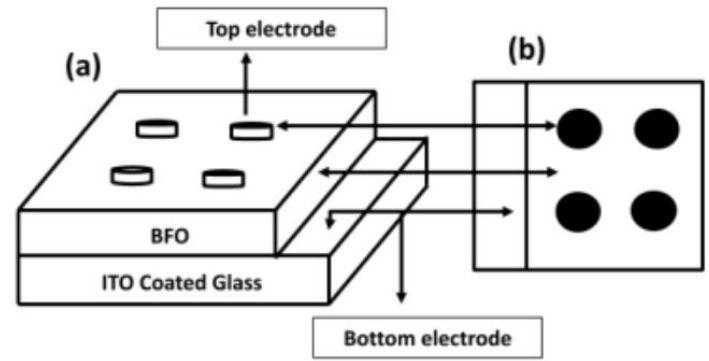


GRANTED

(IN202241062401)

## A chemical solution deposition system and method for practical device applications



### NEED

Conventional thin-film deposition methods often suffer from cracks, poor uniformity, or limited tunability, leading to over 30% material waste and reduced device performance. But what if this rejection rate could be reduced to nearly zero?

### TECHNOLOGY OVERVIEW

This invention presents a chemical solution deposition system for thin films using precise precursor mixing, temperature control, and multi-phase processing. The method produces uniform, crack-free bismuth ferrite (BFO) films with tunable parameters for use in advanced electronic and optoelectronic devices.

### TECHNOLOGY KEY FEATURES

Precisely controlled precursor composition, three-phase pre-firing at 300°C, and 12-hour solution aging ensure uniform, crack-free BFO films. Customizable spin parameters enable integration into various thin-film device platforms.

[Read more here](#)

### MARKET ANALYSIS

Global thin-film materials market to grow at 6.2% CAGR, reaching \$23.2B by 2033. India's thin-film device market is expanding with solar, memory, and sensor technologies. Growth driven by miniaturization and energy efficiency needs. (Sources: MarketsandMarkets, ResearchAndMarkets, Mordor Intelligence)

### Target Industries

Electronic device manufacturers developing flexible thin-film sensors • Optoelectronic system integrators needing precise deposition methods • Research labs building multifunctional oxide-based micro-devices in telecom, healthcare, and energy sectors

### AT A GLANCE

SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production)

Technology is available for licensing/ co-development.

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