



TRUTH IN RECYCLING

Does Amazon's plastic packaging actually get recycled?

U.S. PIRG
Education Fund



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EXECUTIVE SUMMARY

It is estimated that a dump truck worth of plastic ends up in our environment every minute¹.

The United States, in particular, generates a lot of plastic-- 71 billion pounds² a year-- and roughly half of it is designed to be tossed away after a single-use. The real problem is that “tossed away” does not mean the plastic disappears. Plastic does not biodegrade, so most of the plastic that has been made is still out there somewhere, polluting the environment. Less than 10% of all plastic has been recycled,³ and only 1% has been recycled twice.⁴ The rest ends up overflowing landfills, littering our streets, polluting the ocean, and harming wildlife. Over time, plastic breaks up into smaller and smaller pieces called microplastics that have been found in every corner of the globe. Microplastics have *even* been found inside human bodies, potentially exposing us to hazardous compounds and additives.⁵

The production of so much single-use plastic itself also causes problems. Plastics are primarily made from fossil fuels, and the extraction and refinement of fossil feedstocks for plastics release an array of toxic substances into the air and water, including known carcinogens and neurotoxins.⁶

Plastic packaging used to ship items to our homes is a major contributor to the plastic waste crisis.

E-commerce uses an enormous amount of plastic to ship things to our homes. Nearly every time we order something online, we are confronted with a pile of plastic - plastic envelopes, bubble wrap, and foam. When you multiply that by the millions and millions of online purchases made every day, you get an e-commerce plastic problem that generated 3.4 billion pounds of plastic waste globally in 2021 alone.⁷

As one of the largest retailers in the world, Amazon is a major contributor to this plastic problem. A report from the ocean conservation group Oceana, estimated that Amazon alone generated 709 million pounds of plastic waste globally in 2021-- enough to circle the Earth more than 800 times in the form of air pillows.⁸

Amazon packaging is not as recyclable as the company claims.

Amazon claims that much of the packaging the company uses to deliver goods is recyclable, either through curbside recycling programs for their cardboard

packaging or store drop-off for their plastic packaging.⁹

In 2023, U.S. PIRG Education Fund and Environment America Research and Policy Center conducted an investigation into the effectiveness of the store drop-off system used by Amazon for recycling their plastic film packaging. Staff and volunteers placed small tracking devices, mainly Apple AirTags, in 93 bundles of Amazon plastic bags, bubble-lined plastic bags, and air pillows, and put them in store drop bins across the country to see where they ended up.

We found no evidence that Amazon packaging is being widely recycled. Only 4 of the packages were tracked to a material recovery center that sorts items for recycling, though there's no way of knowing if the packaging was then sorted to be recycled or not.

Many of the packages put in a store drop bin intended for recycling ended up in landfills, incinerators, or at a port, likely headed to another country for disposal.

Thirteen of the 93 packages were tracked to landfills— three times more than the number of packages that ended up in material recovery centers. Two packages were tracked to an incinerator to be burned and turned into toxic air pollution,¹⁰ and three went to the Port of Los Angeles, likely headed to another country where U.S. and state regulators have no jurisdiction to

make sure it is being recycled or disposed of properly.

Many of the packages ended up at a facility that downcycles plastic. 24 of the packages were tracked to Trex Company, Inc, a company that makes plastic benches and decks out of plastic film and reclaimed sawdust.¹¹

At first glance, it may seem promising that several of the plastic packages went to a company that turns plastic film, thin plastic like that used to make plastic bags and Amazon's plastic packaging, into something useful. However, a deeper dive into Trex's operations suggests our Amazon packaging may not have actually been used to make their decks and benches. The company has guidelines for the plastic film it can use, and specifies that the plastic film must be free of food or liquid contamination and that labels should be removed if possible.¹² Most plastic film used by Trex comes from industrial operations rather than consumer drop off programs as it is more consistent and less likely to be contaminated.¹³

Even if the plastic packages were used by Trex, the plastic film is not technically being recycled— it is being downcycled. The plastic packaging is not being turned back into packaging or any other product that decreases the need to produce more plastic. Rather, it is being turned into a product that is not recyclable, and does not decrease the need to use virgin plastic for Amazon

plastic bags, bubble-lined plastic bags, and air pillows.

The store drop-off system for plastic film recycling is not working.

This investigation suggests that the store drop-off system for recycling plastic film is failing. 95.7% of the plastic packages were tracked to locations other than a recycling center, including landfills, incinerators, distribution centers, and a company that downcycles the plastic into new nonrecyclable products. At the same time, there is no evidence that the store drop-off system helps reduce the need to create new plastic– the real purpose of recycling.

Recycling is only effective if it creates a closed loop system, allowing us to use the same material over and over again to reduce the resources needed to create more, i.e. cutting down more trees for paper or drilling more oil for plastic.

Recycling plastic is not a viable way to address the plastic waste crisis. Instead, we need to switch to more sustainable packaging alternatives, and Amazon can lead the way.

Amazon should eliminate single-use plastic packaging.

No matter how much Amazon and others say its packaging is “recyclable,” the truth is that plastic never has been widely recycled and likely never will be. The better approach to plastic packaging is to stop producing and using it.

Amazon should eliminate the use of single-use plastic in their shipments– and has proven through its own policies that it can. Amazon has committed to eliminating plastic packaging in Europe.¹⁴ In India¹⁵ the company has replaced plastic packaging material, such as bubble wraps and air pillows, with ‘paper cushion.’ Here in the United States, in July 2023, Amazon announced it is “phasing out padded bags containing plastics in favor of recyclable alternatives.”¹⁶ This means the eventual end of the blue and white plastic mailing envelopes a lot of Americans get on their doorsteps every day. In October 2023, Amazon opened its first automated fulfillment center that doesn’t use any plastic packaging.¹⁷

This is great progress, but as one of the largest companies in the world, Amazon can and should do more to address the plastic waste crisis, starting with a commitment to eliminate plastic packaging in U.S. shipments. This would show other major retailers that change is possible and result in significant reductions in plastic waste.

INTRODUCTION

Amazon and plastic packaging

Online retailers create an enormous amount of plastic waste from the single-use packaging used to ship things to our homes. In 2021 alone, e-commerce companies generated 3.4 billion pounds of plastic waste globally, from things like plastic envelopes, bubble wrap, and foam.¹⁸

As one of the largest retailers in the world, Amazon is a huge contributor to the plastic pollution problem. A report from the ocean conservation group Oceana estimated that Amazon generated 709 million pounds of plastic waste globally in 2021 – enough to circle the Earth more than 800 times in the form of air pillows.¹⁹

With online shopping increasing, and Amazon being one of the first places consumers look to buy pretty much everything, this problem will likely get worse unless we change the way we ship packages. In fact, in 2021, plastic packaging from e-commerce was estimated to double by 2026.²⁰

The problem with plastic

Plastic does not biodegrade, so the packaging waste created as soon as we open our packages sticks around in our communities — piling up in landfills,

littering our streets, and polluting the environment.

It is estimated that less than 10% of all plastic has been recycled²¹, and only 1% has been recycled twice²². That is because plastic degrades after one or two uses and becomes harder and harder to recycle²³. It is also unclear how much plastic recycling is true recycling— made into new products that are as recyclable as the product from which they came—and how much is "downcycling" – made into new products that are not recyclable or not *as* recyclable as the products from which they came.²⁴ Downcycling does not help create a sustainable loop for products, so rather than reducing the need to make new plastic, it reinforces the linear economy, which converts valuable natural resources into pollution.

Beyond recycling and downcycling, 12% of plastic gets incinerated, which means the plastic is burned and pollutes our air. The rest, roughly 79%, ends up in landfills and the environment.²⁵

Plastic breaks down into smaller and smaller pieces called microplastics, making them more likely to spread and be consumed by wildlife and humans alike. Microplastics have been found in every corner of the planet, from the Pyrenees mountains²⁶ to the Mariana Trench²⁷, the lowest point the ocean. They have also been

found in food, beverages, and inside human bodies,²⁸ potentially exposing us to hazardous compounds and additives.

The production of so much single-use plastic itself also causes problems. Plastics are primarily made from fossil fuels, and the extraction and refinement of fossil feedstocks for plastics release an array of toxic substances into the air and water, including known carcinogens and neurotoxins.²⁹

The plastic industry emits an enormous amount of greenhouse gas emissions. According to an estimate by Beyond Plastic, between manufacturing, use, and disposal, the U.S. plastics industry was responsible for at least 232 million tons of CO₂e gas emissions in 2020, equivalent to the average emissions from 116 average-sized

coal-fired power plants.³⁰ Soon, by 2030, plastics production may even surpass emissions from coal.³¹

A common misconception is that recycling will solve the plastic waste problem. While recycling provides a solution for materials like metal and glass, recycling plastic is challenging and not economically viable for most companies, as making new plastic is cheaper than recycling.^{32,33} There are thousands of different types of plastic out there, and to be recycled they need to be sorted and separated properly. And if the plastic makes it through that process, the recycled plastic becomes so weak that it is unlikely to be recycled again. On the other hand, new plastic is cheap to manufacture, so it is often much cheaper for companies to create new plastic products rather than to use recycled plastic.³⁴

IS AMAZON'S PACKAGING RECYCLABLE?

Amazon claims on their website that many of their packaging items are recyclable, either through curbside recycling programs or store drop-off.³⁵

When we receive a product delivered by Amazon in the U.S., it is likely either in a cardboard box (potentially stuffed with air pillows), a paper mailing bag, or a plastic bag or padded bag. All of these items come labeled with a “chasing arrows” recycling

symbol and the website how2recycle.info, a labeling system developed by a coalition of product manufacturers called the Sustainable Packaging Coalition.^{36,37}

The cardboard box and paper mailer have a chasing arrows symbol with nothing inside, which indicates the product is widely recyclable and can be placed in most curbside bins.



PHOTOS BY U.S. PIRG EDUCATION FUND

Photos of Amazon packaging. Top: Amazon cardboard box and paper bag with recycling symbol and How2Recycle, Middle: Air pillows from an Amazon box with recycling store drop off symbol and How2Recycle, Bottom: Amazon bubble-lined plastic bag and white plastic bag with recycling store drop off and How2Recycle

The plastic bag, bubble-lined plastic bag, and air pillows shown above have the same “chasing arrows” symbol, but on this packaging the symbol is not empty; it surrounds the phrase “store drop-off.” This slight difference in the image is supposed to convey that yes, the product is recyclable, but it cannot be placed in your curbside bin. Instead, you should go online to look up the closest store drop-off that accepts plastic bags and film. When you visit how2recycle.info to find that store drop-off location, you are redirected to a directory where you plug in your zip code to find the closest drop-off, likely a grocery store or retail store.³⁸

Amazon’s plastic packaging cannot be put in your local curbside bin because it is made of a thin plastic film, and most local recyclers do not accept plastic film. In fact,

only 50 U.S. local municipalities report that they accept plastic film, which only services 1% of U.S. households.³⁹ Unlike hard plastic, like drink or shampoo bottles, thin plastic film can clog and damage recycling machines.⁴⁰ For example, a recycling facility in Red Bank, NJ reported that they have to shut down their operations for two hours every day to remove plastic film.⁴¹

In 2023 U.S. PIRG Education Fund and Environment America Research and Policy Center conducted an investigation into the effectiveness of the store drop-off system used by Amazon for recycling their plastic film packaging. After removing all the labels as instructed, we placed small tracking devices, mainly Apple Air Tags, in 93 bundles of Amazon plastic bags, bubble-lined plastic bags, and air pillows, and put them in store drop bins across the country.

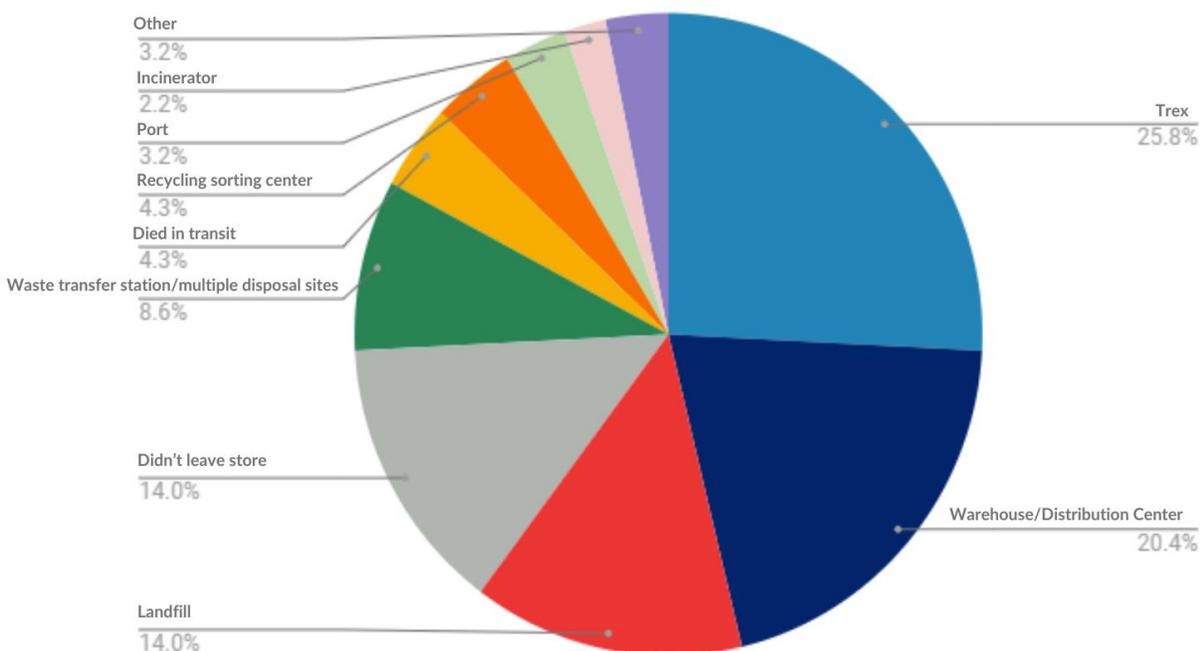


PHOTOS BY U.S. PIRG EDUCATION FUND

The Apple AirTag in the photo on the left was wrapped in the Amazon plastic packaging and placed in a store drop bin in Culver City, CA, which collected plastic film for recycling.

KEY FINDINGS

Table 1. Breakdown of where 93 bundles of Amazon plastic packaging were tracked to



We found no evidence to suggest that this Amazon packaging is, in fact, being recycled or helping to create a closed loop for plastic packaging.

Only 4 of the packages were tracked to a material recovery center that sorts items for recycling, and even then, there is no way of knowing if the packaging was then sorted to be truly recycled or not.

The rest of the packages were tracked to landfills, store distribution centers, incinerators, or to be potentially made into a plastic bench or decking. Specifically, 24 of the packages were tracked to Trex

Company, Inc, a company that makes plastic benches and decks out of plastic film and reclaimed sawdust⁴², 19 went to store distribution centers, 13 went to landfills, eight went to a waste transfer center or near multiple disposal sites, three went to the Port of Los Angeles, two went to an incinerator, 13 never left the store, four died in transit, and three went to other locations including a composting facility, auto dealer, and small freight company.

This investigation suggests that the store drop-off system for recycling plastic film is failing. Many of the packages ended up in landfills or stuck in distribution centers.

Further, there is no evidence that the store drop-off system does anything to reduce the need to create new plastic.

There is a lot of energy used to create a piece of plastic packaging, use it once for just a few minutes, rely on consumers to return it to a store drop off and then transport it around the country just to have it likely be downcycled or landfilled.

Changes to the store drop off directory

The tracking investigation was done in two rounds. CALPIRG Education Fund did one round of tracking in February through April of 2023, with 10 tracking devices in California. The U.S. PIRG Education Fund and Environment America Research and Policy Center did another round with 83 trackers between August and November 2023. There was a notable change between the first and second rounds of investigations.

ABC News did a similar investigation in May 2023 and put tracking devices in 46 bundles of plastic bags, marked with the store drop-off label, and dropped them off at Target and Walmart stores nationwide.⁴³ Twenty-three of their trackers (50%) ended up in landfills or trash incinerators.⁴⁴

After coverage of ABC's investigation, the company that managed the online drop-off directory, BagandFilmRecycling.org,

removed Target and Walmart from their directory until they could confirm that the plastic film dropped off in their bins are being recycled.⁴⁵ As a result, none of the tracking devices we placed in drop bins in our second round of investigations were put in Target bins and only one was put in a Walmart bin. Based on the findings of ABC's investigation, it is likely that if we did use more Target and Walmart drop bins during the fall of 2023, a higher percentage of our packaging bundles would have ended up in landfills.

Similar investigations

In September 2023, Bloomberg Green put tracking devices in 30 bundles of plastic packaging and wrapping, all marked with the store drop-off label, and dropped them off in store drop bins in ten states and Washington, D.C. Thirteen of the trackers — more than 40% — ended up at landfills.⁴⁶

The ocean protection organization Oceana also did an investigation into the store drop-off system for Amazon's packaging, sending secret shoppers to stores with supposed drop-off locations around the U.S. and UK. They asked 186 stores that they were directed to from how2recycle.info if they accepted Amazon plastic packaging, and were turned away 41% of the time by stores that said they did not accept plastic packaging.⁴⁷

A DEEPER DIVE INTO THE LOCATIONS OUR PACKAGES WERE TRACKED TO

Trex Company Inc.

Of the 93 tracked packaging bundles, 24 went to Trex Company Inc.

There are some positives to Trex’s products. Composite decking lasts longer than traditional wood decking, is more fire resistant and lacks the need for sealants and stains which make wood decking unable to be recycled. However, Trex and other composite decking materials are not recyclable due to the combination of sawdust and plastic. So while it extends the life of film plastic, turning plastic film into decking does not create a sustainable loop because it cannot be recycled further. That

is why many refer to this process as downcycling instead of recycling.

Additionally, it is unclear how much Trex actually uses the post-consumer plastic film collected from drop-off bins in stores. Trex has standards for what they accept. Accepted plastic film must be “clean, dry, and free of food residue” and “labels, tape and adhesive strips should be removed if possible.”⁴⁸ Trex standards are likely higher than the plastic film typically collected in store drop-off bins. For example, many of our volunteers reported that they saw food scraps in the collection bins they used for this investigation, which is not surprising because the bins are often shaped similar to, and are located near, trash bins.



PHOTO BY U.S. PIRG EDUCATION FUND

Store drop-off bin (on the left) located near a trash bin at Vons in Gardena, CA.

Given these standards, it is not surprising that most of the plastic film recovered and used by Trex is from industrial operations, often called “back of house” plastic, such as the plastic film used to wrap big crates of products shipped or trucked to a store.⁴⁹ A similar company, EFS-Plastics, which also processes plastic film into new products, reported that 70-80% of their plastic comes from “back of house” operations.⁵⁰ This plastic waste is more ideal for these operations due to lower contamination rates and a more consistent product.

Even if the plastic packaging did meet Trex’s standards, the reality is that this is just one company with limited capacity. Trex reports that they repurpose 200,000 tons of plastic film annually.⁵¹ That is only 4.8% of the 4.2 million tons of plastic film the U.S. generated in 2018.⁵² According to Bloomberg News, even Trex warned that there isn’t enough of a market for plastic film recycling to make the drop-off system effective. Trex executive David Heglas told a Bloomberg reporter that “All the claims the companies are making are just greenwashing ...Recycling’s failed.”⁵³ The 24 trackers that ended up at a Trex facility were either tracked to the company’s facility in Fernley, Nevada, or

Winchester, Virginia. Plastic packaging placed in drop boxes in Wheat Ridge, Colorado, traveled 1600 miles to Virginia, and plastic packaging placed in drop boxes in Bellevue, Washington, traveled 830 miles to Nevada. Given our findings, it raises the question if the infrastructure in place to ship this packaging around the country, and the energy that it uses, just to maybe be used for decking, is really worthwhile.

More importantly, even if our plastic packages were used by Trex, it would still not solve our plastic waste crisis. Turning plastic film waste into decking does nothing to decrease the amount of new plastic that needs to be made for Amazon’s shipments. While Trex may be better than a landfill, we need solutions that reduce the need for bringing more plastic into the world.

Warehouses and distribution centers

19 of the Amazon packages were tracked to store distribution centers or warehouses. It is possible that the trackers died before the plastic was transferred from the distribution center to a recycler, landfill, Trex, or that the plastic could simply be sitting there with no place to go.

Landfills

13 of the Amazon packages were tracked to a landfill. This is an unfortunate endpoint for the packaging, and is one of the last places someone would want something to go after putting it in a bin marked “recycling.” It could have gotten there much more efficiently and used far less resources if it was simply thrown away by the consumer at their home instead of driving to a store drop-off location.

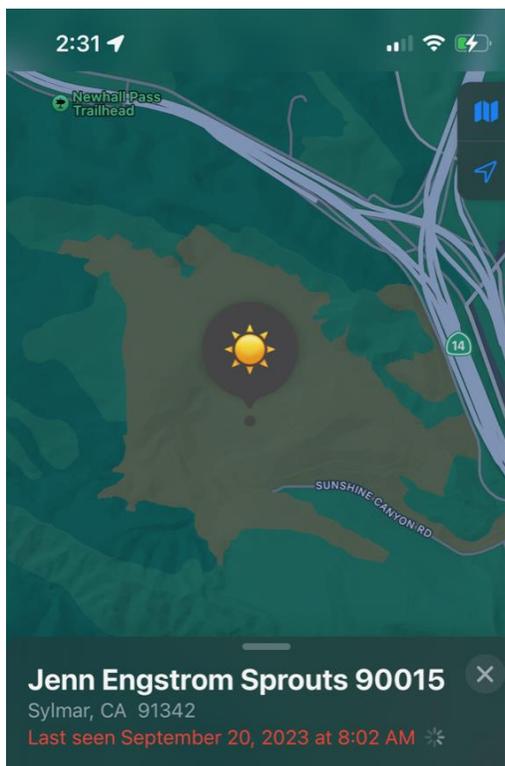


PHOTO BY U.S. PIRG EDUCATION FUND

A tracker placed in Amazon plastic packaging and dropped off at a Sprouts in Culver City, CA ended up at a landfill in Sylmar, CA.

Plastic in landfills does not biodegrade but instead can break down into microplastics which can end up in waterways.^{54,55} Plastic, particularly lightweight plastics like film, can also blow away or be mismanaged in landfills and end up in waterways and other parts of the natural environment.⁵⁶

Recycling sorting centers

Four of the plastic packages were tracked to three facilities that sort plastic, metal, glass, and other materials for recycling. We were able to get a hold of two of the facilities, K&S Recycling in Vancouver, WA, and Independent Recycling Services and Chicago, IL and both said they do not accept Amazon plastic packaging. Independent Recycling Services said they only accept paper and cardboard and lists plastic bubble wrap and plastic bags as a contaminant on their website.⁵⁷ We were not able to get a hold of Polyfit. According to their website, this company specifically states that they focus on closed loop recycling, which they describe as “recycling of a product at the end of its life cycle and the subsequent use of the post-consumer product generated to create a new version of the same product.”⁵⁸ However, this facility is in Mexico, where U.S. regulators have no jurisdiction to ensure the plastic is actually getting properly recycled.

Waste transfer stations or near multiple disposal sites

Eight plastic packages were tracked to waste transfer stations or to a location near multiple disposal sites, such a landfill, recycling sorting center or incinerator. Often these disposal sites are near each other and owned by the same company, so if a tracker is in the area it can sometimes be difficult to tell where exactly the trackers ended up. Likely the trackers that went to a waste transfer station would then be sent to either a landfill or recycling sorting center. We called the recycling sorting centers near where the trackers were found, or associated with the waste transfer station the tracker went to, and all six of the centers we called said they do not accept plastic film, including Amazon plastic packaging. At least one of the trackers went to a waste transfer center before then moving to a landfill.

Incinerators

Two of the plastic packages were tracked to incinerators. One was tracked to the Southeast Resource Recovery Facility in Long Beach, CA, and another to the Delaware Valley Resource Recovery Facility, incinerators that burn plastic to create energy.^{59,60} These waste to energy facilities burn plastic to create electricity, contributing to air pollution and global warming.^{61,62} While some may argue waste to fuel is a good alternative to material

recycling, the process is very polluting, and proximity to waste incineration may increase the risks of cancer, birth defects, and other adverse health impacts.⁶³ A report by the Global Alliance for Incinerator Alternatives (GAIA) found that incinerators emit more carbon dioxide per unit of energy than coal-fired power plants.⁶⁴

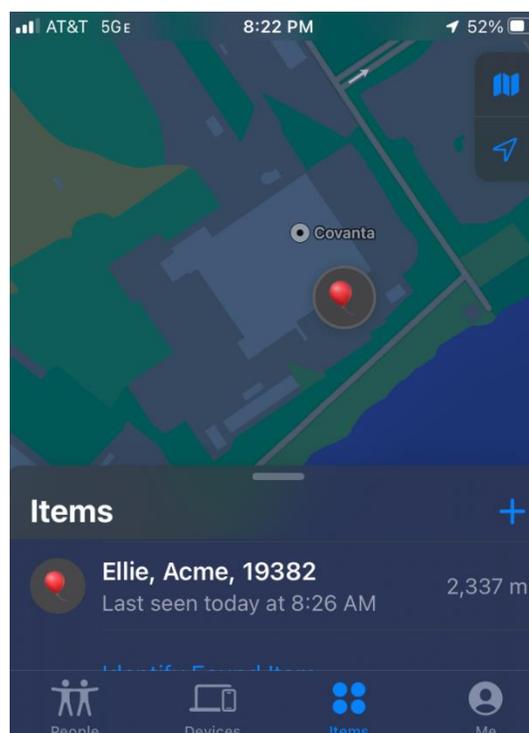


PHOTO BY U.S. PIRG EDUCATION FUND

A tracker placed in Amazon plastic packaging and dropped off at an Acme in West Chester, PA ended up at an incinerator in Chester, PA.

Ports

Three of our plastic packages were tracked to a Port in Los Angeles. This likely means the plastic film was going to be shipped overseas to be processed. When plastic is sent to other countries where U.S. and state regulators have no jurisdiction, there is no way of knowing if it's getting recycled or how the recycling process is regulated. Recent history indicates that large amounts of plastic sent overseas from the U.S. does not get recycled.⁶⁵

A recent Bloomberg investigation found that Amazon plastic packaging is ubiquitous at illegal dump sites in Muzaffarnagar, India. Some of the plastic waste then gets incinerated, polluting the air.⁶⁶

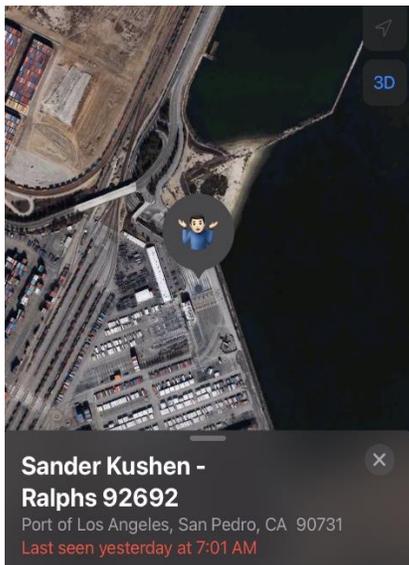


PHOTO BY U.S. PIRG EDUCATION FUND

A tracker placed in a store drop bin in Mission Viejo, CA was found at the Port of Los Angeles.

Did not leave the store

13 of our packages, at least the trackers, never left the store drop-off bin. This could be due to a variety of reasons: the tracking device died before pick up, was ruined due to elements, or was simply never retrieved.

Died en route

Four of the packages were tracked to highways indicating they died en route to their final destination.

Other

Three of the packages were tracked to locations that did not fit into the above categories. One went to Recology Organics in McMinnville, Oregon, a composting facility. The facility is near a recycling center owned by the same company, so perhaps the tracker flew out of a truck on its way to the recycler. However, even if it was intended to go to Recology's recycling facility, that doesn't necessarily mean it was going to be recycled, especially because Recology lists plastic bags as a contaminant on its website.⁶⁷

One of the trackers went to a small freight company in South Carolina that, among other things, collects trash, so it is possible that the tracker was left in or died in a garbage truck.

The final package was tracked to an auto service location in Riverside, California.

THE STORE DROP-OFF SYSTEM FOR PLASTIC FILM RECYCLING IS NOT WORKING

This investigation suggests that the store drop-off system is failing. There is no evidence that the store drop-off system for recycling plastic film is resulting in a diminished need to produce packaging or other plastic film products out of virgin plastic.

This investigation revealed other problems with the store drop-off system for recycling plastic film. First, the system requires a lot from consumers. Consumers need to read the label carefully on their packaging and go to a website to find a location that will accept their plastic. They have to remove all the labels on their packaging and take it to the store drop-off location, which could be miles away.

Second, the system in place to use plastic film for decking relies on the plastic being kept clean and uncontaminated by food or liquids, but many of our volunteers reported seeing trash and food scraps in the store drop-off bins for plastic film.

There are some unknowns in our investigation. It is possible that all the test items that were sent to landfills got contaminated with food waste or other trash and were rendered nonrecyclable. It is

also possible that the trackers themselves were detected as contamination — but if that were true, we would have seen them arrive at a material recovery center or recycling center before being flagged. The most likely scenario is that very few packages were sent to recycling centers because recycling plastic film is challenging.

Problems with the store drop-off directory

In the middle of this investigation, in November 2023, Stina Inc, a consulting company that managed the store drop-off directory found at BagandFilmRecycling.org, the website how2recycle redirected people to find a local store drop bin, closed their directory.⁶⁸ Stina Inc's CEO Nina Bellucci Butler said that the decision to take the site down was partially due to a lack of funding required to "maintain credible information" on the site. Butler told ABC News that "There's more of an illusion of stuff getting recycled than there actually is because there is an imbalance in supply and demand."⁶⁹

On the How2Recycle site, the BagandFilmRecycling.org directory has been replaced with Earth911.⁷⁰

AMAZON SHOULD ELIMINATE PLASTIC PACKAGING

In light of our investigation and similar other ones, plus the well-documented dysfunction of plastic recycling both in the U.S. and overseas, it is clear the plastic packaging used by Amazon is not being widely recycled and likely never will be.

According to public comments submitted to the Federal Trade Commission on behalf of the Last Beach Clean Up and other organizations, on November 13, 2020, an Amazon representative testified to the Recycling Committee of the California Statewide Commission on Recycling Markets and Curbside Recycling and stated the company had “no facts” to verify that their packaging was being recycled through the store drop-off system.⁷¹

The better approach to plastic packaging is to stop producing and using it.

Amazon should eliminate the use of single-use plastic in its shipments. The company

has already made some progress. Over the last few years, Amazon has committed to eliminating plastic packaging in Europe.⁷² In India⁷³ the company has replaced plastic packaging material, such as bubble wraps and air pillows, with ‘paper cushion. Here in the United States, in July 2023, Amazon announced that it is phasing out padded bags containing plastics in favor of recyclable alternatives.⁷⁴ This means the eventual end of the blue and white plastic mailing envelopes in which many Americans get Amazon orders. In October 2023, Amazon opened their first automated fulfillment center that doesn’t use any plastic packaging.⁷⁵

This is great progress, but as one of the largest companies in the world, Amazon can and should do more to address the plastic waste crisis, starting with a commitment to eliminate plastic packaging in U.S. shipments. Such a move could prevent hundreds of millions of pounds of plastic from entering the environment, and encourage other companies to follow.⁷⁶

STATES SHOULD ACT TO REDUCE PLASTIC WASTE FROM ONLINE SHIPMENTS

Beyond action from Amazon, state governments can also act to reduce plastic waste from online packaging.

- **State policymakers should pass laws that prohibit e-commerce companies from using single-use plastic in their shipments sent to or within the state.**
- **States should require truth in recycling labeling.** Consumers should have assurance that if there is a recycling symbol on a product or product packaging, it can, indeed, be recycled.

In 2021, the California legislature passed Senate Bill 343⁷⁷, prohibiting the use of the term recyclable or the “chasing arrows” recycling symbol on products that cannot be recycled in the state. To meet the state’s new requirement, products labeled recyclable must be collectable by curbside recycling systems that serve 60% of the state, or through alternative recycling systems like the store drop-off system if the company can prove 75% of its collected material is recycled. Other

states are considering similar legislation to better regulate use of the recycling symbol, including Virginia.⁷⁸

- **State policymakers should require plastic producers to take financial responsibility for the full life cycle of their products through extended producer responsibility policies.** Right now, product manufacturers do not have to absorb the enormous costs their products inflict on the rest of us, like the costs of collecting and transporting the trash their products become, the cost of cleaning up litter from parks and beaches, or the public health costs of pollution from plastic trash in incinerators and landfills. As long as producers’ responsibility for their products ends the moment they’re shipped away, they are going to keep making disposable plastic.

California, Maine, Oregon, and Colorado have passed producer responsibility laws for packaging to change that.⁷⁹ Under these policies producers are financially responsible for managing the waste their products become.

Producer responsibility programs work because they change the incentives that make wastefulness so cheap. When manufacturers are held responsible for their products at the end of their lives, they tend to make different choices when designing those products in the first place: making them more reusable, recyclable and resilient. More states should consider producer responsibility laws to encourage

companies like Amazon to move away from wasteful plastic packaging.

Where legislation has gone into effect to regulate plastic production and labeling, state policymakers and state regulators should ensure the laws are being enforced and working effectively to reduce plastic waste.

TIPS FOR CONSUMERS

Of course, consumers can also reduce their own plastic waste. Here are a few tips to reduce your plastic waste from online orders.

- **Only buy what you need.** The first step to individually reducing your contribution to online packaging waste is to buy less stuff.
- **Bundle your orders.** If you are going to order things online, buy in bulk and order multiple things at once to reduce packaging. Amazon

has an option consumers can select to have all their orders arrive together on the same day, to reduce packaging and emissions from delivery vehicles.

- **Tell Amazon to use less plastic.** Finally, you can take action to call on Amazon to eliminate plastic in their shipments. Call or email the customer service line to encourage Amazon to use less plastic in their shipments.

METHODOLOGY

Staff and volunteers with the U.S. PIRG Education Fund and Environment America Research and Policy Center in ten states participated in our investigation. Staff and volunteers collected Amazon plastic packaging, including Amazon’s blue and white bubble-lined bag, white plastic bag, and air pillows, and removed all labels from the packaging. They were given a tracking device, in most cases an Apple Air Tag and in a few cases the android Tile, and paired that tracking device to their phone so they could see its movement. Staff and volunteers then placed the tracking device inside Amazon packaging and either taped the tracker inside the packaging, tied the packaging inside a plastic bag also eligible for store drop-off recycling or used Amazon’s resealable plastic bag to seal the tracker inside. A few of the packages also

included a plastic granola bar wrapper with the same store drop-off label, indicating it could also be placed in the bin along with the Amazon packaging. They then dropped off their packaging and tracking device at their closest store drop-off location, which was found at how2recycle.info, the website on Amazon plastic packaging. Trackers were monitored for several weeks until they stopped moving for over a week.

Below is the address of each store drop-off location and the final destination of the tracking devices. We categorized the tracking device final locations into nine categories - Trex, warehouse or distribution center, landfill, waste transfer station or near multiple disposal sites, died in transit, recycling, port, incinerator, and other.

Date of drop off	Description of plastic packaging	Name of store with drop-off bin	Address of store	Final location	Type of final location
4/14/23	Amazon plastic bag	WinCo	1100 Hamner Avenue Norco, CA 92860	Trex poly warehouse in Nevada, 2358-2374 E Newlands Dr. Fernley NV	Trex
8/15/2023	Amazon padded mailer, inside Amazon white plastic bag tied	Sprouts	1515 Hawthorne Blvd Redondo Beach, CA 90278	Trex Poly. 2375 newlands dr fernley nv	Trex

9/4/2023	Amazon padded mailer with device taped	Safeway-Howe	424 Howe Ave., Sacramento, CA 95825	Trex, 2375 E Newlands Dr Fernley NV	Trex
9/4/2023	Amazon padded mailer with device taped	Sprouts	2735 Marconi Ave Sacramento, CA 95821	Trex, 1800 E Newlands Dr Fernley NN	Trex
9/4/2023	Amazon padded mailer with device taped	Safeway – Arden	3320 Arden Way, Sacramento CA 95825	Trex, 2375 E Newlands Dr Fernley NV	Trex
9/25/2023	Amazon white shipping bag with air pillows inside, sealed shut	Safeway	8330 N. Ivanhoe St, Portland, OR 97203	Trex Co Inc. 1800 E Newlands Dr, Fernley, NV 89408	Trex
10/1/2023	Amazon padded mailer, air pillows inside farmfresh plastic bag	Publix	4591 S Laburnum Ave, Richmond, VA 23231	Trex, 181 Battaile DrWinchester, VA 22601	Trex
10/2/2023	Amazon padded mailer, air pillows inside farmfresh plastic bag	Publix	3535 Ellwood Ave, Richmond, VA 23221	Trex, 181 Battaile DrWinchester, VA 22601	Trex
10/3/2023	Amazon padded shipping bag with white shipping bag stuffed inside	Fred Meyer	3805 SE Hawthorne Blvd, Portland, OR 97214	Trex Co Inc. 1800 E Newlands Dr, Fernley, NV 89408	Trex
10/3/2023	Amazon padded shipping bag with air pillows stuffed inside	Safeway	2800 SE Hawthorne Blvd, Portland, OR 97214	Trex Co Inc. 1800 E Newlands Dr, Fernley, NV 89408	Trex

10/4/2023	Folded white Amazon padded mailer with tracker taped inside	QFC	3850 Factorage Blvd SE Bellevue WA 98006	Fernley NV - near Trex Poly Warehouse	Trex
10/4/2023	Folded white Amazon padded mailer within another Amazon padded mailer	Safeway	7340 35th Ave NE Seattle WA 98115	Fernley NV - near Trex Poly Warehouse	Trex
10/4/2023	Folded white Amazon padded mailer within another Amazon padded mailer	Safeway	7300 Roosevelt Way NE, Seattle, WA 98115	Fernley NV - near Trex Poly Warehouse	Trex
10/9/2023	Amazon blue & white padded mailer	Whole Foods	45 Beacon St Somerville 02143	On the highway near a Trex Logistics center	Trex
10/13/2023	Amazon blue & white padded mailers with air pillows inside	Safeway	8330 N Ivanhoe St, Portland, OR 97203	Trex Co Inc. 1800 E Newlands Dr, Fernley, NV 89408	Trex
10/21/2023	Amazon blue & white bubble mailers with air pillows inside	Safeway	1444 Shattuck Pl Berkeley, CA 94709	Trex 1800 E Newlands Dr, Fernley, NV 89408	Trex
10/26/2023	Amazon blue & white bubble mailers with air pillows inside	Safeway	1444 Shattuck Pl Berkeley, CA 94709	Trex, 1800 E Newlands Dr, Fernley NV 89408	Trex
10/29/2023	Amazon blue & white lightweight plastic	Publix	8975 Race Track Road Tampa, FL 33635	Trex Company - 181 Battaille Dr. Winchester VA	Trex

11/5/2023	Amazon blue & white padded mailers with air pillows inside	Lucky Supermarkets	Red 1963 Mountain Blvd Oakland, CA 94611	2375 E Newlands Dr., Fernley, NV, 89408. Likely is Trex Poly Warehouse	Trex
11/6/2023	Rolled and sealed in Amazon white plastic bag	King Soopers	5301 West 38Th Ave Wheat Ridge, CO 80212-7058	Trex, 181 Battalio Drive Winchester, VA 22601	Trex
11/10/2023	3 Amazon packaging stuffed inside each other	Sprouts Farmers Market	4230 Pacific Coast Highway, Torrance CA 90505	2375 e newlands dr fernley nv Trex Poly Warehouse	Trex
11/11/2023	Folded blue and white Amazon package with tracker tapped into inside corner	Sprouts Farmers Market	1011 N San Fernando Blvd, Burbank, CA 91504	2375 e newlands dr fernley nv Trex Poly Warehouse	Trex
1/4/2024	Amazon blue and white bubble mailer with air pillow and amazon white plastic bag inside	Sprouts	5660 Sepulveda Blvd Culver City, CA 90230	2375 E Newlands Dr Fernley NV 89408	Trex
9/28/2023	Amazon padded shipping bag with air pillow stuffed inside	Safeway	1265 Center St NE, Salem, OR 97301	10/18 - 1800 E Newlands Dr. Fernley NV 89408	Trex
9/4/2023	Amazon padded mailer, inside Amazon white plastic bag tied	Sprouts	1011 N San Fernando Blvd Burbank, CA 91504	1645 Orangethorpe Ave Fullerton, close to sprouts distribution center	Warehouse/Distribution Center

9/5/2023	Amazon white plastic bag inside Amazon padded mailer	Sprouts	1515 Hawthorne Blvd Redondo Beach, CA 90278	800 S Acadia Blv Fullerton CA, Sprouts distribution center	Warehouse/Distribution Center
9/9/2023	Amazon white plastic bag, sealed shut with airtag taped inside	Home Depot	24332 El Toro Rd Laguna Hills, CA 92637	11600 Iberia Dr, Jurupa Valley, CA United Facilities Inc Warehouse	Warehouse/Distribution Center
9/9/2023	Amazon white plastic bag, sealed shut with airtag taped inside	Sprouts	24332 Rockfield Blvd, Lake Forest, CA 92630	800 S Acacia Ave. Fullerton, CA 92831, Sprouts distribution center	Warehouse/Distribution Center
10/3/2023	Amazon white bag sealed around another amazon white bag	Jewel-Osco	1341 N Paulina Chicago, IL 60622	1701 Armitage Ave Melrose Park, IL, Jewel-Osco distribution center	Warehouse/Distribution Center
10/4/2023	Sealed white Amazon padded mailer	Safeway	735 NW Gilman Blvd Issaquah, WA 98027	Last seen Oct 7 at 631 Valley ave NW Puyallap, WA near Fred Meyer Distribution center	Warehouse/Distribution Center
10/4/2023	Folded white Amazon padded mailer with tracker taped inside	QFC	1540 NW Gilman Blvd Issaquah WA 98027	10/25 631 Valley Ave. NW Puyallap WA 98371. Near Fred Meyer Distribution Center	Warehouse/Distribution Center
10/5/2023	Folded white Amazon padded mailer within another Amazon padded mailer	Safeway	1717 22nd ave Seattle WA 98122	Last seen Oct 7 at 631 Valley Ave. NW Puyallap WA 98371, near Fred Meyer distirbtuion Center	Warehouse/Distribution Center

10/21/2023	Amazon blue & white bubble mailers with air pillows inside	Lucky's	1000 El Cerrito Plaza El Cerrito, CA 94530	Albertson's Distribution Center 999 Niblick Dr #7015, Roseville, CA 95678	Warehouse/Distribution Center
10/25/2023	Blue & white bubble mailers with air pillows inside	Safeway	2121 Cowell Blvd Davis, CA 95618	Safeway Distribution Warehouse 16900 W Schulte Rd, Tracy, CA	Warehouse/Distribution Center
10/26/2023	Folded white Amazon padded mailer with tracker taped inside	Sprouts	175 N Fairview Ave. Goleta, CA 93117	Lineage Logistics, Fullerton 800 S Acacia Ave, Fullerton, CA 92831	Warehouse/Distribution Center
10/26/2023	Folded white Amazon padded mailer with tracker taped inside	Albertsons	5801 Calle Real Goleta, CA 93117	Progressive Logistics Services 9300 Toledo Way, Irvine	Warehouse/Distribution Center
10/26/2023	White amazon padded mailer with more plastic inside, taped shut	Sprouts	29 S Milpas St Santa Barbara, CA 93103	On Orangthorpe Blvd Fullerton near Sprouts Distribution Center	Warehouse/Distribution Center
10/29/2023	Folded blue and white Amazon package with tracker tapped into back corner	Sprouts Farmers Market	3035 Broadway, Oakland, CA 94611	Penske Logistics or US Cold Storage CA (33400 Dowe Ave, Union City, CA 94587)	Warehouse/Distribution Center
10/29/2023	Folded blue and white Amazon package with tracker tapped into back corner	Trader Joe's	5727 College Ave, Oakland, CA 94618	Trader Joes Logistics Department (2121 Boeing Way, Stockton, CA 95206)	Warehouse/Distribution Center
11/4/2023	Amazon plastic bag	Safeway	Chestnut Ave in S San Francisco	Safeway distribution center, Tracy 16900 W Schulte Rd	Warehouse/Distribution Center

11/8/2023	Folded blue and white Amazon package with tracker tapped into inside corner	Sprouts Farmers Market	Sprouts, 5660 Sepulveda Blvd, Culver City, CA 90230	1879 E Orangethorpe Ave - Sprouts Farmers Market (Distribution Center)	Warehouse/Distribution Center
11/8/2023	3 Amazon packages stuffed inside each other	Sprouts Farmers Market	21821 Ventura Blvd, Woodland Hills, CA 91364	Lineage Logistics 1829 E Orangethorpe Ave Fullerton, CA 92831	Warehouse/Distribution Center
11/15/2023	Folded white Amazon padded mailer with tracker taped inside	Sprouts	8142 Mira Mesa Blvd San Diego, CA 92126	Lineage Logistics, Fullerton 800 S Acacia Ave, Fullerton, CA 92831	Warehouse/Distribution Center
2/1/23	Amazon plastic mailer and airbag, Gelsons Bag, Target Bag	Gelson's Markets	24 Monarch Bay Plaza, Dana Point, CA 92629	San Juan Capistrano Landfill	Landfill
2/1/23	Amazon plastic mailer, Nature Valley Granola Wrapper, Target Bag	Target	1751 University Dr, Vista, CA 92083	Santee Landfill	Landfill
2/4/23	Amazon plastic mailer, wrapped in target bags	Target	5500 Sunset Blvd, Los Angeles, CA 90028	Sylmar landfill	Landfill
4/14/23	Amazon plastic mailer, wrapped in a Target bag	Kohls	8800 Corbin Ave, Northridge, CA 91324	Antelope Valley Landfill	Landfill
9/4/2023	Amazon padded mailer, inside Amazon white plastic bag tied	Sprouts	8995 Venice Blvd Suite b Los Angeles, CA 90015	Sylmar landfill in Sylmar, CA	Landfill

9/5/2023	Amazon white plastic bag inside Amazon padded mailer	Vons	1260 W Redondo Beach Blvd Gardena CA 90247	Chiquita Canyon landfill	Landfill
9/9/2023	Amazon padded mailer, with white plastic mailer stuffed inside and airtag taped inside	Ralphs	638 Camino De Los Mares, San Clemente, 92673	Prima Deshecha Landfill	Landfill
10/10/2023	Tied air pillow inside padded Amazon mailer	Mariano's	333 E Benton Pl Chicago, IL 60601	Liberty Landfill, Monticella, IL	Landfill
10/11/2023	inside two air pillows inside a sealed white amazon bag	Jewel-Osco	102 W Division St Chicago, IL 60610	Liberty Landfill, Monticella, IL	Landfill
10/22/2023	Amazon plastic bag	Sprouts	1300 Pinole Valley Road, Pinole, CA 94564	Republic Services Keller Canyon Landfill	Landfill
11/5/2023	Amazon blue & white padded mailers with air pillows inside	Safeway	Yellow 2096 Mountain Blvd Oakland, CA 94611	Foothill Sanitary Landfill Linden CA N Waverly Road	Landfill

11/8/2023	3 different sized Amazon bags; one small, one medium, and one large. Taped the airtag into the smallest Amazon plastic packaging and put it into the medium sized package. The medium sized package then went in the largest amazon plastic package and that got folded up	Sprouts Farmers Market	8985 Venice Blvd, Ste B Los Angeles, CA 90015	Waste Connections 29201 Henry Mayo Dr Castaic, CA 91384	Landfill
11/8/2023	Amazon padded mailer with device taped	SaveMart	5600 Folsom Blvd., Sacramento, CA 95819	Kieffer landfill	Landfill
9/4/2023	Amazon padded mailer, inside Amazon white plastic bag tied	Ralphs	25 E Alameda Ave Burbank, CA 91502	25 E Alameda Ave Burbank, CA 91502	Did not leave store
9/29/2023	Sealed white plastic Amazon mailer with padded amazon mailer and air tag and other white plastic amazon mailers inside.	Publix	2235 Glenwood Ave SE, Atlanta GA, 30316	2235 Glenwood Ave SE, Atlanta GA, 30316	Did not leave store

9/29/2023	Sealed white plastic Amazon mailer with padded amazon mailer and air tag and other white plastic amazon mailers inside.	Kroger	1160 Moreland Ave SE, Atlanta GA 30316	1160 Moreland Ave SE, Atlanta GA 30316	Did not leave store
10/1/2023	Amazon white sealed bag with padded mailer and air pillows inside	Kroger	4816 S Laburnum Ave, Richmond, VA 23231	4816 S Laburnum Ave, Richmond, VA 23231	Did not leave store
10/3/2023	Sealed white Amazon bag inside a folded Amazon padded mailer	Mariano's	40 S Halsted St Chicago, IL 60661	40 S Halsted St Chicago, IL 60661	Did not leave store
10/4/2023	Folded white Amazon padded mailer within another Amazon padded mailer	QFC	2746 NE 45th St Seattle WA 98105	2746 NE 45th St Seattle WA 98105	Did not leave store
10/9/2023	Amazon blue & white padded mailer with blue & white padded mailer and a plastic film bag inside	Safeway	28810 Military Rd S Federal Way 98003	28810 Military Rd S Federal Way 98003	Did not leave store
10/10/2023	Tied Amazon air pillow inside sealed plastic bag	Jewel-Osco	550 North State St Chicago, IL 60654	550 North State St Chicago, IL 60654	Did not leave store
10/11/2023	Tied Amazon air pillow inside folded white padded mailer	Jewel-Osco	3531 N Broadway Chicago, IL 60657	3531 N Broadway Chicago, IL 60657	Did not leave store

11/5/2023	Blue & white bubble mailers with air pillows inside	Sprouts	3035 Broadway Oakland, CA 94611	3035 Broadway Oakland, CA 94611	Did not leave store
11/8/2023	Folded blue and white Amazon package with tracker tapped into inside corner	Sprouts Farmers Market	8985 Venice Blvd. B, Los Angeles, CA 90034	8985 Venice Blvd. B, Los Angeles, CA 90034	Did not leave store
12/2/2023	Folded white Amazon padded mailer with tracker taped inside	Kohl's	8191 La Palma Ave. Buena Park, CA 90620	8191 La Palma Ave. Buena Park, CA 90620	Did not leave store
12/2/2023	Folded white Amazon padded mailer with tracker taped inside	Kohl's	12821 Towne Center Dr. Cerritos, CA 90703	12821 Towne Center Dr. Cerritos, CA 90703	Did not leave store
4/14/23	Amazon plastic bag	Sprouts	4230 Pacific Coast Highway Torrance, CA 90505	Waste Management Carson Transfer Station and then died	Waste transfer stations or near multiple disposal sites
4/14/23	Amazon plastic bag, Nature Valley Granola Wrapper, Target Bag	Target	10861 Weyburn Ave, Los Angeles, CA 90024	DeGarmo Dump Transfer Station in Sun Valley	Waste transfer stations or near multiple disposal sites
11/11/23	Folded blue and white Amazon package with tracker tapped into inside corner	Ralphs	25 E Alameda Ave, Burbank, CA 91502	Outside Sun Valley waste management, recycling park and transfer station.	Waste transfer stations or near multiple disposal sites

10/31/23	Amazon blue & white padded bag with air pillows inside	Safeway	1451 W Covell Blvd Davis, CA 95616	Nex to West Valley Disposal and Tracy Material Recovery Facility and Transfer Station (30703 S McArthur Dr, Tracy, CA 95377)	Waste transfer stations or near multiple disposal sites
11/1/23	Amazon blue & white padded bag with air pillows inside	Trader Joes	5727 College Ave Oakland, CA 94618	East Stockton Recycling Transfer (35 N Filbert St, Stockton, CA 95205)	Waste transfer stations or near multiple disposal sites
12/2/23	White amazon plastic film bag with tracker taped inside	Kohl's	1799 Hawthorne Blvd. Redondo Beach, CA 90278	Downey Area Recycling and Transfer Facility (DART) 9770 Washburn Rd, Downey, CA 90241	Waste transfer stations or near multiple disposal sites
12/5/23	3 Amazon plastic bags stuffed inside each other	Kohls	8800 Corbin Ave, Northridge, CA 91324	Outside Sun Valley Recycling Park and Bradley East Landfill, Sun Valley CA 91324	Waste transfer stations or near multiple disposal sites
11/15/23	Amazon black & white lightweight plastic	Walmart	3801 Tampa Rd, Oldsmar, FL 34677	Pinellas County Solid Waste Disposal Complex - 3100 114th Ave N. St. Petersburg Fl	Waste transfer stations or near multiple disposal sites
10/9/2023	Amazon blue & white padded mailer	Star Market	49 White St, Cambridge 02140	White, Street Cambridge	Died in transit
10/1/2023	Amazon padded mailer, air pillows inside wawa plastic bag	Food Lion	6009 Nine Mile Rd, Richmond, VA 23223	On Interstate 85 in Virginia	Died in transit
10/11/2023	Folded air pillows inside folded white padded Amazon mailer	Jewel-Osco	4660 W Irving Park Rd Chicago, IL 60641	On a highway in Winchester, VA	Died in transit

11/19/2023	Folded white Amazon padded mailer with tracker taped inside	Sprouts	11522 Alondra Blvd Norwalk, CA 90650	6442 Progress, Irvine CA 92618. Looks like it's on the road and died in transit	Died in transit
2/1/23	Amazon plastic mailer, wrapped in target bags	Sprouts	5660 Sepulveda Blvd, Culver City, CA 90230	Polyfit Tecate	Recycling sorting center
10/11/2023	Tied inside air pillow inside Amazon bag that is tied	Tony's Fresh Market	4137 N Elston Ave Chicago, IL 60618	Independent recycling services, Chicago, IL	Recycling sorting center
10/12/2023	Amazon blue & white padded mailer with two blue & white bubble mailers inside	New Seasons	6300 N. Lombard, Portland, OR 97203	K&S Recycling, Vancouver, WA	Recycling sorting center
10/12/2023	Amazon blue & white padded mailer with two blue & white bubble mailers inside	New Seasons	6400 N. Interstate Ave, Portland, OR 97217	K&S Recycling, Vancouver, WA	Recycling sorting center
2/2/23	Amazon plastic mailer, Nature Valley Granola Wrapper, Target Bag	Walmart	989 Avenida Pico, San Clemente, CA 92673	Port of Los Angeles	Port
4/14/23	Amazon air pillows, wrapped in Stater Bros bag	Target	2462 Foothill Blvd, La Verne, CA 91750	The Port of Los Angeles	Port
9/9/2023	Amazon padded mailer, sealed	Ralphs	25104 Marguerite Pkwy,	Port of Los Angeles, San Pedro, CA 90731	Port

	shut with airtag taped inside		Mission Viejo, CA 92692		
8/15/2023	Amazon air pillows, inside Amazon padded mailer	Vons	1260 W Redondo Beach Blvd Gardena CA 90247	Covanta Long Beach, 100 Pier S Ave Long Beach 90802	Incinerator
1/5/2024	White Amazon plastic bag	ACME	907 Paoli Pike, West Chester, PA 19380	Covanta Incinerator, 10 Highland Ave, Chester, PA 19013	Incinerator
9/26/2023	Amazon padded shipping bag with air pillow stuffed inside	Roth's	1595 SW Baker St, McMinnville, OR 97128	Recology Organics McMinnville (2200 NE Orchard Ave, McMinnville, OR)	Other
10/27/2023	Amazon air pillows, inside Amazon padded mailer	Albertsons	7127 Hollister Ave #27, Goleta, CA 93117	5867 Gage St Riverside CA, seems to be a warehouse	Other
9/29/2023	Sealed white plastic amazon mailer with padded amazon mailer and air tag and other white plastic amazon mailers inside.	Sprouts	2552 Blackmon Dr., Decatur, GA 30033	3245 Chester Hwy, York SC Listed as Dave's Land Development Corp or York Freight- small freight company, collects refuse	Other

NOTES

¹ Margaret Spring and Rashid Sumaila, "US Needs a National Action Plan to Stem the Tide of Plastic Pollution," *The Hill*, 27 July 2022, available at <https://thehill.com/opinion/energy-environment/3576645-us-needs-a-national-action-plan-to-stem-the-tide-of-plastic-pollution/>

²United States Environmental Protection Agency, *Advancing Sustainable Materials Management: 2018 Tables and Figures*, December 2020, 35,680,000 tons x 2000 pounds in a US ton = 71,360,000,000 pounds, available at https://www.epa.gov/sites/default/files/2020-11/documents/2018_tables_and_figures_fnl_508.pdf#page=5

³ Roland Geyer, Jenna R. Jambeck, Kara Lavender, "Production, Sse, and Fate of All Plastics Ever Made," *Science Advances*, 19 July 19 2017, available at <https://www.science.org/doi/10.1126/sciadv.1700782>

⁴ Till Tiso et al, "The Metabolic Potential of Plastics as Biotechnological Carbon Sources – Review and Targets for the Future," *Metabolic Engineering*, 71 (May 2022), 77-98, available at <https://www.sciencedirect.com/science/article/pii/S1096717621001920?via%3Dihub>

⁵ Anne Pinto-Rodrigues, "Microplastics Are in our Bodies. Here's Why We Don't Know the Health Risks," *ScienceNews*, 24 March 24 2023, available at <https://www.sciencenews.org/article/microplastics-human-bodies-health-risks>

⁶ David Azoulay et al, Center for International Environmental Law et al, *Plastic and Health*, February 2019, available at <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>

⁷ Oceana, *The Cost of Amazon's Plastic Denial on the World's Oceans*, 18 December 2022, available at https://oceana.org/wp-content/uploads/sites/18/2022/12/Amazon-Report_Final_DOI.pdf

⁸ Oceana, *The Cost of Amazon's Plastic Denial on the World's Oceans*, 18 December 2022, available at https://oceana.org/wp-content/uploads/sites/18/2022/12/Amazon-Report_Final_DOI.pdf

⁹ Amazon.com, *All Amazon.com Packaging*, accessed 9 January 2023, archived at <https://web.archive.org/web/20240110034400/https://www.amazon.com/b?ie=UTF8&node=70674131011>

¹⁰ Caleigh Wells, "Trash Incinerator Once Considered 'Green' Takes Heat for Polluting Community," *KCRW*, 17 February 2022, available at <https://www.kcrw.com/news/shows/greater-la/burn-trash-hacker-underground-museum/waste-incinerator-long-beach>

¹¹ Trex, *Eco-Friendly Decking*, accessed 8 March 2024, archived at <https://web.archive.org/web/20240228051621/https://www.trex.com/why-trex/eco-friendly-decking/>

¹² Trex, Acceptable Items, accessed 27 February 2024, available at <https://nextrex.com/view/educate>

¹³ Colin Staub, “Trex CEO: Recycled Plastic Demand Will Stay Strong,” *Plastics Recycling Update*, 29 September 2021, available at <https://resource-recycling.com/plastics/2021/09/29/trex-ceo-recycled-plastic-demand-will-stay-strong/>

¹⁴ Packaging Gateway, *Amazon Announces 100% Recyclable Delivery Packaging Across Europe*, 17 November 2023, archived at <https://web.archive.org/web/20240120040829/https://www.packaging-gateway.com/news/amazon-recyclable-packaging-europe/>

¹⁵ Amazon, *Amazon India successfully eliminates 100% single-use plastic in packaging across its Fulfillment Centers*, accessed 10 March 2024, archived at <https://web.archive.org/web/20240311034820/https://www.aboutamazon.in/news/sustainability/amazon-india-successfully-eliminates-100-single-use-plastic-in-packaging-across-its-fulfillment-centers>

¹⁶ Amazon, *Building a Better Future Together, 2022 Amazon Sustainability Report*, 2022, page 29, archived at <https://web.archive.org/web/20240311035332/https://sustainability.aboutamazon.com/2022-sustainability-report.pdf>

¹⁷ Amazon, *Amazon announces its First Automated U.S. Fulfillment Center to Eliminate Plastic Delivery Packaging*, 18 October 18 2023, archived at <https://web.archive.org/web/20240120041215/https://www.aboutamazon.com/news/sustainability/amazon-fulfillment-center-eliminates-plastic-packaging>

¹⁸ Oceana, *The Cost of Amazon’s Plastic Denial on the World’s Oceans*, December 2022, page 7, available at <https://oceana.org/reports/the-cost-of-amazons-plastic-denial/>

¹⁹ Oceana, *The Cost of Amazon’s Plastic Denial on the World’s Oceans*, December 2022, page 3, available at <https://oceana.org/reports/the-cost-of-amazons-plastic-denial/>

²⁰ Oceana, *Exposed: Amazon’s enormous and rapidly growing plastic pollution problem*, page 8, 15 December 2021, available at <https://oceana.org/wp-content/uploads/sites/18/Exposed-Amazons-enormous-and-rapidly-growing-plastic-pollution-problem-2021.pdf>

²¹ Roland Geyer, Jenna R. Jambeck, Kara Lavender, “Production, Use, and Fate of all Plastics Ever Made,” *Science Advances*, 19 July 2017, available at <https://www.science.org/doi/10.1126/sciadv.1700782>

²² Till Tiso et al, “The Metabolic Potential of Plastics as Biotechnological Carbon Sources – Review and Targets for the Future,” *Metabolic Engineering*, 71 (May 2022), 77-98, available at <https://www.sciencedirect.com/science/article/pii/S1096717621001920?via%3Dihub>

²³ Trevor Zink and Roland Geyer, “Material Recycling and the Myth of Landfill Diversion,” *Journal of Industrial Ecology*, 23 (September 2010), available at https://www.researchgate.net/publication/327073644_Material_Recycling_and_the_Myth_of_Landfill_Diversion

²⁴ Oceana, *Recycling Myth of the Month: That Plastic Bottle You Thought You Recycled May Have Been ‘Downcycled’ Instead*, 1 July 2021 available at <https://oceana.org/blog/recycling-myth-month-plastic-bottle-you-thought-you-recycled-may-have-been-downcycled-instead/>

-
- ²⁵ Roland Geyer, Jenna R. Jambeck, Kara Lavender, “Production, Use, and Fate of all Plastics Ever Made,” *Science Advances*, 19 July 2017, available at <https://www.science.org/doi/10.1126/sciadv.1700782>
- ²⁶ Alex Fox, “Airborne Microplastics Found Atop France’s Remote Pyrenees Mountains,” *Science*, 15 April 2019, available at <https://www.science.org/content/article/airborne-microplastics-found-atop-france-s-remote-pyrenees-mountains>
- ²⁷ National Geographic, *Plastic Bag Found at the Bottom of World’s Deepest Ocean Trench*, accessed 9 January 2024, available at <https://education.nationalgeographic.org/resource/plastic-bag-found-bottom-worlds-deepest-ocean-trench>
- ²⁸ Damian Carrington, “Microplastics Found in Human Blood for First Time,” *The Guardian*, 24 March 2022, available at <https://www.theguardian.com/environment/2022/mar/24/microplastics-found-in-human-blood-for-first-time>
- ²⁹ David Azoulay et al, Center for International Environmental Law et al, *Plastic and Health*, February 2019, available at <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>
- ³⁰ Beyond Plastics, *The New Coal: Plastics and Climate Change* accessed 9 January 2024. <https://web.archive.org/web/20240110042339/https://www.beyondplastics.org/plastics-and-climate>
- ³¹ Beyond Plastics, *The New Coal: Plastics and Climate Change* accessed 9 January 2024. <https://web.archive.org/web/20240110042339/https://www.beyondplastics.org/plastics-and-climate>
- ³² Sarah Deweerdt, “Why It’s So Hard to Recycle Plastic,” *Scientific American*, 13 December 2022, available at <https://www.scientificamerican.com/article/why-its-so-hard-to-recycle-plastic/>
- ³³ Sarah Kramer, “The One Thing That Makes Recycling Plastic Work is Falling Apart,” *Business Insider*, 5 April 2016, available at <https://www.businessinsider.com/low-oil-prices-hurt-plastics-recycling-2016-4>
- ³⁴ Sarah Kramer, “The One Thing That Makes Recycling Plastic Work is Falling Apart,” *Business Insider*, 5 April 2016, available at <https://www.businessinsider.com/low-oil-prices-hurt-plastics-recycling-2016-4>
- ³⁵ Amazon.com, *All Amazon.com Packaging*, accessed 9 January 2023, archived at <https://web.archive.org/web/20240110034400/https://www.amazon.com/b?ie=UTF8&node=70674131011>
- ³⁶ Amazon, *How to Recycling Amazon Packaging*, 4 December 2023, <https://web.archive.org/web/20240311041757/https://www.aboutamazon.com/news/sustainability/how-to-recycle-amazon-packaging>
- ³⁷ GreenBlue, *How2Recycle*, accessed 1 March 2024, archived at <https://web.archive.org/web/20240301171355/https://greenblue.org/projects/how2recycle/>
- ³⁸ BagandFilmRecycling.org, *Drop Off Directory*, accessed 22 May 2023, archived at <https://archive.org/details/bagand-film-recycling.org-90230-5.22.23>

-
- ³⁹ The Recycling Partnership, *Addressing the Challenge of Film and Flexible Packaging Data*, February 2021, available at https://recyclingpartnership.org/wp-content/uploads/dlm_uploads/2021/04/FF_Whitepaper_final.pdf
- ⁴⁰ Karine Vann, “The Unfulfilled Promises of Plastic Film Recycling,” *WasteDive*, 4 January 2021, available at <https://www.wastedive.com/news/plastic-film-bag-takeback-chemical-recycling-coronavirus/592503/>
- ⁴¹ CBS Mornings, *Program aims to help consumers recycle plastic film correctly*, 22 July 2022, at minute 2:36, available at <https://www.cbsnews.com/video/program-aims-to-help-consumers-recycle-plastic-film-correctly/>
- ⁴² Trex, *Eco-Friendly, Recycled Plastic Decking*, accessed 27 February 2024, archived at <https://web.archive.org/web/20240311043132/https://www.trex.com/why-trex/eco-friendly-decking/>
- ⁴³ Jason Knowles, “Does Plastic Bag Recycling from Stores Like Target, Walmart Work or Still End up in a Landfill?” *ABC 7 Eyewitness News*, 23 May 2023, available at <https://abc7chicago.com/plastic-bag-recycling-near-me-bags-center/13284073/>
- ⁴⁴ Jason Knowles, “Does Plastic Bag Recycling from Stores Like Target, Walmart Work or Still End up in a Landfill?” *ABC 7 Eyewitness News*, 23 May 2023, available at <https://abc7chicago.com/plastic-bag-recycling-near-me-bags-center/13284073/>
- ⁴⁵ ABC News, *Walmart, Target Dropped from National Recycling Program*, 24 May 2023, Available at <https://abcnews.go.com/GMA/News/video/walmart-target-dropped-national-recycling-program-99533067>
- ⁴⁶ K Oahh Ha, “Don’t Trust Plastic Snack Wrappers With Recycling Instructions,” *Bloomberg*, 29 September 2023, available at <https://archive.org/details/bloomberg-dont-trust-plastic-snack-wrappers-with-recycling-instructions>
- ⁴⁷ Oceana, *Exposed: Amazon’s enormous and rapidly growing plastic pollution problem*, 15 December 2021, available at <https://oceana.org/wp-content/uploads/sites/18/Exposed-Amazons-enormous-and-rapidly-growing-plastic-pollution-problem-2021.pdf>
- ⁴⁸ Trex, *Acceptable Items*, accessed 27 February 2024, archived at <https://nextrex.com/view/educate>
- ⁴⁹ Colin Staub, “Trex CEO: Recycled Plastic Demand Will Stay Strong,” *Plastics Recycling Update* 29 September 2021, available at <https://resource-recycling.com/plastics/2021/09/29/trex-ceo-recycled-plastic-demand-will-stay-strong/>
- ⁵⁰ Karine Vann, “The Unfulfilled Promises of Plastic Film Recycling,” *WasteDive*, 4 January 2021 <https://www.wastedive.com/news/plastic-film-bag-takeback-chemical-recycling-coronavirus/592503/>
- ⁵¹ Brian Taylor, “Trex Modifies Film Recycling Program,” *Recycling Today*, 30 August, 2023, available at <https://www.recyclingtoday.com/news/trex-plastic-film-recycling-challenge-program-changes-nextrex/#:~:text=Under%20the%20new%20structure%2C%20any,the%20Trex%20Outdoor%20Furniture%20Collection>

⁵² The U.S. EPA reported 4.2 million tons of plastic bags, wraps, and sacks were generated in 2018. 200,000 tons/4.2 million tons = 4.8%. United States Environmental Protection Agency, *Advancing Sustainable Materials Management: TABLE 8, 2nd page (subtotal for plastic “bags, sacks and wraps”) 2018 Tables and Figures*, December 2020, https://www.epa.gov/sites/default/files/2020-11/documents/2018_tables_and_figures_fnl_508.pdf#page=14

⁵³ K Oahh Ha, “Don’t Trust Plastic Snack Wrappers With Recycling Instructions,” *Bloomberg*, 29 September 2023, archived at <https://archive.org/details/bloomberg-dont-trust-plastic-snack-wrappers-with-recycling-instructions>

⁵⁴ National Oceanic and Atmospheric Administration, *What are Microplastics*, accessed 15 January 2024, archived at <https://web.archive.org/web/20240115212110/https://oceanservice.noaa.gov/facts/microplastics.html>

⁵⁵ Yale Sustainability, *Yale Experts Explain Microplastics*, 1 December 2020 available at <https://sustainability.yale.edu/explainers/yale-experts-explain-microplastics>

⁵⁶ US Environmental Protection Agency, *Learn About Aquatic Trash*, accessed 15 January 2024, archived at <https://web.archive.org/web/20240115214035/https://www.epa.gov/trash-free-waters/learn-about-aquatic-trash>

⁵⁷ *Independent Recycling Services*, accessed 10 January 2024, archived at <https://web.archive.org/web/20240111042054/https://independentrecycle.com/recycling-contamination/>

⁵⁸ Polyfit, *Closed-Loop Recycling Service*, accessed 10 January 2024, archived at https://web.archive.org/web/20240111042431/https://www.polyfit.us/services_closetloop.php

⁵⁹ Covanta, *Our facilities, Long Beach*, accessed 10 January 2024, <https://www.covanta.com/where-we-are/our-facilities/long-beach>

⁶⁰ Covanta, *Our facilities, Delaware Valley*, accessed 23 January 2024, <https://www.covanta.com/where-we-are/our-facilities/delaware-valley>

⁶¹ Caleigh Wells, “Trash Incinerator Once Considered “Green” Takes Heat for Polluting Community,” *KCRW*, 17 February 2022, available at <https://www.kcrw.com/news/shows/greater-la/burn-trash-hacker-underground-museum/waste-incinerator-long-beach>

⁶² Matt Casale, PIRG, “*Chemical Recycling*”: *What You Need to Know*, 15 March 2023, available at <https://pirg.org/edfund/resources/chemical-recycling-what-you-need-to-know/>

⁶³ Peter Tait et al, “The Health Impacts of Waste Incineration: A Systematic Review,” *Australian and New Zealand Journal of Public Health*, 2020 Feb;44(1):40-48, available at <https://www.sciencedirect.com/science/article/pii/S132602002300732X?via%3Dihub>

⁶⁴ Global Alliance for Incinerator Alternatives (GAIA), *Burning Public Money for Dirty Energy*, November 2011, available at https://www.no-burn.org/wp-content/uploads/Burning-Public-Money-GAIA-2011_2.pdf

⁶⁵ Hiroko Tabuchi and Michael Corkery, “Countries Tried to Curb Trade in Plastic Waste. The U.S. Is Shipping More,” *New York Times*, 12 March 2021, archived at <https://web.archive.org/web/20240311173507/https://www.nytimes.com/2021/03/12/climate/plastics-waste-export-ban.html>

⁶⁶ K Oanh Ha, “Amazon Packages Burn in India, Final Stop in Broken Recycling System,” *Bloomberg*, 27 December 2022, available at <https://www.bloomberg.com/features/2022-india-plastic-recycling-pollution/>

⁶⁷ Recology Western Oregon, *Customer Service and Recycling Guide, Clatsop County*, 2020, accessed 13 March 2024, archived at <https://web.archive.org/web/20240111043535/https://www.recology.com/wp-content/uploads/2019/12/RWO-Clatsop2020-REVISED.pdf>

⁶⁸ Evan Simon, “Plastic Recycling Directory Ends, Citing Lack of ‘Real Commitment from Industry’” *ABC News*, 4 December 2023, available at <https://abcnews.go.com/US/national-plastic-recycling-directory-investigated-abc-news-offline/story?id=105282660>

⁶⁹ Evan Simon, “Plastic Recycling Directory Ends, Citing Lack of ‘Real Commitment from Industry’” *ABC News*, 4 December 2023, available at <https://abcnews.go.com/US/national-plastic-recycling-directory-investigated-abc-news-offline/story?id=105282660>

⁷⁰ *Earth911*, accessed January 10, 2024, archived at https://web.archive.org/web/20240111044046/https://search.earth911.com/?what=%234+Plastic+Bags&where=21210&list_filter=all&max_distance=25&family_id=&latitude=&longitude=&country=&province=&city=&sponsor=

⁷¹ The Last Beach CleanUp et al, *Comment from Just Zero and The Last Beach Clean Up*, posted by the Federal Trade Commission, 25 April 2023, first attachment, page 17, available at <https://www.regulations.gov/comment/FTC-2022-0077-0960>

⁷² Packaging Gateway, *Amazon Announces 100% Recyclable Delivery Packaging Across Europe*, 17 November 2023, archived at <https://web.archive.org/web/20240120040829/https://www.packaging-gateway.com/news/amazon-recyclable-packaging-europe/>

⁷³ Amazon, Amazon India successfully eliminates 100% single-use plastic in packaging across its Fulfillment Centers, accessed 10 March 2024, archived at <https://web.archive.org/web/20240311034820/https://www.aboutamazon.in/news/sustainability/amazon-india-successfully-eliminates-100-single-use-plastic-in-packaging-across-its-fulfillment-centers>

⁷⁴ Amazon, *Building a Better Future Together, 2022 Amazon Sustainability Report*, 2022, page 29, archived at <https://web.archive.org/web/20240311035332/https://sustainability.aboutamazon.com/2022-sustainability-report.pdf>

⁷⁵ Amazon, *Amazon announces its First Automated U.S. Fulfillment Center to Eliminate Plastic Delivery Packaging*, 18 October 18 2023, archived at <https://web.archive.org/web/20240120041215/https://www.aboutamazon.com/news/sustainability/amazon-fulfillment-center-eliminates-plastic-packaging>

⁷⁶ Globally Amazon is estimated to generate 709 million pounds of plastic waste, and the U.S. is an estimated 68% of Amazon’s global market. Statista, Annual Net Sales of Amazon in Selected Leading Markets from 2014 to 2023, accessed 11 March 2024, available at

<https://www.statista.com/statistics/672782/net-sales-of-amazon-leading-markets/>

Oceana, The Cost of Amazon’s Plastic Denial on the World’s Oceans, 18 December 2022, page 4 available at https://oceana.org/wp-content/uploads/sites/18/2022/12/Amazon-Report_Final_DOI.pdf

⁷⁷ SB 343, Allen. Environmental advertising: recycling symbol: recyclability: products and packaging, California Legislative Information, 2021, available at

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB343

⁷⁸ Elly Boehmer, “Bill Highlight: HB 228 Truth in Labeling,” Environment Virginia, 17 January 2024, available at <https://environmentamerica.org/virginia/articles/bill-highlight-hb-228-truth-in-labeling/>

⁷⁹ National Conference of State Legislatures, Extended Producer Responsibility, 24 October 2023, available at <https://www.ncsl.org/environment-and-natural-resources/extended-producer-responsibility>