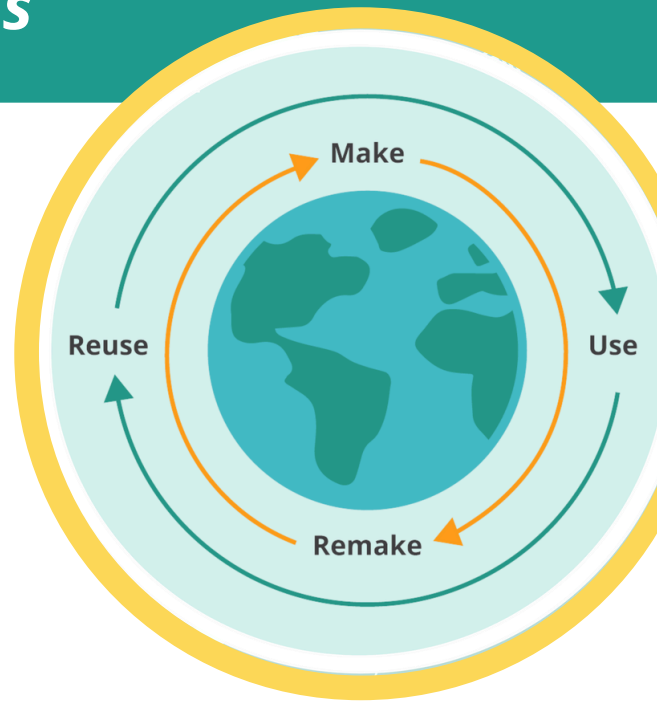


Different Types of Plastics

We see plastic everywhere. It has many qualities such as durability, flexibility, being light-weight and not reacting with other chemicals has made it a popular material choice for many products. Many people assume all plastic have the same composition, however, there are many kinds of plastics. Their application is chosen based on the unique strength, flexibility and weight of each kind. Although there are many types of plastics – known as polymers – Polyethylene is the most common type of plastic used in the world. There are three common types of polyethylene plastic used in our economy – high-density, low-density and linear low-density. Below are the common and popular types of plastics that we interact with daily (Plastics Industry Association, 2021).



Polyethylene Terephthalate (PETE or PET)



PET is a widely used plastic material. It is lightweight, strong and often transparent. The common application of PET is food packaging, such as water bottles, and fabrics in the form of polyester (Plastics Industry Association, 2021).

High-Density Polyethylene (HDPE)



High density Polyethylene HDPE is the strongest kind of polyethylene. Its strength and resistance to moisture make it an effective material to use for food packaging – most commonly used for beverage containers, such as storing milk as the gallon milk jugs are usually created from HDPE. Other applications include making pipes and plastic lumber to withstand extreme weather conditions and changing temperatures (Plastics Industry Association, 2021).

Low-Density Polyethylene (LDPE)



Low-Density Polyethylene (LDPE) “is a softer, clearer, more flexible version of HDPE—and it has its own strengths as well. It's often used as a liner inside juice and milk cartons, and it's used in corrosion-resistant work surfaces and other products, such as six-pack rings and plastic wrap” (Plastics Industry Association, 2021).

Linear Low-Density Polyethylene (LLDPE)



LLDPE is created by changing the chemistry of LDPE. LLDPE is most commonly used in plastic bags as they are tear and puncture resistant. Other common applications include using them for toys, pouches, and cable applications as they also hold well against chemical solvents (Plastics Industry Association, 2021).

Polyvinyl Chloride (PVC/vinyl)



“PVC is an incredibly durable material that's resistant to weathering, which is why it's so often used in building and construction applications. Common uses include flooring; siding; and indoor and outdoor plumbing, which uses PVC pipe. It's also resistant to chemicals and doesn't conduct electricity, making it crucial for use in high-tech applications, such as wire and cable. It's widely used in medical applications today because it's impermeable to germs, is easily cleaned and provides single-use applications that reduce infections in healthcare” (Plastics Industry Association, 2021).

Polypropylene (PP)



“PP is more heat resistant than some other plastics, making it ideal for use in food packaging and food storage that's made to hold hot items or be heated itself.

It's another plastic that's chemically inert and durable, particularly when a product needs to be opened, closed or bent—like a hinge repeatedly (think of a DVD box). PP stretches to allow a consumer access to a product inside but retains its shape and strength for a long time” (Plastics Industry Association, 2021).

Polystyrene or Styrofoam (PS)



“Polystyrene is among the most diverse plastic materials, able to be processed in a way that produces packing peanuts, home insulation and even red party cups. It's also one of the only materials that can be recycled or chemically processed to return to its original state. All these materials are recyclable, but often the process of recycling can cause some of them to lose important characteristics. In certain processes, used PS can be returned to its original state, losing none of the properties that made it so useful and diverse in the first place” (Plastics Industry Association, 2021).

Polylactic Acid (PLA)



(Plastics Industry Association, 2021).

“More and more items, such as takeaway storage containers, cups and utensils, are being made with polylactic acid, a biodegradable bioplastic. Its biodegradability makes it ideal for sensitive medical applications, including implants, rods, and screws. It's also one of the most popular plastics used in at-home 3D-printing applications” (Plastics Industry Association, 2021).

Recycling Plastics

Plastics often include a triangle or a recycling symbol on them with a number inside it. This is called the *Resin Identification Code (RIC)* – which is a universal code that indicates what the plastic is made from (i.e., its chemical composition) and indicates how it should be recycled. In the case of apparel, the items may indicate the composition, like this 100% Acrylic winter scarf.



As we look at different plastics around us, we may notice that some plastics do not have a symbol on them or a label indicating the chemical composition of the plastic product at hand. This is usually the case with apparel. This is an important consideration to note that not all plastic is labeled with the RIC code or its composition. This poses a challenge for recycling as it is not easy to find out what they are made from and therefore, cannot be easily recycled. Canadians throw away almost 3 million tonnes of plastic waste annually. Out of which only 9% of plastic is recycled in Canada—which means 91% of the plastic ends up in landfills and worse, the environment (Government of Canada, 2020). This shows we need to do a lot of work to move to an economy that does not generate plastic waste.

References

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