



**Restek
Performance
Coatings**

did you **know?**

Restek offers custom treatment for tubing, fittings, and many system components. For details, contact us or visit us online at www.restekcoatings.com.



Top: electropolished finish, surface roughness average number: 5-10.
Bottom: conventional finish, surface roughness average number: approx. 23-27.

Performance-Treated Stock Products

Tubing, Fittings, Sample Cylinders, and More
In Stock for Immediate Shipment

The Family of Restek Performance Coatings

This is a brief description of Restek treatment properties. For more information, request brochure 59493, or contact our Technical Service staff at 800-356-1688 or 814-353-1300, ext. 4, or visit our website.

Silcosteel®	A general-purpose passivation layer for steel and stainless steel. U.S. patent 6,511,760.
Silcosteel®-AC	Dramatically reduces carbon buildup on stainless steel components. U.S. patent 6,444,326.
Silcosteel®-CR	A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, sulfuric acid, or seawater. Patent pending.
Silcosteel®-UHV	Greatly reduces outgassing from components of ultra-high vacuum systems. Patent pending.
Siltek®	The ultimate passivation for treated components, from glass to high nickel alloys of steel. U.S. patent 6,444,326.
Sulfinert®	A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds. U.S. patent 6,444,326.

Tubing

Restek sets the standard in tubing for analytical and process applications. Complete your system with treated fittings and valves for an inert, corrosion-resistant pathway.

The extremely inert Siltek®/Sulfinert® surface is ideal in applications such as sulfurs or automotive exhaust testing, stack gas sampling, process monitoring, or in any other application in which a representative sample must be transferred without loss.

In systems used to transfer hydrochloric, nitric, sulfuric, or other acids, or seawater, Silcosteel®-CR treated electropolished stainless steel tubing will last longer and require less maintenance. In tests, Silcosteel®-CR treated stainless steel was very well protected from pitting and crevice corrosion, compared to bare steel. For information about Silcosteel®-CR treated metal's performance in corrosive environments, request lit. cat.# 59956.

Electropolished Tubing

Siltek®/Sulfinert®-Treated Electropolished Tubing

ID	OD	cat.#	5-24 ft.	25-99 ft.	100-299 ft.	>300 ft.
0.085"	1/8"	22538				
0.180"	1/4"	22539				

Silcosteel®-CR-Treated Electropolished Tubing

ID	OD	cat.#	5-24 ft.	25-99 ft.	100-299 ft.	>300 ft.
0.085"	1/8"	22536				
0.180"	1/4"	22537				

Frequently Asked Questions About Treated Tubing

Siltek® and Sulfinert®: What's the Difference?

From a performance standpoint, there is no difference. Siltek® is the name for the deposition process used to create the Sulfinert® surface layer. When we developed the Siltek® process, the application that showed the greatest benefit, among many we investigated, was the storage and transfer of low ppb level active sulfur compounds, such as hydrogen sulfide and the mercaptans. Because there was (and continues to be) demand for a reliable surface treatment for this application, we used the name Sulfinert® to describe products created through this new process.

How tightly can treated tubing be bent?

Treated tubing can be bent into curves with a bend radius greater than 1 inch for 1/16-inch OD tubing, 2 inches for 1/8-inch OD tubing, or 4 inches for 1/4-inch OD tubing. The treatment layer will remain intact as long as the tubing isn't stretched dramatically.***

Can compression fittings be used without crushing the treatment layer?

Yes. The layer is thin and permeates the fitting surface. It compresses with minimal damage.

How can treated tubing be cut?

Cut treated tubing with conventional tubing cutters (see tools in this flyer). The thin layer cleaves, leaving a clean break.

Why use Sulfinert® or Silcosteel® treatment instead of Teflon® coating?

Sulfinert® and Silcosteel® layers are non-polymeric, so they do not exhibit the problems associated with gas permeability. Teflon® coating often flakes off the surface, while the Sulfinert® or Silcosteel® layer is tightly integrated into the substrate lattice. Teflon® coating is limited to 280°C, while Silcosteel® treated stainless steel tubing and fittings can be used to 600°C.

Is treated tubing similar to glass-lined tubing (GLT™)?

No. Sulfinert® and Silcosteel® treated tubing is flexible and can be bent without heating. Also, the Sulfinert® or Silcosteel® layer is highly inert, unlike impure glass.

304 Grade Stainless Steel Tubing

Coiled Siltek®/Sulfinert®-Treated Welded/Drawn 304 Grade Stainless Steel Tubing

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	>400 ft.
0.011" (0.28mm)	0.022" (0.56mm)	22500				
0.021" (0.53mm)	0.029" (0.74mm)	22501				
0.010" (0.25mm)	1/16" (1.59mm)	22502				
0.020" (0.51mm)	1/16" (1.59mm)	22503				
0.030" (0.76mm)	1/16" (1.59mm)	22504				
0.040" (1.02mm)	1/16" (1.59mm)	22505				
0.085" (2.16mm)	1/8" (3.18mm)*	22506				
0.210" (5.33mm)	1/4" (6.35mm)*	22507				

Coiled Silcosteel®-Treated Welded/Drawn 304 Grade Stainless Steel Tubing†

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	>400 ft.
0.011" (0.28mm)	0.022" (0.56mm)	20590				
0.021" (0.53mm)	0.029" (0.74mm)	20591				
0.010" (0.25mm)	1/16" (1.59mm)	20592				
0.020" (0.51mm)	1/16" (1.59mm)	20593				
0.030" (0.76mm)	1/16" (1.59mm)	20594				
0.040" (1.02mm)	1/16" (1.59mm)	20595				
0.085" (2.16mm)	1/8" (3.18mm)*	20596				
0.210" (5.33mm)	1/4" (6.35mm)*	20597				

316 Grade Stainless Steel Tubing

Coiled Siltek®/Sulfinert®-Treated Seamless 316 Grade Stainless Steel Tubing

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	>400 ft.
0.055" (1.40mm)	1/8" (3.18mm)**	22508				
0.180" (4.57mm)	1/4" (6.35mm)**	22509				

Coiled Silcosteel®-Treated Seamless 316 Grade Stainless Steel Tubing

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	>400 ft.
0.055" (1.40mm)	1/8" (3.18mm)**	20598				
0.180" (4.57mm)	1/4" (6.35mm)**	20599				

Coiled Silcosteel®-CR -Treated Seamless 316L Stainless Steel Tubing

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	>400 ft.
0.055" (1.40mm)	1/8" (3.18mm)**	22896				
0.180" (4.57mm)	1/4" (6.35mm)**	22897				

Straight Silcosteel®-Treated Tubing

18" (457mm) Length

ID	OD	qty.	cat.#
0.085" (2.16mm)	1/8" (3.18mm)	ea.	20575
0.085" (2.16mm)	1/8" (3.18mm)	5-pk.	20576
0.210" (5.33mm)	1/4" (6.35mm)	ea.	20577
0.210" (5.33mm)	1/4" (6.35mm)	5-pk.	20578

Silcosteel®-Treated Dual-Stage and Single-Stage Regulators

- All stainless steel wetted components Silcosteel®-treated to eliminate surface activity.
- Increase repeatability and consistency

Outlet pressure: 0 to 100psig
 Outlet gauge: 30" - 0 to 200psig

Inlet gauge: 0 to 4000psig
 Outlet assembly: diaphragm valve, 1/4" tube fitting



Description	qty.	cat.#
Single-Stage Silcosteel® Regulator	ea.	21361
Dual-Stage Silcosteel® Regulator	ea.	21360

*0.020" wall thickness

**0.035" wall thickness

***If tight bends are necessary, use a treated elbow union or bend untreated tubing and send it to Restek for custom treatment.

†Silcosteel®-treated and siloxane-deactivated. For Silcosteel® treatment only, add-279 to the cat.#.

Hydroguard™ Tubing

Silcosteel® Treated Hydroguard™ Tubing

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
0.010" (0.25mm)	1/16" (1.59mm)	22497				
0.020" (0.51mm)	1/16" (1.59mm)	22496				
0.030" (0.76mm)	1/16" (1.59mm)	22495				
0.040" (1.02mm)	1/16" (1.59mm)	22494				
0.085" (2.16mm)	1/8" (3.18mm)*	22493				
0.210" (5.33mm)	1/4" (6.35mm)*	22492				

Silcosteel® Treated Hydroguard™ Seamless 316 Grade Stainless Steel Tubing

ID	OD	cat.#	5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
0.055" (1.40mm)	1/8" (3.18mm)**	22491				
0.180" (4.57mm)	1/4" (6.35mm)**	22490				

Silcosteel® Treated Hydroguard™ Electropolished Tubing

ID	OD	cat.#	5-24 ft.	25-99 ft.	100-299 ft.	> 300 ft.
0.085"	1/8"	22489				
0.180"	1/4"	22488				

Tubing Tools

SSI TC-20 Tube Cutting Machine

- Cuts 1/16", 1/8" and 1/4" tubing with inside diameters as small as 0.008".
- Handy dressing tool on the swing arm removes burrs and reams tubing.
- Voltage selectable 110–120/220–240 volts, 50–60Hz.*

Description	qty.	cat.#
SSI Tubing Cutter Machine	ea.	23029
SSI Replacement Cutting Wheels	3-pk.	23030

1/16-Inch Tubing Cutter

- Produces square, smooth cuts in 1/16-inch tubing.
- Eliminates tubing distortion.
- Replaceable cutting wheel.

Description	qty.	cat.#
1/16" Tubing Cutter	ea.	20192
Replacement Cutting Wheels	3-pk.	20185

Ridgid™ Tubing Cutter

- Excellent for cutting 1/8" or 1/4-inch metal tubing.
- Compact size is ideal for tight spaces.
- Replaceable cutting wheel.

Description	qty.	cat.#
Ridgid™ Tubing Cutter for 1/8" or 1/4" metal tubing	ea.	23011
Replacement Cutting Wheels	2-pk.	23012

Tubing Reamer

- Removes burrs from 1/4" or 1/8-inch stainless steel tubing.
- Non-slip safety design.

Description	qty.	cat.#
Tubing Reamer	ea.	20134

Tubing Bender

- Bends 1/8-inch, 3/16-inch, or 1/4-inch tubing.
- Accurate left-hand, right-hand, or offset bends.

Description	qty.	cat.#
Tubing Bender	ea.	23009

1/16-Inch Tubing Cutting Pliers

- Ideal for cutting 1/16-inch tubing.
- Cuts quickly, reducing distortion.

Description	qty.	cat.#
1/16" Tubing Cutting Pliers	ea.	20193

*Unit shipped set for 110–120 operating voltage. Switch to 220–240 volts by using alternate fuse and power cord (included).

Hydroguard™ tubing

Hydroguard™ deactivation creates a high-density surface that is not readily attacked by aggressive hydrolysis.

please note

An extra charge is applied for cutting tubing, calculated from the total number of pieces produced for each line item:














Siltek®/Sulfinert®, Silcosteel®, and Silcosteel®-CR Treated Fittings from Swagelok® and Parker



- Full line of treated 1/16", 1/8" and 1/4" fittings.
- Siltek®/Sulfinert® treatment ensures ultimate inertness.
- Silcosteel®-CR treatment enhances corrosion resistance by 10X, or more.
- Custom treatment available for any fitting, or for other system parts.

Treated Fittings from Swagelok®

Fitting Type	Size	Swagelok® #	qty.	Siltek®/Sulfinert® cat.#	qty.	Silcosteel®-CR cat.#
 Union	1/16"	SS-100-6	ea.	22540	ea.	22575
	1/8"	SS-200-6	ea.	22541	ea.	22576
	1/4"	SS-400-6	ea.	22542	ea.	22577
 Tee	1/16"	SS-100-3	ea.	22543	ea.	22578
	1/8"	SS-200-3	ea.	22544	ea.	22579
	1/4"	SS-400-3	ea.	22545	ea.	22580
 Reducing Union	1/8" to 1/16"	SS-200-6-1	ea.	22546	ea.	22581
	1/4" to 1/16"	SS-400-6-1	ea.	22547	ea.	22582
	1/4" to 1/8"	SS-400-6-2	ea.	22548	ea.	22583
 Elbow	1/8"	SS-200-9	ea.	22549	ea.	22584
	1/4"	SS-400-9	ea.	22550	ea.	22585
 Plug	1/16"	SS-100-P	ea.	22572	ea.	22619
	1/8"	SS-200-P	ea.	22573	ea.	22620
	1/4"	SS-400-P	ea.	22574	ea.	22597
 Cross	1/8"	SS-200-4	ea.	22551	ea.	22586
	1/4"	SS-400-4	ea.	22552	ea.	22587
 Tube End Reducer	1/8" tube to 1/16"	SS-100-R-2	ea.	22553	ea.	22588
	1/4" tube to 1/16"	SS-100-R-4	ea.	22554	ea.	22589
	1/8" tube to 1/4"	SS-400-R-2	ea.	22555	ea.	22590
	1/4" tube to 1/8"	SS-200-R-4	ea.	22556	ea.	22591
 Port Connector	1/8"	SS-201-PC	ea.	22557	ea.	22592
	1/4"	SS-401-PC	ea.	22558	ea.	22593
	1/8" tube to 1/4"	SS-401-PC-2	ea.	22559	ea.	22594
 Male Connector	1/8" to 1/8" NPT	SS-200-1-2	ea.	22561	ea.	22595
	1/4" to 1/4" NPT	SS-400-1-4	ea.	22562	ea.	22596
	1/16" to 1/8" NPT	SS-100-1-2	ea.	22563	ea.	22610
	1/8" to 1/4" NPT	SS-200-1-4	ea.	22564	ea.	22611
	1/4" to 1/8" NPT	SS-400-1-2	ea.	22565	ea.	22612
 Female Connector	1/8" to 1/8" NPT	SS-200-7-2	ea.	22566	ea.	22613
	1/4" to 1/4" NPT	SS-400-7-4	ea.	22567	ea.	22614
	1/4" to 1/8" NPT	SS-400-7-2	ea.	22568	ea.	22615
	1/8" to 1/4" NPT	SS-200-7-4	ea.	22569	ea.	22616
 Bulkhead Union	1/8"	SS-200-61	ea.	22570	ea.	22617
	1/4"	SS-400-61	ea.	22571	ea.	22618

please **note**

Nuts and ferrules are not treated unless requested (custom parts). Nuts and ferrules normally are not in contact with samples, and thus do not require treatment.

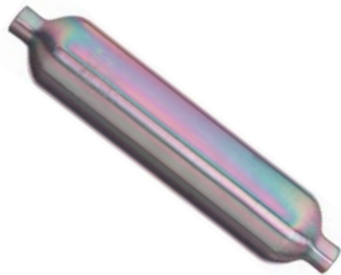
Treated Fittings from Parker

Fitting Type	Size	Siltek®/Sulfinert®		Silcosteel®		Silcosteel®-CR	
		qty.	cat.#	qty.	cat.#	qty.	cat.#
 Union	1/16"	ea.	22520	ea.	20510	ea.	22863
	1/8"	ea.	22521	ea.	20511	ea.	22864
	1/4"	ea.	22522	ea.	20512	ea.	22865
 Tee	1/16"	ea.	22526	ea.	20513	ea.	22866
	1/8"	ea.	22527	ea.	20514	ea.	22867
	1/4"	ea.	22528	ea.	20515	ea.	22868
 Reducing Union	1/8" to 1/16"	ea.	22523	ea.	20519	ea.	22869
	1/4" to 1/16"	ea.	22524	ea.	20520	ea.	22870
	1/4" to 1/8"	ea.	22525	ea.	20521	ea.	22871
 Elbow	1/16"	—	—	—	—	ea.	22874
	1/8"	ea.	22530	ea.	20517	ea.	22875
	1/4"	ea.	22531	ea.	20518	ea.	22876
 Plug	1/16"	ea.	21539	ea.	21518	ea.	22877
	1/8"	ea.	21540	ea.	21519	ea.	22878
	1/4"	ea.	21541	ea.	21520	ea.	22879
 Cross	1/8"	ea.	21542	ea.	21521	ea.	22872
	1/4"	ea.	21543	ea.	21522	ea.	22873
 Tube End Reducer	1/8" tube to 1/16"	ea.	21544	ea.	21523	ea.	22880
	1/4" tube to 1/16"	ea.	21545	ea.	21524	ea.	22881
	1/8" tube to 1/4"	ea.	21546	ea.	21525	ea.	22882
	1/4" tube to 1/8"	ea.	21547	ea.	21526	ea.	22883
 Port Connector	1/8"	ea.	21548	ea.	21527	ea.	22884
	1/4"	ea.	21549	ea.	21528	ea.	22885
	1/8" tube to 1/4"	ea.	21550	ea.	21529	ea.	22886
 Male Connector	1/8" to 1/8" NPT	ea.	21551	ea.	21530	ea.	22887
	1/4" to 1/4" NPT	ea.	21552	ea.	21531	ea.	22888
	1/16" to 1/8" NPT	ea.	21553	ea.	21532	ea.	22889
	1/8" to 1/4" NPT	ea.	21554	ea.	21533	ea.	22890
	1/4" to 1/8" NPT	ea.	21555	ea.	21534	ea.	22891
 Female Connector	1/8" to 1/8" NPT	ea.	21556	ea.	21535	ea.	22892
	1/4" to 1/4" NPT	ea.	21557	ea.	21536	ea.	22893
	1/4" to 1/8" NPT	ea.	21558	ea.	21537	ea.	22894
	1/8" to 1/4" NPT	ea.	21559	ea.	21538	ea.	22895
 VICI Valco Zero Dead Volume Tee	1/16"	ea.	22534	ea.	20581	—	—
	1/8"	ea.	22535	ea.	20583	—	—
 VICI Valco Zero Dead Volume Union	1/16"	ea.	22532	ea.	20580	—	—
	1/8"	ea.	22533	ea.	20582	—	—
 Plug Valve	1/8"	ea.	21586	ea.	21576	—	—
	1/4"	ea.	21587	ea.	21577	—	—
 Ball Valve	1/8"	ea.	21588	ea.	21578	—	—
	1/4"	ea.	21589	ea.	21579	—	—

Sample Cylinders, Valves, and Loops

Sulfinert[®]-treated gas sampling equipment is ideal for applications that demand only inert surfaces contact the sample, such as sampling natural gas or

testing beverage-grade carbon dioxide. Sulfinert[®]-treated cylinders ensure sulfur compounds or other active compounds will be stable during transport from the field to the laboratory.



Sulfinert[®]-Treated Sample Cylinders

- Stable storage of low concentrations of sulfur compounds.
- Made from 316 stainless steel, 1/4" female NPT threads on both ends.
- D.O.T. rated to 1800psi at room temperature.

Size	qty.	cat.#
75cc	ea.	24130
150cc	ea.	24131
300cc	ea.	24132
500cc	ea.	24133
1000cc	ea.	24134
2250cc	ea.	21394



Sulfinert[®]-Treated Hoke[®] Sample Cylinder Valves

Description	qty.	cat.#
1/4" NPT Exit, Kel-F [®] Stem Tip	ea.	24127
1/4" Compression Exit, Kel-F [®] Stem Tip	ea.	24128
1/4" Female NPT Outlet (built-in rupture disc)	ea.	21395



Sulfinert[®]-Treated Swagelok[®] Rupture Disc Tee

Description	qty.	cat.#
Sulfinert [®] Rupture Disc Tee (1/4" NPT connections)	ea.	21396
Replacement Rupture Disc (not Sulfinert [®] -treated)	ea.	24298



Sulfinert[®]-Treated Gas Sampling Valves

(1/16" fittings, 0.40mm port diameter; "W Type" valve)

Description	qty.	cat.#
Sulfinert [®] Gas Sampling Valve; 4-Port	ea.	20584
Sulfinert [®] Gas Sampling Valve; 6-Port	ea.	20585
Sulfinert [®] Gas Sampling Valve; 10-Port	ea.	20586



Replacement Rotors

Description	qty.	cat.#
Replacement Rotor for 4-Port Sulfinert [®] Gas Sampling Valve	ea.	20587
Replacement Rotor for 6-Port Sulfinert [®] Gas Sampling Valve	ea.	20588
Replacement Rotor for 10-Port Sulfinert [®] Gas Sampling Valve	ea.	20589

Sulfinert[®]-Treated Gas Sample Loops

(1/16" fittings, for "W Type" valves)

Size	qty.	cat.#
5µL	ea.	22840
10µL	ea.	22841
20µL	ea.	22842
25µL	ea.	22843
50µL	ea.	22844
100µL	ea.	22845
250µL	ea.	22846
500µL	ea.	22847
1cc	ea.	22848
2cc	ea.	22849
5cc	ea.	22850



**Restek
Performance
Coatings**

Restek trademarks:
HydriGuard, Silcosteel,
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(Rigid, Inc.), Swagelok
(Swagelok Co.)

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