

17 Biggest Advantages and Disadvantages of Plastics

Mar 20, 2020 by Brandon Miller

Plastics may be the most polarizing material of modern times. It provides a series of incredible benefits that help us every day, but the product can also be one of the most harmful substances on our planet. It was a word that originally meant the product was pliable and easily shaped. It is only recent definitions that now have the term apply to a variety of polymers.

The first plastic product came about because of the research performed by John Wesley Hyatt in 1869. He invented the first synthetic polymer in an effort to claim a \$10,000 prize that was announced as a way to provide a substitute for ivory. Billiards was growing in popularity in the United States, and the original balls were made from wild elephant tusks. Hyatt discovered that by treating cotton fiber cellulose with camphor, a product that could be crafted into a variety of shapes became possible.

This original celluloid received immediate praise as the savior of elephants and tortoises. We felt like we could protect the natural world from the human's destructive need to consume. As new polymers went into the development process, the plastics advantages and disadvantages required constant review to avoid detrimental environmental impacts.

List of the Advantages of Plastics

1. Many plastics have a long lifespan that encourages reuse.

Plastics don't need to be a single-use product or be treated as disposable. Many forms of this material have a long lifespan that is equal to or greater than what other materials provided. A well-made and maintained PVC pipe has the capability of providing service for up to a century. Construction plastics have an average lifespan of 35 years. When we continue to use these items instead of throwing them away, then we can promote a lower waste rate instantly.

If you reuse plastic items at least seven times, then you're saving just as many energy resources than if you'd recycled the product.

2. Plastic production methods compare favorably to many other materials.

The plastics manufacturing process can be energy-intensive with fossil fuels, but it is still a resource that is more environmentally friendly than other materials. Bamboo provides natural fibers to use, although manufacturers must use chemical processes to turn the content into something useable. Aluminum is another example of a product that plastic beats with this advantage.

Recycling processes can change the comparison at times. It is still a clear advantage that plastics can provide when consistent reuse occurs. Even if you choose a fabric bag over a plastic one, you must use the reusable bag at least 40 times before you're matching the environmental footprint of a similar plastic product. Conventional cotton bags require 7,100 uses before creating a neutral investment.

3. Plastics take up less space in our landfills.

Even though it can take a significant amount of time for plastic materials to break down in a landfill, the amount of space that it takes up in these waste disposal areas is minimal when compared to other items. Paper

products take up seven times more volume. When we can divert these items toward recycling programs or other uses, then we can start managing our landfill areas more effectively.

4. Methane doesn't form when plastics start decomposing.

Organic materials release greenhouse gases when they start decomposing. The focus of this process is often on carbon dioxide, but the methane that gets emitted is extremely problematic. When compared to CO₂, methane is up to 20 times more potent as a reflecting atmospheric product.

Plastics don't emit this gas when it starts breaking down, which means it is easier to calculate the total lifecycle impact of the product.

5. It provides a safe way to transport our needed items.

One of the reasons why we use plastics for bottles that contain water and other beverages is because it keeps the product safe. We use the material to quickly and affordably get water to vulnerable populations all over the world. If a city experiences a shortage or emergency supplies are necessary after a natural disaster, we use this product to ensure that people can have their needs met.

Certain types of plastic were found to be potentially harmful with this advantage in the past, so legislative bans were put into place to prevent their use.

6. We have multiple ways to manage plastic waste.

Heat is one of the most common methods used to process plastic waste or create recycling opportunities. It isn't the only option that's available to use today. We can use pyrolysis or gasification to process this material with minimal emissions or pollution. It is even possible to shred the materials to create new fabrics from them.

Although the cost of the alternative processing methods isn't economically sustainable in some communities, this advantage is still present and worth considering. Some plastic bottles are even more eco-friendly than other materials when measured across several environmental indicators.

7. Plastics contain a high energy density to consider.

Incinerating plastics can be quite useful in some situations because of its high energy density rating. This material offers a significant energy output for cement kilns or incineration because we create it with the use of petroleum hydrocarbons. That means we can use it as a direct replacement for fossil fuel combustion since the foundation of the product comes from an energy resource that we all use.

The paper products sector in the United Kingdom uses almost the same amount of energy as the plastics and rubber industries. That's how useful this material can be from an energy standpoint.

8. Plastics are an affordable material.

We can keep costs down for a variety of items because of the low price point that's available for plastics. Our established manufacturing processes allow us to create several million tons of this material for a variety of purposes, ranging from packaging to straws. We can modify the chemistry of the material to provide specific beneficial properties for its end use, including the option to make it softer, harder, malleable, or durable.

9. The plastics industry is a significant contributor to the global economy.

The global plastic industry creates a market worth over \$1 trillion annually. Almost two million people have direct employment opportunities in the United States because of this invention. We use it to prevent food waste, protect our health, and promote better hygiene. We have construction-

grade and industrial plastics to use. It's essential for modern transportation, provides infrastructure support, and makes the delivery and transport of items cheaper and easier to complete.

Over 31,000 people in the United States are directly employed in the manufacturing of plastic bags. The plastics industry in the U.S. is currently the eighth-largest one presently operating.

List of the Disadvantages of Plastics

1. Plastics typically come from non-renewable resources.

Although the first plastic materials came from plant-based fibers, most of the items that we produce today have fossil fuels as their foundation. It's usually petroleum, but we can also use natural gas to develop this product. About 4% of these fuels goes directly into the plastics industry to create new products. When we look at the number of resources consumed during the refinement process and the expected rise in demand, the fossil fuel cost of plastics could reach 20% within the next decade.

2. The majority of the pollution found in the world's oceans is plastic.

Up to 80% of all marine debris contains plastic. This problem comes from land and marine sources, often collecting in large areas of open water where currents come together. This issue causes us to find waste on beaches, on land, and even in freshwater sources. Some of the items that get littered most often are plastic straws, stirrers, bottles, lids, and food wrappers.

Removing plastic pollution from ocean surface water comes at the cost of \$5 per kilogram, but the item's reuse value is only \$0.30. That's why the effort to clean up marine areas is being led by non-profit agencies.

3. Plastic pollution can lead to several economic losses.

Plastic packaging pollution by itself creates an economic loss of almost \$80 billion to the global economy annually. It makes up nearly 50% of all waste from this industry, and virtually every other industry uses the item in some way. Building and construction plastics represent 16% of plastic use, while textiles are responsible for about 15%. Since it isn't profitable to recycle many of the items, more of it tends to go into waste streams instead of reuse.

The global average for plastic recycling is about 14%. India is one of the world's leaders by recycling approximately 60% of its items, while the United States comes in close to last in the developed world by recycling only 9%.

4. We cannot infinitely recycle plastic products.

Metals can be recycled numerous times into a variety of different products because of the properties of the material. Plastics don't share that opportunity. We can only reuse or recover it a specific number of times before it loses its quality and integrity. That means we are more likely to down-cycle this product, incinerate it, or stash it in a landfill.

Some plastic products and items can't be recycled at all, furthering the impact of this disadvantage. Over 93 billion plastic products don't get touched each year, which means they enter into our waste streams.

5. We must spend energy to clean plastics to recycle items.

Plastics that have cross-contamination with different types create unusable products. We also need to have the items cleaned before recyclers can turn the things into new pieces.

Some products contain different plastic types in the same item (i.e. a bottle and a lid), creating even more challenges to manage. It's a

disadvantage that makes recycling inefficient at best for some communities – and sometimes impossible.

6. The re-sell chains for recycled plastic are long and challenging to manage.

Some recycling processing and re-sell chains for plastics tend to be long and inefficient. One item might change hands several times or travel a long distance to go through the recycling process. When it takes that much energy to reuse or recycle a product, then many of the potential benefits disappear. That's why some plastics have a high waste rate, especially if they aren't #1 or #2 options.

This disadvantage is one of the primary reasons why plastic is one of the most common materials found in municipal waste centers and landfills.

7. It takes a long time for plastic products to decompose.

Plastic takes a long time to degrade when compared to organic items. A plastic fishing line might take over 600 years to finally break down. Some researchers believe that some forms of this material might never fully decompose, remaining as nano plastics that could influence human, animal, and marine health in a variety of ways.

Even the plastic bags that we use to carry items every day can take 10 to 20 years to decompose naturally – but some of them can take up to an estimated 1,000 years. When you throw away a plastic water bottle, then it could take 450 years.

8. Plastics harm our ocean environments.

EcoWatch estimates that 10 metric tons of plastic products, including grocery bags, will wash out to the ocean from Los Angeles every day. Those items break down into small fragments that become microscopic in size and consumed by marine life. Up to 24,000 tons of plastic

contaminate our food chain each year. Up to 25% of the fish sold in California markets contained fibrous or whole plastic in the animal's stomach. The chemicals from the plastic that leeches into these animals could possibly transfer to humans upon consumption.

Conclusion

Plastic is arguably the most revolutionary product in the history of humanity. It gives us a variety of ways to improve the safety of our foods and beverages while providing support mechanisms that create infrastructure benefits that we all use.

We have also discovered that endocrine disruptors are the link between plastic and human health hazards. PCBs and dioxins have already polluted the world's waterways. BPA, or bisphenol A, is specifically banned because of this trait – although people still receive exposure to it from a variety of sources. The CDC estimates that 95% of people have BPA contamination in their bodies.

When we look at these plastics advantages and disadvantages, it is imperative to remember that ingestion is not the only danger to consider. Simple exposures, the time it takes to decompose, and the litter we create are damaging our planet. We must increase our recycling rates and look for alternatives when it makes sense to decrease our exposure levels.



About the Author

Brandon Miller has a B.A. from the University of Texas at Austin. He is a seasoned writer who has written over one hundred articles, which have been read by over 500,000 people. If you have any comments or concerns about this blog post, then please [contact the Green Garage team here](#).

Environment

- < 17 Major Advantages and Disadvantages of Food Irradiation
- > 18 Advantages and Disadvantages of Rammed Earth

RECENT POSTS

[500 Cutest Yorkie Names for a Girl or Boy Puppy Dog](#)

[Golden Pyrenees Guide: 26 Facts About the Great Pyrenees Golden Retriever Mix](#)

[German Shepherd Great Pyrenees Mix Guide: 27 Things to Know About the Germanees](#)

[German Shepherd Akita Corgi Mix: 26 Things Every Owner Should Know](#)

[Chihuahua German Shepherd Mix Guide: 25 Things to Know About a Chihuahua Shepherd](#)

RECENT POSTS

[500 Cutest Yorkie Names for a Girl or Boy Puppy Dog](#)

[Golden Pyrenees Guide: 26 Facts About the Great Pyrenees Golden Retriever Mix](#)

[German Shepherd Great Pyrenees Mix Guide: 27 Things to Know About the Germanees](#)

[German Shepherd Akita Corgi Mix: 26 Things Every Owner Should Know](#)

[Chihuahua German Shepherd Mix Guide: 25 Things to Know About a Chihuahua Shepherd](#)

[Alaskan Shepherd Guide: 29 Things Every Owner Should Know](#)

[Blue Heeler German Shepherd Mix: 26 Things Every Owner Should Know](#)

[German Shepherd Chow Mix Guide: 27 Things to Know Before Getting One](#)

[Bulldog Shih Tzu Mix Guide: 27 Things to Know About a Shitzu Bulldog](#)

[500 Cutest Shih Tzu Names for a Boy or Girl Puppy Dog](#)

CATEGORIES

[Boats](#)

[Cars](#)

[Dog Names](#)

[dogs](#)

[Environment](#)

[Homes](#)

[List of Pros and Cons](#)

[Living](#)

[Pets](#)

[Uncategorized](#)

ARCHIVES

Select Month



© 2021 GREENGARAGEBLOG.ORG - PRIVACY POLICY

EXCLUSIVE MEMBER OF MEDIAVINE HOME