

Plastic recycling is a 'myth,' study says

By [Dharna Noor](#) Globe Staff, Updated October 28, 2022, 9:25 a.m.



Collection of empty used plastic bottles. ADOBE STOCK

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Of the 51 million tons of plastic waste US households generated in 2021, just 2.4 million tons — or 5 percent — was recycled, new research shows.

The findings provide yet more proof that plastic recycling is a “myth,” says the new analysis, published by the environmental nonprofit [Greenpeace USA](#) this week.

Plastic, which is made from fossil fuels, is notoriously difficult to recycle. A major reason: Though they can be broken down into broad categories, there are thousands of varieties of the material, each with its own chemical makeup. Most cannot be recycled together, so

to be processed, they must be meticulously sorted. Still, hundreds of millions of tons of plastic are produced each year, which is a major problem for the climate: Plastic production and disposal account for [3.4 percent](#) of global greenhouse gas emissions.

“If plastics were a country, they would be the fifth largest emitter of greenhouse gases in the world,” said Lisa Ramsden, senior plastics campaigner for Greenpeace USA.

That number is expected to [rise](#). By 2050, the cumulation of emissions from making and disposing of plastics since 2015 could reach over 56 gigatons, [according](#) to a separate 2019 report by the Center for International Environmental Law. That’s almost 50 times the annual emissions of all of the coal power plants in the US, or up to 13 percent of the world’s remaining carbon budget if we’re to keep warming below [catastrophic levels](#).

To create the material — used to make everything from food packaging to medical equipment to Barbie dolls — gas must be extracted, transported, and then processed industrially. Each step produces millions of tons of greenhouse gas emissions.

When plastic is burned in garbage incinerators, it produces even more planet-heating pollution. Studies show that even discarded plastic [gives off](#) methane and other powerful greenhouse gasses, just by being exposed to the elements. And there’s mounting evidence that when it ends up floating in waterways, it can leech chemicals that [disrupt](#) oceans’ ability to sequester carbon from the atmosphere.

Corporations [say they’ll take on](#) this massive environmental toll by increasing recycling rates, but things are moving in the wrong direction. Plastic recycling has actually declined by up to 4.5 percent since its peak in 2014, the new Greenpeace report says. But plastic production has increased.

“In the 2010s, the US fracking boom released a flood of cheap natural gas into US markets,” said Carroll Muffett, CEO of the Center for International Environmental Law, who did not work on the report. “In the wake of that, what we saw was this massive investment in plastic production in the US.”

Another major Greenpeace report finding: No plastic product meets a common industry-backed standard for recyclability, though many bear the well-known “chasing arrows” symbol. According to the Ellen MacArthur Foundation’s new plastic economy initiative, an item must have a 30 percent recycling rate to receive their “recyclable” classification. [Hundreds of major corporations](#), including Pepsi, Starbucks, and Clorox, have signed onto a commitment agreeing to this definition.

Research has long shown that most recycling facilities do not accept five of the seven classifications of plastic — including plastic foam and PVC — because they are particularly difficult to sort and are often contaminated with toxins. But the new report shows that even two common plastics that have long been considered recyclable — PET #1, which is used to make most soda bottles, and HDPE #2, which is often used to make plastic jugs — are only reprocessed 20.9 percent and 10 percent of the time, respectively, according to the report. For every other type of plastic, the reprocessing rate is even lower, at less than 5 percent, the authors write.

The problem isn’t individual consumers failing to take advantage of recycling programs or tossing takeout boxes into the wrong bins, the report makes clear. Rather, many plastics that consumers think they are recycling never make it through a recycling process. For that reason, plastics have never achieved even a double digit recycling rate in the country, while recycling rates for other materials, like glass, metal, and paper, are much higher.

“There are many different types of plastics, all with different chemical additives and different colorants,” said Judith Enck, president of Beyond Plastics and former Environmental Protection Agency regional administrator, who didn’t work on the study. “Unlike paper and metal and glass, they cannot be mixed together and used to make a new plastic product.”

Even plastics of the same category can’t be recycled together — PET#1 bottles that are dyed green, for instance, can’t be processed with clear PET #1 bottles. Few facilities have

the capacity to sort so many different materials.

Contributions to the climate crisis are just one major problem with plastic production and disposal, the report says. The material also contributes to ecosystem degradation, lets off endocrine-disrupting and [cancer-causing](#) chemicals, and harms vital coral reef ecosystems.

Despite these numerous issues, the oil industry [intends to increase plastic production](#). In fact, according to the International Energy Agency, plastics and other petrochemicals are expected to [drive an increase in oil demand](#) even as nations transition away from fossil-based energy and transit.

To make sure that doesn't happen, the Greenpeace report says, the world must realize plastic recycling won't fix the problem.

“Recycling is never going to solve the plastic waste crisis. There's simply too much plastic, and it's just not practical to recycle most of it,” said Ramsden. “We need to focus on reducing the amount of plastic that is produced and move away from single-use plastics and towards systems of refill and reuse.”

As a first step, Greenpeace says, corporations should have to remove the recycling symbol from plastic products, since most of them are never recycled. This could help alleviate some confusion about the materials.

Ramsden also said policies banning the sale of some plastic materials can help promote plastic reuse, which could lead to reduced plastic production. It's something some towns in Massachusetts — which one report showed currently has the lowest plastic bottle recycling rate of any state — are taking on. Plastic bottles are currently banned in Brewster, Chatham, Eastham, Falmouth, Harwich, Orleans, Provincetown, and Wellfleet. And Arlington's plastic water bottle ban will go into [effect](#) on November 1.

Corporations could also promote reuse by, for instance, moving toward a “milkman” system, switching to glass bottles which they can allow consumers to refill, the report says.

National action is also possible. Canada has already set a goal of zeroing out plastic waste by 2030; Enck suggested the United States do the same.

But the plastic crisis is a global problem, so ultimately, it demands international solutions. Late next month, world leaders will [come together in Uruguay](#) to discuss writing a global treaty to address plastic pollution — a “huge opportunity,” Ramsden said.

Muffett, of the Center for International Environmental Law, said it’s the right time for leaders to plan to curb plastic production, not only because of the urgency of climate change, but also because of [looming gas shortages](#) in the wake of Russia’s invasion of Ukraine. Accelerating the phaseout of plastic could help lower fuel demand, he said.

“Single-use plastics are designed to have usable life that within minutes to months, but the molecules last forever,” he said. “There’s no reason we need to keep making them.”

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