

Pegasus™ 500 Series Coatings

Highly fluorine etch-resistant and transparent coatings

Entegris' Pegasus™ 500 series coatings are a family of precision-engineered PVD coatings tailored for fluorine and chlorine plasma etch applications. They are aluminum-based oxynitride coatings deposited at low temperatures.

Pegasus 500 series coatings can be deposited on aluminum, alumina, stainless steel and other commonly used substrate materials, with superior adhesion. These coatings are highly transparent in the visible and IR range. They are of high purity, exhibit homogeneous microstructure and are conformal to the substrate surface.

Entegris' Pegasus 500 series coatings are dense and excellent barriers to corrosive chemistries in a semiconductor etch environment, protecting surfaces from erosion and minimizing particle generation. The coatings are superior in etch resistance performance compared to plasma sprayed coatings since they are dense, have good cohesive strength and are not prone to particulation. This improves device yield and improves productivity of semiconductor etch tools in a manufacturing environment.

SPECIFICATIONS

Substrate	Compatibility	Metals, Ceramics (e.g., Alumina, AlN) and Semiconductors
	Size	Up to 1016 mm D x 508 mm H (40" D x 20" H)
Structure	Microcrystalline	
Temperature	Deposition	<200°C (392°F)
	Use	1000°C (1832°F)
Coating thickness	Up to 10 µm	
Electrical resistivity	>10 ¹² Ω-cm	
Purity	>99%	
Hardness	1100 HV	
Elastic modulus	190 GPa	
Roughness	Conformal – substrate dependent	
Wear resistance	Very good	
Corrosion resistance	Excellent etch resistance in fluorine and chlorine environments	
	Oxidation-resistant up to 1000°C (1832°F) in air	
	Resistant to most acids and alkalis	



BENEFITS

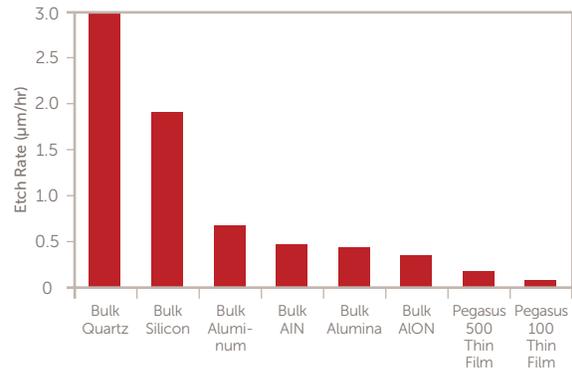
- Fluorine and chlorine etch resistance
- Oxidation resistance
- Low particle generation
- Dense and transparent

APPLICATIONS

- Semiconductor chamber components
- Optical components

CHARACTERISTICS

Etching Rate Performance*

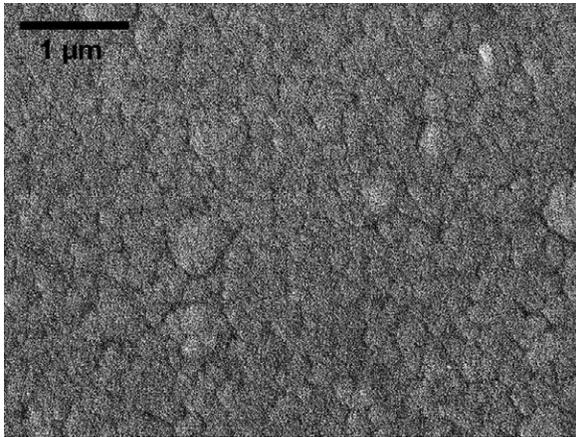


*Tested under CF_4+O_2 reactive plasma for 4 hours.

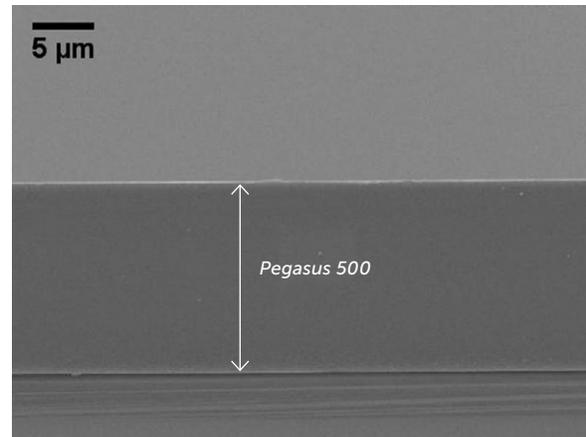
Note: The fluorine plasma etch rate is highly non-linear with exposure time. Pegasus coatings are expected to last 10,000 RF hours of plasma exposure.

SEM Images of Pegasus 500 Series Coatings

Coating Surface Morphology



Coating Cross-section



FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the Contact Us link to find the customer service center nearest you.

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Corporate Headquarters
129 Concord Road
Billerica, MA 01821
USA

Customer Service
Tel +1 952 556 4181
Fax +1 952 556 8022
Toll Free 800 394 4083

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