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【摘要】

本研究主要探討以DC磁控濺鍍法在塑膠基板上濺鍍透明導電膜ITO，探討其結構與光電特性之關係。目前在顯示器且較為笨重，有易碎、耐衝擊性差的缺點，玻璃基板在厚度上面臨了技術發展上的瓶頸，因此塑膠基板的發展成為研究結果顯示，由於塑膠基板因本身耐熱性的問題，當基板溫度高於60℃時，ITO薄膜即會因熱應力之緣故而產生膜間不會因熱應力而破裂。另外薄膜也因塑膠基板本身的關係而使得附著性差，所以選用經過硬化層(Hard coat)處的導電性隨著鍍膜時間越長、氧分壓越低及選擇適當的製程壓力時會呈現越好的趨勢。在光學方面，ITO薄膜的製程壓力時，穿透率越高。經過四點探針量測電性及光譜儀量測可見光穿透率後顯示，最佳電阻率約為 $6.96 \times 10^{-4} \Omega \cdot \text{cm}$ 。

【英文摘要】

This study focused on the application of DC magnetic sputtering on plastic substrate for sputtering ITO transparent between the structure and photoelectric properties. The conventional substrates used on monitor are mostly mac transporting, heavy, fragile, low impact tolerance. The thickness of the glass substrate is facing bottleneck in tecl substrate is the growing application.

The results showed that due to the heat-resistance problem of the plastic substrate, when the substrate tempera stress. Thus, using sputtering under room temperature and lower power could prevent the fracture. Also, the thin the plastic substrate, thus, the plastic substrate treated with hard coat could improve the adhesiveness. In terms improves as the sputtering time increases, the oxygen pressure decreases, and the proper working pressure is s transmission of light for the ITO film increases as the sputtering time increases, the oxygen pressure increases, a point probe test on the electric properties and spectrometer used to measure the transmission of light, the results whereas the transmission of light on the test sample is as high as 80%.

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