

wico[®]pure

Render Metals Inert

wico[®]pure coatings render surfaces of metal components inert.

The coatings mainly consist of glass like SiO₂ with high-tech organic modifications. They enable use in demanding applications.

The low layer thickness and the chemical vapour deposition process make it possible to coat the complete surface of the component, even the smallest internal structures such as gas ducts, drillings or cooling channels.

The nanometer thin layers can be considered negligible in the design and manufacturing process as they have no impact on usual manufacturing tolerances of the finished components.

wico[®]pure coatings retain thermal conductivity and the ability to adapt electrical voltages.

Potential applications:
gas chromatography, measuring instruments, IR-spectroscopy, analysis, etc.

Characteristics

- For all metallic surfaces
- Shields medium from component
- Increases corrosion protection against numerous acids
- Minimizes adsorption processes, e. g. of NH₃, H₂O, NO_x, CO
- Reduces memory effects
- Achieves more precise measurement results
- Minimizes adhesion
- Prolong the life span
- Reduces the maintenance effort

Properties

Coating process	Chemical Vapour Deposition (CVD)
Coating material	SiO ₂ , organically functionalized
Coating temperature	250 - 300 °C 480 °F -570 °F
Color	Transparent iridescent
Layer thickness	200 - 800 nm *
Type of coating	Inside coating Outside coating
Substrates	Aluminum, non-ferrous metals, high-alloy steels, specialties such as CaF ₂ , silicon / glass
Contact angle	up to 80° *
Temperature resistance	max. 400 °C 700 °F *
Corrosion protection factor	> 1.000 (in 25 % -H ₂ SO ₄ 65 °C)
Additional features	High temperature applications Anti-adhesion effect Drinking water applications
Approvals	ROHS-, REACH-, CP25-compliant

* according to application



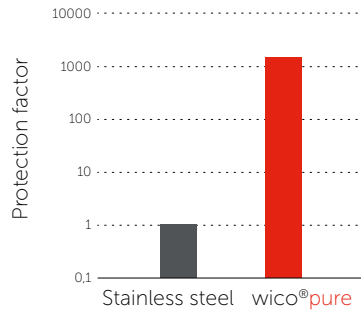


wico[®]pure

Resistant against ozone, NO_x, NH₃, SO₂, CO, H₂O, etc.

Corrosion protection

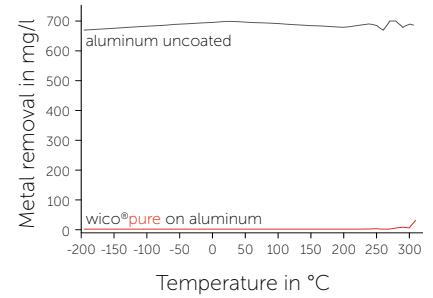
wico[®]pure remains functional even in aggressive media.



Protection factor: Calculated from metal removal of stainless steel (1.4404), not coated compared to wico[®]pure protected (1 h in 25 % H₂SO₄ at 65 °C).

Temperature stability

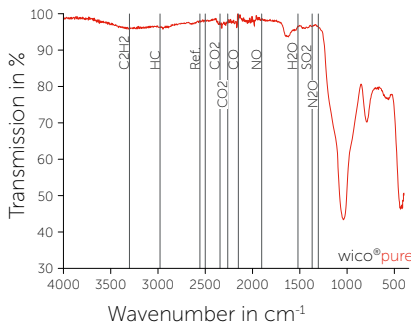
Extreme temperatures do not affect the performance and composition of the coating.



Removal of metal after three consecutive thermal shocks (from indoor temperature to a range from -196 °C to 300 °C).

Precise measurement

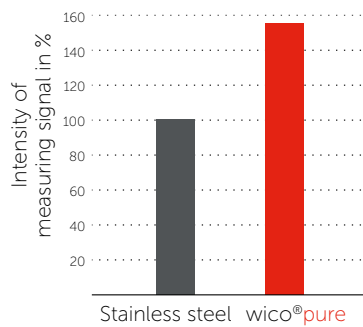
wico[®]pure achieves an IR transmission rate of almost 100 % for all common process gases.



Infrared spectrum of wico[®]pure.

Improved measurement signal

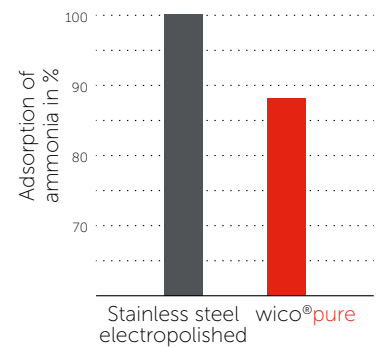
wico[®]pure increases the sensitivity of measuring cells. Thus, smallest gas quantities are detectable.



IR signal of CO in a gas measuring cuvette.

Lower absorption

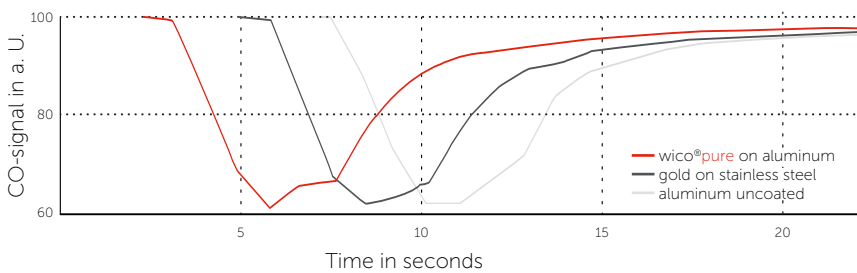
wico[®]pure reduces interactions between gas molecules and the substrate surface.



Inverse gas chromatography (ammonia).

Faster results

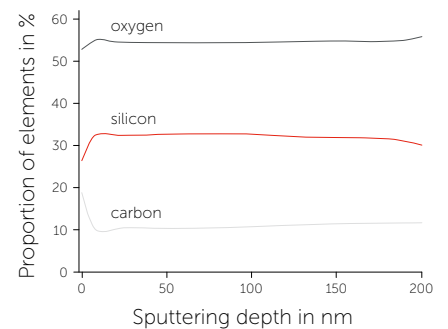
wico[®]pure reduces the adhesion of gases, which leads to shorter retention times and faster measurements.



Gas measuring cell (180 mm long and 9 mm inner diameter).

Long-lasting functionality

Due to its specific composition wico[®]pure represents durability.



XPS measuring to characterize wico[®]pure.

Contact

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