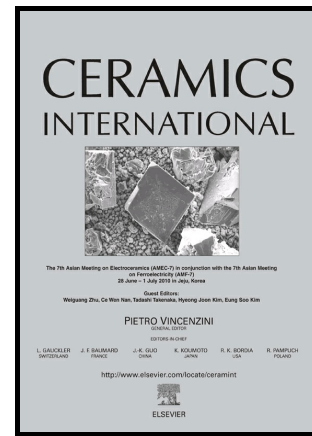


## Author's Accepted Manuscript

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PII: S0272-8842(18)30617-5  
DOI: <https://doi.org/10.1016/j.ceramint.2018.03.067>  
Reference: CER117704

To appear in: *Ceramics International*

Received date: 5 January 2018  
Revised date: 26 February 2018  
Accepted date: 9 March 2018

Cite this article as: Siti Khadijah Hubadillah, Mohd Hafiz Dzarfan Othman, A.F. Ismail, Mukhlis A Rahman, Juhana Jaafar, Yuji Iwamoto, Sawao Honda, Mohd Irfan Hatim Mohd Dzahir and Mohd Zamri Mohd Yusop, Fabrication of low cost, green silica based ceramic hollow fibre membrane prepared from waste rice husk for water filtration application, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2018.03.067>

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**Fabrication of low cost, green silica based ceramic hollow fibre membrane prepared from waste rice husk for water filtration application**

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**Abstract**

In order to develop low cost ceramic membranes and effectively utilize abundantly and dumped waste agriculture, fabrication of green silica based ceramic hollow fibre membranes from waste rice husk was evaluated. Rice husk was converted into amorphous and crystalline silica based rice husk ash (ARHA and CRHA) by burning process at 600°C and 1000°C, respectively. The properties of silica based rice husk ashes were studied by transmission electron microscopy (TEM), x-ray powder diffraction (XRD), Fourier-transform infrared spectroscopy (FTIR), BET analysis, thermogravimetry and differential thermal analysis (TG/DTA) and x-ray fluorescence (XRF). Effect of silica content and sintering temperature towards membrane fabrication were investigated and characterized in term of morphological properties, mechanical strength, surface roughness, pore size distribution, porosity and pure water flux (PWF). The ceramic hollow fibre membrane (CHFM) prepared at 37.5 wt.% CRHA content and sintered at 1200°C achieved a good mechanical strength (71.2 MPa) and

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