Maximize the performance of your analytical system

SilcoNert®2000

A required treatment for accurate analysis of:

- H₂S
- Reduced sulfurs
- Mercury
- NOₓ
- Mercury
- And more

Industries served:

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

SilcoNert® surface treatments enable quantitative delivery of active compounds.

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

Data courtesy of Restek® Corp.

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

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

Learn more:

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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.

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.

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, NOx, and other compounds, visit www.SilcoTek.com or call us at +1 (814) 353-1778.

Reference