Transesterifikasi Minyak Jelantah dengan Katalis Heterogen MgO-SiO_2 (*Magnesium Oksida Silikon-Dioksida)* dari Sekam Padi dalam Pembuatan Biodiesel *(Transesterification of cooking oil with heterogeneous catalysts of silica magnesium oxide from rice husks in the manufacture of biodiesel)*

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ABSTRACT

Biodiesel is a mixture of mono alkyl ester fatty acid from vegetable oil or animal fat used as alternative fuel for diesel. Biodiesel production from used cooking oil was counducted to determine the effect of heterogen catalyst of MgO-SiO_2 from rice husks used on a transesterification reaction for the yield and quality of biodiesel. The study was designed using Rancangan Acak Lengkap (RAL) with two factors, the concentration of catalyst (K): (3, 5 and 7%) and long transesterification process (T): (30 and 60 minutes). The parameters analyzed include biodiesel density, viscosity, flash point, cloud point, acid number, and water content. The results showed that the highest yield of 63% was obtained from treatment of the catalyst concentration 6% and magnesium silicate 1% with the quality of biodiesel: density of 892.3 kg/m^3, viscosity of 32,88350 cSt, a flash point of 211 ºC, a cloud point of 12 ºC the number of acid 1,82 Mg-KOH/Kg, the water content of 0.437%.

***Keywords** : Biodiesel, Cooking oil, Transesterification, MgO-SiO_2*