

Technology > Optical Coatings

The Invisicon® platform offers unparalleled versatility in designing optoelectronic coatings. We have demonstrated several useful optical coatings based on printable inks. These optical coatings can be deposited on glass, plastic, or directly onto devices. By combining nanotube and binder coatings properly, previously impossible coatings are now possible. Optical coatings can be patterned to make complex optoelectronic devices.

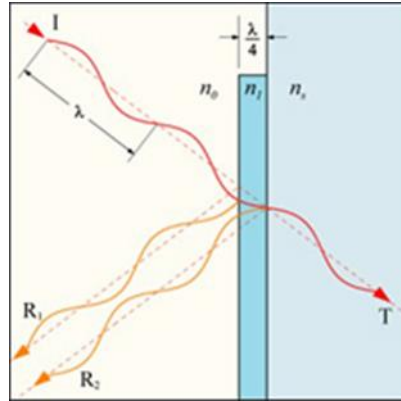
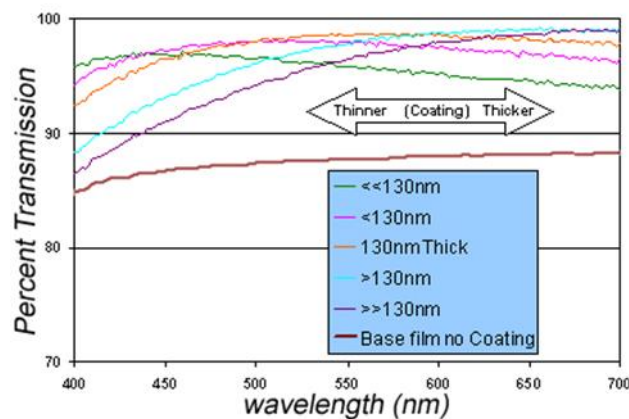


Figure 1: Schematic of a single layer quarter wave AR coating.

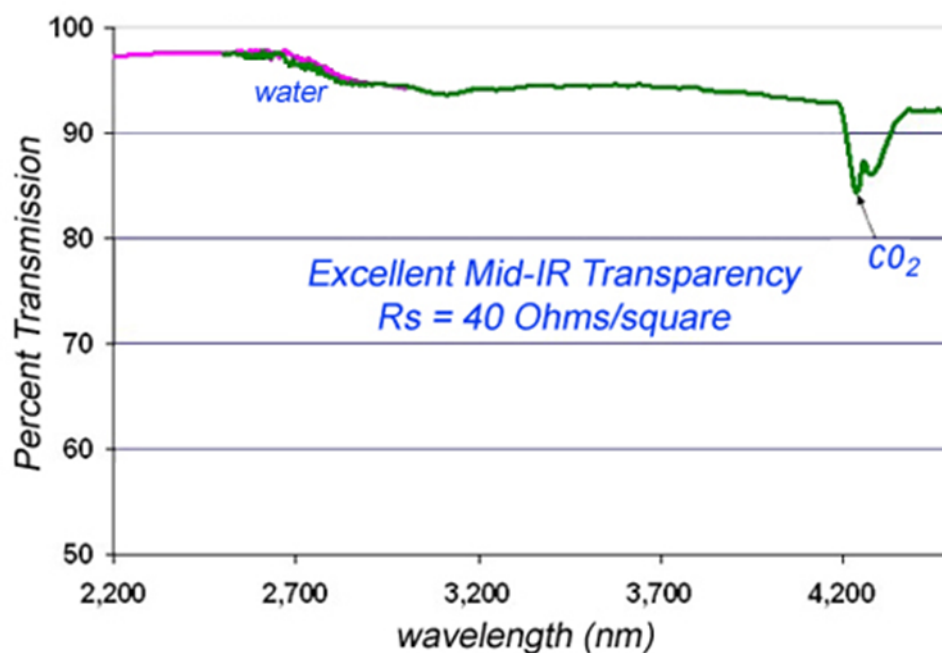
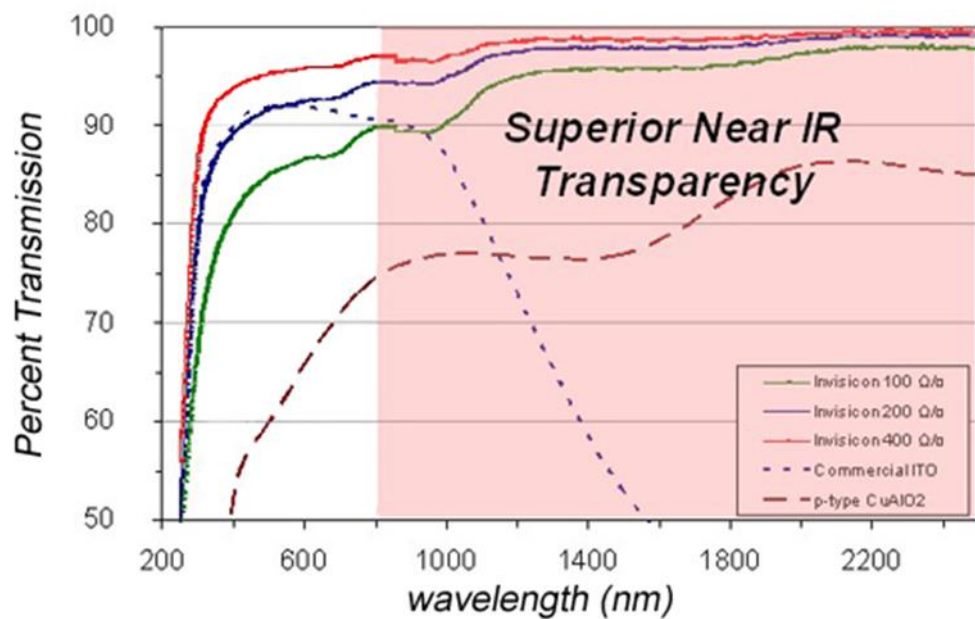
Anti-Reflection (AR) Coatings on plastic or glass are deposited alone or as a binder for the nanotubes, resulting in conductive substrates with total transparency as high as 99.9%. These AR coatings are useful for optimizing light transmission for single wavelengths or over a broad spectrum to maximize the potential of optical and optoelectronic systems. Eikos's custom AR coatings are durable and pass MIL and ASTM abrasion and adhesion tests. Both conductive and anti-static AR coatings are possible. These coating are useful in both low temperature (120C) and high temperature applications (600C)



Graph 1: Eikos AR coatings significantly increase the Transparency of PET.

Index Matched Coatings that add conductivity and other properties like abrasion resistance can be designed. Eikos is capable of matching a wide range of substrate refractive indices to modify surface reflections.

Near Infrared (NIR) and Infrared (IR) Transparent Coatings are needed for NIR optics used for heat sensing and night vision. Eikos offers very high transparency in the NIR while maintaining conductivity.



Graphs 2 & 3: Invisicon® coatings exhibit superior transparency and conductivity in the NIR and IR.

Hardcoats on plastic substrates offer enhanced hardness/abrasion resistance while also providing anti-static or conductive properties. For applications where handling and cleaning are likely, hardcoatings are a good option. Invisicon® improves scratch resistance on soft substrates like PC and PET and preserves mechanical properties of hard substrates like glass.

Self-Cleaning/Hydrophobic Coatings are useful for outdoor applications of conductive coatings. Since these coatings self-clean, Invisicon® can offer better performance over time with lower maintenance.

UV-Blocking Coatings are frequently required for organic materials that are exposed to sunlight to prevent degradation. Eikos has developed UV blocking coatings that can be used as

electrodes in solar cells or to protect plastics.

Ultra-High Absorption (Blackout) Coatings are frequently used as blackbody radiation absorbers or emitters. These coatings are characterized by very low reflection, no transmission, and high absorption. Invisicon® coatings can be designed to meet this optical need while simultaneously offering very high surface conductivity.

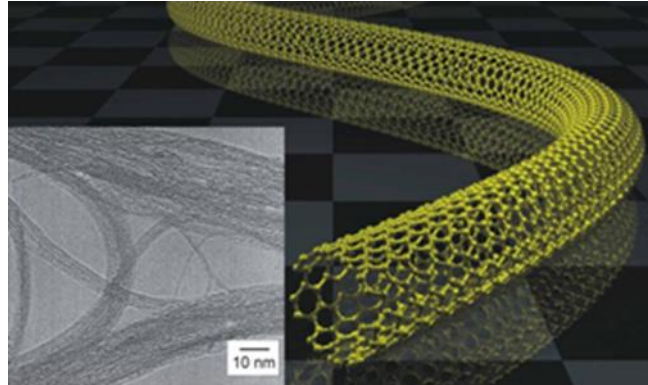


Figure 2: Artist's rendition of a conductive carbon nanotube on a surface, courtesy of Simon Benjamin, Oxford University. Inset depicts a transmission electron micrograph of overlapping bundles of nanotubes.