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Application of MicrowaveAbsorbent from East KalimantanLigniteonMicrowave Pyrolysis of Waste Lubricating Oil

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Abstract: This research was conducted to prove the ability of activated carbon as microwave absorbent,which was made from East Kalimantanlignite, on microwave pyrolysis of waste lubricating oil. Improving lignite characteristics has been successfullyperformed. However, the natural properties cause this material to still haverelatively low fixed carbon content compared to commercial microwave adsorbent. To resolve that conditions, the mass influence investigation was carried out to find out the best mass which can produce the highest gasoline fraction. Improving characteristics of East Kalimantanlignite was done by immersing lignite sizing 12 mesh in chemical activators i.e. 3 % $NH_4H_2PO_4$ and was continued in 20 % $(NH_4)_2SO_4$. Immersing process in each activator was undertaken as long as 9 hours with ratio lignite to activator is 1:1.25 (m/v). Chemical activation treatment was followed by physicalactivation by heating to a temperature of 450 ^{O}C for 30 minutes and 950^{O}C for 10 minutes.Activated carbon produced has 78.50% fixed carbon content. Activated carbonwas than utilized as microwave absorbent on waste lubricating pyrolysis oilby adding it with mass varies i.e. 80, 83, 90, 95, dan 100 g,into the 250 ml waste lubricating oil.Pyrolysis of waste lubricating oil which assisted microwave was undertaken for 1 hour. GC-FID analysis shows that the best result is obtained at using 90 g activated carbon with 87 % composition of gasoline gain.

Keywords : activated carbon, gasoline, lignite, microwave absorbent, pyrolysis,waste lubricating oil.

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