

A PROJECT REPORT

ON

“CONVERSION OF WASTE POLYETHYLENE PLASTICS TO FUEL BY THERMAL DEGRADATION PROCESS”

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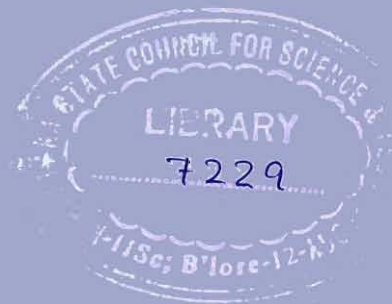
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ABSTRACT

Plastics have woven their way into our daily lives and now pose a tremendous threat to the environment. Over a 100 million tonnes of plastics are produced annually worldwide, and the used products have become a common feature at overflowing bins and landfills. Though work has been done to make futuristic biodegradable plastics, there have not been many conclusive steps towards cleaning up the existing problem. Here, the process of converting waste plastic into value added fuels is explained as a viable solution for recycling of plastics. Thus two universal problems such as problems of waste plastic and problems of fuel shortage are being tackled simultaneously. In this study, plastic wastes (low density polyethylene) were used for the pyrolysis to get fuel oil that has the same physical properties as the fuels like petrol, diesel etc. Pyrolysis runs without oxygen and in high temperature of about 300°C which is why a reactor was fabricated to provide the required temperature for the reaction. The waste plastics are subjected to depolymerisation, pyrolysis, thermal cracking and distillation to obtain different value added fuels such as petrol, kerosene, and diesel, lube oil etc. Converting waste plastics into fuel hold great promise for both the environmental and economic scenarios. Thus, the process of converting plastics to fuel has now turned the problems into an opportunity to make wealth from waste.

Keywords: Fuel, distillation, Polyethylene, Pyrolysis, depolymerisation