

Siltek®—Moisture Uptake (Wet-Up) and Release (Dry-Down)

Improve Moisture Wet-Up and Dry-Down Rates

Efficient low level moisture detection, even through long sample paths, is now possible using Siltek® treatment. In analytical, oil refining, and semiconductor manufacturing, even ppm levels of moisture can damage instruments, yield inaccurate analytical results, damage catalysts, increase periodic maintenance or reduce process yields. Detecting and managing low-level moisture has become a vital element in cost effective processes. Data for wet-up and dry-down experiments, measuring the relative response time for moisture content change in Siltek® treated electropolished stainless steel tubing, untreated electropolished stainless steel tubing, and standard 316L stainless steel tubing, demonstrate a significant advantage to Siltek® treated versus untreated substrates.¹

In wet-up testing, Siltek® treated electropolished tubing reached the 98% saturation limit in 30 minutes, compared to 60 minutes for electropolished tubing. Standard tubing could only achieve a 96% uptake, after 180 minutes (Figure 1). This demonstrates the exceptional hydrophobicity of the Siltek® treatment.

After the tubing was stabilized with 1ppm of moisture, moisture dry-down curves show Siltek® treated electropolished tubing achieved dry-down in 35 minutes, electropolished tubing required 65 minutes, and standard tubing required 175 minutes. This demonstrates Siltek® treatment's ability to reduce instrument equilibrium time, thus improving process feedback accuracy and process yields.

In the transfer of ultra-high purity gas streams, Restek treated tubing and system components dramatically improve dry-down. Further, they reduce contamination from moisture carryover, and extend periodic maintenance cycles.

industries served

Analytical instrumentation
Oil refining
Research
Semiconductor

thank you

Tubing used in the wet-up/dry-down experiments was supplied by Cardinal UHP (St. Louis, MO).

Reference

¹ Harris, P. *Relative Response Time of TrueTube™ When Measuring Moisture Content in a Sample Stream* test report, O'Brien Corp. (St. Louis, MO) 2004
Reference available on request.

Figure 1 Restek treated electropolished tubing (blue line) stabilizes at 1ppm moisture much faster than conventional surfaces.¹

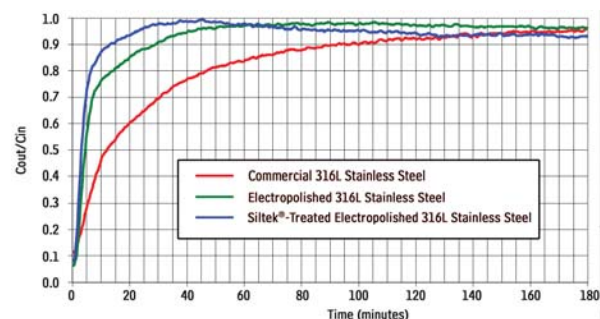
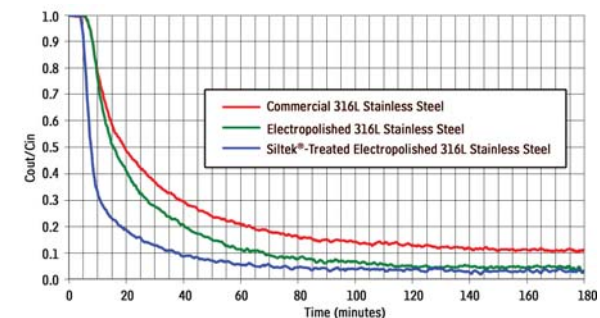


Figure 2 Restek treated electropolished tubing (blue line) dries much faster than conventional surfaces.¹



To learn more about how Siltek® improves moisture performance and to download the entire moisture study, go to our website, www.restekcoatings.com.

product guide



Siltek®/Sulfinert® tubing (pages 394–396) and **Siltek®/Sulfinert® fittings** (pages 392–393) are in stock and available for immediate shipment.

Custom treatment is available for **your existing equipment**—see page 398.

- Reactors
- UHV chambers
- Pumps
- Gas manifolds

