INTISARI

Sampah adalah sisa kegiatan sehari-hari manusia yang berupa zat organik maupun anorganik bersifat dapat terurai atau tidak dapat terurai yang dianggap sudah tidak berguna lagi dan dibuang ke lingkungan. Dari berbagai jenis sampah yang dihasilkan yang menjadi permasalahan yaitu jenis sampah plastik, plastik merupakan jenis sampah yang tidak dapat terurai dan dapat menimbulkan berbagai macam pencemaran lingkungan. Pengolahan sampah plastik dengan menggunakan metode pirolisis merupakan cara yang efektif untuk mengurangi sampah plastik. Proses pirolisis pengolahan sampah plastik menggunakan variasi sudut orientasi kondensor 0º, 15º, dan 30º. Sampah plastik apabila diolah menggunakan alat pirolisis dapat mengubah asap menjadi asap cair atau bahan bakar minyak plastik, maka dapat menghasilkan bahan bakar minyak yang dapat digunakan sebagai bahan bakar alternatif.

Metode pengambilan data dilakukan dengan memvariasikan sudut orientasi kondensor 0º, 15º, dan 30º dengan menggunakan debit aliran pendingin 6 LPM. Proses pirolisis pada penelitian ini menggunakan jenis plastik *Low Density Polyethylene* (LDPE) sebanyak 3 kg. Plastik yang sudah diptong kecil-kecil kemudian dimasukkan kedalam reaktor pemanas, proses pirolisis plastik tersebut memerlukan temperatur 200 ºC-400 ºC. Lama waktu proses pirolisis yaitu sampai minyak tidak menetes atau dalam waktu 100 menit.

Hasil percobaan menunjukkan pada sudut 0º menghasilkan minyak 430 ml dengan sisa arang pemanasan seberat 184 gr, kemudian pada sudut 15º menghasilkan minyak 610 ml dan sisa arang seberat seberat 142 gr, dan pada sudut 30º menghasilkan minyak 570 ml dengan sisa arang pemanasan sberat 158 gr. Minyak pirolisis plastik memiliki nilai kalor 10935,20 cal/g, viskositas 2,5 mm^2/s, densitas 0,8 g/ml, dan *flash point* 32,6 ºC. Karakteristik minyak pirolisis tersebut mendekati dari karakteristik bahan bakar minyak jenis solar dan minyak tanah.

Keywords : plastik, pirolisis, sudut orientasi, bahan bakar, karakteristik minyak

ABSTRACT

Of trash is the rest of the activities are to be implemented by oppression and evil deeds everyday been among those who were of an organic substance as well as nature of the decrees issued his head shall hang loose inorganic can be or were not able to his head shall hang loose that are presumably already will be of any benefit they took away and threw allowing guns and knives into. Of various types of rubble produced that has been a problem of plastic garbage whose fate has been sealed, plastic is the type of plastic garbage but the research will not be able to get broken down and can give rise to a variety of sorts of pollution of the environment. The process of pyrolysis of plastic waste treatment using variation of condenser orientation angle 0º, 15º, and 30º. Processing plastic garbage by using the method pyrolysis was an effective way to reduce plastic garbage. With processed using instrument pyrolysis that can turn smoke in the smoke liquid or fuel oil plastic, it can be the generation of fuel oil that can be used as alternative fuel.

A method of over the withdrawal of funds data was undertaken with varying aerospace space high orientation angles of a condenser 0º , 15º , and 30º with using a discharge the flow of a coolant 6 LPM. pyrolysis to research it uses plastic type LDPE (low density polyethylene) about 3 kg. Plastic that had already been small cutting was later incorporated a panorama of the reactor combustion, the pyrolysis process is plastic would need the wide range of temperatures 200 ºC-400 ºC. For too long a time the pyrolysis process is promised to supply until oil do not trickle or in time 100 minutes of an enthralling first.

The results of experiments conducted show at an angle 0º produces a volatile oil 430 ml with a final surge of ashes by burning equal to the weight of 184 gr, Then at an angle 15º produces a volatile oil 610 ml and the rest of the ashes by burning equal to the weight of 142 gr, And at an angle 30º produces oil 570 ml with the rest of ashes by burning weight 158 gr. Plastic industries were the biggest oil pyrolysis having the value of the heat engine 10935,20 cal /g, of viscosity 2,5 mm2 /s, its density 0,8 g/ml, and the flash point 32,6 ºC. Characteristic of pyrolysis oil entrusted plantation approach them from material characteristics fuel oil for the type of diesel and for kerosene .