



## The industry standard for inert coatings.

SilcoNert®2000 formerly Siltek® & Sulfinert®

**SilcoNert® surface treatments enable quantitative delivery of active compounds.**

### Maximize the performance of your analytical system

#### SilcoNert.2000

A required treatment for accurate analysis of:

- H<sub>2</sub>S
- Mercury
- Reduced sulfurs
- NO<sub>x</sub>
- Mercury
- And more

#### Industries served:

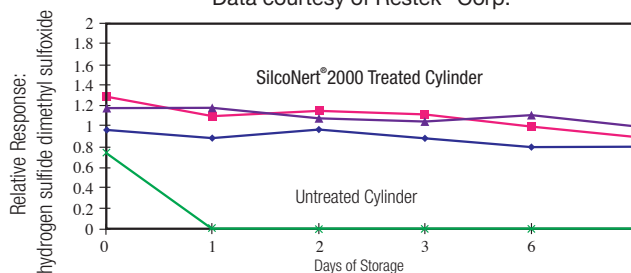
- Analytical instrumentation
- Oil and gas production/exploration
- Alternative energy
- Petrochemical/refining
- Chemical manufacturing

SilcoNert®2000 surface treatment eliminates surface adsorption of active compounds on steel, glass, ceramic and carbon surfaces.

#### Sulfur Compound Storage in SilcoNert 2000 Treated vs. Untreated Sample Cylinders

Figure 1 depicts performance results from a comparison in which a gas containing 17ppbv of hydrogen sulfide was stored for 7 days in untreated and in SilcoNert 2000 treated stainless steel high pressure sample cylinders. The results show a SilcoNert 2000 treated sampling system will reliably store low levels of this active sulfur-containing compound in process streams for long periods of time. In contrast, hydrogen sulfide degraded rapidly in the untreated cylinder, and was totally adsorbed within 24 hours.

**Figure 1** Sulfur compounds are stable in SilcoNert 2000 treated stainless steel systems - 17ppbv hydrogen sulfide in 500mL cylinders<sup>1</sup>  
Data courtesy of Restek® Corp.



**SilcoNert 2000 allows for accurate mercury analysis down to part-per-billion levels**



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"Unless the chamber is coated...the entire mercury sample could go undetected."

Learn more:

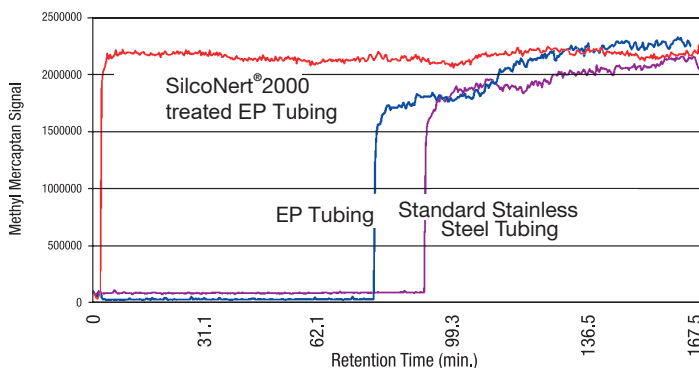


## Adsorption of Sulfur Compounds to Tubing Surfaces under sample transfer conditions

Comparison of the transport properties of SilcoNert 2000 treated electropolished stainless steel tubing, and raw commercial-grade stainless steel tubing show only SilcoNert 2000 treated electropolished stainless steel has the inertness necessary to transfer sulfur compounds at low ppmv to low ppbv concentrations in sample streams.

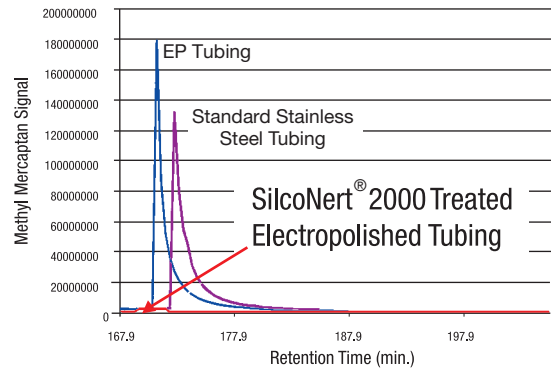
Figure 3 demonstrates uptake of the sulfur compound by the three surfaces. The performance of the SilcoNert 2000 treated, electropolished surface is quite dramatic in comparison to that of untreated electropolished tubing. SilcoNert 2000 treated electropolished tubing did not adsorb methyl mercaptan to any measurable extent, delivering a representative sample with no delay. The untreated electropolished tubing, in contrast, totally adsorbed methyl mercaptan for more than 75 minutes, and the sulfur gas level did not stabilize until approximately 130 minutes. Conventional 316L seamless tubing totally adsorbed methyl mercaptan for more than 90 minutes, and the sulfur gas level did not stabilize until approximately 140 minutes.

**Figure 3** SilcoNert 2000 treated electropolished stainless steel tubing (red) does not adsorb methyl mercaptan (500ppbv) compared to untreated seamless stainless steel tubing (blue and violet). Data courtesy of Shell Corp. and O'Brien Corp.



The “memory” of adsorbed active compounds can cause long delays in equilibrating a sample stream. Figure 4 demonstrates the memory effects of the three types of tubing used to transfer streams containing sulfur compounds. The SilcoNert 2000 treated tubing shows less retention of sulfur compounds by several orders of magnitude, indicating very high inertness.

**Figure 4** Sulfur memory is prolonged in raw commercial grade stainless steel tubing. SilcoNert2000 treated electropolished tubing; shows no memory effects (500ppbv methyl mercaptan in helium). Data courtesy of Shell Corp. and O'Brien Corp.



## Value of an Inert Pathway

SilcoNert 2000 treated sampling and transfer equipment results in more accurate sampling and faster cycle times. Improved accuracy and reliability of data for sulfur, achieved using SilcoNert 2000 treated transfer and sampling equipment, mean downstream processes can be more precisely controlled, resulting in significant cost savings. Shorter cycles translate directly into more samples collected and analyzed in a given period of time.

**In Summary** Our treatments maximize the performance of your analytical system the first time, every time while saving you thousands in improved yields, better test cycle times and improved system reliability. To browse additional data, application guides, and other technical resources for mercury, NO<sub>x</sub>, and other compounds, visit [www.SilcoTek.com](http://www.SilcoTek.com) or call us at +1 (814) 353-1778.

Reference 1. D. Smith, D. Shelow, G. Barone; “Instrument and Sampling Equipment Passivation Requirements to Meet Current Demands for Low-Level Sulfur Analysis”; Presented at Gulf Coast Conference, 2001; Restek Corporation, Bellefonte, PA 16823.



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## SilcoTek treatments are available worldwide!

**SilcoTek offers treatments on a custom basis direct from our facility. Just follow 2 easy steps to maximize the performance of your product!**

### Step 1 Get a quote!

We make it easy with quote options to fit your needs visit our website at [www.SilcoTek.com](http://www.SilcoTek.com) and complete our on-line quote request form or fax your quote request to Quotes at 814.353.1697 or e-mail it to [Silcod@SilcoTek.com](mailto:Silcod@SilcoTek.com). We'll get a quote out to you within 24 hours!

### Step 2 - Send in your parts!

Mailing instructions, shipping labels and a service number will be forwarded to you along with your quotation. Box up your parts and send them to us. Your order will be processed in 10 working days or less.

Our 2 touch system means zero disappointments. We'll notify you when we receive your parts and when your order is ready to ship.



**SilcoTek treatments are available worldwide through representatives in analytical instrumentation, tubing specialists, fitting manufacturers, and other technology industries. For a complete listing of where you can purchase SilcoTek treated products, go to our website [www.SilcoTek.com](http://www.SilcoTek.com)**