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Pyrolysis of Waste Plastic and Rubber to Fuel †

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Abstract: Pyrolysis of plastic waste has been proposed as a tertiary or feedstock recycling route. The plastic waste materials are processed back to produce basic petrochemicals that can be used as feedstock to make virgin plastic or refined fuels. The synergistic effect is observed in blends of PE with PP> 30%. The interactions mechanism are related to enhancing intermolecular hydrogen transfer. In this study, pyrolysis was selected to decompose used ground waste vulcanized rubber from automobile tires thermally. The various operating conditions and factors that influence these methods are analyzed. While working with APC we used Post Consumer Plastics Waste which had a composition of 60:40 of PE:PP. This resulted in giving oil and carbon. The oil yield of the process was 44.5%, and the overall yield was 59.2%. The oil formed was of decent quality from preliminary checks like no wax formation and good consistency. Further, this oil was tested to obtain its basic physical properties. These properties have been compared to other commercial fuels.

Keywords: pyrolysis; plastic waste; rubber; oil.

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Conflicts of Interest

The authors declare no conflict of interest.