

ABSTRAK

KARAKTERISTIK STRUKTUR, MIKROSTRUKTUR, DAN SIFAT FISIS KOMPOSIT SILIKA SEKAM PADI DAN ASPAL

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Komposit silika sekam padi dan aspal dilakukan pada perbandingan komposisi 1:0.4, 1:0.5, dan 1:0.6 serta dipanaskan pada suhu 150 °C selama 3 jam. Karakteristik struktur dianalisis menggunakan *X-Ray Diffraction* (XRD). Mikrostruktur dianalisis menggunakan *Scanning Electron Microscopy-Energy Dispersive Spectroscopy* (SEM-EDS). Analisis sifat fisis yang dilakukan adalah densitas dan porositas. Hasil analisis struktur menunjukkan silika amorf mengalami pergeseran dari $2\theta = 22^\circ$ menjadi $2\theta = 21^\circ$ dan teridentifikasi karbon amorf pada $2\theta = 20^\circ$. Analisis mikrostruktur menunjukkan seiring penambahan aspal ukuran butir dan gumpalan semakin besar dan retakan semakin banyak. Hasil uji sifat fisis pada komposit memperlihatkan penambahan aspal mengakibatkan nilai densitas meningkat dan porositas menurun.

Kata Kunci: aspal, mikrostruktur, sekam padi, silika

ABSTRACT

CHARACTERISTICS OF STRUCTURE, MICROSTRUCTURE AND PHYSICAL PROPERTIES COMPOSITE RICE HUSK SILICA AND ASPHALT

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The composites of silica rice husk and asphalt was prepared with at a ratio of 1:0.4, 1:0.5, and 1:0.6 and heated at the temperature of 150° C for 3 hours. The structure characteristic were analyzed by X-Ray Diffraction (XRD). Microstructure were analyzed by Scanning Electron Microscopy-Energy Dispersive Spectroscopy (SEM-EDS). The analysis of physical properties are density and porosity. The results of the structure shows that silica amorphous shifted $2\theta = 22^\circ$ to $2\theta = 21^\circ$ and amorphous carbon identified at $2\theta = 20^\circ$. Microstructure analysis shows that the addition of asphalt, the size of the grains and cluster is getting bigger and there are more cracks. Physical properties test results on the composite shows the addition of asphalt results the increasing of density and the decreasing porosity.

Keywords: asphalt, rice husks, silica, structure