

# ISTN

<http://www.istninc.com>

## Low Temperature, Fast Curing Anti-Reflection (AR) Coating

### Company Information

Industrial Science & Technology Network, Inc. (ISTN Inc.) is a US-based Research and Development company with extensive knowledge in Nanotechnology. ISTN Inc. was founded in 1997 by Dr. Arthur Yang, and has since received many US and International grants and contracts for R&D in Nanotechnology. The company has over 15 years of R&D experience in organic-inorganic nanostructures. Researchers at ISTN Inc. are experts in customized water treatment technologies and optical functional coatings. We also actively conduct biotechnology research in the fields of Drug Delivery and Enzyme Immobilization Technologies. ISTN Inc. works very closely with our customers to provide the ideal customized solution.

### ISTN Liquid Anti-Reflection Coating

Current ISTN AR coating technology uses metal-oxide nano particle suspensions as coating solution to form sub-wavelength thin film on substrates such as glass and plastics. The reflection of light on coated surface may be manipulated by the interference of reflections from coating-substrate interfaces and interfaces between coating layers. In order to make the coating perform the desired anti-reflection function, one shall first design the structure and properties of each layer of the coating stack, and then precisely control the coating layer thickness and reflective indexes, as well as the stacking order of multiple layers with different properties.

Key Properties				
	Reflection	Transmission	Abrasion*	Adhesion**
Single Layer	~ 1.0%	> 99%	Passed	Passed

\* Abrasion Test – Cheese cloth test 1.6 Kg/  $\Phi$  5 mm, stroke 300 cycles.

\*\*Adhesion Test – Coating is applied and an X is cut in the surface of the substrate with a scalpel. Pressure sensitive tape is applied to the cut and then removed. Visual inspection is used to reveal any peeling.

### ISTN AR Coating Product Description

ISTN AR coating can reduce reflection from approximately 8% of normal glass to less than 1% in the full visible range, and increase the transmission accordingly. The surface of ISTN AR coating has very low surface energy thus resist the staining of both hydrophilic and hydrophobic contaminations.

- **Low Temperature, Fast Curing Possible** – Adaptable designs on coating and curing systems suitable for ophthalmic lenses and plastic substrates
- **Wet Coating Process** – Best coating method for large or continuous surfaces
- **Anti-Staining Capabilities** - Low surface energy allows hydrophilic and hydrophobic staining resistance
- **Increase Product Value to Existing Applications** – AR coating can increase wattage of solar cells and increase light transmission on protection films

ISTN Inc. continues to research and develop the Liquid AR technology for improved performance and additional product capabilities. It also seeks additional commercialization partners to extend this technology to other optical coating applications.



AR Coated      Uncoated

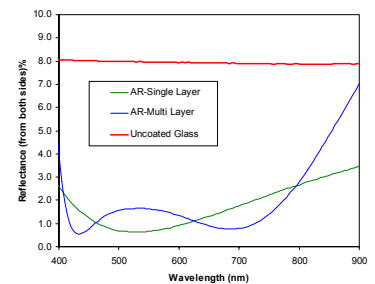


Figure 1: Reflection of AR Coatings

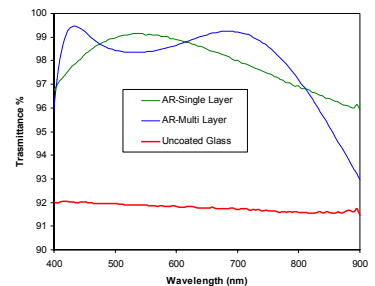


Figure 2: Transmission of AR Coatings

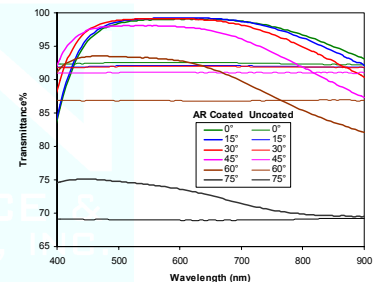


Figure 3: Angle Dependence of Transmission: with/without AR Coating

### ISTN Contact Information

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