

## Preparation of ITO Conductive Thin Film Using Ultrasonic Spray Nozzle

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Ultrasonic nozzles are environment-friendly due to easier spray flow control and less use of solvent per unit area. In this study, the ITO thin film which is used as transparent conductive film was produced using a ultrasonic nozzle. The characteristics of the ITO film according to the conditions of the spray coating process, including the flow rates of the precursors and coating fluid and the feed speed of the coating substrate were examined. Indium nitrate and zinc chloride were used as the precursors, dissolved in water, and added with small volume of ethanol to facilitate coating. After the coating process, the film was dried in an oven at 150°C for 10min, and then sintered in an oven at 550°C for 30 minutes. The ITO film showed surface resistance between  $10^3 \sim 10^4 \Omega/\square$  according to the conditions of the nozzle spray process.