

PENGARUH JENIS BAHAN BAKU PADA PROSES PIROLISIS LIMBAH PLASTIK DENGAN SUMBER PANAS KOMPOR

INTISARI

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Saluran irigasi yang tidak bersih dapat mempengaruhi kegiatan pertanian. Sebagian besar sampah yang menghambat saluran irigasi merupakan sampah plastik yang sulit terurai. Salah satu solusi yang ditawarkan adalah dengan mengangkut sampah plastik melalui kegiatan gerakan irigasi bersih (GIB). Sampah plastik yang terkumpul selanjutnya dibersihkan agar dapat diolah lebih lanjut. Pengolahan plastik dengan metode pirolisis berpotensi menghasilkan minyak sebagai bahan bakar alternatif. Penelitian ini bertujuan untuk mengetahui pengaruh jenis plastik terhadap jumlah dan kualitas minyak berdasarkan karakteristik warna dan uji bakar.

Penelitian dilakukan tanpa katalis dengan menggunakan tiga jenis plastik yaitu HDPE (*high density polyethylene*), LDPE (*low density polyethylene*) dan PVC (*polyvinyl chlorida*). Pirolisis HDPE menghasilkan 69% minyak kerosin, 23,33% endapan dan 7,3% gas. Pirolisis LDPE menghasilkan 70,40% minyak kerosin, 22,66% endapan dan 6,93% gas. Pirolisis PVC menghasilkan 35,20% minyak kerosin, 18,67% endapan dan 46,13% gas. Hasil penelitian menunjukkan bahwa jenis plastik mempengaruhi hasil pirolisis seperti volume akhir minyak, karakteristik warna dan uji bakar (waktu nyala api dan suhu pembakaran minyak), sedangkan jenis plastik tidak mempengaruhi endapan padatan.

Kata kunci : Plastik, minyak, pirolisis, HDPE (*high density polyethylene*), LDPE (*low density polyethylene*), PVC (*polyvinyl chlorida*)

EFFECT OF DIFFERENT MATERIALS ON PYROLYSIS PROCESS OF PLASTIC WASTE WITH STOVE AS HEAT SOURCES

ABSTRACT

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Unclean irrigation channel can give bad effects to agricultural activities. Most of the garbages that obstruct the irrigation channels are plastics which hard to decomposed. A proposed solution is carrying the plastic garbages with “*Gerakan Irigasi Bersih*” (GIB). First the plastic garbages which has been collected then being cleaned. Next, it is ready to put on the recycling process. The recycling processes of plastic garbages using pyrolysis method are potential in resulting the kerosene which can be used as alternative fuel. This research aimed to get knowledge on the types of plastics and their results on amount and quality of kerosene based on colour characteristics and burning tests.

This research were done without any catalysts and using three types of plastics, such as: HDPE (*high density polyethylene*), LDPE (*low density polyethylene*), and PVC (*polyvinyl chloride*). Pyrolysis HDPE is resulting 69% kerosene, 23,33% sludge and 7,3% gas. Pyrolysis LDPE is resulting 70,40% kerosene, 22,66% sludge and 6,93% gas. Pyrolysis PVC is resulting 35,20% kerosene, 18,67% sludge and 46,13% gas. The results of this research shows that every type of plastics have effects on pyrolysis results such as: kerosene’s final volume, colour’s characteristics and burning tests (fire-burning time and oil-burning temperature). In other hand the types of plastics have no effects on sludge.

Keyword : Plastic, fuel, pyrolysis, HDPE (*high density polyethylene*), LDPE (*low density polyethylene*), PVC (*polyvinyl chlorida*)