



'Tis The  
Season  
For Less  
Plastic

VPIRG's 2024 Plastic Free Holiday Tips

# Problems with Plastics

Plastic pollution is one of the most significant threats to our environment and public health today. From cradle to grave – or extraction to disposal – plastics have become one of the most pressing environmental issues of our time. The magnitude of the problem worsens by the day, with mountains of plastic contributing to waste, climate, and health problems.

## The Urgency

The amount of household garbage in the United States can increase by 25 percent between Thanksgiving and New Year's Day. Plastic is a big part of this trash problem, and since it doesn't biodegrade naturally, even plastics that are used just once and for a matter of minutes can last in the environment for hundreds of years.

Knowing this, the holiday season is an especially important time to be mindful about our use of plastics. The Vermont Public Interest Research and Education Fund (VPIRG's charitable research and education arm) hopes this report will increase public awareness about particularly wasteful and toxic plastic products that shoppers may encounter at this time of year. Our tips and recommendations may help to reduce some toxic threats at home, cut down on plastic waste and reduce climate threats too.

## The Waste

Plastics are ubiquitous in our society, with over 400 million tons produced annually worldwide. Most plastics are single-use, and less than 10% are recycled nationally, leading to overwhelming waste in landfills and the environment. Vermont, known for its natural beauty, faces the challenge of curbing this growing waste stream.

## The Toxic Threat

The chemicals used in many plastics, such as phthalates and bisphenols, can leach into food and water, posing significant health risks. Microplastics have been detected in water, soil, and even the human bloodstream, highlighting the pervasive nature of plastic contamination.

## The Climate Damage

Plastic production and incineration release significant amounts of greenhouse gases (GHGs), contributing to climate change. By 2050, plastics are expected to account for 20% of global oil consumption. Reducing plastic use is critical for lowering GHG emissions and mitigating climate change.



# Toxins Found in Plastic Packaging or Products



Below you will find a list of some of the most common toxins found in various types of plastic. We have included brief descriptions of the chemicals and possible health effects, along with citations and links for more information on each. Most of these chemicals are also included in Vermont's list of Chemicals of High Concern to Children.

## **Di-2-ethylhexyl phthalate (DEHP):**

DEHP is a chemical used to make plastic more flexible. This chemical is a potential carcinogen that can cause kidney damage, impact the ability to reproduce, cause birth defects, and harm sperm production. This is deemed a priority substance risk by the EPA. <sup>1</sup>

## **Styrene:**

Styrene is a colorless, flammable liquid, widely used to make plastic and rubber. It is a potential carcinogen that can negatively impact your central nervous system and has caused liver damage and hearing loss in animals. <sup>2</sup>

## **Ethylbenzene:**

Ethylbenzene is a compound used to make styrene, typically used for plastic production. Long-term exposure can potentially cause damage to the ears and hearing, kidneys, and may cause cancer. <sup>3</sup>

## **Antimony and Antimony Compounds**

Antimony and Antimony compounds are often added to plastic as a flame retardant. The primary areas negatively impacted by these compounds are the heart, the gastrointestinal tract, the musculoskeletal system, the liver, the pancreas, and the nervous system. <sup>4</sup>

## **Bisphenols (BPA and BPS):**

Bisphenols are a group of chemicals used to make plastics and other products. There is well-established toxicity and significant human exposure. Most bisphenols are hormone disruptors and can have developmental and reproductive impacts. <sup>5</sup>

## **Formaldehyde:**

Formaldehyde is used to make plastics and resins among other products. Low levels of exposure can cause irritation to skin, eyes, and the nose. It can also cause headaches and asthma. It has also been classified as a human carcinogen. <sup>6</sup>

## **Vinyl Chloride and Polyvinyl Chloride (PVC):**

Most Vinyl Chloride produced in the US is used to make PVC, a material used to produce plastic and vinyl materials. Exposure can impact the central nervous system, the liver, and is associated with an increased risk in cancer, especially a rare form of liver cancer in humans. <sup>7</sup>

## **Flame Retardants:**

Flame retardants have been linked to neurological damage, hormone disruption, and cancer. Accumulation of flame retardants in human bodies can cause chronic and severe health issues over time. Firefighters, especially, have seen the negative impacts of flame retardants. Chemical exposure on duty makes cancer the leading cause of firefighter fatalities. <sup>8</sup>

1 Centers for Disease Control and Prevention. (2021, February 10). *Di(2-ethylhexyl)phthalate (DEHP)*. Centers for Disease Control and Prevention. <https://www.cdc.gov/TSP/substances/ToxSubstance.aspx?toxid=65>

2 Centers for Disease Control and Prevention. (2014, March 26). Styrene. Centers for Disease Control and Prevention. <https://www.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=420&toxid=74>

3 Centers for Disease Control and Prevention. (2015b, June 15). Ethylbenzene. Centers for Disease Control and Prevention. <https://www.cdc.gov/TSP/PHS/PHS.aspx?phsid=381&toxid=66>

4 ATSDR Antimony Tox FAQs. (2019, October). <https://www.atsdr.cdc.gov/toxfaqs/tfacts23.pdf>

5 Get the facts: Bisphenols - toxic-free future. Toxic. (2024, February 22). <https://toxicfreefuture.org/toxic-chemicals/bisphenols/>

6 Formaldehyde. Environmental Health. (n.d.). <https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/formaldehyde/#:~:text=Exposure%20to%20low%20levels%20of,concentrations%20in%20the%20body%20normally.>

7 EPA. (2017, January). Vinyl chloride. Vinyl Chloride. <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/vinyl-chloride.pdf>

8 Toxic flame retardants. Safer States. (2024, November 7). <https://www.saferstates.org/priorities/toxic-flame-retardants/>

# Tis the season to be on the lookout for wasteful or toxic plastics ...



## ITEM: Individually wrapped produce

Fresh produce is a wonderful addition to any holiday meal. Farmers' Markets, CSA's (community supported agriculture), and co-ops are great places to purchase locally grown produce. One of the best things about this produce is that it doesn't need to be individually wrapped in plastic packaging. But increasingly, we're seeing fresh produce needlessly wrapped in single use plastic. That includes potatoes, soon to be boiled, mashed, or baked in homes across Vermont, which come with their own perfectly protective skins. No plastic required.

**Recommendation:** Avoid unnecessarily overpackaged items in the grocery store.



## ITEM: Black Plastic Food Ware & Utensils

Examples: Cooking utensils, food trays, take out containers, single use utensils, single use plates/cups and more.

When the holiday season comes around, the first thing that often comes to mind is cooking, meals, hosting family gatherings. Whether it is a takeout container, a spatula, plastic plates, silverware, or even just your drink stirrer, black plastic has found a place amongst the holiday times. Unfortunately, this can be incredibly toxic for consumers. A 2024 study conducted by Toxic Free Future and Vrije Universiteit Amsterdam found high levels of cancerous toxins, especially flame retardants. Because recycling facilities have a hard time registering black plastic, there is a shortage of black recycled content. This need

is often fulfilled with electronic waste (also known as E-Waste). Since E-Waste often contains hazardous materials such as flame retardants, phthalates, and heavy metals, these same toxins can be found in a range of black plastic products, including products that frequently come in contact with food.

**Alternatives:** Whether you're shopping for stocking stuffers or grabbing some takeout, look for alternatives to black plastic. For cooking utensils, consider silicone (non-black) or better yet, utensils made of wood. When possible, avoid black plastic cutlery and other single use plastics. Bring your own portable utensils, or if you're bringing the meal home, just skip the disposables altogether. Urge restaurants to use more sustainable options for carry out and if you find that a restaurant is using plastic drink stirrers (of any color), you might gently let them know that those items were banned in Vermont by legislation passed in 2019.<sup>1</sup>

**Recommendations:** If you already have black plastic or other plastic food containers, avoid microwaving them. Heating them in this way can cause chemicals to transfer to the food more easily. Similarly, take care to avoid allowing any black plastic kitchen utensils to overheat or melt when cooking.

<sup>1</sup> Single-use products law. Department of Environmental Conservation. (n.d.). <https://dec.vermont.gov/waste-management/solid/materials-mgmt/single-use-products-law>



### ITEM: Disposable Coffee Pods

Examples: Keurig's K-Cups, Tim Horton's Coffee Pods, Cozy Up's Single Serve Coffee Capsules, Victor Allen's Single Serve Coffee Pods, Nespresso Capsules

As you make your morning coffee to prepare for a big holiday, remember that the amount of disposable K cups that have been put in the landfills could wrap around the planet ten times.<sup>2</sup> Keurig and other brands sell reusable coffee pods that can reduce waste. (Photo credit: John Mantell Photo - stock.adobe.com)

**Recommendation:** Try buying reusable coffee pods instead.



### Item: Individually wrapped cheese slices

When you're looking for a small snack to tide over the family's appetite, or a cheesy slice to add to the next day's turkey sandwich, pay attention to the unnecessary use of plastic. One bag of individually wrapped single slices can create a small mountain of plastic, while readily available alternatives can avoid such waste.

**Alternative:** Consider buying your sliced cheese at the deli counter or look for packages of single slices that are not individually wrapped in plastic. Of course, you could also do it the old-fashioned way (which may be cheaper too): buy a block of cheese and slice it yourself.



### Item: Athletic wear

Example: Adidas Pants Model AK5645

Vermont Act 188 requires manufacturers to disclose to the Vermont Department of Health toxic chemicals that are in their children's products sold in the state. While athletic wear can be a great addition to a child's wardrobe, some of the additives found in the clothing may shock you. For instance, a check of the Health Department's Chemical Disclosure Reports found that a pair of Adidas track pants contain a multitude of plastic polymers, additives, and other toxic chemicals. This model is one example, but hundreds of apparel items are listed in the Health Department's database, including popular brands like Nike, Adidas, Vans, and Nordstrom. Each chemical listed below is considered hazardous to children.

**Toxins in Adidas Pants Model AK5645:** Di-2-ethylhexyl phthalate, Di-(2-methoxyethyl) phthalate, Di-n-octyl phthalate (DnOP), Dipentyl phthalate, Bis (2-ethylhexyl) tetrabromophthalate, Formaldehyde, Lead and lead compounds, Dicyclohexyl phthalate, Diethyl phthalate, Diisobutyl phthalate, Dibutyl phthalate, Di-n-hexyl Phthalate, Butyl benzyl phthalate (BBP), Antimony and Antimony Compounds

<sup>2</sup> The Story of Stuff Project. (n.d.). This product is trashing the planet. Story of Stuff. <https://action.storyofstuff.org/sign/amount-k-cups-have-been-thrown-landfills-could-wrap-around-planet-over-11-times>



## Item: L.O.L. Surprise Dolls

L.O.L. Surprise Dolls have become very popular with children in recent years. Part of their appeal is the “unboxing” process. Kids will sometimes stream their unboxing online, for the fun of revealing which dolls they received. However, to make the ‘unboxing’ appealing, each L.O.L. Surprise Doll comes with excessive plastic packaging that will be around for hundreds of years. On top of this, many of these products contain toxic chemicals that are listed on the Vermont Department of Health’s Chemical Disclosure Report.

**Chemicals Listed under L.O.L. Surprise Dolls in the Department of Health Report:** Styrene, Antimony and Antimony Compounds, Triphenyl Phosphate, Bisphenol A, Bisphenol S, Decabromodiphenyl Ethane (a flame retardant), Toluene, Ethylbenzene, Ethylene Glycol, Phenol, Ethylhexyl Diphenyl Phosphate, Bis (2-ethylhexyl) Tetrabromophthalate, 2- Ethylhexanoic, N-Methylpyrrolidone, Methyl Ethyl Ketone, 4- Nonylphenol, 4- NP and its isomer mixtures, Octamethylcyclotrisiloxane, Cobalt and Cobalt Compounds, Phthalic Anhydride, Methyl Paraben

**Alternatives:** Check out toy guides online. Look for the brands that sell sustainable and non-toxic toys. Look at the 2024 sustainable toy guide from [zerowastemvmt.com](http://zerowastemvmt.com).



## Item: Bath Toys

According to Toxic Free Future, PVC (polyvinyl chloride) has been deemed unsafe for children in any quantities, and while the Disney Mickey Mouse bath toys have a PVC label, a lot of flexible kids’ toys like rubber ducks or bounce balls have PVC in them and may not tell you. The toys shown here are made for children as young as six months. PVC is considered a priority chemical for the EPA. It’s best to avoid PVC altogether, and certainly to keep it away from very young children who may be putting it in their mouth.

**Alternatives:** Look for bath toy brands that are ecofriendly/toxic-free. If you are not sure if the brand uses PVC, find one that explicitly states it does not.



## Item: Kodak Disposable Camera

A picture is worth a thousand words, or so the saying goes. But did you know that a disposable camera can remain in a waste dump for 1,000 years before degrading?<sup>3</sup> Single use plastic cameras had their heyday decades ago, before most people carried a camera in their pocket that is also a computer and phone. Why in the world is this unnecessarily wasteful product making a comeback? Not only is it a waste, but the production and disposal processes may result in toxic emissions as well.

**Alternatives:** Avoid single-use cameras. Stick with cameras that are reusable.



## Item: Barbie Dolls and Accessories

Mattel’s Barbie Dolls are a fan favorite not just during the holidays, but year round. The recent Barbie movie only furthered the popularity of this toy. Most Barbie displays have plastic individually molded around each piece. Manufacturers often do this to make their packaging more appealing, but it can be wasteful. (Photo: pixarno - stock.adobe.com)

**Alternatives:** Check out toy guides online. Look for the brands that sell sustainable and non-toxic toys. For example, look at the ‘24 Sustainable Toy Guide from [Ecowheel.org](http://Ecowheel.org).

3 Writer, T. S. (2020, January 8). Single-use cameras popular, cause pollution. Tampa Bay Times. <https://www.tampabay.com/archive/1994/09/04/single-use-cameras-popular-cause-pollution/>



### Item: Glitter

Most glitter itself is a microplastic by definition. According to National Geographic, “Microplastics are a known environmental hazard that are rampant in marine and terrestrial environments and, because of their size, nearly impossible to remove. High concentrations of glitter microplastics appear to hinder the growth of aquatic organisms, like phytoplankton and zooplankton, which form the base of the food chain and play a critical role in oxygen production and carbon dioxide consumption.”<sup>4</sup> Glitter can also pose a threat to human health, particularly cosmetic glitters .

The European Union has already banned decorative glitters made of plastics smaller than 5 mm. In the U.S., microbeads in certain cosmetic products have been banned federally, but glitter is not currently regulated.

**Alternatives:** Non-plastic glitter products are now being sold that promise to biodegrade in a matter of weeks, though studies are still being done to determine the potential environmental impact of such products. It’s also possible to make glitter at home with dyed salts, colored rice, colored sand or cornstarch.<sup>5</sup>



### Item: Packaging from the E-Commerce Industry

Online shopping has become a holiday staple for many consumers. However, online retailers often stuff their oversized boxes with unnecessary plastic packaging.

**Example:** One example among many is the online photo framing company, Keepsake Frames. The company still uses a massive amount of plastic bubble wrap to fill large boxes that contain just a few framed photos. Five years ago, the e-commerce industry was estimated to use approximately one million tonnes of plastic for its packaging. The number has likely risen since then. It is assumed that nearly all of this plastic packaging was turned into waste.<sup>6</sup>



### Item: Amazon's Staple Blue and White Packaging

Another specific example of plastic packaging waste is Amazon's plastic film packaging (often blue and white) that is not recyclable. While the company does at least indicate on the packaging that it is not recyclable, that does not change the fact that Amazon generates about 700 million pounds of plastic waste per year.<sup>7</sup> (Photo: miro - stock.adobe.com)

**Recommendations:** Support your local retailers whenever possible. This is not only a good way to avoid plastic packaging waste, it improves the health and vitality of our communities too. If you do shop online, look for e-retailers that use sustainable packaging.

4 Worthington, L. (2024, July 19). How do you solve a problem like glitter?. National Geographic. <https://www.nationalgeographic.com/environment/article/glitter-microplastics-biodegradable#:~:text=Glitter%20is%20made%20to%20be,won't%20stick%20around%20forever>.

5 Editor, P. P. C. (2023, December 15). All that glitters is... microplastic? the EU's new Glitter Ban & Plastic-free alternatives. <https://www.plasticpollutioncoalition.org/blog/2023/12/15/all-that-glitters-is-microplastic>

6 O'Brien, M. (2023, April 12). Ecommerce packaging waste: The issue and what's being done. Multichannel Merchant. <https://multichannelmerchant.com/operations/ecommerce-packaging-waste-the-issue-and-whats-being-done/>

7 Too much plastic: Why Amazon's packaging needs to change. PIRG. (2023, June 16). <https://pirg.org/articles/its-prime-time-for-amazon-to-reduce-its-plastic-shipping-waste/#:~:text=A%20planet%20wrapped%20in%20plastic,get%20those%20700%20million%20pounds>.

# What can we do?

While we have already provided some alternatives and recommendations related to specific products, below are some steps you can take to reduce plastic pollution during the holidays and throughout the year.

## Pay attention to plastic when making your own purchasing decisions

Plastic over-production and waste are systematic problems. There are individual steps everyone can take to reduce their own plastic footprint. Whether you are shopping online or in the stores, pay attention to your own purchasing choices. If you see a toy that looks overpackaged, try to find a better alternative. Toxics are less visible, but you can always lean towards sustainable brands that promote eco-friendly products. Another good waste reductive choice is to shop in person when you can. This not only helps reduce packaging waste, but it also supports your local businesses.

## Support policies that reduce plastic waste

Urge elected leaders in the state to support and adopt policies that reduce the quantity and toxicity of plastic packaging. Ask them to require manufacturers to take greater responsibility for the products and packaging they create.

## Urge manufacturers and retailers to do better

While individual consumers have the power to make their own purchasing decisions, those with the power to make larger systemic changes are the manufacturers that make the products and the retailers who sell them. We can make a difference by calling out these businesses and demanding that they adopt more sustainable non-plastic practices.

For instance, if your local grocery store is selling potatoes that are individually wrapped in plastic, urge them to stop doing that right away. The same goes for all sorts of other unnecessary uses of plastic.

**Together, we can bring about change.**

