

## Synthesis of In-Ga-Zn-Oxide(IGZO) Field-Effect Transistors using the Solution-based Process

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A newly developed precursor solution was used to deposit a highly transparent (~90 % in the visible region) indium gallium zinc oxide (IGZO) thin film via the spin coating process. The precursor solution was prepared from the chlorine-based materials. It is known that IGZO thin film has excellent electrical property (high mobility), stable chemical and physical properties, and good optical property (high transparent). However, the de-wetting phenomena on the formed thin film surface will be occurred during the film deposition process because IGZO easily reacts with water rapidly. In order to avoid the de-wetting phenomena, acetonitrile and ethylene glycol were used as solvents to dissolve the precursors for the thin film in this study. IGZO thin films were synthesized in various volumetric ratios and they were characterized with the aids of UV-vis spectrophotometer, X-ray diffraction, Scanning electron microscope, Atomic Force Microscope for the optimum process condition.