

# Restek Performance Coatings

## Service Through Technology



The Silcosteel® layer is a general purpose passivation layer for metals.



The Silcosteel®-UHV layer reduces outgassing by components in ultra high vacuum systems



Siltek™ provides the ultimate passivation for many surfaces, from glass to high nickel alloys of steel.



Sulfinert™ coating on metal components is required when analyzing for parts-per-billion levels of organosulfur compounds.

### Features and Benefits of the Silcosteel® Family of Coatings:

- Inert surfaces to eliminate chemical interaction
- Corrosion resistance
- Low outgassing in UHV environments
- Non-adsorptive to water, CO, CO<sub>2</sub>, sulfur gases, and other contaminants
- Anti-coking technology
- High and low temperature stability

### About Us

As the needs for improved performance of system components increase, coatings are often an effective solution. Restek Corporation Performance Coatings Division (RPC) specializes in innovative coating solutions for stainless steels, steels, alloys, glass, and ceramics. Our surface coatings increase resistance to corrosion, reduce interactions between steel surfaces and active compounds (e.g., sulfurs), inhibit coking on process system surfaces, and offer many other advantages.

### Coatings Overview

Since initially developing stainless steel coatings for chromatographic environments, Restek's RPC Division has developed a family of coatings to address other specific needs, and thereby enhance the performance of system components. In brief, these coatings are:

- **Silcosteel®**—A general purpose passivation layer. US Patent 6,511,760.
- **Silcosteel®-CR**—A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric, nitric, or sulfuric acid. Patent pending.
- **Silcosteel®-UHV**—Used to reduce outgassing by components of ultra-high vacuum systems. Patent pending.
- **Silcosteel®-AC**—This coating dramatically reduces carbon buildup on stainless steel components. US Patent 6,444,326.
- **Siltek™**—Provides the ultimate passivation of coated components, from glass to high nickel alloys of steel. US Patent 6,444,326.
- **Sulfinert™**—A superior coating for metal components when analyzing for parts-per-billion levels of organosulfur compounds. US Patent 6,444,326.

Restek coatings are now used in many applications, spanning multiple industries and market areas. Restek coated components increase the lifetime of stack monitoring equipment exposed to sulfuric acid. Coated injector nozzles have longer service life because coking is inhibited. Sulfinert™-coated sampling equipment increases the reliability of process measurements in refineries and petrochemical plants. One mass spectrometer manufacturer demands Silcosteel®-coated parts to increase instrument sensitivity for analyzing pesticides. Restek coated air sampling equipment has been used to sample diverse atmospheres, from city air to submarine cabins.

### The Restek Coating Process

Restek coatings are deposited using a silicon-based chemical vapor deposition (CVD) process. In this process the item to be coated is heated under vacuum in a large oven, allowing the coating gases to react and deposit a durable amorphous layer. Our largest oven allows us to coat items up to 6 feet in length. Evacuated items, such as gas chambers, can have a volume of up to 3.5 cubic feet. Coiled tubing has been coated in continuous lengths of more than 2000 feet. Coating thickness can be controlled in a range from 0.03µm to 20µm, and is very uniform.

Restek coating processes do not rely on line-of-sight depositions. The chemical vapor deposition process ensures all surfaces are coated uniformly—even in corners, in holes, or at machined ridges.

### RPC Service

The Restek Performance Coatings division offers outstanding service with fast product turn-around and a knowledgeable technical service staff. We welcome custom treatment inquiries and encourage direct involvement with our customer needs.

- Gary Barone, Business Development Manager: 800-356-1688 or 814-353-1300, ext. 2135
- Marty Higgins, Engineering/Marketing Specialist: 800-356-1688 or 814-353-1300, ext. 2307
- David Smith, Senior Scientist: 800-356-1688 or 814-353-1300, ext. 2154



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