



## Iron oxide-pillared clay catalyzed the synthesis of bromosilane

Sauwalak Wassanapadit, Puntaree Siasakul, Onruethai Puckdeechon and Piyarat Trikittiwong\*

*Department of Industrial Chemistry, Faculty of Applied Science,  
King Mongkut's University of Technology North Bangkok, Thailand*

\*e-mail: piyarat.t@sci.kmutnb.ac.th

Iron oxide-pillared bentonite (Fe-PILC) was synthesized by the intercalation of iron (III) chloride into clay interlayers and calcination at 300°C for 5 h. The synthesized clay and raw clay were characterized using powder X-ray diffraction and N<sub>2</sub> adsorption-desorption. Fe-PILC was tested for their catalytic activity towards the synthesis of bromosilane, comparing with raw clay. Bromosilanes can be used for both the protection and deprotection of functional groups. Cleavage of cyclic orthoesters is also possible. The effect of various reaction factors such as time, temperature, solvent system, the amount of Br<sub>3</sub>CCOOEt and catalyst were investigated in order to optimize the reaction conditions. Fe-PILC was found to be an efficient catalyst for the reaction of triisopropylhydrosilane and Br<sub>3</sub>CCOOEt using THF as a solvent to produce triisopropylbromosilane in high yields under extremely mild reaction conditions.

**Keywords:** Iron oxide-pillared clay; Hydrosilane; Bromosilane; Ethyl tribromoacetate