

The treatment of oil spills – teacher notes

Topic

Pollution control. Polymers – uses of intermolecular bonding.

Timing

10 minutes

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

- Eye protection
- Student worksheet
- Beaker, 100 cm³
- Plastic pipette
- Scissors

Chemicals

- Soil-moist hydrocarbon polymer (see notes for more information)
- Oil or paraffin

Observations

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

Notes

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 and technical notes

- Read our standard health and safety guidance here <https://rsc.li/3LNbkfo>
- Students must wear suitable eye protection (splash proof goggles to BS EN166 3)
- Avoid inhaling fumes.

- Paraffin is FLAMMABLE, ensure no naked flames or other sources of ignition (see CLEAPSS Hazcard [HC045b](#)).