



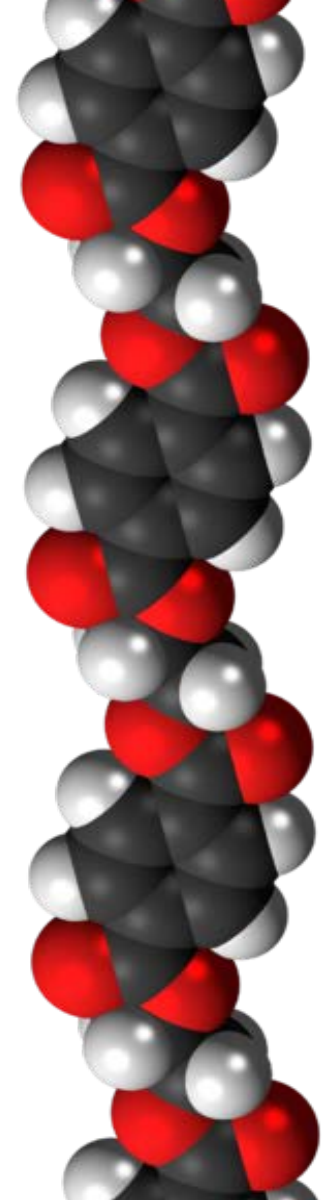
A close up model of a section of poly(ethylene)

Upcycling plastic waste

Read the full article at rsc.li/39ib9Y9

The chemical inertness of poly(ethylene) means it does not decompose when disposed in landfill. Current recycling methods involve melting the polymer down and reshaping it. These recycled plastics, however, have inferior properties and lower value than virgin plastics. Chemical recycling methods can alternatively convert poly(ethylene) back to the monomer ethene; this process is highly endothermic, which means it is not economic.

Now, researchers have found a method to convert poly(ethylene) into long chain alkylaromatic chemicals. These chemicals are more valuable than the original plastic and have uses including surfactants, lubricants and refrigerants. The new process uses a platinum catalyst at a relatively low temperature of 280°C. Currently, alkylaromatic chemicals are made in a complicated process using high temperatures.





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1. Give two advantages of recycling plastics.
2. Give two problems with recycling plastic to make new plastic products.
3. Suggest advantages of producing alkylaromatic chemicals from plastic waste.