Waste plastics to transportation fuel and petrochemicals

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CSIR-Indian Institute of Petroleum alongwith GAIL (India) Ltd. has developed a unique technology for conversion waste polyolefins into transportation fuel and petrochemicals. The process consists of the following steps- melting, pyrolysis, vapour phase catalytic conversion and fractionation. The process can be run in three different modes with diesel, gasoline and aromatics being the major products in each modes of operations. ***1 Kg of clean waste polyolefinic waste plastics can produce produce either ~ 850 ml of diesel or ~700 ml of gasoline or ~500 ml of aromatics alongwith simultaneous production of liquefied petroleum gas (LPG).***The process is completely environment friendly as no toxic gases are evolved. The gasoline and diesel obtained from these waste plastics meets Euro III specifications and the aromatics are rich in toluene and xylenes, which are important raw materials for petrochemicals. The engine tests have confirmed that the emissions and fuel economy of the automotive fuel obtained from waste plastics are at par with the refinery diesel and gasoline. The process is economically viable as the payback period for 10 TPD and 20 TPD plants are 3.5 and 2.1 years respectively. This permits setting up of small decentralized units obviating the necessity of transportation of plastics over long distances.