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# Isomorphous Substitution of $Zn^{2+}$ in aluminosilicate framework creates two types of mesopores without templates

M.A. Mary Thangam and Chellapandian Kannan\*

Department of Chemistry, Manonmaniam Sundaranar University, Thirunelveli -12,  
India

**Abstract :** Mesoporous materials have significant applications in catalysis, adsorption and separation techniques. The material containing pore size between 2 to 50 nm is called as mesoporous material. The studies on catalysis by solid acids are vast. Aluminosilicates are well known solid acid catalysts. Isomorphous substitution into the framework may enhance the physico-chemical properties of the material. In the present work, the zinc metal ion is introduced into the tetrahedral aluminosilicate framework increases its bronsted acid sites and also creates two types of mesopores. The material activity is maximum at 370 °C. The adsorption application of organic dyes has been carried out to test the activity of the material. The material is effectively adsorbs the congo red and methylene blue dyes from aqueous solution.

**Key words:** Isomorphous substitution,  $Zn^{2+}$ , Porous materials, No template, Surfaces, Adsorption.

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