



Polymer membrane separates hydrocarbons

Slide by Neil Goalby. Available from rsc.li/3GcqrRj

A new polymer membrane could cut energy use in crude oil processing by replacing fractional distillation, which accounts for 6% of global carbon emissions.

The new polymer works similarly to the reverse osmosis semi-permeable membranes scientists use in seawater desalination. Choosing a polymer is, challenging. The complex new polymer retains its shape when oil passes through it. This is important because most hydrocarbon-based polymers would typically absorb crude oil and swell, changing their filtration properties.



© 365 Focus Photography/Shutterstock

The membrane uses a fraction of the energy of a distillation column

Questions

1. Describe how fractional distillation of crude oil works.
2. Explain why fractional distillation has large carbon emissions.
3. Describe how reverse osmosis desalinates seawater.