

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

2. Can compression fittings be used without crushing the treatment layer?

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

3. Why are the Restek treatments varied colors?

The colors are caused by light passing through the thin layer. As the film thickness changes, so does the color. Coating depths and colors are: blue: 300-450 angstroms (Silcosteel®); rainbow: 1200 angstroms (Silcosteel®, Siltek®, Sulfinert®); silver/gray: up to 20µm (Silcosteel®-AC, Silcosteel®-CR, Silcosteel®-UHV).

4. Is welding possible after Restek treatment?

Yes. The coating does not interfere with the welding of two coated components. The coating is lost at the weld and in the heat affected zones approximately 2 to 5mm on either side of the weld.

5. Is any additional chemical deactivation necessary?

A Sulfinert® or Silcosteel® layer leaves few exposed active sites, so there usually is no need for additional treatment. Chemical deactivation is useful in chromatographic applications in which water will be vaporized on the Silcosteel® treated surface, but is not necessary for Sulfinert® treated surfaces. Parts used in high-temperature applications (>400°C) cannot be chemically deactivated.

6. What are the temperature constraints of Restek surface treatments?

On stainless steel, a Silcosteel® layer is stable to 600°C. Parts treated with a secondary polymeric layer are limited to temperatures of 400°C in inert atmospheres and 250°C when oxygen is present, the temperature maximums for the polymer. Temperatures above 600°C can be used under certain conditions—please contact us for information.

7. How is treated tubing cut?

Cut treated tubing with a conventional tubing cutter or with Restek's cutting pliers (cat. #20193). The thin layer cleaves, leaving a clean break.

8. What dimensions of treated tubing are available?

Treated tubing is available in a wide range of ID and OD dimensions. For stock treated tubing, see pages 394-396 of this catalog.

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

Three reasons: 1) Sulfinert® and Silcosteel® layers are nonpolymeric, so they do not exhibit the problems associated with gas permeability. 2) Teflon® coating often flakes off the surface, while the Sulfinert® or Silcosteel® layer is tightly integrated into the substrate lattice. 3) Teflon® coating is limited to 280°C, while Silcosteel® treated stainless steel tubing and fittings can be used to 600°C.

10. Why use Siltek®/Sulfinert® treated tubing for transfer lines?

Siltek®/Sulfinert® treated stainless steel tubing offers all of the advantages of glass or fused silica tubing for the transfer of active compounds (e.g., sulfurs), but is far more durable and flexible.

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

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

12. How can I clean the surface of a treated part after use?

Most often, a mild organic solvent (methylene chloride, methanol, hexane) or water is sufficient. Mild sonication may assist and accelerate the process. Do not use caustic, abrasive, or high pH (pH>8) cleaners, as they will damage or dissolve the layer. Steam cleaning in the presence of oxygen or air could create surface activity, and also should be avoided.

13. What materials should I avoid using with Silcosteel® treated parts?

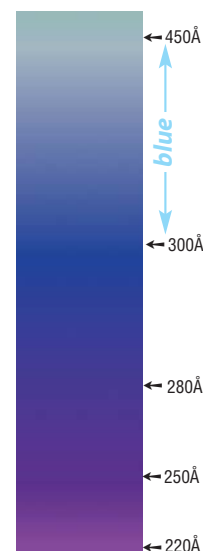
The Silcosteel® coating is silicon-based and is prone to attack by hydrofluoric acid or by basic compounds. The surface should not be exposed to media with pH>8.

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

Siltek® is the name for our patented deposition process. 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 mercaptans. Because there was (and continues to be) demand for a reliable surface treatment for this application, we use the name Sulfinert® to describe Siltek® treated products created specifically for this purpose.

What are the colors associated with the treatments?

Colors are created by the treatment's light refraction properties. The visible color depends on the treatment layer's thickness. Layer thickness ranges from 0.03µm to 30µm, controlled by variables in the process to our specifications. There is a degree of variability to the process, and each piece is treated individually. Therefore, every piece is unique!



Rainbow
minimum 1200Å
(0.12µm)



Gray
minimum 5µm