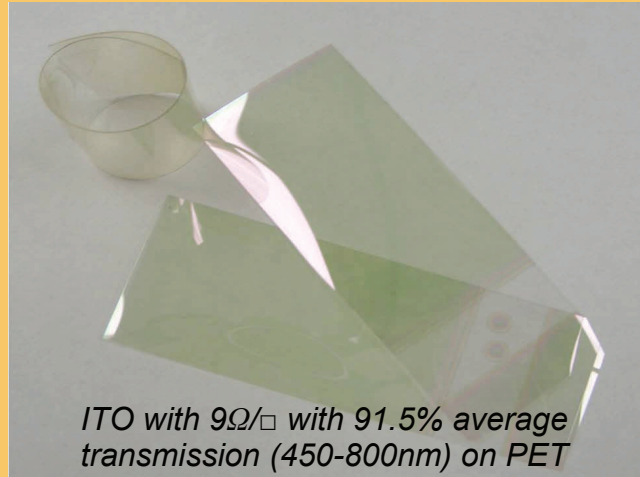


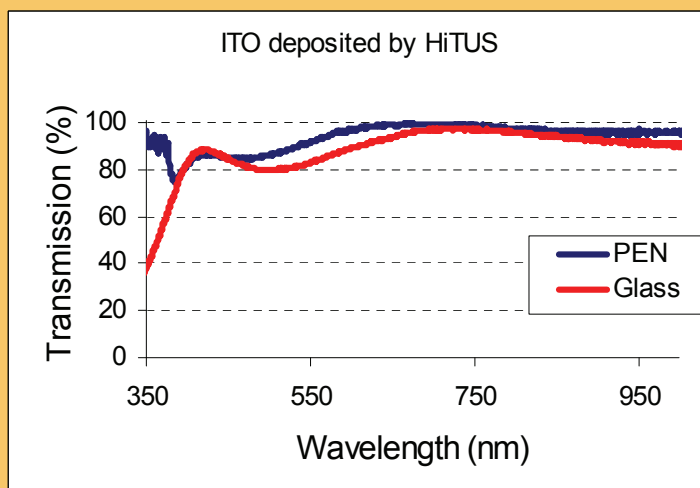
Transparent Conducting Oxides

- **AMBIENT** process ITO
- **FLEXIBLE** applications on PEN and PET with <1cm curve radius
- **Low resistivity** $<4 \times 10^{-4} \Omega \text{cm}$
- **Peak transmission** >99%
- **9Ω/□ with avg. transmission (450-800nm) 91.5%**



Plasma Quest Ltd's unique HiTUS deposition system enables the production of very high quality transparent conducting oxides specifically for flexible applications. The patented process enables the deposition of high quality materials with no heating either during or post deposition with very low resistivity (Indium Tin Oxide $\rho < 4 \times 10^{-4} \Omega \text{cm}$) and high transmission (see below). Film thickness can be varied to obtain specific sheet resistances. Typically, films with 9Ω/□ with average transmission of 91.5% between 450-800nm are produced with deposition rates as high as 60nm/min from a 100mm diameter target.

The low temperature process (maximum temperature $<70^\circ\text{C}$) enables this technology to be applied to many types of plastic including low melting point materials such as PET. The enhanced adhesion properties of the HiTUS process provides a sufficiently strong bond to deposit onto a variety of textures and materials, passing a tape test when deposited onto planarised plastics. The high level of film integrity and low (controllable) stress results in very flexible properties producing films with a bend radius of <1cm on PEN plastic without any detriment to the measurable properties.



Materials Include

- Indium Tin Oxide
- Zinc Oxide
- Indium Zinc Oxide
- And now working on replacements to Indium