

NAME: AKINSEYE INIOLUWA NAOMI
SCHOOL: GOODVINE COLLEGE
CLASS: JSS1

IF I COULD INVENT SOMETHING NEW

If I could invent something new, I would invent wasted polythene to petrol.

Recycling wasted polythene to petrol is a complex process known as plastic to fuel or chemical recycling. It involves converting non-biodegradable plastics into fuel products like petrol, diesel or set fuel.

Gasification involves heating organic waste with a reduced amount of oxygen or steam. It provides a synthetic gas, known as syngas, which can be burned independently in a boiler, engine or gas turbine to provide electricity. Pyrolysis is carried out in the total absence of oxygen. Here's a simplified overview of steps on how I will collect and sort, I will gather polythene waste and sort it by type (e.g HDPE, IDPE) etc.

Clean and shred, I will clean the plastic waste and shred it into small pieces.

Pyrolysis, pyrolysis is the process where I will heat the shredded plastic in the absence of oxygen to produce a pyrolysis oil. This process breaks down the plastic molecules into a mixture of hydrocarbons.

Refining, I will refine the pyrolysis oil to separate it into various fuel functions, including petrol.

Treatment and upgrading, I will Treat and upgrade the petrol fraction to meet fuel standards. These are my modes of technology which are pyrolysis that is the thermal decomposition of plastics to produce oil.

Catalytic conversion it uses catalysis to enhance the pyrolysis process.

Hydro treatment, it refines the pyrolysis oil to produce high quality fuels here are some benefits which are:

Conserves natural resources, Recycling polythene into petrol reduces the need to extract and process crude oil, conserving natural resources.

Reduce plastic waste, by converting wasted polythene into petro, we reduce plastic waste, mitigate its environmental impacts, and promote a more circular economy.

Produces low-sulfur fuels, by producing low- sulfur fuels from wasted polythene, we reduce the environmental impact of fuel production and use, contributing to a cleaner and healthier environment.

It can be used as a substitute for traditional fuel in various ways the petrol produced from polythene waste can be used directly in vehicles without modification, replacing traditional petrol. Polythene

derived petrol can be blended with traditional fuels to reduce sulfur content, emissions, and environmental impacts.

Here are some challenges which are limited scalability, High energy requirements can limit the scalability of the process, making it difficult to commercialize and expand production.

Reduced profit margins, Energy expenses can reduce profit margins, affecting the economic viability of the technology.

Public perception, High energy requirements can impact public perception of the technology, potentially affecting its adoption and acceptance.

While recycling polythene to petrol is a promising technology. It's still in its early stages, and significant development is needed to make it more efficient, cost effective, and environmentally friendly.