

# What if we could put our plastic trash to good use?

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Garbage washed up on a beach in Compton Bay, Isle of Wight, United Kingdom. Photo by: Jason Swain/Getty Images

We use plastic every day. Companies produce 420 million tons of plastic each year, and as much as 14 million tons of plastic enter the oceans. Scientists are finding traces of plastic in our sea salt and tap water.

People need plastics. They're important for our food packaging. They also help keep out germs. Doctors choose plastic for their gloves and equipment because it helps prevent contamination. Plastic often replaces metal on cars to make them better on gas mileage and safer in accidents.

More than 90 percent of plastics do not get recycled. Now scientists and inventors are finding new uses for plastics that would end up in the trash. They are also finding alternatives to the most wasteful plastic products we use.

## **Plastic Could Have A Second Life**

More than 27 million tons of polystyrene are made every year. Polystyrene is a thin layer of plastic used in many products. Polystyrene takeout containers, plastic spoons and packing peanuts are often thrown away. They might be used just once. However, this plastic could have a second life or could be avoided altogether, thanks to two studies.

"The question was never really asked" about what to do with plastics after we use them, said John Williams. He is a scientist and a leader at Aquapak, which makes plastic that is biodegradable. This means it breaks down in nature.

Rather than making unnecessary plastic items, Williams said plastic products should be made with more purpose. They should be saved after use, even if that costs more, he said.

### **Social And Environmental Cost**

Plastic pollution comes with a social and environmental cost. It's estimated at \$139 billion a year by The Economist, a British news magazine.

Damage to our health and the environment account for one-third of this cost. There is plastic-related pollution in air, water and land. So although reusing waste products might raise prices for companies and people, it could reduce other costs.

Williams' company spent 15 years developing a plastic alternative called Hydropol. It can be more easily recycled.

Hydropol can replace plastics in products like a plastic coating on a food label, which would normally make recycling more difficult. Hydropol breaks down in water and dissolves harmlessly. It can also be recycled with paper and plastic.

It sounds great, but the material in Hydropol still needs work, said Yu Dong. He is a scientist from Curtin University in Perth, Australia.

Dong studies polyvinyl alcohol, the main material in Hydropol. While polyvinyl alcohol is biodegradable, he said it has some setbacks.

The cost to use it is higher than other plastic, he said. Dong said polyvinyl alcohol plastic is also affected by the environment. The wrong temperature or humidity can break it down.

### **Work To Be Done To Find Better Choices**

There's still work to be done to find better choices, Dong and Williams said.

Swapping polystyrene with alternatives will keep waste from entering landfills. However, it doesn't address the plastic waste already in the environment.

Reprocessing polystyrene is difficult. It produces only a small amount of material that can be used again.

Take a bathtub full of packing peanuts made of polystyrene. It would provide only about three bowling balls' worth of recyclable plastic.

So, some scientists are using one environmental problem to solve another.

Scientists in Brazil and the United Kingdom have created a way to break down pollution from wastewater plants. The pollution comes from dyes used to color cloth and paper.

The scientists use polystyrene to make foam blocks for cleaning. The scientists then shine a light on the mixture. They add a chemical to the mix.

Think of the foam block like a kitchen sponge. Think of the chemical as dish soap, cleaning up pollution. The combination also breaks down pollutants into compounds that are better for the

environment, like carbon dioxide.

The blocks clean up a type of dye that can kill fish and animals. The dye also might be dangerous to humans.

"The concept was to try and see if there was another way of making use of waste plastics," said Julian Eastoe. He is a scientist at the University of Bristol in England.

When tested in the study, the foam blocks broke down almost all of the dyes. The blocks can be reused. Eastoe hopes to use them in more ways.

"It uses a waste product to get rid of another waste product. It's kind of a win-win situation," said Erica Wanless. She is a scientist at the University of Newcastle, Australia. She wasn't involved in the project.

## Quiz

1 Read the paragraph from the section "Social And Environmental Cost."

*Plastic pollution comes with a social and environmental cost. It's estimated at \$139 billion a year by The Economist, a British news magazine.*

HOW does this paragraph support the main idea of the article?

- (A) It gives some reasons why people use plastic products.
- (B) It shows that companies produce lots of plastic each year.
- (C) It gives a reason why scientists want to reduce plastic pollution.
- (D) It shows that plastic is used to make many different products.

2 What do scientists John Williams and Yu Dong AGREE on in the article?

- (A) It is important to develop alternatives to plastic.
- (B) Hydropol is a plastic alternative that is ready for people to use.
- (C) Hydropol is a product that people should avoid using.
- (D) It makes sense to use plastic products that cost a lot.

3 Read the paragraph below from the section "Work To Be Done To Find Better Choices."

*"The concept was to try and see if there was another way of making use of waste plastics," said Julian Eastoe. He is a scientist at the University of Bristol in England.*

How would scientist Erica Wanless MOST LIKELY respond to Eastoe's comment?

- (A) She would point out that waste plastics are difficult to find.
- (B) She would say that it is a waste of time to make use of waste plastics.
- (C) She would say it is too difficult to find uses for waste plastics.
- (D) She would agree that making use of waste plastics is important.

4 Which two choices are main ideas of the article?

1. *Companies produce 420 million tons of plastic each year.*
2. *Plastic is causing harm to the environment.*
3. *Dyes used to color cloth and paper cause pollution.*
4. *Scientists hope to find ways to reuse plastic products.*

- (A) 1 and 2
- (B) 1 and 3
- (C) 2 and 4
- (D) 3 and 4