Dursan® NSF

Providing versatile coatings ideal for corrosion and durability, chemical inertness, and anti-stick properties.

The Dursan® process deposits a chemically protective barrier of amorphous silicon, oxygen and carbon that is further functionalized to resist adsorption of corrosive, reactive, and otherwise unwanted molecules (patent info at www.silcotek.com/IP). Applied via chemical vapor deposition (CVD), the Dursan® process is required when both a robust and chemically inert surface are critical.

The Kurt J. Lesker Company is proud to offer its standard manufacture and custom vacuum parts now with SilcoTek's game-changing CVD coating technology. The Dursan coating process deposits a thin (400-1600 nm) layer of amorphous silicon, oxygen, and carbon that protects vacuum components from corrosive materials without affecting vacuum or pump down performance. See below for the current offerings from Kurt J. Lesker and SilcoTek.

Dursan® Properties

Coating Composition:	Functionalized silica-like coating (a-SiO_X:CH_Y)
Deposition Process:	Thermal chemical vapor deposition (not plasma-enhanced)
Maximum Temperature:*	Max for functionalization: 450° C (oxidative) 500° C (inert)
Typical Thickness:	400 - 1600 nm
Hydrophobicity (contact angle):	$\geq$ 81°
Allowable pH Exposure:	0 - 14

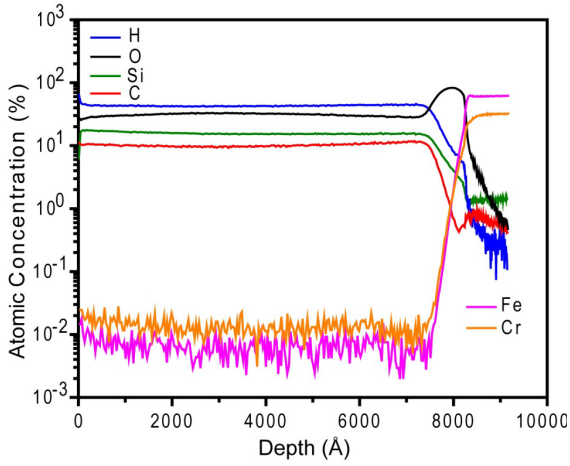
Dursan treated standard manufacture and custom vacuum parts will experience:

- Enhanced corrosion resistance
- Strong pump down performance
- High temperature compatibility
- Broad base material and vacuum component capability

Common component examples include: Vacuum flex hoses, KF, ISO, and CF flanges and components.

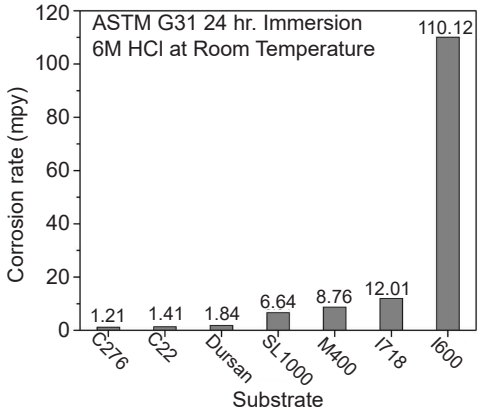
Chemical Compatibility

The silica-like structure provided by the Dursan process is a robust and inert barrier suitable for several process environments.



Corrosion Resistance

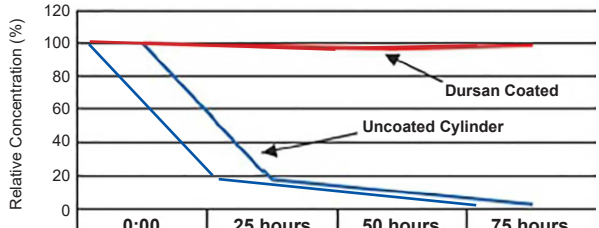
Coating with the Dursan process can provide exotic alloy performance at a fraction of the price.



Inertness

Flow paths coated with the Dursan process enable low parts-per-million sensitivity to sulfur compounds.

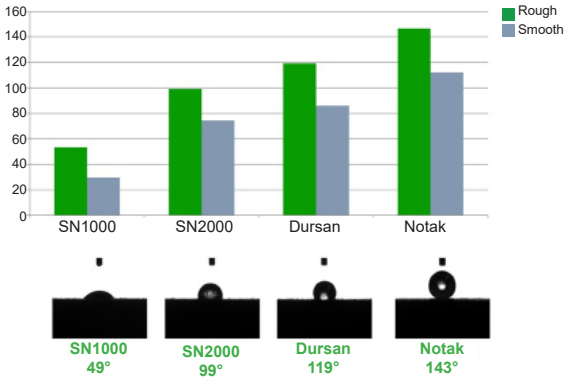
H_2S Stability: Dursan vs. Stainless Steel
50 ppmv, 300cc cylinder



	0:00	25 hours	50 hours	75 hours
---- Stainless Steel	100	19	10	4
---- Dursan	100	98	96.6	98.3

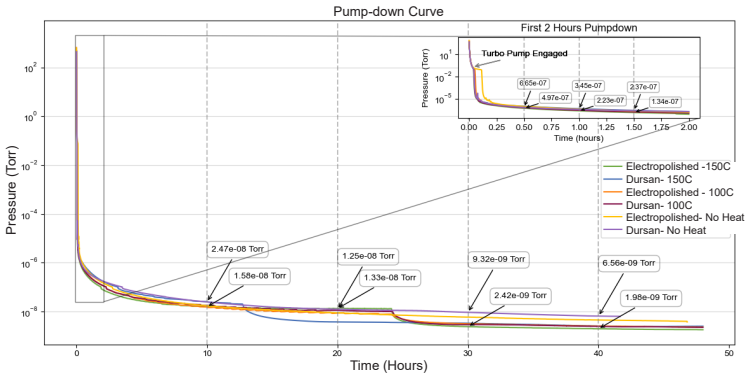
Hydrophobicity

Coatings produced by the Dursan process are hydrophobic, non-stick, and easy to clean.

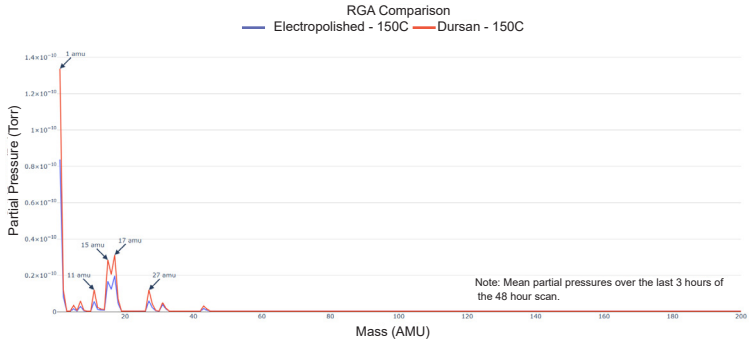


Maintain Vacuum Performance

Dursan offers excellent protective properties while maintaining the same vacuum performance and pump down times as uncoated or electropolished surfaces.



Pump down comparison at 150°C, 100°C, Room Temp. - 6"OD CF 304L SS Full nipple test piece coated with Dursan from SilcoTek and compared to uncoated electropolished equivalent. The coated sample enables similar pump down and ultimate vacuum performance to uncoated standards at various temperature levels.



RGA comparison at 150°C - No anomalous AMU points on coated samples compared to uncoated, typical expected peaks for H_2, H_20, N_2, etc. The difference in peaks between coated and uncoated samples is in the 10e-11 range indicating minimal outgassing differential.