



Curiosity Guide #506

Bioplastics

Accompanies Curious Crew, Season 5, Episode 6 (#506)

Dissolving Plastic

Investigation #1

Description

Learn about one way to make our earth happy!

Materials

- Starch-based bioplastic bag
- Clear beaker
- Measuring cup
- Water
- Stove or hot plate
- Pot
- Candy thermometer
- Glass rod

Procedure

- 1) Heat one cup of water on the stove.
- 2) Use the candy thermometer to measure the temperature of the water.
- 3) Once the water reaches 80 degrees Celsius, pour the water into a large, clear beaker.
- 4) Drop the plastic bag into the water.
- 5) Stir the bag in the water with the glass rod.
- 6) What do you notice?

My Results

Explanation

The dissolving bags are made of a bioplastic, a plastic that is made from all-natural, organic materials. One of the main ingredients of these bags is plant starch. Starch is a natural polymer that consists of long chains of molecules linked together. Plant starch mixed with other ingredients like vegetable oil can be formed into a plastic bag with a lot of the same properties as oil-based plastic bags. The plant-based bags will stretch and hold many things just like the oil-based plastic bags do, but the bags made of plant starch will degrade in the environment. When the bag is placed in hot water, the bonds between the starch molecules begin to separate. The bag dissolves. When thrown away, this bag will not hurt the environment or the animals in nature. Surprisingly, this bioplastic bag will also burn like paper.

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