Caerus™ 100 Series Coatings

Superior aluminum oxide coating

Entegris' Caerus™ 100 series is a family of aluminum-based oxide coatings that are deposited at low temperatures with superior film quality. Caerus coatings are highly conformal, dense, pinhole-free and exhibit homogeneous microstructure. Caerus coatings have a good combination of excellent adhesion and outstanding etch resistance properties. The coatings are characterized by superb electrical voltage stand-off and exceptional trace metal diffusion barrier layer characteristics.

Caerus 100 series coatings can be deposited on aluminum, quartz, alumina, stainless steel and other commonly used substrate materials, including polymers and organic compounds. These coatings are of the highest purity, have amorphous microstructure and are extremely conformal to the substrate surface, which enables coatings on surfaces with high aspect ratio features and complex 3-dimensional parts.

Entegris' Caerus 100 series coatings have good cohesive strength and are excellent barriers to corrosive chemistries in semiconductor plasma etch and wet etch environments, protecting surfaces from erosion and minimizing particle generation.

Caerus 100 series coatings are an excellent choice for applications requiring a combination of mechanical, chemical and electrical resistance.

APPLICATIONS

- Semiconductor chamber components
- Optical coatings
- Parts with high aspect ratio features and complex 3-dimensional surfaces

FEATURES & BENEFITS

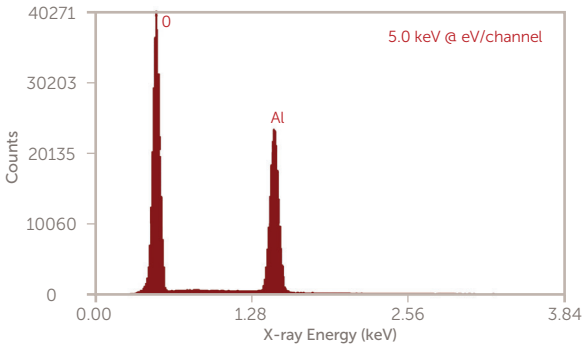
- Dense, highly conformal, pinhole free
- Excellent electrical properties
- Good chemical etch resistance
- Diffusion barrier layer

SPECIFICATIONS

Substrate	Compatibility	Metals, ceramics, polymers
	Size	Up to 355 mm D × 50 mm H (14" D × 2" H)
Structure	Amorphous	
Temperature	Deposition	150°–250°C (302°–482°F)
	Use	Up to 1000°C (1832°F)
Coating thickness	Typically between 10–1000 nm	
Electrical resistivity	$>10^{13}$ Ω-cm	
Purity	>99.99%	
Composition	Al 40%; O 60%	
Dielectric breakdown voltage	>500 V/µm	
Elastic modulus	>200 GPa	
Roughness	Conformal – substrate dependent	
Wear resistance	Very good	
Corrosion resistance	Excellent etch resistance in fluorine environments Resistant to most acids and alkalis	

CHARACTERISTICS

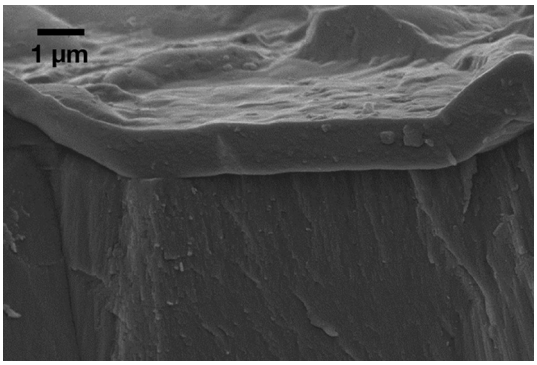
EDS of Caerus 100 Series Coatings



Element	Weight %	Atomic %
O	47.59	60.49
Al	52.41	39.51
TOTAL	**100.00**	

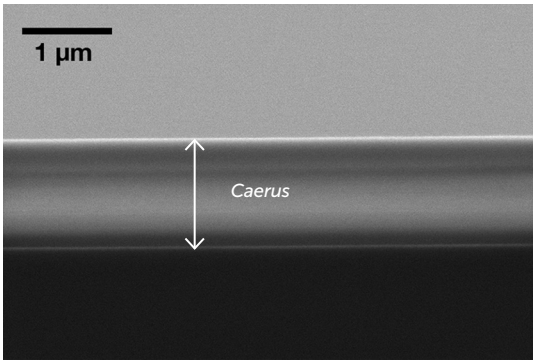
SEM Images of Caerus 100 Series Coatings

COATING SURFACE MORPHOLOGY



Caerus 100 deposited on alumina

COATING CROSS-SECTION



Caerus 110 deposited on silicon

To review Entegris' specialty coatings offering, visit Entegris' website at *www.EntegrisSpecialtyCoatings.com*.

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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