

RECOVERY OF OIL FROM WASTE TYRES USING PYROLYSIS METHOD: A REVIEW

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ABSTRACT

Owing to the difficulty in disposal of tyres and environmental pollution due to accumulation of waste tyres, pyrolysis is carried out as an alternative, efficient and environmental valorisation process, rather than combustion-incineration which primarily is characterized as a destructive one. Pyrolysis can be considered as a non-conventional method for tyre recycling, which seems to be very appropriate for complex materials, such as tyres. This technology could not only reasonably and effectively dispose waste tyre and tube without pollution, but also is effective in producing fuel that can reduce energy crisis. Thermogravimetry analysis reveals that the pyrolysis of tire rubber at atmospheric pressure starts at a temperature around 250°C and finishes at a temperature of about 550°C. In general, by pyrolysing waste tire three fractions are obtained: solid residue (around 40 wt.%), liquid fraction (around 50 wt.%) and gas fraction (around 10 wt.%). The general trend is an increase in yields of liquid and gas fractions as the temperature increases. From the works devoted to tire pyrolysis, which are investigated on the generation of liquid fuel results that derived liquids are a complex mixture of organic compounds containing a lot of aromatics.

KEYWORDS: Pyrolysis, Proximate Analysis, Elemental Analysis, Thermogravimetry Analysis, Hydrogenative Pyrolysis