

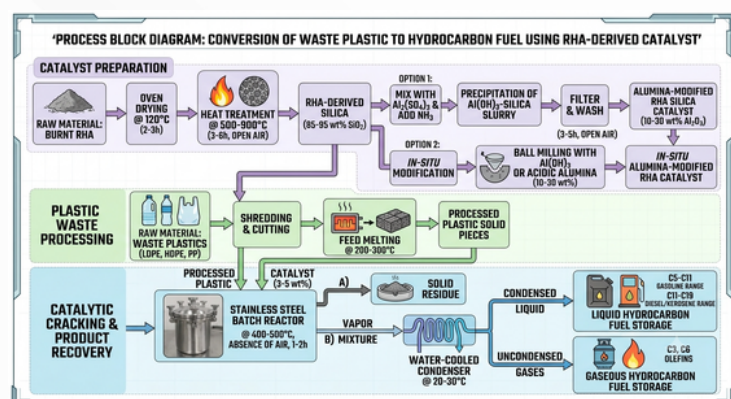
A New Process for the Conversion of Waste Plastics to Petroleum Fuels Using Chemically Modified Rice Husk Derived Silica Catalyst

Seeking parties interested in licensing and commercialization of technology.

Technology Brief

This technology provides a process for converting non-biodegradable waste plastics, such as low-density polyethylene, high-density polyethylene, and polypropylene, into liquid and gaseous hydrocarbon fuels via catalytic cracking. Utilizing low-cost, bio-renewable rice husk ash, the process uses derived porous silica and chemically modified silica-alumina as effective cracking catalysts. Operating in a two-stage process involving pre-melting at 200–300°C followed by catalytic cracking at 400–500°C in an oxygen-free environment, the system yields high-quality liquid hydrocarbon fuels primarily in the gasoline range (C5–C11) alongside valuable olefinic fuel gases.

Block Diagram



Technical Applications

This technology is applicable in municipal solid waste management, plastic waste recycling facilities, bio-refineries, and commercial fuel production plants. Key application areas include converting post-consumer and industrial polyolefin plastic wastes into alternative petroleum fuels, such as gasoline, diesel, and kerosene blends, as well as chemical feedstocks.

Salient Features

- ✓ Low-Cost Bio-Derived Catalyst
- ✓ High Fuel Conversion Efficiency
- ✓ Gasoline-Range Selectivity

Glimpse of the Technology



REFERENCE NUMBER

ITNT-TECH-0190



TECHNOLOGY SECTOR

Clean Energy & Sustainability



IP STATUS

Patent Granted



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TECHNOLOGY READINESS LEVEL

TRL 7

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