

**SINTESIS ZIF-8 DENGAN PENAMBAHAN LOGAM Sn  
MENGUNAKAN METANOL SEBAGAI PELARUT MELALUI  
METODE SOLVOTERMAL**

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**ABSTRAK**

Telah dilakukan penelitian tentang sintesis Sn-ZIF-8 menggunakan metanol sebagai pelarut. Sintesis Sn-ZIF-8 menggunakan metode solvotermal dan penambahan logam Sn untuk meningkatkan kerjanya. Sampel Sn-ZIF-8 disintesis dengan prekursor seng nitrat heksahidrat ( $\text{Zn}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ ) dan 2-metilimidazol dalam media metanol yang dipanaskan pada suhu  $120^\circ\text{C}$  selama 24 jam dengan variasi 2,5%, 5%, 7,5%, 10% dan 12,5%. Berdasarkan hasil karakterisasi menggunakan XRD, pola difraksi sinar-X padatan hasil sintesis menunjukkan puncak-puncak karakteristik utama pada sudut  $2\theta = 9,6675^\circ$ ;  $10,4224^\circ$ ;  $11,3373^\circ$ ;  $12,0341^\circ$  dan  $13,8474^\circ$ . Hasil karakterisasi menggunakan FTIR menghasilkan puncak karakteristik Sn-ZIF-8 yaitu 985, 1384, 1641, 2330, 2422, 3298.

Kata kunci: Sn-ZIF-8, Sintesis, Solvotermal, Logam Sn, *Dopping*.

# **SYNTHESIS OF ZIF-8 WITH THE ADDITION OF Sn METAL USING METHANOL AS SOLVENT THROUGH SOLVOTHERMAL METHOD**

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## **ABSTRACT**

Studies have been conducted on the synthesis of Sn-ZIF-8 using methanol as a solvent. Synthesized Sn-ZIF-8 using the solvothermal method and the addition of Sn metal to enhance its work. Sn-ZIF-8 samples were synthesized with precursors zinc nitrate hexahydrate ( $\text{Zn}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ ) and 2-methylimidazole in methanol medium heated at  $120^\circ\text{C}$  for 24 hours with variations of 2.5%, 5%, 7.5%, 10% and 12.5%. Based on the results of characterization using XRD, the X-ray diffraction pattern of the synthesized solids showed the main characteristic peaks at an angle of  $2\theta = 9.6675^\circ$ ;  $10.4224^\circ$ ;  $11.3373^\circ$ ;  $12.0341^\circ$  and  $13.8474^\circ$ . The results of characterization using FTIR produced peak characteristics of Sn-ZIF-8, namely 985, 1384, 1641, 2330, 2422, 3298.

Keywords: Sn-ZIF-8, Synthesis, Solvothermal, Metal Sn, Dopping.