

## Hazardous waste plastics conversion into liquid hydrocarbon fuel

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### **Abstract:**

Energy plays a major role in our modern advancement. Energy needs in every sector all over the world, such as transportation, industrial development, home heating, and electricity production and in our daily life. Till now most of the energy production depends on the crude oil sources but in our planet the crude oil sources are limited. There is a probability that once these energy sources may come to an end and could have disastrous collapse of the human civilization considering the future fade of this universe scientist and researchers all over the world had been doing research and study more about for new alternate energy sources like solar energy, wind energy, bio-fuel etc. Plastics are produced mainly from crude oil. Trillion plastic bags are consumed every year all over the world after uses the discarded plastics bags are become a severe problems to the environmental. Dumping of these waste plastics create hazardous land fill problems to avoid this problem transport to other countries cost \$2800/ton of waste plastic. Waste Technologies LLC (WTL) has developed (US & International Patents) a new simple and cost effective technology for the conversion of the waste plastics into Diesel, LPG and Jet Fuel. Water Waste Technologies developed technologies can convert all types of waste plastic into energy and create local green jobs. Waste plastics were converted into valuable liquid hydrocarbon fuel. it is can be used as different purpose of energy-source such as petrol engines, diesel engines, generators, vehicles and its good source of chemicals etc. Plastics have many properties like light weight, high durability so its demand

increases in every sector. Pyrolysis of the waste plastic (hdpe) was carried out with  $\text{CuCO}_3$  catalysts and temperature range from  $0^\circ\text{C}$  to  $390^\circ\text{C}$ . The collected liquid hydrocarbons fuel was characterized by FT-IR, NMR, GCxGCMS spectrometer and fuel density was  $78\text{ g ml}^{-1}$  and conversion was very good. The research paper exhibits concentrating on application for solving daily life issues and problems of plastic. The increased demand and high price for energy sources are driving efforts to convert organic compounds into useful hydrocarbon fuels. Although much of this work has focused on biomass, there are strong benefits to deriving fuels from waste plastic material. Waste plastic is abundant and its disposal creates large problems for the environment. Plastic does not break down in landfills, is not easily recycled and degrades in quality during the recycling process, and can produce waste ash, heavy metals, and potentially harmful gas emissions if incinerated at high temperatures. However, chemical processes that can be used to convert plastics into hydrocarbon fuels have unlimited applications in residential and industrial heating, transportation, and electricity generation. These chemical processes are used to break down the long carbon chains found in plastic into the shorter chains found in gasoline or diesel-type fuels. Natural State Research (NSR) has invented a simple and economically viable process to decompose the hydrocarbon polymers of waste plastic into the shorter chain hydrocarbons of liquid fuel (patent pending). The method and principal of the process/production will be discussed.