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Rice Husk Silica as an Alternative Material for Renewable Energy

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Abstract : Rice hull (RH) biomass product gives feasible silica for exact temperature and period. The minimal fabrication price turns its best feasible produce to metallurgical grade silicon (MG-Si). In this work, to avoid ecological worries extending from CO_2 release to oil leakage on water and land, or nuclear left-over pollution, all finally add to the immense topics of ecological squalor; high purity silicon > 98.5% emerge set from rice hull ash (RHA) by solid-liquid removal. The RHA derived was purified by nitric and hydrochloric acid solutions. Leached RHA sieved, washed in distilled water, and desiccated at 1010ºC for 4h. Extra cleansing was achieved by carefully mixing the SiO_2 ash through Mg dust at a proportion of 0.9g SiO_2 to 0.9g Mg, galvanised at 1010ºC to formula magnesium silicide. The solid produced was categorised by X-ray fluorescence (XRF), X-ray diffractometer (XRD), and Fourier transformation infrared (FTIR) spectroscopy. Elemental analysis using XRF found the percentage of silicon in the material is approximately 98.6%, main impurities are Mg (0.95%), Ca (0.09%), Fe (0.3%), K (0.25%), and Al (0.40%).

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