Turning waste into fuel

Read the full article at rsc.li/2MM4bSB

© Jantsarik/Shutterstock

Plastic waste can be converted into methane for fuel using a ruthenium-based catalyst. The technology could lessen our plastic waste problem as well as produce fuel.

Recovering chemicals from plastic waste is not new. Hydrocracking, which is often used in refining oil to make jet fuel and diesel, can convert plastic too. This reacts a feedstock with hydrogen and a catalyst. However, using the approach with plastic has been hampered by a lack of efficient catalysts. Researchers investigated the use of ruthenium nanoparticles on zeolite supports as a catalyst. They discovered this catalyst efficiently transforms polyethene, polypropene and polystyrene into methane that could be fed into natural gas networks.

Turning waste into fuel

Read the full article at rsc.li/2MM4bSB

© Jantsarik/Shutterstock

Plastic waste can be converted into methane for fuel using a ruthenium-based catalyst. The technology could lessen our plastic waste problem as well as produce fuel.

Recovering chemicals from plastic waste is not new. Hydrocracking, which is often used in refining oil to make jet fuel and diesel, can convert plastic too. This reacts a feedstock with hydrogen and a catalyst. However, using the approach with plastic has been hampered by a lack of efficient catalysts. Researchers investigated the use of ruthenium nanoparticles on zeolite supports as a catalyst. They discovered this catalyst efficiently transforms polyethene, polypropene and polystyrene into methane that could be fed into natural gas networks.

1. Describe how this process could benefit the environment.
2. Describe why cracking is used in refining crude oil.
3. Suggest why the ruthenium catalyst is put on a zeolite support.