Silcosteel®-AC—Coking Control

industries **served**

Aerospace
Automotive
Aviation
Chemical process
Oil and gas refining
Oil exploration
Petrochemical

did you **know**?

Among our surface treatments, Silcosteel®-AC treated stainless steel components exhibit the greatest reduction in coking (JP-5 fuel).

Surface Treatment	Carbon Buildup (µg/cm²)
Silcosteel®	15.4
Sulfinert®	11.9
Silcosteel®-AC	7.4

free sample

www.restekcoatings.com/sample

Silcosteel®-AC

Reduce coking up to 8-fold

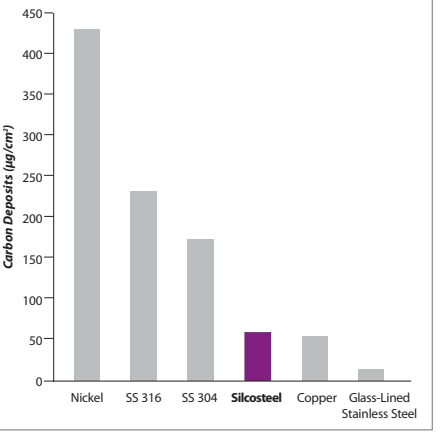
A major problem in hydrocarbon processing systems is coking—the buildup of carbon on the surface of steel or stainless steel components. Coking often is initiated by catalytic action of nickel or carbon impurities or additives in the steel used to construct the processing system components.

A Silcosteel® treated system exhibits a 3- to 5-fold reduction in coke formation, compared to untreated stainless steel (Figure 1), but a modified Silcosteel® treatment, Silcosteel®-AC, can provide an 8-fold reduction. The Silcosteel®-AC or Silcosteel® layer forms a barrier between the hot hydrocarbon stream and the coking-susceptible steel substrate, and eliminates catalytic breakdown in the hydrocarbon stream. With the elimination of surface catalytic activity, carbon will not chemically adhere to the surface. Current work indicates that the only mechanism of carbon formation in a Restek-treated system is the result of coking within the fluid phase. This material settles on the surface without adhering, and is easily removed by agitating the surface. Now, instead of "burning" out coke with oxygen at high temperatures, deposited carbon can simply be rinsed away.

Applications for Silcosteel®-AC coking control treatment include fuel injection nozzles, jet engine nozzles, engine valves, and engine cylinders.

We continue to investigate other coatings specifically designed to reduce coking. For more information, contact the Restek coatings experts.

Figure 1 Silcosteel® treated tubing exhibits a reduction in carbon deposits in tests using JP-8 fuel on various types of tubing (500°C, 500psi, 1cc/min. flow rate).



product **guide**

Silcosteel®-AC is offered on a custom basis, applied to your existing equipment—see page 398.

- Manifolds
- Pistons
- Valves
- Injectors
- Reactors
- Process equipment