Instant Glop

Purpose

To observe the reactions of a superabsorbant with water

Materials

2 display glasses	0.5 teaspoon measure
stirrer	100 mL graduated cylinder
salt	wash bottle

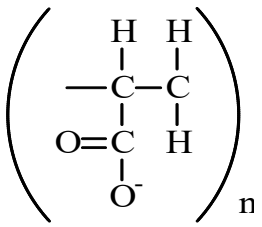
superabsorbant material (sodium polyacrylate) available from Flinn Scientific Inc. or commercially sold as Water-Lock

Procedure

1. Measure out a 0.5 teaspoon amount of the superabsorbant. Place the material into a display glass.
2. Add 100 mL of distilled water to the glass and stir. Describe the results.
3. Touch the material in the cup. Describe it. **Caution:** The superabsorbant material may be a mild skin irritant. Wash hands after using this material. Keep the material away from soft contact lenses.
4. Place a small amount of Instant Glop in another display glass.
5. Add a small amount of salt and stir. Describe what happens.

Additional Information

1. Instant Glop is a component of the Mad Scientist Glowing Glop from Mattel Inc. The set consists of packets containing superabsorbant and Powdered Light, and phosphorrescent material (zinc sulfide) which are mixed with water to make the Glowing Glop.
2. Superabsorbants were originally developed by the US Department of Agriculture in 1966. The original material consisted of a copolymer of starch-polyacrylonitrile (commonly known as Orlon, or Creslan). It was intended for use as an additive in drilling fields off shore, and as an agricultural thickener. Later, other superabsorbants were developed which were polyacrylonitrile and polyacrylic based. Some of these materials are capable of absorbing up to 2000 times their mass in water. They have been given the common name of "Super Slurpers".
3. The superabsorbant polymer has a high concentration of Na^+ ions. As a result, when water comes in contact with the powder it rapidly enters the granules turning the powder to gel.



When a soluble ionic compound is added to the gel (NaCl, baking soda, vinegar) the gel releases the water and liquefies.

4. Water can be poured into a disposable diaper (¼ cup or 50 mL at a time) to illustrate the superabsorbants used in diapers in dramatic way. (Rock the diaper back and forth after each addition to help it absorb the water).

Question for the Students

1. What uses can you think of for superabsorbant material?

Disposal

Glop and sodium polyacrylate can be thrown into the trash after the demo.

Reference

David Katz, ICE Demonstration Workshop, University of Northern Colorado, 1990.

Fun with Chemistry, Volume 2, p. 99.