

The treatment of oil spills

Topic

Pollution control. Polymers – uses of intermolecular bonding.

Timing

10 min.

Description

In this experiment, oil or paraffin is added to some water in a beaker to simulate an oil spill. A special powdered polymer is then sprinkled on top. On stirring the polymer absorbs the hydrocarbon molecules and a rubbery solid is formed which can then be scooped up. The experiment is quite fun to do and provides several interesting points for follow-up discussion in both theoretical and applied chemistry (pollution and its control).

Apparatus (per group)

- One student worksheet
- One 100cm³ beaker
- Plastic pipette
- Scissors.

Chemicals (per group)

- Soil-moist hydrocarbon polymer (see below)
- Oil or paraffin.

Observations

On adding the polymer, and stirring, a rubbery solid is formed very quickly and the layer of oil/ paraffin disappears.

Note

The essential ingredient in this experiment is the powdered polymer which can be obtained from Flinn Scientific produce (Enviro-Bond 403) at £8 for 100g. With careful use 30 g should provide enough for many experiments! The polymer itself is a copolymer of acrylamide and hydroxymethylmethacrylate, crosslinked and dehydrated. A similar substance is produced commercially by BP under the tradename Rigidoil.

Health & Safety

Students must wear eye protection. Avoid inhaling fumes.

Paraffin is FLAMMABLE, ensure no naked flames or other sources of ignition.



Credits

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Health & safety checked May 2018

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