

Pengaruh perlakuan panas terhadap struktur dan morfologi material lapisan barium titanat BaTiO₃ barium zirconium titanat BaZrTiO₃ yang disintesis dengan metode chemical solution deposition = Influence of heat treatment to structure and morphology on material barium titanate BaTiO₃ barium zirconium titanate BaZrTiO₃ with chemical solution deposition method

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Abstrak

Material multi lapisan Barium Titanat (BaTiO₃)/Barium Zirconium Titanat (BaZrTiO₃) berhasil ditumbuhkan pada substrat silikon (Si). Lapisan tersebut disintesis dengan metode Chemical Solution Deposition yang diikuti dengan Spin Coating. Dalam sintesis lapisan BTO/BZT tersebut dilakukan variasi siklus heat treatment pada proses penambahan lapisan. Lapisan dikarakterisasi dengan XRD dan SEM guna melihat mikrostruktur serta morfologi yang terbentuk. Parameter sintesis lapisan didapatkan pada lapisan BTO/BZT dengan kecepatan putar 3000 rpm dengan proses pemanasan (1 Siklus). Terjadi peningkatan crystallite size yang sebanding dengan peningkatan kristalinitas pada lapisan dengan proses pemanasan (1Siklus). Crystallite size yang didapatkan kisaran diameter 42-48 nm.

A multilayered material Barium Titanate (BaTiO₃)/Barium Zirconium Titanate (BaZrTiO₃) has been successfully grown on a silicon substrate. The aforementioned layer was synthesized employing the Chemical Solution Deposition method and Spin Coating method. Temperature cycle variation was conducted within the synthesis process of the layer addition process. The layer was characterized using XRD and SEM in order to observe the microstructure and the morphology of the newly added layer. Layer formation of BTO has been optimized at 3000 rpm in one temperature cycle. There was a proportional increase of crystallite size in respect to the increase in the crystallinity of the layer within one temperature cycle. Crystallite size obtained ranges from 42-48nm in diameter.