



Pre-Coating Guide

Please read all of the important information in this guide before shipping your parts to SilcoTek.

For decades, the SilcoTek® team has been providing game-changing coating technology for a variety of different markets and applications.

This guide will give you key information for ensuring our coating process is successful for your parts.

Please email TechService@SilcoTek.com for any questions regarding the appearance, performance, and maintenance of the treated surface.

How does SilcoTek® clean your parts?

SilcoTek® may use a combination of cleaning methods, including:

- Heated, aqueous-based caustic (NaOH) cleaning with ultrasonic agitation
- Heated, aqueous-based citric acid cleaning with ultrasonic agitation
- DI water rinsing
- Solvent-based rinsing
- Occasionally third-party bright anneal cleaning

Although our standard aqueous-based cleaning processes are effective at preparing most surfaces for our deposition processes, SilcoTek® often works closely with our customers to ensure the most effective cleaning method is used to give optimal deposition results. We are transparent about our cleaning methods, so please let us know if your part has been exposed to surface preparation techniques such as, pre-cleaning, pickling, or passivation prior to sending it to SilcoTek®. This will allow us to work with you to decide if our pre-coating surface preparation will result in an optimized coating appearance and performance.

Getting a great looking coating every time isn't easy. This is how we do it.



Glove Handling

We glove-handle every customer part from incoming receipt to in-processing transfer, to out going shipping.



Photo Tracking

For quality verification, we take a picture of your parts as soon as we open the box they arrived in and before we send them back.



Packaging

We make sure to pack your parts safely so you receive them securely. Do you have your own special packaging? Just let us know before sending your parts and we'll save it for return shipping.



Surface Preparation

A great coating is impossible without a clean surface. See our cleaning processes on page one for more details.

SilcoTek takes many precautions to ensure that your parts are evenly and effectively coated. The following are precautions you can take before even sending your parts to us.



Metal Quality

The substrate itself can have a dramatic effect on the appearance of your coated part. Check our compatibility guide or call and ask us if you are unsure.



Welding

We can coat over welded and brazed parts if it is a TIG/ MIG weld, vacuum-nickel brazing, or a silver solder that can withstand up to 450°C. Please see our Technical Insight, "Recommendations for Coating Components with Braze and Solder Joints" to learn more.



Notify of Pre-Clean

We have seen cosmetic issues when customers use the following cleaning agents containing: **sodium hydroxide, sodium silicates, sodium phosphates, simple green, and household detergents.** When in doubt, do not pre-clean the part and contact us for further assistance.



Part Disassembly & Shipping

Make sure that you send your parts in sturdy, reinforced, and appropriate packaging. This will prevent any damage from occurring while your parts are in transit.

Parts should be completely disassembled including valves, regulators, and all multi-component assemblies.

SilcoTek's tips:

Check our **compatability guide** to see how your material ranks.

See our **Technical Insight** about coatings and welds.

Let us know what chemicals your part has been exposed to.

If it moves around in the package, it will be damaged. To avoid leaks and galling, do not send nuts or ferrules for coating.

Variations in Appearance:

Our coatings can be colorful! Extremely small variations in coating thickness (<50 Angstrom) can have a dramatic effect on color. Keep in mind that a dull finish on your substrate will result in a dull appearance when coated. Additionally, thicker coatings may have a dull appearance even though the substrate was originally shiny.

Your parts are cleaned after treatment; however, the surface may contain trace silicon particulate (gray dust) which is a by-product of the treatment process. This material is inert but can be removed by rinsing with a solvent, sonication in water, or blowing off with a stream of nitrogen if the particulate is concerning in your application.

If coating is removed, the substrate may remain discolored as a result of the coating process.

Product	Coating Thickness	Color
SilcoNert® 1000 (Silcosteel®)	100 - 500 nm	Rainbow
SilcoNert® 2000 (Siltek®/Sulfinert®)	100 - 500 nm	Rainbow
SilcoKlean®	100 - 500 nm	Rainbow
Silcolloy® 1000	180 - 800 nm	Gray
Silcolloy® 2000	580 - 2400 nm	Gray
SilcoGuard®	180 - 600 nm	Gray
Dursan®	400 - 1600 nm	Rainbow
Dursox®	400 - 1600 nm	Rainbow
Notak®	Up to 30 Angstroms	Clear
Siltride® 1000	500 - 2000 nm	Rainbow

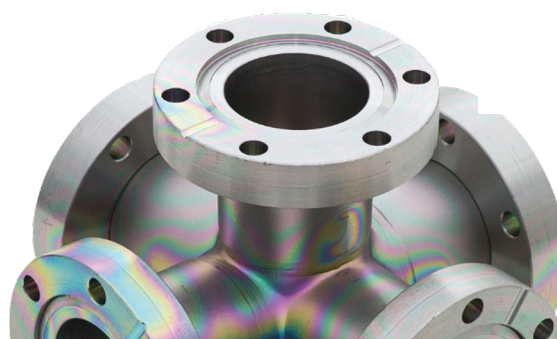


SilcoNert® 2000-coated sample cylinders

Uncoated (top) and SilcoNert® 2000-coated (bottom) FID jets



Dursan®-coated flange assembly



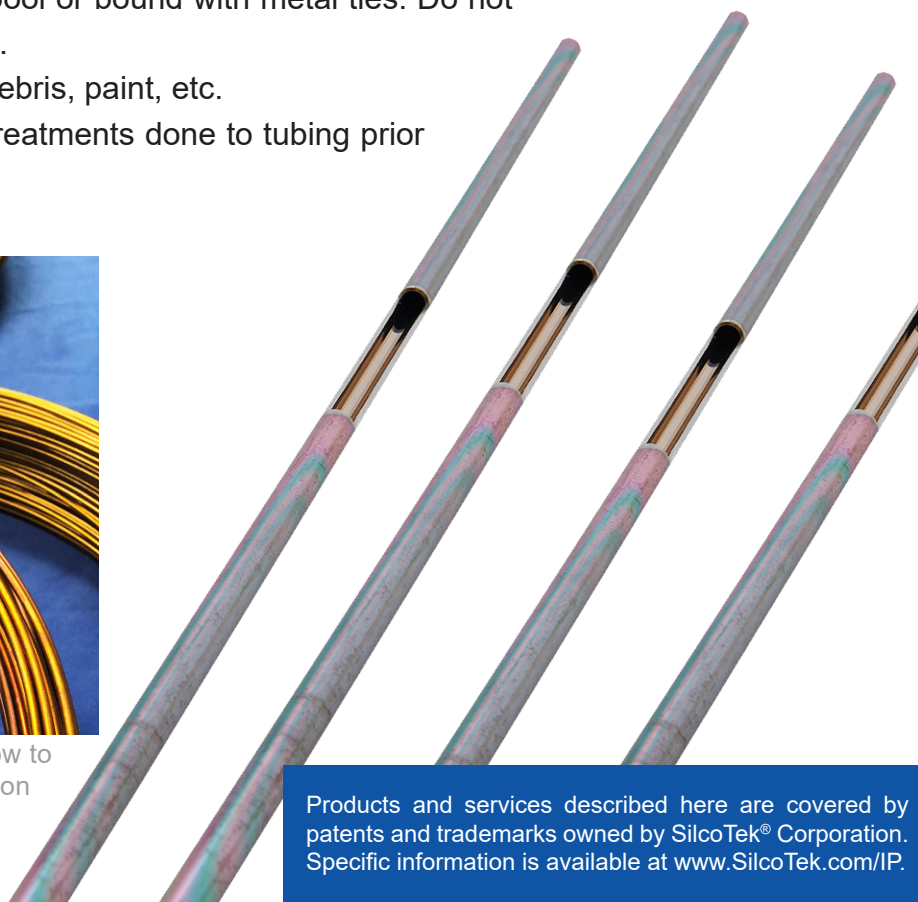
Tubing:

SilcoTek® coats tubing - both coiled and straight lengths - every day for customers from a variety of industries. Here are important things to note prior to sending tubing to SilcoTek® for coating:

- Straight tubing lengths are coated both internally and externally and cannot exceed 80"(203.2 cm). For high aspect ratio straight tubes, your SilcoTek representative may recommend internal-only coating to ensure good penetration.
- Coiled tubing is processed internally-only for coils up to 2500' (762 m) in total length .
- Please allow an extra 6" on both ends of tubing coils for process connections and quality control checks.
- The exterior color of coated coiled tubing can show a variation from yellow, golden to brown, as a result of metal oxidation in air. Subtle differences in metal can lead to color differences in the oxide. The entire interior length is uniformly coated, but the exterior sees no process gas and is not coated.
- Please send coiled tubing on a metal spool or bound with metal ties. Do not send tubing on wooden or plastic spools.
- Please ensure tubing is free of liquids, debris, paint, etc.
- Inform SilcoTek of any pre-cleaning or treatments done to tubing prior to sending for coating.



The exterior of coated tubing can vary from yellow to golden brown to even purple due to metal oxidation in air.



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