World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:10, No:10, 2016

Co-Pyrolysis Characteristics of Waste Polyolefins

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Abstract : Nowadays rapid population growth causes a mandatory increase in consumption. As a result of production activities which meet this consumption, energy sources decrease rapidly on our world. As well as with this production activities various waste occurs. At the end of the production and accumulation of this waste need a mandatory disposal. In this context, copyrolysis of waste polyolefins were investigated. In this study for pyrolysis process, polyethylene and polyprophylene are selected as polyolefins. The pyrolysis behavior (efficiency of solid, liquid and gas production) of selected materials were examined at the different temperatures and different mixtures. Pyrolysis process was carried out at 550 °C and 600 °C without air in a fixed bed pyrolysis oven solid under the nitrogen flow to provide inertness of medium. Elemental analyses (C, H, O, N, S) of this solid and liquid (bitumen) products were made and the calorific value was calculated. The availability of liquid product as a fuel was investigated. In addition different products' amounts formed like solid, liquid and gas at different temperatures were evaluated.

Keywords : alternative energy, elemental analysis, pyrolysis, waste reduction
Conference Title : ICEBESE 2016 : International Conference on Environmental, Biological, Ecological Sciences and Engineering
Conference Location : New York, United States
Conference Dates : October 10-11, 2016