

HybridShield/SI® Solar



NanoSonic's HybridShield Solar coatings are high-performance for extreme environments and improved power generation efficiency. They are being tested at our own facility in Virginia (above) and NREL.

NanoSonic's HybridShield/SI® Solar Coating is an advanced polymer-based nanotechnology that provides state-of-the-art photovoltaic (PV) panel or concentrating solar power (CSP) system surface protection in harsh environments. These hybrid protective coatings may be applied to glass coverings or reflective mirrors using simple and low-cost coating techniques such as spray deposition using typical legacy spray equipment, rollers, brush or dipping. PV panels or mirrors can be easily field-repaired if damaged.

TECHNOLOGY DESCRIPTION

NanoSonic's cost-effective coating is suitable for protecting photovoltaic panels, mirrors and other breakable glass or plastic. Our HybridShield coating enhances durability, imparts impact- and abrasion-resistance, increases efficiency of power production, and provides self-cleaning properties (see table below). HybridShield nanostructured coatings have been evaluated through Navy, Air Force and NASA efforts for applications in:

- blast and fire protection
- optically transparent water shedding and self-cleaning
- sand/rain erosion protection
- tailorable RF dielectric properties, and
- corrosion protection.

HybridShield coatings could contribute to a reduction in life cycle costs, improve efficiency and significantly increase the operational lifetime of current and next generation solar power systems in the field, on buildings and in transportation. HybridShield protects surfaces in all-weather and adverse conditions, also providing exceptional flame, blast and impact resistance. Glass or plastic coated with HybridShield is recyclable.

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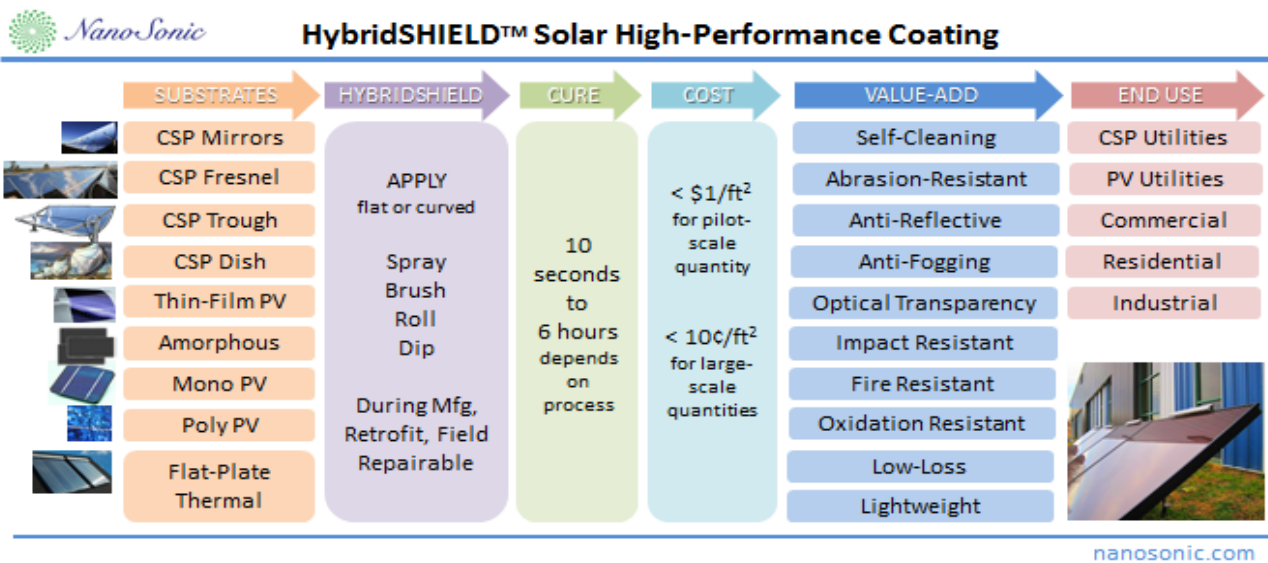
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MAJOR PROPERTIES

- Full light transmission
- Provides self-cleaning surface
- Non-toxic
- Applied by spray, brush, dip or roll
- Glass or mirror applications
- Ambient temperature application
- Short curing times
- Field repairability

Technical Capability

HybridShield is an innovative core technology that combines copolymers with nanomaterials to provide high-performance properties. It has exceptional optical clarity and self-cleaning characteristics and has been evaluated and optimized for 1) nanoparticle-matrix reactivity, interfacial adhesion and morphology; 2) impact resistance; 3) tensile properties; 4) thermal stability; 5) processability (spray, bulk cast or paint) / network cure conditions; 6) adhesion 7) water shedding, 8) abrasion resistance as demonstrated in high velocity particle impact tests below, and 9) cost. It offers improvements for components in solar power generation such as man-portable or stationary photovoltaic panels; reflectors, mirrors and heat collection elements (HCE) for concentrating solar power (CSP); and collectors for solar thermal. This technology is currently being tested by NREL in its laboratories.



HybridShield Solar is a member of the family of coatings that includes HybridShield Fire/Blast Protective Coating that received a 2011 R&D 100 Award, known as the “Oscar of Invention.”

ORDERING INFORMATION

For pricing or additional HybridShield product information, please contact us:

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