

Why most plastic isn't getting recycled



Story at a glance

- A new Greenpeace report finds just 5 percent of plastics are recycled.
-
- A big reason is the lack of capacity for recycling various plastics.
-
- Industry argues much more than 5 percent is getting recycled and that there is room for more.
-

Correction: An earlier version of this story included a quotation that misstated the percentage of carpet that gets recycled in California. The correct rate is 28 percent.

Jan Dell, the outspoken recycling critic and thorn in the side of the plastics industry, wants the American public to face facts.

Those grocery-bag drop-off boxes, she says, are glorified trash bins. That swirly recycling symbol on coffee lids and granola pouches is more fantasy

than fact. Clear plastic bottles are recyclable: green ones are not.

“You walk in a Walmart and see all these single-use Halloween decorations,” Dell said. “All that will be in a landfill the week after Halloween.”

Dell, a chemical engineer who vice-chaired a federal climate committee in the Obama administration, is behind a new [Greenpeace report](#) that puts the national recycling rate for plastic at a heart-sinking 5 percent.

Not all the plastics news is bad. Recycling trucks do not routinely cart plastic bottles and jugs off to landfills and incinerators; that is urban legend. And the technology exists to recycle an array of plastic flotsam that almost no one recycles now.

But that recycling isn't happening, and Dell prefers to focus on the now.

[Learn more about which plastics you can recycle.](#)

In 2022, she estimates, the recycling industry has the capacity to process about 21 percent of the plastic used in water and soft drink bottles, 10 percent of milk jugs and juice bottles, less than 5 percent of grocery bags and shrink wrap, less than 2 percent of ice-cream tubs and coffee pods and less than 1 percent of plastic cutlery, coffee lids and DVD cases.

The Greenpeace report has caught flak from leaders in the recycling industry, some of whom say Dell's 5 percent figure is deceptively low.

She is estimating the recycling rate for all plastic, not just recyclable items, they say. The recycling quotient for plastic bottles and jugs approaches 30 percent.

“If you put those plastics in the bin, 100 percent of those get recycled,” said Jeff Snyder, director of recycling at Rumpke, a trash and recycling company outside Cincinnati with 2.5 million customers.

“If I had a hundred recycling plants,” Snyder said, “I'd be able to sell every bit of it in the marketplace. Dasani, Coca-Cola, Pepsi, they want to be sustainable.”

But another [report, published this year](#) by researchers at the National Renewable Energy Laboratory, echoed Dell's findings. Based on 2019 data, the federal study estimated recycling rates at 15 percent for water-bottle plastic, 10 percent for milk-jug plastic, 3 percent for ice-cream tubs, 2 percent for grocery bags – and 5 percent for all plastic.

In the world of plastics, “only two items are recyclable in America,” Dell said. “And those are No. 1 and No. 2 bottles and jugs,” designated with little numbers inside the triangular recycling symbol. “And everybody knows this in the recycling world.”

Sixty percent of U.S. homes have curbside recycling. Those programs mostly exclude Styrofoam, grocery bags, coffee lids and other plastic that resists recycling, for the simple reason that no market exists to recycle them.

Dell believes the recycling symbol itself rings deceptive, because it inspires false hope.

Supermarket customers who stuff plastic grocery bags into cardboard drop-off boxes may think the bags will magically reincarnate into new grocery bags. In fact, about the best hope is that the plastic will be melted down into asphalt or faux-wood picnic tables.

“Is that a form of recycling? Kind of,” said George Huber, the Harvey Spangler professor of chemical engineering at the University of Wisconsin-Madison. Melting down grocery bags degrades the plastic, a process the industry calls “downcycling.”

The Greenpeace report surveyed 375 recycling facilities across the nation. All of them accept plastic bottles and jugs, the ones marked “1” and “2” inside the recycling symbol. Half of the facilities accept plastic tubs and containers made of polypropylene, marked with “5.” One-tenth take plastic cups and clamshells. No one accepts plastic cutlery, straws or stirrers, coffee pods or plastic food wrappings, including those now-ubiquitous zip-lock pouches.

In other words: For any plastic packaging marked with a recycling code other than one, two or five, the number might as well be zero.

The nation's accumulated plastic waste reached 44 million metric tons in 2019, or roughly 295 pounds per American citizen, according to federal data.

Plastic recycling began in the 1970s and accelerated in each subsequent decade. Yet, by 2014, the overall plastic recycling rate reached only 9.5 percent. Even that figure counted millions of tons of plastic exported to China, much of it dumped or burned.

In 2018, China [stopped taking American trash](#). That sent the U.S. recycling rate spiraling downward, a trend that runs counter to the popular narrative of steady growth in the nation's recycling endeavor.

The [official recycling rate](#) for plastic stands at 8.7 percent, a statistic published by the Environmental Protection Agency and last updated for 2018. The government estimates plastic bottles and jars are recycled at a much higher rate, 29 percent.

The plastic recycling rate stands so low, experts say, because it includes items few Americans would think to recycle.

“You’re sitting in a chair that has plastic in it. You’re looking at a plastic screen,” said Scott Mouw, senior director of strategy and research at The Recycling Partnership, a nonprofit in Raleigh, N.C.

Recycling programs for furniture and appliances are “a system that we have to build,” Mouw said. “This is very frustrating to a lot of people in the United States. You don’t have a system to recycle your carpet or your mattress.”

Some states, including California, have enacted recycling programs that cover carpets, mattresses and electronics, with costs borne by the manufacturers. California now recycles carpets [at a 28-percent rate](#).

Greenpeace makes a case that plastic cannot be effectively recycled. Plastic waste, the study says, is “(1) extremely difficult to collect, (2) virtually impossible to sort for recycling, (3) environmentally harmful to reprocess, (4) made of and contaminated by toxic materials, and (5) not economical to recycle. Paper, cardboard, metal and glass largely do not have these problems, which is why they are actually recycled at high rates.”

Paper and cardboard are the great successes of the U.S. recycling effort, with an [overall recycling rate](#) of 68 percent in 2018, according to the EPA. Americans recycle 97 percent of their cardboard boxes, 50 percent of aluminum cans and 31 percent of glass containers.

Industry leaders say the focus of plastic recycling should fall on products many Americans already recycle.

If the share of American homes with curbside recycling somehow rose to 100 percent, then, based on current rates, roughly half of the nation's plastic bottles would enter the recycling system.

Dell contends the recycling industry lacks the capacity to recycle plastic on that scale. She believes the market for recycled plastic is shrinking. By her count, "less than five" new facilities have opened in the last five years to recycle plastic.

"If there were money to be made in plastic waste," she said, "why aren't there plastic recyclers opening across America, and why isn't the recycling rate 50 percent?"

Others in the industry disagree.

Since China's exit, Mexico and Canada have emerged as "the major export markets for our plastics," Mouw said. American recyclers, for their part, "have been operating at about 70 percent capacity. That gives you a sense of the demand that they have for this material."

At Rumpke, the Ohio recycler, Snyder sells 90 percent of his plastic to Ohio companies for use in bottles, carpeting and clothing. Rumpke recently expanded its recycling program to cover polypropylene, No. 5 on the federal list, a category that includes plastic cups from fast-food restaurants.

"I wish I had more of it," Snyder said. "I wish I had 10 times the amount I have today."

