

Depolymerisation of waste plastics to generate purified fuels

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Depolymerisation

Depolymerisation is thermal or thermo-catalytic decomposition of organic materials at elevated temperatures in absence of air or Oxygen

Depolymerisation Methods:

- 1) Thermal (By heating)
- 2) Thermo-Catalytic
(By using heat & catalyst)

Raw materials

**Waste Plastic
(HDPE, LDPE,
PP, PS, ABS)**

Waste Tyres

Rubber

Electronic scrap

Waste oils etc.





Raw Materials

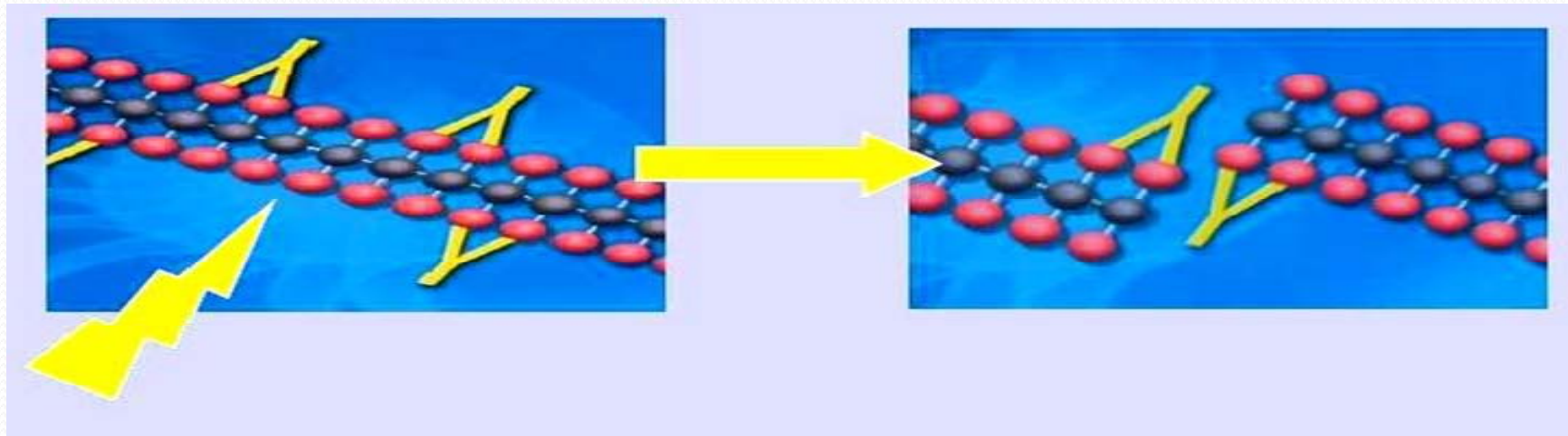
Tolerance: 5% of dust + 5% moisture

Waste Plastic

Waste tyres

Waste oils

Depolymerisation Reaction



Polymers

(C 50000 to C 200000)

Waste Plastic/Tyre

Waste Oils etc.

Synthetic gas / oil

Hydrocarbon Gas (C1 to C4)

Synthetic Oil (C 5 to C 23)



CD Technology

- 1) Collection of Plastic waste**
- 2) Quality control**
- 3) Cutting & Shredding**
- 4) Feeding to reactor**
- 5) De-Polymerisation (Heating + Catalysis)**
- 6) Synthetic fuel / Poly-fuel + gas +charcoal**
- 7) Oil cleaning**
- 8) Fractional Distillation**
- 9) Purified fuels**

Input and output

Input:

Waste plastics

Waste rubber

Waste oils

Electronic waste

Catalyst

Output:

Synthetic oil (Poly-Fuel)

Synthetic gas

Charcoal





Synthetic oil (Poly-Fuel)

**Hydrocarbon Liquid
Similar to Light Diesel Oil (LDO)**

Applications:

- 1) Electricity Generators**
- 2) Boilers**
- 3) Diesel Pumps**
- 4) Furnaces**
- 5) Hot Air Generators**
- 6) Hot Water Generators**
- 7) Thermic Fluid Heaters etc.**



Purified synthetic fuels

Fractional distillation products:

- 1) Thinner (mineral turpentine oil / MTO)
- 2) Gasoline / petrol
- 3) Kerosene
- 4) Jet fuel
- 5) Diesel
- 6) Heavy oil

Formulations:

- 1) Engine oil
- 2) Gear oil

Depolymerisation Plant and machinery

Plastic feeding system

Reactor

Heating system

Condensers

Receiver

Gas cleaning system

Gas handling system

Oil and water separation system

Oil cleaning system

Oil storage

Control panels

Fractional distillation unit

Fittings and fixtures

10 TPD plant at Slovakia, Europe



Project Highlights

- 1) Raw Material: Readily available
- 2) Technically feasible
- 3) Economically profitable
- 4) Plant is **'Energy Self Sufficient'**
- 5) Ready Buyers for pyrolysis oil or purified fuels
- 6) Almost nil marketing efforts
- 7) Perfect solution for waste plastic and rubber disposal



Licensing and Certificates

- 1) NOC from Local Body**
- 2) Registration at Department of Industries**
- 3) Consent to establish and operate from Environment department or Pollution Control Board**
- 4) Consent to operate from safety department
(Any other licenses and registrations as may be applicable in the country)**



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Thank You

