

FANTASTIC PLASTIC: WHAT IS A HYDROGEL?

Hydrogels are special polymers that are supposed to be able to absorb more than their own mass of liquid. Here you will test if this is true and just how much they can absorb.



Wear eye protection. The hydrogel is safe to handle but wash your hands after handling and before eating.

1. Weigh 2 g hydrogel in a large petri dish.
2. Add water gently using a pipette, making sure it is totally absorbed by the polymer.
3. As you get to the limit of the polymer's absorption, you will find it takes longer and longer for the water to be absorbed.
4. When you are sure you are at the limit of the hydrogel's absorption, weigh the petri dish and its contents to work out how much water was absorbed.
5. Is it true that the hydrogel can absorb more than its own mass of water?

These hydrogels are used in disposable baby's nappies to keep the baby dry. There are also hydrogels designed to absorb oil when an oil tanker crashes and spills its oil into the sea. And there are hydrogels that absorb toxic chemicals that can be spilt onto the road if there's an accident with a truck carrying chemicals on the motorway.