

Material Reflection 1

A material that is important in everyone's lives is plastic. Plastic is made from cellulose, coal, natural gas, and crude oil; Its structure is made up of condensed polymers (1). There are many different types of plastics with different structures and thus, each plastic has their own use. To start with, there are two main types of polymer families for plastics: thermoplastics and thermosets. Thermoplastics soften on heating and harden on cooling while thermosets never soften once they have been molded (1). An example of a thermoplastic is polycarbonate, which is commonly used in plastics lenses in eyewear, medical devices, protective gear, and greenhouses (2). An example of a thermoset is polyurethane, which is used in apparel, sporting goods, and some building materials (3). Both types of plastics have a great number of uses as materials, making up the clothing we wear, the building materials we use in our homes, and even the containers we use to store foods and beverages. Some plastics can even be recycled and reused as different products. Thermoplastics are easier to recycle than thermosets. However, when plastic is not recycled properly, it can lead to very harmful waste. This is especially seen in the case of microplastics, which are when the secondary bonds on plastic break down, leaving the hard to break down primary bonds around. These primary bonds make up small particles that are referred to as microplastics. Microplastics that are consumed by living organisms can cause serious health risks. Microplastics can also be breathed in and harm an organism's respiratory system.

If plastic did not exist, our world would be completely different. Our industrious mindset as humans relies heavily on products made from plastics. This is because plastics, while having many uses, are also easy to manufacture and mass produce. The containers, building materials, and clothing apparel we use could most likely be made of other materials and thus, we would not

necessarily rely on plastic for them. However, most of our technological devices, like our phones, computers, and TVs, are made of plastic. Without it, they would not be as efficient as they are or would not be as mass produced. Getting rid of plastic would help improve the environment. It would get rid of the chances of the risks and deaths concerned with animals ingesting plastic. But it would also decrease the amount of waste made up of plastic on the earth. Currently, there is 75-199 million tons of plastic in the ocean (4). In 2018, landfills received 27 million tons of plastic (5) and in 2021, landfills received 40 million tons of plastic (6). This plastic sits and accumulates and continues to harm the environment. Without plastics, food waste would increase, vehicles would be heavier causing increased fuel costs, and medical care would be more of a challenge (7). Overall, without plastics, our lives would be a lot less efficient, but our environment would be cleaner and safer. Hopefully, in the future, we will be able to move away from using plastics and find something that is just as useful but biodegradable.

Works Cited

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6. <https://www.statista.com/topics/5127/plastic-waste-in-the-united-states/#editorsPicks>
7. [Human beings cannot live without plastics for one hour - RECYCLING magazine \(recycling-magazine.com\)](#)