MATERION

Materion Barr Precision Optics & Thin Film Coatings provides a broad array of technologies including complex optical filters, filter arrays, lens coatings and optical thin film component assemblies. Diverse markets are composed of: commercial, defense, life sciences & medical, thermal imaging, and space, science & astronomy industries.

ITO and IMITO

The Challenge

Our Precision Optics ITO is a high quality, very dense and remarkably free of pinholes optical transparent coating. This is important as Indium-Tin-Oxide (ITO) is widely used for thin film coatings with electrically conductive and optically transparent properties. The reflectance of light on interfaces or surfaces of an ITO layer may be reduced considerably by integrating it into an anti-reflective multilayer – a so called Index Matched ITO (IMITO).

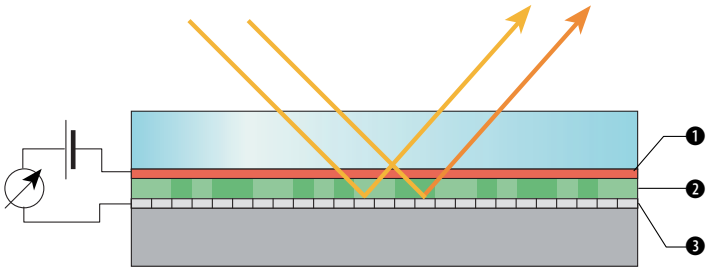
Benefits

- Electrically conductive and optically transparent coating
- High physical density of coating
- Low specific electrical resistance
- No pinholes
- High environmental and temperature stability

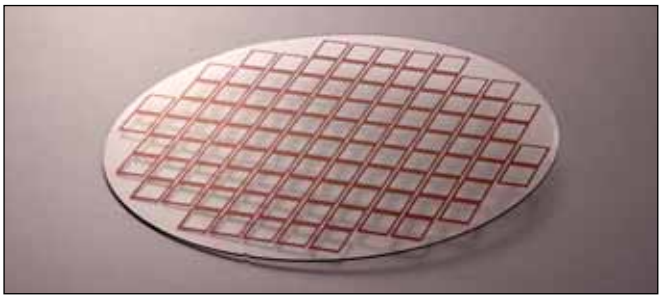
Applications

- Electrode layer in LCD technology
- Counter Electrode on Lid Glass for LCOS micro-displays
- Electrode on Heater Windows
- Electro-Magnetic Shielding (EMS)

LC Display (or LCOS Microdisplay) *ITO (red line) is the counter electrode to apply a voltage across Liquid Crystall (green area). Voltage impacts polarization of light and thus steers brightness of pixel.*



❶ ITO/IMITO ❷ LC ❸ Electrodes



Technical Data

Cleanliness

- No defects >10 µm achievable

Maximal sheet size

- 200 mm square

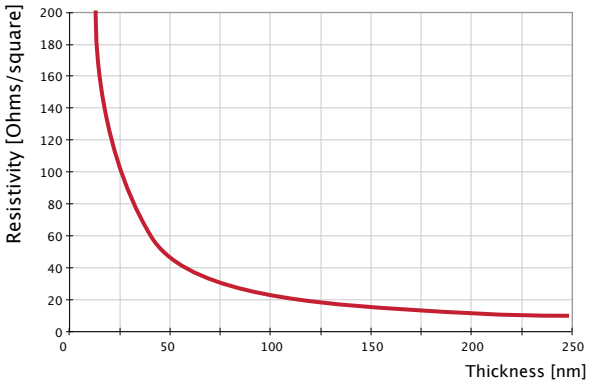
Index Matching

- Customized – depends on matching media

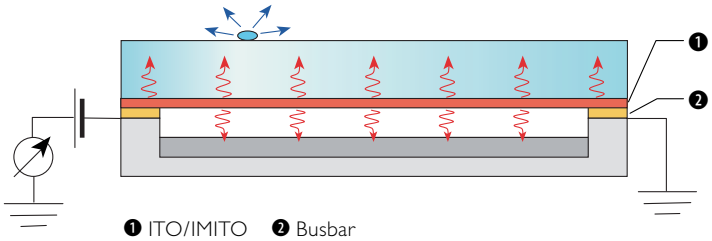
Environmental

- Tested to MIL-C-14806

ITO Resistivity against Thickness



Heater Window *Electrical current across ITO layer (red line) heats the glass and prevents from condensing moisture on the surface. Yellow lines are busbars for electrical contacting of ITO.*



❶ ITO/IMITO ❷ Busbar

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