

Synthesis of Indium Tin Oxide (ITO) Powder by Supercritical Antisolvent Precipitation

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ITO thin films have attracted intensive interest because of their unique characteristics of good conductivity, high optical transmittance over the visible wavelength region, excellent adhesion to the substrate, stable chemical properties, and easy patterning ability. It prepares not only thin film form but also bulk form and the latter has received much current interest.

The present methods have some problems such as poor mass products, bad uniformity, and long time procedure, etc., however, the precipitation in supercritical fluid can get over them because of a short time process by using fast diffusion and completely removed antisolvent. Also it is possible to control the particle size distribution, adjusting temperature and pressure. A typical SAS experiment was started delivering supercritical CO₂ to the precipitation chamber and additional heat treatment was given after precipitation. The experiments were operated under various conditions such as solvents, temperatures, and pressures. From these conditions, did we get yellow ITO powder and lots of different results and trends.