



ULTRAPURE SILICON COATING (99.9995%)

Ultrapure coating for contamination control

Overview

Entegris offers an ultra high purity silicon coating (99.9995%) that is dense, micro-conformal, highly adherent and extremely smooth for a variety of applications. The silicon coatings are deposited by a proprietary Plasma Enhanced Chemical Vapor Deposition (PECVD) process which is versatile and allows for a high degree of flexibility in coating a variety of substrate materials. The coatings have low internal stress, therefore can be deposited in thicknesses ranging from <1 micron to 100+ microns depending on substrate material and finish.

Entegris silicon coatings are ideal in ion implant, wafer bonding and plasma nitriding applications. Other emerging applications show a need for silicon coatings such as substrates for optical mirrors, where precision polishing (sub-nanometer roughness) is desired.

Applications

- Particle and metals contamination reduction in semiconductor wafer processing
- High-precision optical mirrors for air, space and terrestrial applications

Specifications

Substrate:	Compatibility	Metals, ceramics (AlN, Al ₂ O ₃ , quartz, PSZ, graphite, SiC, etc.) and polymers
	Size	Up to 91 cm (36")
	Geometry	Any shape, including complex geometries
Structure:	Amorphous; contains hydrogen	
Temperature:	Deposition	Below 150°C (302°F)
	Use	-50°C to 600°C (-58°F to 1112°F)
Coating thickness:	A few nm to over 150 μm	
Electrical resistivity:	5 × 10 ⁸ Ω-cm, lower values possible	
Hardness:	600 HV	
Purity:	99.9995%	
Wear resistance:	Good	
Corrosion resistance:	Excellent resistance to aqueous, alkaline and most acid environments	

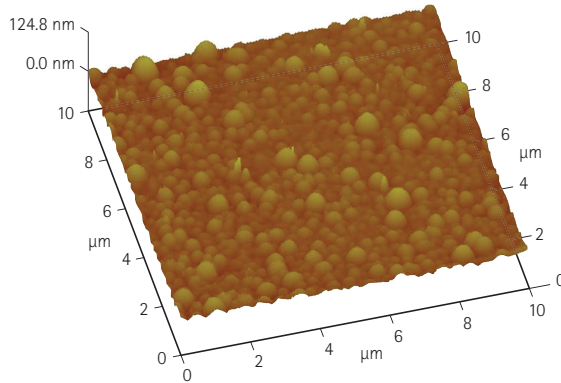


Features

- Ultra high purity
- Low residual stress
- Dense, hard and micro-conformal
- Can be polished or single-point diamond turned to optical finish

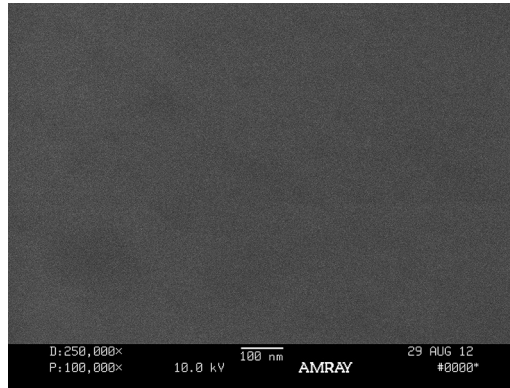
Characteristics

AFM Image of Ultrapure Silicon Coating (99.9995%)

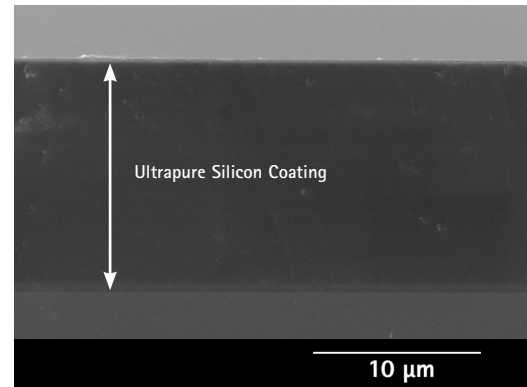


SEM Images of Ultrapure Silicon Coating (99.9995%)

Coating Surface Morphology



Coating Cross-section



For More Information

To learn more about how Entegris' high-purity specialty coatings help customers enhance yields, improve productivity and meet future technological needs, call Entegris at +1 781-538-8745.

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

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