

PEMANFAATAN LIMBAH PLASTIK MENJADI BAHAN BAKAR CAIR

UTILIZATION OF PLASTIC WASTE INTO LIQUID FUELS

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ABSTRACT

The production of plastic waste in Indonesia is increasing from year to year. Along with that, then the unused plastic waste in the environment increases. This problem is created because of the plastic waste can not decompose easily, if only just left. Therefore, efforts are needed to convert plastic waste into liquid fuel that is by catalytic pyrolysis. The volume of pyrolytic liquid (obtained) was measured and its physical properties were analyzed. The analysis includes distillation ASTM, spgr, and $^{\circ}$ API. From the data obtained showed that pyrolysis catalysts are able to increase the pyrolysis process by lowering the temperature and time of decomposition, so the maximum liquid fuel was obtained at 0,024 weight fraction of catalyst, and in the temperature range below 350 $^{\circ}$ C obtained result could reach more than 50%. The optimum temperature of pyrolyzing plastic waste into liquid fuel was 329 $^{\circ}$ C, and the weight fraction of bentonite catalyst was 0,024. From the analysis of ASTM (D-86) there were three components of pyrolytic liquid, there are gasoline, kerosene, and diesel. From the result of analyzing showed the pyrolytic liquid had spgr was 0,7702 near with spgr of gasoline with octane number 91 among 0,715-0,780. $^{\circ}$ API result was 52,2185 or near with $^{\circ}$ API of gasoline.

Key words: plastic waste, catalytic pyrolysis, bentonite catalyst, pyrolysis