sampling applications.

[\[back to top\]](#)

What is SilcoNert 2000?

SilcoNert2000 (U.S. patent 6,444,326) is a passivation process that applies an inert, integral layer to components used for chromatographic analysis. Unlike traditional deactivations, it is not susceptible to cleavage or formation of active silanols and, therefore, greatly reduces bleed, and breakdown or adsorption of active components, compared to conventional surface coatings.

[\[back to top\]](#)

Can I weld my parts after coating?

Welding will remove the SilcoTek coating ~2-4mm in all directions from the heat affected zone.

SilcoTek can coat over high-quality welds, such as those listed in our [material compatibility guide](#).

For specific questions regarding welding, please call +1 (814) 353-1778 and press 2 for technical service.

[\[back to top\]](#)

Can SilcoTek coat aluminum substrates?

Yes, SilcoTek can coat most grades of aluminum alloys. It is important that customers inform SilcoTek of the exact material grade of aluminum substrates prior to sending parts. Learn more by [clicking here](#).

***SilcoTek will not coat cylinders or any other aluminum product that will be pressurized.**

[\[back to top\]](#)

Why is SilcoNert 2000 on glass gold in color?

The color of a surface coating is an expression of the light diffraction qualities and thickness of the layer. The thickness of a SilcoNert 2000 layer determines the degree of darkness, secondary reflectivity, and/or final color of the item. The color can range from light golden-brown (thin coatings) to reflective silver (heavier coatings). We deposit a layer that provides a gold color on liners to aid analysts in inspecting for cleanliness. Chromatographic performance does not depend on the thickness of the layer.

[\[back to top\]](#)

How thick are SilcoTek coatings?

There are several variables that determine thickness, but all SilcoTek coatings in current production are deposited at $>3\mu\text{m}$ thicknesses. Please [contact us](#) to discuss thickness specifications.

[\[back to top\]](#)

What is the maximum temperature limit for SilcoNert 2000 deactivated glass?

Maximum temperatures usually will be dictated by the composition of the glass, not by the surface treatment. The SilcoNert 2000 layer is stable at temperatures up to 450°C , but some glasses can soften at lower temperatures. Injection port temperatures normally are well below the SilcoNert 2000 maximum temperature limit, so SilcoNert 2000 treatment is an excellent deactivation for all injection port surfaces.

[\[back to top\]](#)

Does SilcoTek offer custom SilcoNert treatment?

We are always interested in your specific surface passivation needs. Surface deactivation of glass or metal with a SilcoNert 2000 layer is available on a custom basis, and liner deactivation has become popular with some customers. Please keep in mind that treated surfaces must be able to withstand temperatures up to 400°C , as well as vacuum and pressure environments. It is important to remove any o-rings, seals, or other materials that will not withstand the treatment environment prior to sending items to SilcoTek for coating.

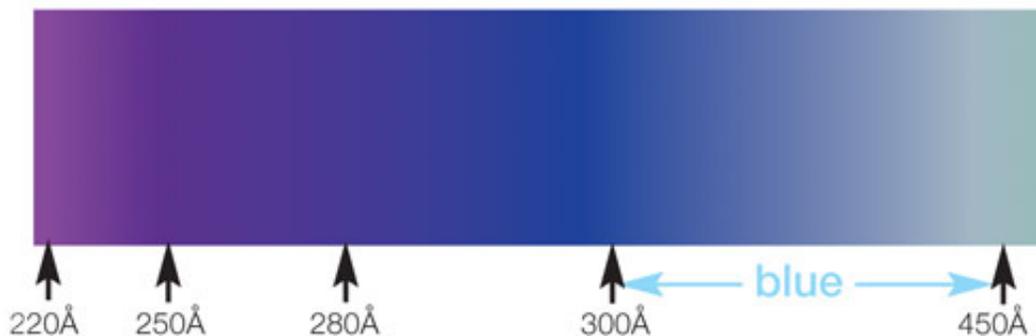
Our SilcoTek Group can provide a quote. Please submit a quote or contact us at 814-353-1778.

[\[back to top\]](#)

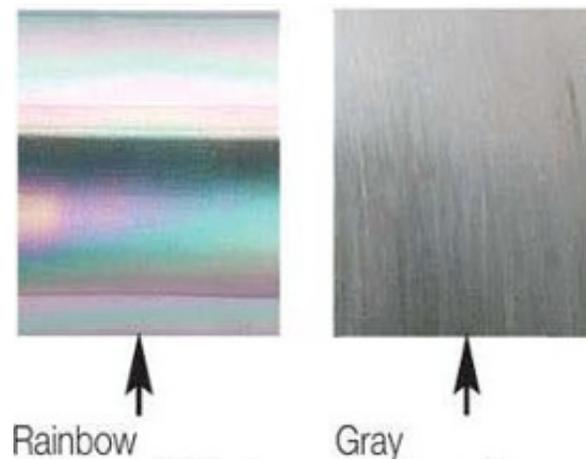
Why do Silco'd™ treated pieces have different colors?

The different colors observed on Silco'd treated parts indicate different layer thicknesses. A blue color corresponds to a 300 to 450 Angstrom layer while a rainbow color indicates a coating of at least 1200 Angstroms (120 nanometers).

Colors associated with layer thickness are:



Depositions used in our Silcolloy and SilcoGuard processes are up to $1\mu\text{m}$ and have a silver/metallic gray appearance. The photos below show colors created by SilcoNert 1000 (left) and Silcolloy 1000 (right).



[\[back to top\]](#)

Will you re-deactivate my SilcoNert 2000 treated glass liners or SilcoNert 1000 metal liners after I clean them?

Request re-deactivation of SilcoNert 2000 treated glass liners by contacting SilcoTek's Customer Service department at 814-353-1778. Requesting SilcoNert 2000 re-deactivation of customer supplied liners. A minimum of ten liners is required. Metal inlet liners are designed as inexpensive, disposable products and it is not cost effective to re-treat them. We recommend discarding them when they are no longer serviceable.

[\[back to top\]](#)

How tightly can the tubing be bent?

OD

<= 1/16"

1/8"

1/4"

3/8"

Min. Bend Radius

1" (2.5 cm)

2" (5.1 cm)

4" (10.2 cm)

6" 15.2 cm)

[\[back to top\]](#)

Can SilcoTek coat assemblies like valves, regulators, and flow controllers?

Absolutely! SilcoTek can coat the internal and external metal pathways for most flow regulating and metering devices to enhance their inertness and provide corrosion resistance. In order to coat the surfaces, all valves, regulators, and flow meters should be disassembled and all seals or parts which cannot be exposed to temperatures of approximately 400°C must be removed. Disassembly should only be performed by qualified personnel with the appropriate seal kits, tools, and training OR damage or failure to the device will occur. For these reasons, SilcoTek cannot take on the responsibility of disassembly or reassembly of any valve, regulator, or flow meter. If you do not have the experience

and parts necessary to disassemble these devices, we recommend that you get in touch with Swagelok, Parker, or your valve manufacturer and order the coating treatment directly from them. SilcoTek has business relationships with most manufacturers and routinely coats the internal and external surfaces of valves, regulators, and flow meters for them. The manufacturer will send the parts prior to assembling to SilcoTek for coating and will assemble the parts at their factory under the guidance of their quality systems.

[\[back to top\]](#)

Where can I order products that are already coated by SilcoTek?

SilcoTek does not sell anything besides our coating services, but our [Channel Partners](#) work with us to stock their products with our coatings to help you supply chain. [Click here to see product listings.](#)

[\[back to top\]](#)

Will brazing impact the quality of the coating?

Yes, brazed joints will outgas during the coating process and will negatively impact the coating quality. SilcoTek does not recommend coating over brazed joints. Coated brazed joints appear as a matte brown finish and can have increased activity/reactivity at the brazed joint. SilcoTek recommends vacuum brazing or welding of joints for best coating quality. Vacuum brazing is a high temperature, flux-free brazing process that results in a contamination free joint. SilcoTek recommends vacuum brazing services from Solar Atmospheres Inc.

[\[back to top\]](#)

Do I need to pre-clean my parts prior to sending them to SilcoTek for coating?

Your parts are precision cleaned by SilcoTek prior to processing. Additional pre-cleaning by the customer is often unnecessary and at times can be detrimental to our coating process.

In order to provide the highest quality coating and fastest processing; notify SilcoTek of any prior chemical exposure (regardless of whether the part is new or used). Chemicals like cutting oils, pickling acids, solvents, water based cleaning compounds or other hazardous or non hazardous chemicals may impact the coating process. Many times the customer's cleaning process or chemical exposure can be eliminated, saving the customer time and money. Before sending parts to SilcoTek, contact your SilcoTek representative at silcod@SilcoTek.com or call us at (814) 353-1778

[\[back to top\]](#)

Can SilcoTek coat fritted liners?

SPECIAL NOTE: Coating of glass fritted liners: SilcoTek would prefer that all glass liners be sent without deactivation (e.g. silanization) since the deactivation layer will prevent our intermolecular coatings from bonding to the surface. For most glass liners, our cleaning process will remove all prior deactivants. However, SilcoTek cannot put fritted liners through our cleaning process without damaging the frit.

Fritted liners are special because there is no effective way of cleaning glass frits or stripping the coating in case of failure. As we continue to gain experience with glass frits and tailor our processes, we will get better. Our major hurdle is being able to "test" fritted liners prior to coating to ensure they

are clean. We continue to work on this aspect of our operation.

[\[back to top\]](#)

Are SilcoTek's coatings RoHS and REACH compliant? What about their SDS sheets?

Visit <http://www.silcotek.com/compliance-statements> to learn more about how our coatings are non-hazardous and in compliance with the law. The treatments do not require SDS sheets.

[\[back to top\]](#)

Do SilcoTek coatings change the roughness of the surface?

SilcoTek coatings conform to the microstructure of the part surface. There is minimal filling of voids or change to the overall surface roughness. Overall roughness measurement may be reduced slightly (1-2 RA reduction), but not a significant change in roughness. Some SilcoTek coatings have a higher lubricity than stainless steel, so even though surface roughness has not changed, the surface may have a lower friction coefficient.

[\[back to top\]](#)

**Contact Our Technical
Service Team**

Want to know more about the different coatings we offer and which one you should choose?

View our properties and applications guide:

Coating Properties

SilcoTek's innovative chemical vapor deposition (CVD) process introduces proprietary process gases into a special oven containing your parts. The gas penetrates torturous passageways and provides a thin, uniform coating even on complex part geometries.

Each standard SilcoTek® coating is tailored to specific applications but can be used successfully in a wide variety of environments. Contact SilcoTek for coating recommendations.



COATING	MATERIAL COMPOSITION	MAXIMUM TEMPERATURE	CONTACT ANGLE*	WHAT IT DOES
SilcoNert® Superior inertness	Silicon (functionalized)	450° C	99°	Makes surfaces non-reactive. A durable, high temperature alternative to fluoropolymers like PTFE or PFA.
Dursan® Corrosion and abrasion resistant, inert, low surface energy	Silicon, oxygen, carbon (functionalized)	450° C	119°	Provides low surface energy and excellent protection in very corrosive environments. Hydrophobic, 2x as wear resistant as stainless steel and easy to clean.
Silcolloy® Oxidation resistant, high temperature	Silicon	1000° C	54°	Protects parts from oxidation while preventing metal ions from leaching out of surfaces. Ideal for high temperature applications.
SilcoKlean® Anti-coking	Silicon (functionalized)	1000° C	90°	Prevents hot fuels and gases from coking or fouling on metal surfaces. Ideal for fuel transfer and exhaust gas applications.
SilcoGuard® UHV low outgassing, high purity	Silicon	1000° C	54°	Isolates materials trapped on or in metal surfaces and prevents them from entering ultra-high vacuum or other high purity environments.
Dursox™ Silica-like, ceramic	Silicon, oxygen** (functionalized) **<2% embedded carbon	450° C	<60°	Gives durability, moisture resistance, erosion and corrosion protection to processing equipment. Ideal especially for semiconductor manufacturing equipment.

*Evaluated on 120 grit, 58 rms (µin.) 300-series stainless steel

A Note on Thickness

SilcoTek's chemical vapor deposition (CVD) process has been optimized to produce surface coatings that meet the performance characteristics and material properties listed above, unrelated to thickness. All coatings are typically less than 2000 nm (2µm) thick.

Coating Properties



Each standard SilcoTek® coating is tailored to specific applications but can be used successfully in a wide variety of environments.

Contact SilcoTek for coating recommendations.

COATING	MATERIAL COMPOSITION	MAX. TEMPERATURE	CONTACT ANGLE*	WEAR RESISTANCE	TYPICAL APPLICATIONS
SilcoGuard® Superior hardness	Silicon (functionalized)	400° C	90°	Same as bare 304SS	Chromatography, chemical process analysis of H ₂ O, mg, nitrogens, etc.
Duracore® Corrosion and abrasion resistant, max. low surface energy	Silicon, oxygen, carbon (functionalized)	400° C	110°	2x wear resistance of 304SS	Petrochemical, sulfur analysis, desulfur, sampling, medical process equipment
SilcoGuard® Corrosion resistant, high temperature	Silicon	1000° C	94°	Same as bare 304SS	Oxidative environments, high temp. corrosion, semiconductor manufacturing
SilcoGuard® Anti-sticking	Silicon (functionalized)	400° C	90°	Same as bare 304SS	Fuel injection, pistons, power generation, refinery, ball bearings
SilcoGuard® pHV low outgassing	Silicon	1000° C	94°	Same as bare 304SS	Ultra-high vacuum, general contamination or moisture barrier
Duracore™ Silica-like structure	Silicon, oxygen** (functionalized)	400° C	~90°	2x wear resistance of 304SS	Semiconductors, optics, etc. where carbon is a concern

*Based on 100 gr. 10 mil. pin / 100 series stainless steel

A Note on Thickness

SilcoTek's chemical vapor deposition (CVD) coating process has been optimized to produce surface coatings that meet the performance characteristics and material properties listed above. All coatings are typically less than 2000 nm (2µm) thick, although SilcoTek is committed to working with customers to develop the best coating solution for their applications. SilcoTek does not guarantee the thickness or characteristics of these standard coating offerings for regular production. Consult with a technical representative for coating recommendations and to learn if any customization is possible or necessary.

- [Home](#)
- [Applications](#)
- [Our Coatings](#)
- [Ordering](#)
- [Literature](#)
- [Industries](#)
- [About Us](#)
- [Blog](#)

© 2016 SilcoTek® - All Rights Reserved.
[Privacy Policy](#)

Frequently Asked Questions: Surface Treatments

1. [How do I select the most appropriate treatment for my application?](#)
2. [What are the operating temperatures for treated surfaces?](#)
3. [What is Siltek® Deactivation?](#)
4. [What are the unique benefits of Siltek® deactivation?](#)
5. [Does anyone else offer an equivalent to Siltek® deactivation?](#)
6. [What is the maximum temperature limit for Siltek® deactivated glass?](#)
7. [Does Restek offer custom surface treatments?](#)
8. [Will you re-deactivate my Siltek® treated glass liners or treated Siltek® metal liners after I clean them?](#)
9. [How tightly can the tubing be bent?](#)
10. [What materials can be surface treated?](#)
11. [How will surface treatments work in my acidic environment?](#)
12. [How thick is the Siltek® layer?](#)
13. [Are secondary deactivations available for Sulfinert® treated materials?](#)
14. [Can ferrules be treated?](#)
15. [Why is Siltek® on glass gold in color?](#)
16. [Why do Silcosteel® treated pieces have different colors?](#)

If your question doesn't appear on the list, you can [contact Restek's expert chemists](#). (Please remember to include your company name and complete mailing address. Thanks!)

1. How do I select the most appropriate treatment for my application?

The following definitions explain the various treatments currently available and their recommended applications:

- **Siltek®** Provides the ultimate passivation of treated surfaces, from glass to high nickel alloys of steel.
- **Silcosteel®** A general purpose passivation layer for steel and stainless steel.
- **Silcosteel®-CR** A corrosion resistant layer that increases the lifetime of system components in environments containing hydrochloric, nitric, or sulfuric acid.
- **Sulfinert®** A required treatment for metal components used in analyzing for parts-per-billion levels of organo-sulfur compounds.

[Back to top of page](#)

2. What are the operating temperatures for treated surfaces?

Maximum temperatures usually will be dictated by the construction material (glass, stainless steel, etc.), not by the surface treatment. In general, temperatures should not exceed those listed in Table I. Temperatures greater than 450°C for Sulfinert® or Siltek® treated surfaces or greater than 600°C for Silcosteel® or Silcosteel®-CR treated surfaces can be used under certain conditions. Heat treatment of parts before applying a Silcosteel® or Silcosteel®-CR coating extends the maximum temperature limit. Please contact technical support at (800)356-1688, ext. 4 for additional information.

Table I

Coatings are stable to the following temperatures in an inert atmosphere:

Sulfinert®	450°C
Siltek®	450°C
Silcosteel®	600°C
Silcosteel®-CR	600°C

[Back to top of page](#)

3. What is Siltek® Deactivation?

Siltek® deactivation (U.S. patent 6,444,326) is a passivation process that applies an inert, integral

layer to components used for chromatographic analysis. Unlike traditional deactivations, it is not susceptible to cleavage or formation of active silanols and, therefore, greatly reduces bleed, and breakdown or adsorption of active components, compared to conventional surface coatings.

[Back to top of page](#)

4. What are the unique benefits of Siltek® deactivation?

Siltek® deactivation creates a unique surface with an inertness range that surpasses all other known surface deactivations used in gas chromatography. In sensitive analyses, Siltek® deactivated system components provide outstanding results.

[Back to top of page](#)

5. Does anyone else offer an equivalent to Siltek® deactivation?

No. Siltek® deactivation was created exclusively by Restek (now owned by SilcoTek™) and is protected by a US patent (Pat. No. 6,444,326).

[Back to top of page](#)

6. What is the maximum temperature limit for Siltek® deactivated glass?

Maximum temperatures usually will be dictated by the composition of the glass, not by the surface treatment. The Siltek® layer is stable at temperatures up to 450°C, but some glasses can soften at lower temperatures. Injection port temperatures normally are well below the Siltek® maximum temperature limit, so Siltek® treatment is an excellent deactivation for all injection port surfaces.

[Back to top of page](#)

7. Does Restek offer custom surface treatments?

For any custom coatings, Restek recommends that the customer deal directly with SilcoTek™. Visit www.silcotek.com or call them at 814-353-1778.

On January 1, 2009, the Restek Performance Coatings Division became SilcoTek™ Corporation, an independent company led by Restek Founder Paul Silvis and members of the Performance Coatings team. The company focuses on developing new coating technologies for the process, analytical, gas, oil and semiconductor markets.

The creation of independent SilcoTek™ Corporation was part of Restek Corporation's January 1, 2009 transition to 100 percent employee ownership under an ESOP structure. That move, which had been a part of the company's corporate planning since its inception in 1985, was designed to ensure Restek's stability and continued growth while maintaining its status as an independent chromatography consumables manufacturer.

SilcoTek™ remains a key supplier to Restek, and Restek in turn continues to offer Siltek®, Sulfinert®, and Silcosteel® coated products for chromatography markets.

[Back to top of page](#)

8. Will you re-deactivate my Siltek® treated glass liners or treated Siltek® metal liners after I clean them?

Restek no longer offers re-deactivation of Siltek® treated glass liners. If you are interested in re-deactivation of Siltek® treated glass liners, please contact SilcoTek's Customer Service department (814-353-1778 or silcod@SilcoTek.com) A minimum number of liners to be re-deactivated will be required.

Siltek® metal inlet liners are designed as inexpensive, disposable products and it is not cost effective to re-treat them. We recommend discarding them when they are no longer serviceable.

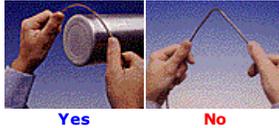
[Back to top of page](#)

9. How tightly can the tubing be bent?

OD Min. Bend Radius
1/16" 1" (2.5cm)

		Australian Distributors Importers & Manufacturers www.chromtech.net.au
ECH nology Pty Ltd +61(0)3 9762 2034		
Website NEW : www.chromalytic.net.au E-mail : info@chromtech.net.au Tel: 03 9762 2034 . . . in AUSTRALIA		

1/8"	2" (5.1cm)
1/4"	4" (10.2cm)
3/8"	6" (15.2cm)



Note: If tight bends are necessary, use a treated elbow union or pre-bend the tubing and contact SilcoTek™ for a custom treatment.

[Back to top of page](#)

10. What materials can be surface treated?

Virtually all alloys of stainless steel, ceramic, and most glass materials can be treated. Some other metallic materials, such as nickel, brass, copper, and aluminum, are incompatible with the high (400°C) temperatures used in the process, and should not be treated.

[Back to top of page](#)

11. How will surface treatments work in my acidic environment?

Silcosteel®, Sulfinert®, and Siltek® treated materials have improved corrosion resistance, but Silcosteel®-CR surface treatment is optimized to enhance resistance to hydrochloric, nitric, and sulfuric acids. It provides a 10-fold improvement in corrosion resistance, compared to untreated stainless steel, and a 4-fold improvement compared to Silcosteel®-coated stainless steel.

[Back to top of page](#)

12. How thick is the Siltek® layer?

Depending on the item, the Siltek® layer can be as much as 1,200 Angstroms thick. At this thickness, the layer exhibits a reflective silver color on treated glass surfaces or a rainbow on metal surfaces. Chromatographic performance does not depend on the thickness of the layer.

[Back to top of page](#)

13. Are secondary deactivations available for Sulfinert® treated materials?

There are no secondary deactivations available for Sulfinert® products at this time.

[Back to top of page](#)

14. Can ferrules be treated?

No. We have found this will consistently lead to leaking problems after coating.

[Back to top of page](#)

15. Why is Siltek® on glass gold in color?

The color of a surface coating is an expression of the light diffraction qualities and thickness of the layer. The thickness of a Siltek® layer determines the degree of darkness, secondary reflectivity, and/or final color of the item. The color can range from light golden-brown (thin coatings) to reflective silver (heavier coatings). A layer that provides a gold color is deposited on inlet liners to aid analysts in inspecting for cleanliness. Chromatographic performance does not depend on the thickness of the layer.



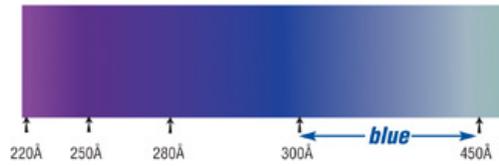
[Back to top of page](#)

16. Why do Silcosteel® treated pieces have different colors?

The different colors observed on Silcosteel® treated parts indicate different layer thicknesses. A blue color corresponds to a 300 to 450 Angstrom layer while a rainbow color indicates a coating of at

least 1200 Angstroms.

Colors associated with layer thickness are:



Thick depositions used in Silcosteel[®]-CR processes are 5 μ m to 20 μ m deep and have a silver/metallic grey appearance. The photos below show colors created by Sulfinert[®] (left) and Silcosteel[®]-CR (right) deposition.



Rainbow
minimum 1200Å
(0.12 μ m)



Gray
minimum 5 μ m

[Back to top of page](#)

RELATED SEARCHES

[frequently asked questions](#) , [faqs](#) , [faq](#)