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Medical Non-Stick Coating PECVD

TS-VTI's proprietary medical non-stick coatings transform surgical and dental instruments through advanced physical vapor deposition (PVD) technology. This creates an ultra-smooth, low-friction surfaces that enhance instrument functionality while supporting improved patient outcomes.

Characteristics:

- Thickness options range from 8 nm to 300 nm
- Silicon-based low friction plasma polymer (SiOx)
- Performs against non coated instruments 10x – 20x better
- ISO 10993 biocompatibility support

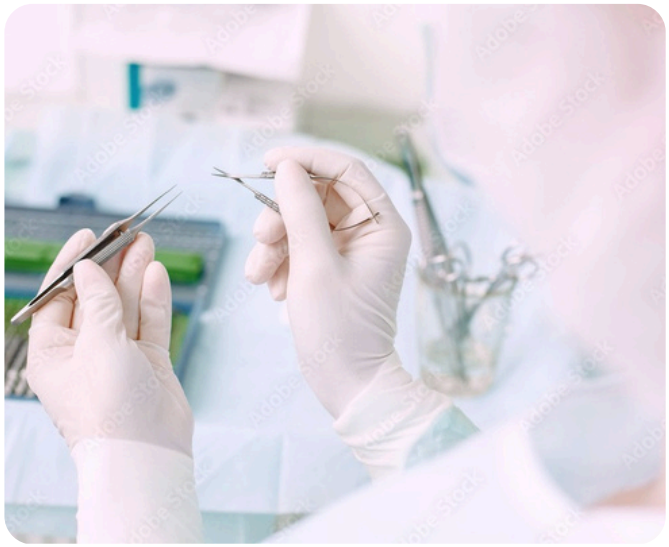
Examples of applications:

• Steels and cast irons-Carbides • Dense sintered materials • Inconel alloys • Aluminium, copper and titanium alloys

Benefits

• Low Friction Coefficients • Reduced Tissue Trauma • Enhanced Visibility • Easy Debris Release
• Corrosion Protection • Streamline Sterilization

The material **withstands autoclaving**, can be paired with tribological coatings, **reduces tissue and blood adhesion** for improved patient comfort, and remains compatible with heat-sensitive polymers commonly used in modern devices.



Engineered to replace traditional PTFE-like hydrophobic coatings, this **advanced solution delivers superior durability, enhanced biocompatibility, and optimized performance** for next-generation medical devices.

Medical professionals working with coated instruments consistently report smoother tissue interaction, easier cleaning protocols, and extended instrument service life.

Non-Stick Coating

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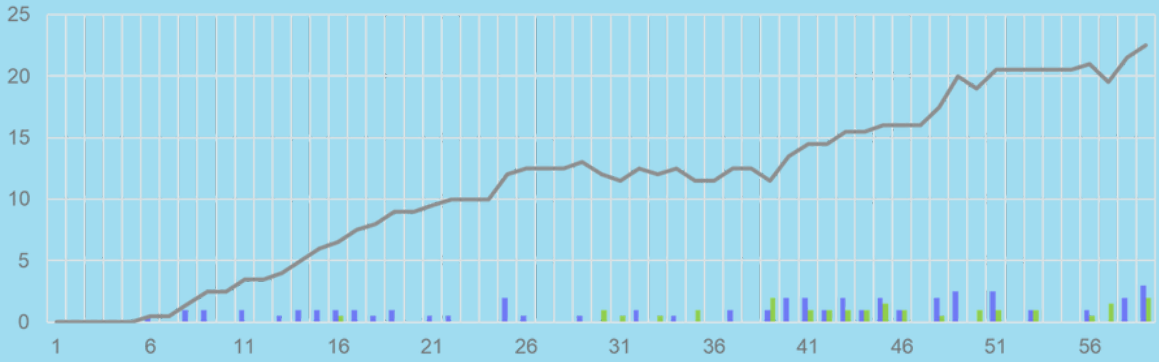
Nonstick Performance on an Electrosurgical Device

The chart below measures the number of electrical activations (x-axis) against the level of tissue sticking to the electrosurgical device (y-axis).



Blue represents an uncoated device
Green represents a VTI nonstick coated device
Gray line represents the improvement of the coated device's nonstick performance

Customer Testing	
Contact Angle	100 to 140 degrees
Surface Roughness	no change
Blood Adhesion	see next
Scratch resistance	minimal
Adhesion to substrate	5B ASTM3359
Heat resistance	>150C
Electrical resistance	tunable
Coating thickness	8 to 300 nm @ +/-

These performance improvements translate directly to safer procedures, reduced infection risk, and lower total cost of ownership for medical facilities.

Proven experience collaborating with FDA-regulated OEMs to ensure compliance and quality in medical device development.

We provide full support through IQ, OQ, and PQ validation and continue into production.

Contact

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Non-Stick Coating

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