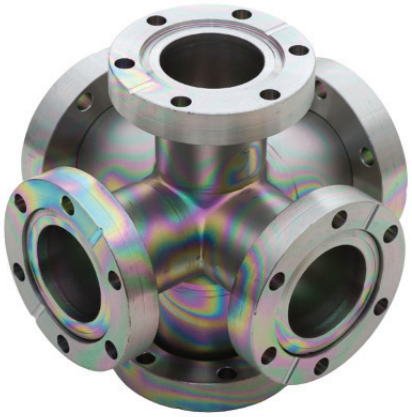
Dursan® NSF

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

Overview

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.



Key Applications and Benefits

- Achieve corrosive performance similar to exotic materials at a fraction of the price
- Increase system durability
- Improve instrument accuracy and response time
- Easy release and cleaning

Corrosion

Chemical Process

Oil & Gas/Refining

Hydrophobicity

Lab Analysis

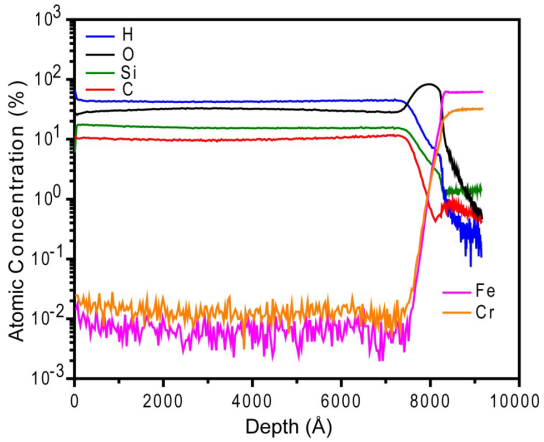
Dursan® Properties

Coating Structure:	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)
Substrate:	Compatibility: Stainless steel, exotic alloys, ceramics Size: Typical parts up to 80" (203 cm), contact us for larger jobs. Geometry: Any shape, including complex geometries
Typical Thickness:	400 - 1600 nm
Hydrophobicity (contact angle):	≥81°
Allowable pH Exposure:	0 - 14

*Contact technical service

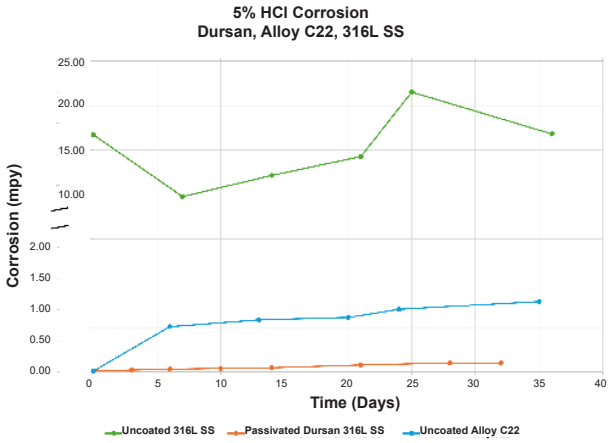
CHEMICAL COMPATIBILITY

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



CORROSION RESISTANCE

The Dursan coating process provides similar corrosion protection* as Alloy C22 at a fraction of the price.

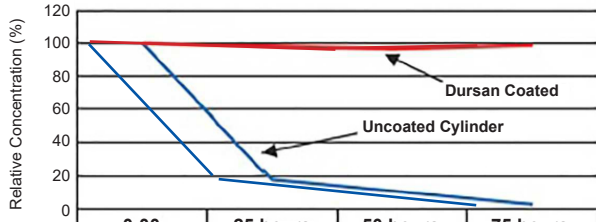


*Alloy C22 and other milled metals are subject to material variability leading to inconsistent corrosion performance. Contact SilcoTek for more details.

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

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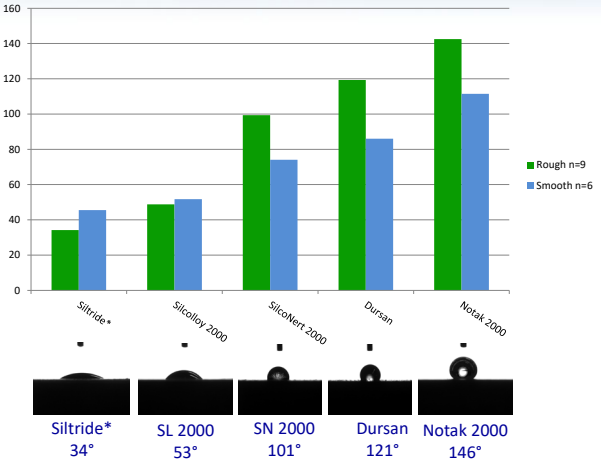
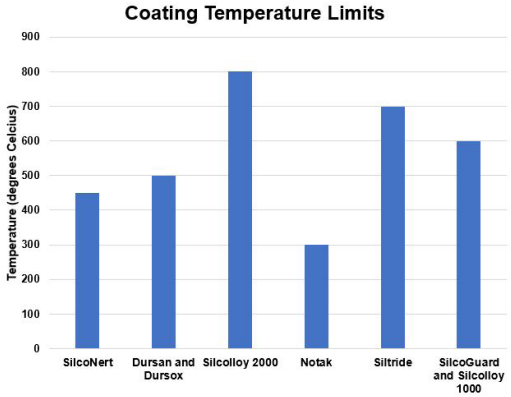
HYDROPHOBICITY

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



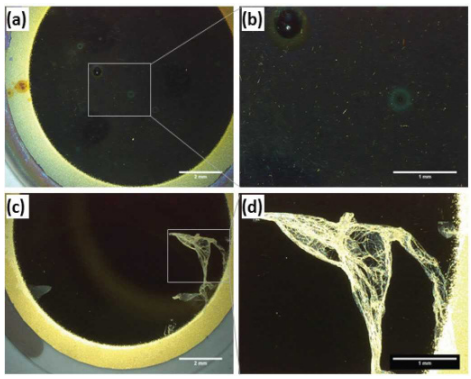
TEMPERATURE STABILITY

The Dursan process produces versatile properties that are stable at temperatures well above the limits of fluoropolymers.



DURABILITY

The Dursan process (top row) doubles the wear resistance of 304 stainless steel and creates resistance to cracking and flaking, which plague PTFE (bottom row).



Dursan® (top row) and PTFE (bottom row) after cleaning and sonication.

*Dursan® refers to the Dursan® process, which is a thermal chemical vapor deposition process that we perform to enable your parts to have the properties identified above.