

NanoSlic[®] NS 1700 Ceramic Solar Panel Coating

INTRODUCTION

NanoSlic NS 1700 is an advanced ceramic coating that provides protection and boosts efficiency when applied to the glass surface of solar panels. The hydrophobic and oleophobic coating produces a self-cleaning effect, water beads up carrying away dust and dirt, an enemy of efficiency. NS 1700 is a 9H hardness coating, providing advanced protection without changing the optical properties of the glass.

ATTRIBUTES

- Excellent Repellency to Water and Oil Based Contaminants
- No Effect on Light Transmission
- Permanent
- Superior Adhesion and Abrasion Resistance
- Ultra-Thin Coating
- Room temp Curing
- VOC Free*

TECHNOLOGY

NS 1700 is based on revolutionary **NanoSlic technology**. The advanced ceramic chemistry chemically bonds to glass surfaces while forming a hydrophobic/oleophobic layer at the air interface. NanoSlic 1700 has a robust, abrasion resistant surface that repels water-based and oil-based oils contaminants. The ultra-thin coating is optically transparent and provides advanced protection with minimal weight. The high contact angle makes water bead and carry away dust and other particles that reduce the efficiency of the panel.

PRE-CLEAN

Prior to application surfaces should be free of contaminants, fingerprints, oils and other residues. Panel Prep and Glass Cleaner is recommended as a residue free cleaner. Be sure that no lint, dust or other contamination remains prior to application of the coating.

APPLICATION

Pour several drops of NS 1700 onto an applicator. Wipe the applicator onto the glass to cover ½ the panel, in up-down or left-right movements, using even pressure across the surface. Make sure the coating fully covers the area. You may need to wipe back and forth as in a crosshatch pattern to level the coating properly. After

1½-4 minutes, coating will have a rainbow effect in appearance. After the rainbow appears, use a clean soft towel to wipe away all residue.

CURING

NS 1700 will dry to tack free in 20-30 minutes. Do not disturb the coating or re-coat during this time. The coating begins to cure as soon as solvents begin to evaporate. The coating will reach 7H hardness after 18 hours and will fully cure to 9H hardness in 3 days at room temperature. Rain-ready in 12 hours. Heat will accelerate the curing process.

TEST RESULTS

Physical Properties	Values
Appearance	Clear
Specific Gravity @ 23°C	1.02 g/cm ³
Viscosity @ 23°C	1.96 cP
Nonvolatile content	10-12%
Static contact angle, water	105* Degrees
Static contact angle, n-hexadecane	64* Degrees
Refractive Index	1.4
Water Vapor Permeability	0.02 g/100 sq. in.
	* Bulk polymer properties.



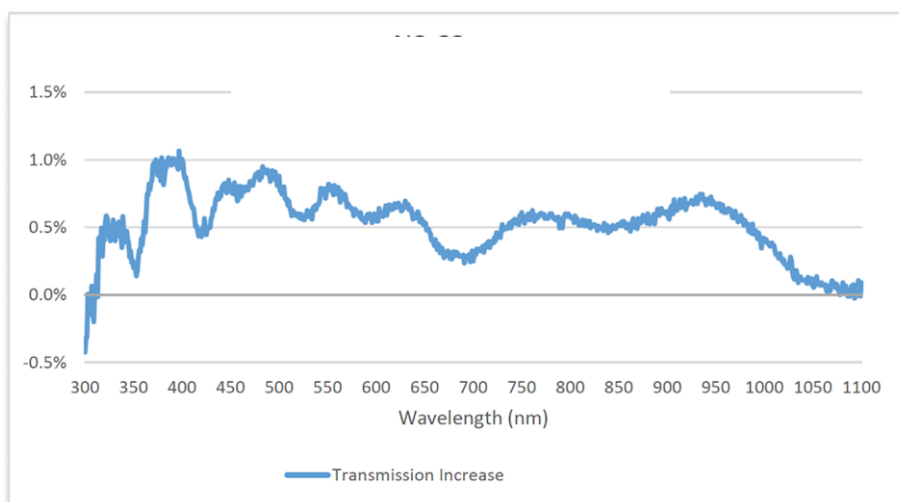
ENVIRONMENTAL

DuraSlic coatings use green solvents that are not classified as VOCs and have been determined not to add to global warming.

Additional Properties	Values
Salt Fog ASTM B-117-11, 500 Hours	Pass
Hydrolytic Stability IPC-CC-830 85°C/95%RH, 1000 hrs	No Change
Abrasion resistance, ASTM D2486, Water, Isopropyl Alcohol, Soap	>2000
Temperature Performance	350°F continuous
Abrasion/Wet Scrub ASTM D2486	
Adhesion Cross-Hatch ASTM D3359	5B
Pencil Hardness ASTM D3363	9H

Light Transmission

All transmission measurements done in a Lambda Perkin Lambda 2 spectrophotometer.



Light transmission of NS 1700 coated on glass. Transmission increase indicates anti-reflective properties.

Chemical Resistance

48 hour immersion Room Temperature	NS 1700
Isopropyl alcohol	No attack
Arcosolv PM	No attack
Butyl carbitol	No attack
Butyl cellosolve	No attack
Butoxy triglycol	No attack
Dibasic ester	No attack
Dipropylene glycol	No attack
D-Limonene	stripped
Dowanol TPNB	No attack
Hexyl Carbitol	No attack
Hexylene glycol	No attack
Monoethanolamine (MEA 10% vol pH 11.60)	No attack
n-butyl alcohol	No attack
Pluronic L-64 5% wt	No attack
Potassium carb 47 (10% vol pH 11.50)	No attack
Propylene glycol	No attack
TKPP 60 16% vol (100g/L) pH 10.40	No attack
Triton X-100 5% wt	No attack

