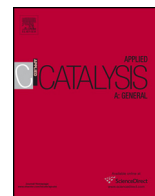




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Feature Article

Oxygen vacancy-rich mesoporous silica KCC-1 for CO₂ methanation

M.Y.S. Hamid^a, M.L. Firmansyah^b, S. Triwahyono^{b,*}, A.A. Jalil^{a,c}, R.R. Mukti^d,
E. Febriyanti^d, V. Suendo^d, H.D. Setiabudi^e, M. Mohamed^a, W. Nabgan^a

^a Department of Chemical Engineering, Faculty of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia

^b Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia

^c Centre of Hydrogen Energy, Institute of Future Energy, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia

^d Physical and Inorganic Chemistry Division, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, 40132 Bandung, Indonesia

^e Faculty of Chemical & Natural Resources Engineering, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

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ABSTRACT

Mesoporous silica KCC-1 was successfully synthesized by microemulsion system coupled with microwave-assisted hydrothermal method. Mesoporous silica KCC-1 exhibited spherical morphology surrounded with dendritic fiber with the particle size of 200–400 nm and BET surface area of 773 m²/g. Mesoporous silica KCC-1 has significantly higher number of basicity and oxygen vacancy than those of MCM-41 and SiO₂ which directly correlated with the catalytic performance of the catalyst. The activity of mesoporous silica KCC-1 in CO₂ methanation is five-fold higher than MCM-41 with the yield of CH₄ reached 38.9% at 723 K.

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* Corresponding author.

E-mail addresses: sugeng@utm.my, sugengtw@gmail.com,
sugeng@ibnusina.utm.my (S. Triwahyono).