

Do It Yourself: How and Why We Should Recycle Our Own Plastic

**By,
Lori Schiesl**

Introduction

The Pacific Garbage Patch: an area the size, if not, twice the size of the state of Texas that is often viewed as both reality and a myth. Scientists believe that the patch itself is made up almost entirely of discarded plastic materials that have made their way into the ocean, and have been strung together by a series of mid-ocean currents. Literary scholar Molly Wallace argued that, “nearly every cup of water from the ocean is likely to contain some plastic in some form of degradation.”¹ As quoted by Journalism scholar, Tom Morton, if a geologist of the Anthropocene were to dig into the earth, a layer of *Bakelite*² could be found amongst other non-biodegradable such as: “1784, soot,” and “1945, Hiroshima, Nagasaki, plutonium.”³ Despite its durability and economical production cost, plastic’s lifespan of hundreds of years has caused it to become one of the leading human-made environmental problems worldwide that negatively affects hundreds of species and ecosystems. Although many plastics can be recycled or converted into energy—a process that uses twice the amount of energy as recycling plastic—, a lot of plastic is not due to inefficient funding and/or equipment. Instead, these plastic objects are left to wander the earth for decades, hundreds, and even thousands of years. The United States alone, generates 10.5 million tons of disposable plastic each year, and recycles only approximately two percent of it.⁴ Instead of relying on someone else to make sure plastic is actually recycled, I argue that we can all participate in recycling plastic ourselves. Purchasing less plastic is also one solution, however in situations where buying plastic is unavoidable, everyone who has the right tools can utilize this event to make something completely new. The purpose of this project is to offer a Do It Yourself (DIY) solution to safely recycle plastic using High Density Polyethylene (HDPE). It will discuss the history of plastic and its relationship to materialism in order to answer the

¹ Molly Wallace, *Risk Criticism: Precautionary Reading in an Age of Environmental Uncertainty* (University of Michigan Press: Michigan, 2016) 127-128.

² Bakelite was the first synthetic polymer made entirely of molecules not found in nature in 1907.

³ Wallace, *Risk Criticism*, 127.

⁴“Plastic Garbage,” Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].

question: why does plastic exist despite its environmental impact?, Talk about the different types of plastics that are used commercially, what purpose they serve, and how they can be recycled, and finally, it will introduce the DIY technique used in the adjoining “How to Guide” that offers a solution for anyone that wants to save money, be creative, and recycle their own plastic.

Historiography

In the mid-1860s, an English chemist named Alexander Parkers created a new material called Parkensine, a product he made from all natural materials and completely biodegradable. This was one of the first human-made plastic ever invented, and contributed to an unintended future, a future made almost entirely from synthetic plastic materials.⁵ Since then, plastic has been experimented on, and re-created using different kinds of base materials that caused it to emerge in many different forms. These new innovations led to a recreational use of plastic in the post WWII era, which was introduced to an apprehensive public, but they welcomed it nonetheless. Although with the growing demands in consumerism and the acceptance of disposable products, plastic nevertheless became an economic asset and miracle to the modern consumer.

In the academic realm, scholars have discussed plastic in a variety of ways whether it be in its historical relationship with consumerism and materiality, or the effect it has to our environment. Despite their angel, scholars agree that the amount of garbage and plastic disregarded by humans each year is progressively getting worse over time. The purpose of this section is to explore previous scholarly works on plastic and waste in order to give the reader a better understanding about plastic’s history and to answer the questions: what caused plastic to exist, and what is currently being done with plastic today?

The “Throw-away” society, a term coined in the 1950s, encouraged many Americans to simplify their lives by throwing away slightly used objects and replace them with brand new ones. In her book *Waste and Want: A Social History of Trash*, Historian Susan Strauss explores the deep relationship between industry and refuse starting at the turn of the century. She argued, “Most Americans produced little trash before the twentieth century. Packaged goods were

⁵ Anna Lena Phillips, “Bioplastic Boom: From the Dizzying Array of New Plant-Based, Some Innovative Winners Emerge,” *American Scientist*, No.2 (March-April 2008) 109.

becoming popular as the century began, but merchants continued to sell most food, hardware, and cleaning products in bulk.”⁶ As technology advanced and the amount of production increased, advertisers needed to find new ways to make people want to buy more and save less. In one example, Strauss explained, “[s]ome manufacturers suggested uses for their packaging to consumers who had not yet developed the throwaway habit.”⁷ Some tobacco companies cleverly designed their tins and encouraged their customers to use it as a lunchbox. Paterson Wax Paper was designed to be re-washed and reused a few times more.⁸ And with the existence of municipal trash collection, “encouraged middle class people to throw things out.”⁹ The combination of these two creative changes caused a slow transition into the wasteful society of today. As a result, as argued by Sociologist Gay Hawkins, “the paradox is that among all this moral opprobrium being wasteful in the ways we live is encouraged, expected and, in many instances, impossible to avoid.”¹⁰ As things break, people are expected to replace them. As fashion trends change, people are expected to update their wardrobes. In addition to disposable lifestyles, comes a need for new developments in managing waste.

In his book *A Crisis of Waste?: Understanding the Rubbish Story*, Sociologist Martin O’Brien argued “The so-called ‘crisis’ of waste has been central to the lived realities of our ancestors for centuries: it has, in short, a very long pedigree and has taken many different forms—from filth-encrusted clothing and households through industrially-polluted living conditions to discarded consumer remnants.”¹¹ He suggested that “we cannot live without waste and its pure fantasy to pretend that the ‘problem’ of waste can be solved technically.”¹² Political Science scholar Jane Bennett would agree. Although it is easy to blame large corporations, Bennett also deflected the problem by arguing that perhaps the “ethical responsibility of an individual human now resides in one’s response to the assemblages in which one finds oneself

⁶ Susan Strasser. *Waste and Want: A Social History of Trash* (New York: Henry Holt and Company, 1999), 12

⁷ *Ibid.*, 172.

⁸ Susan Strasser. *Waste and Want*, 172.

⁹ *Ibid.*, 140.

¹⁰ Gay Hawkins, *The Ethics of Waste: How We Relate to Rubbish* (Lanham, Maryland: Rowman & Littlefield Publishers Inc., 2006) viii.

¹¹ Martin O’Brien, *A Crisis of Waste?: Understanding the Rubbish Story* (New York: Routledge, 2008) 35.

¹² *Ibid.*, 3.

participating...assemblages whose trajectory is likely to do harm?”¹³ Thus completing the hazardous cycle humans are in today.

Before the 1940s, recycling was not a conscientious act, but a way of life. Like Strauss, O'Brien saw the waste problem as “cornucopia of rubbish-to-riches industrial development began to turn back on itself as the ‘consumer society’ appeared destined to swamp the quality of life with the over-production of inessential goods.”¹⁴ As a solution to this problem, John Hopwell, Robert Dvorak and Edward Kosior suggested, “recycling is one of the most important actions currently available to reduce these impacts...”¹⁵ Given that plastic is the leading cause for waste management problems today due to its inability to biodegrade, advancements in technology since the 1970s—when recycling plastic was first introduced—have created the opportunity to recover discarded plastic into fuel. In their article, Hopwell Dvorak and Kosior review the current technology used to efficiently collect, sort, and reprocess plastic for reuse and argued, considering plastic’s longevity “is not known with certainty...” recycling the material “is one method for reducing environmental impact and resource depletion.”¹⁶ Although the amount of plastic produced today is still overwhelmingly larger than the amount that is degrading, by recycling plastic today promotes further advancements in recycling technology, and helps humanity balance the waste cycle once again.

Over the last decade, scholars across many disciplines have increasingly taken interest in the increasing global waste problems with topics ranging from the stem of the waste problem to the current preventative measures and solutions. The link between mass production and consumerism along with clever advertising has inadvertently led a worldwide dependence on plastic. The purpose of this paper is to build off the ways of our ancestors and revisit the unconscious ways of recycling as introduced by Strauss. Living in a western society in which one is heavily exposed to advertisements and pressured to purchase rather than repair, it is hard to convert an entire population back to these roots of recycling. However, theoretically, provided

¹³ Jane Bennett, “Vibrant Matters: A Political Ecology of Things.” (Duke University Press: Durham 2010) 37.

¹⁴ O'Brien, *A Crisis of Waste?*, 70.

¹⁵ Jefferson Hopwell, Robert Dvorak and Edward Kosior. “Plastic Recycling: Challenges and Opportunities,” *Philosophical Transactions: Biological Sciences*, No 1526 (July 27, 2009) 2115.

¹⁶ Hopwell, Dvorak and Kosior. “Plastic Recycling: Challenges and Opportunities,” 2116.

the research done for this project, if materialism and the “throw away”¹⁷ culture were to leave society as slowly as it entered, it would be gone in approximately one hundred years. As a small step in this direction, the introduction of melting, molding, and reusing HDPE plastic gives the individual an economic and environmental incentive to slowly revert the compulsive purchasing behavior, and help reduce the amount of plastic produced each year.

Plastic and Its Functionality

As stated once in a conversation with scholar and Rachel Carson Center Fellow Amanda Boetzkes, the term plastic can be defined as: “the adaptability of an organism to changes in its environmental, or differences between various habitats.”¹⁸ Plastic is a very versatile kind of material that can be molded into various shapes and sizes determined by individual demands. Parallel with this ability to morph is the variety of plastic types available, each equipped with different chemical compounds specific for the plastic’s purpose. For example: most plastic packaging made for consumers contain a SPI¹⁹ recycling symbol with a number 1-7 that represents the type of plastic from which the object was made. According to “The Very Important Guide of Plastic Safety” as posted on cutoutandkeep.net, “Different plastics react differently to fire, some catch on fire, some melt, and others with barely do anything.”²⁰ Therefore, one must take pre-caution when wanting to recycle their plastic. The types of plastic, their recyclability, and their functionalities are listed below:

1. **Polyethylene Terephthalate (PETE or PET):** Commonly used for storing food and drinks such as: flavored beverages, medicine, food spreads due to their ability to store and absorb odors. It contains high amounts of Antimony and carcinogens that can be

¹⁷ The “throw away” culture was first coined in the August 1955 edition of *Life Magazine*.

¹⁸ Personal interview with Amanda Boetzkes by author, Dec. 15, 2016, at the Rachel Carson Center, Munich.

¹⁹ An identification system for plastic material created by The Society of Plastic Industry (SPI) in 1988. <https://www.qualitylogoproducts.com/lib/different-types-of-plastic.htm>

²⁰ Gaby A., “The Very Important Guide of Plastic Safety.” Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

released by water and burning or melting the plastic. PETE can be re-used up to 20 times, and is recycled by breaking it down into small flakes and re-melted together.²¹

2. **High-Density Polyethylene (HDPE):** Known as the safest plastic to use and recycle. Is known to not leach chemicals into food and drinks stored in containers made from this material, however does not absorb odors. Due to its durability, HDPE is most commonly used for milk jugs (in North America), shampoo and conditioner bottles, soap and lotion, and household cleaners. Although it is the most recycle friendly of the plastics, it does not melt completely. Considering many products containing hazardous chemicals are stored in HDPE containers, it is too dangerous to re-use for food and hygiene products and instead, this plastic is often recycled for outdoor storing equipment such as: crates, and fencing.²²
3. **Polyvinyl Chloride (PVC):** Also referred to as *vinyl*, PVC is the most harmful plastics produced today. It leaks both carcinogens and lead, and when exposed to heat will emit Dioxin, a very toxic pollutant for human consumption. PVC is most commonly found in records, floor tiles, and pipes.²³
4. **Low-Density Polyethylene (LDPE):** Like HDPE, LDPE is safe to recycle. It is most commonly used in crafty items such as buttons, and is especially popular as plastic wrap and bags. Due to the necessary high temperatures to melt this plastic, LDPE is not often recycled, however the internet today offers creative ways to recycle this plastic in crafts due to its remarkable ability to shrink at temperatures around 200°C.²⁴
5. **Polypropylene (PP):** A strong and durable plastic that can withstand high temperatures, therefore making it hard to recycle. PP is most commonly found in food containers such

²¹ "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].; Lillian Siewert und Valérie Müller. "Wettkampf um den Müll" *Süddeutsche Zeitung*. Sept 10, 2014.

²² "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

²³ "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

²⁴ "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

as: yogurt, syrups, bottle caps, and medication containers, along with diapers and Tupperware. Although proven to be quite safe to use, PP may leach a biocide and should be used with caution.²⁵

6. **Polystyrene (PS):** Also known as *Styrofoam*, is most commonly used as food and box packaging. Although recyclable, PS requires special facilities and a lot of energy in order to be properly recycled. In most cases, Styrofoam is not accepted at recycling facilities for these reasons. PS is also known to leach carcinogens that can interfere with estrogen in the human body.²⁶
7. **Miscellaneous:** The final category of the SPI recycling symbols is the miscellaneous plastics that do not fall into the category of the above six plastics. This group includes plastics made from polycarbonate and polylactide most often used for objects such as: baby bottles, multi-gallon water bottles, compact discs, and medical storage containers. The plastics in this category vary with both biodegradable and non-biodegradable plastics which makes this category hard to recycle due to its inconsistent chemical makeup.²⁷

As apparent by this list, the chemical makeup of each type of plastic changes its function as well as its disposability. This project focuses strictly on HDPE plastic, as recommended by several youtube videos²⁸, because of its durability, reusability, and the low risk of carcinogens and harmful chemicals released during the recycling process. All of which makes it safe for those interested to do at home.

²⁵ "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

²⁶ "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

²⁷ "Plastic Garbage," Eco360, <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].; Gaby A., "The Very Important Guide of Plastic Safety." Cut out and Keep, <https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety> [accessed Dec. 3, 2016].

²⁸The youtube videos include: Peter Brown, "How to Recycle HDPE Plastic the Easy Way," youtube, <https://www.youtube.com/watch?v=VdUkOjIP0Ok&t=248s> https://www.youtube.com/watch?v=kUR6_bQLU-E&t=11s [accessed Nov. 10, 2016].; David Hakkens, "Precious Plastic-Create Things from Plastic," youtube, <https://www.youtube.com/watch?v=VdUkOjIP0Ok&t=248s> [accessed Nov. 10, 2016].; Taow, "How to Recycle HDPE Bottle Lids into Flawless Sheet Material-Best Results," youtube, <https://www.youtube.com/watch?v=rpXq6mnbCus&t=635s> [accessed Nov. 10, 2016].

Conclusion: DIY Plastic Recycling Options and Techniques

The largest consequence of using synthetic chemicals to produce one-time-use plastic is that it does not fully biodegrade. As a result, plastic has become a major pollution problem on Earth which kills populations of animals in the oceans and on land such as: sea turtles and birds, poisons our water, and litters forests and green spaces.²⁹ Although producing and consuming less plastic is the best option one has to help reduce the amount of plastic on our planet, this DIY recycling technique offers individuals an alternative solution with the certainty that the plastic is recycled, and reduce the individuals consumption of plastic.

DIY is a movement sweeping the western world as an effort to promote sustainable living, knowledge sharing and community. According to Anstiftung, a Munich foundation committed to DIY and urban gardening, the movement spawned from individuals interested in living sustainably.³⁰ The internet is currently filled with videos and blogs with DIY tips and ideas to make or repair products anywhere from cosmetics to furniture using tools and objects found in an average household. In larger urban areas, members of the community have even come together to open workshops that offer an environment where people can teach and learn mechanical skills that will help them repair items that would normally have been thrown away.

By using one-time-use plastic packaging from HDPE plastics one has the opportunity to create objects that they would normally buy at the store. As told shown by the accompanying “How to Guide”, melting the plastic is a safe and fun way to cut out the carbon foot print from disposing plastic at a recycling facility, and ensuring that the plastic is recycled properly. As additional benefits, one also lowers their carbon footprint by eliminating the energy needed to transport the plastic to and from recycling facilities, and saves money by using plastic packaging—that would otherwise have been thrown away—and transforming it into objects that would normally be purchased.³¹ In conclusion, we as consumers can make small changes in our

²⁹ For a visual please refer to the 2010 Mockumentary *The Amazing Journey of Plastic Bags* directed and narrated by Jeremy Iron. Also visit <http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage>

³⁰ Anstiftung, “Foundation Anstiftung,” <http://anstiftung.de/english>. [accessed Jan. 10, 2016]

³¹ According to the *Süddeutsche Zeitung* in 2014, In Germany, approximately 90% of the plastic disposed is collected. About 43% of that is recycled, and 55% is burned. It is also more complicated to recycle plastic than glass or paper. Considering that plastic has various densities and weights, modern machines are often unable to detect when thin plastic such as LDPE go through the automatic sorting machines, thus leaving them with the regular garbage. Lillian Siewert und Valérie Müller. “Wettkampf um den Müll“ *Süddeutsche Zeitung*. Sept 10, 2014.

own lifestyles, whether it be purchasing less plastic, or recycling it on your own or in a facility, as an individual effort to help lower the demand for plastic from large industries and reduce the amount of plastic on the planet. This project has given a brief history of the relationship between consumerism and plastic packaging, explained the different types of plastic and their uses, and offered a DIY solution to those who enjoy making positive change through creativity.

Bibliography

- “Plastic Garbage,” Eco360,
<http://www.sustainablecommunication.org/eco360/what-is-eco360s-causes/plastic-garbage> [accessed Jan. 5, 2017].
- A., Gaby. “The Very Important Guide of Plastic Safety.” Cut out and Keep,
<https://www.cutoutandkeep.net/projects/the-very-important-guide-of-plastic-safety>
[accessed Dec. 3, 2016].
- Anstiftung. “Foundation Anstiftung.” <http://anstiftung.de/english>. [accessed Jan. 10, 2016]
- Bennett, Jane. “Vibrant Matters: A Political Ecology of Things.” Duke University Press:
Durham. 2010.
- O’Brien, Martin. *A Crisis of Waste?: Understanding the Rubbish Story*. New York: Routledge.
2008.
- Hawkins, Gay. *The Ethics of Waste: How We Relate to Rubbish*. Lanham, Maryland: Rowman &
Littlefield Publishers Inc., 2006.
- Hopwell, Jefferson, Robert Dvorak and Edward Kosior. “Plastic Recycling: Challenges and
Opportunities.” *Philosophical Transactions: Biological Sciences*. No 1526 (July 27,
2009) 2115-2126.
- Personal interview with Amanda Boetzkes by author. Dec. 15, 2016, at the Rachel Carson
Center, Munich.
- Phillips, Anna Lena. “Bioplastic Boom: From the Dizzying Array of New Plant-Based, Some
Innovative Winners Emerge.” *American Scientist*. No.2 (March-April 2008) 109-110.
- Siewert, Lillian and Valérie Müller. “Wettkampf um den Müll“ *Süddeutsche Zeitung*. Sept 10,
2014.
- Strasser, Susan. *Waste and Want: A Social History of Trash*. New York: Henry Holt and
Company, 1999.
- Tooley, Jill. “The Different Types of Plastics and Their Classifications.” Quality Logo Products.
<https://www.qualitylogoproducts.com/lib/different-types-of-plastic.htm> [accessed Dec. 3,
2016].
- Wallace, Molly. *Risk Criticism: Precautionary Reading in an Age of Environmental Uncertainty*.
University of Michigan Press: Michigan. 2016.

Recommended Videos

Brown, Peter. "How to Recycle HDPE Plastic the Easy Way." Youtube.
https://www.youtube.com/watch?v=kUR6_bQLU-E&t=11s248s [accessed Nov. 10, 2016].

Hakkens, David "Precious Plastic-Create Things from Plastic," youtube,
<https://www.youtube.com/watch?v=VdUkOjIP0Ok&t=248s> [accessed Nov. 10, 2016].

Taow, "How to Recycle HDPE Bottle Lids into Flawless Sheet Material-Best Results," youtube,
<https://www.youtube.com/watch?v=rpXq6mnbCus&t=635s> [accessed Nov. 10, 2016].

Iron, Jeremy. *The Amazing Journey of Plastic Bags*. Heal the Bay Association, 2010. Film