

What are Plastics?

Plastics are incredibly versatile materials that can be used to make a variety of products. They are lightweight yet durable, strong yet malleable, and relatively inexpensive to produce. Plastic is everywhere in our modern world, from packaging to vehicles, electronics, clothing and so much more.

Because of the vast variety, it can be difficult for consumers to determine the type of plastic being utilized. In order to identify different types of plastics accurately, the Resin Identification Code (RIC), was developed in 1988 by the Society of Plastics Industry (SPI). The system is designed to help sort and recycle post-consumer plastics more efficiently by dividing plastics into seven distinct categories according to their chemical structure and polymer composition. By having an organized way to identify different types of plastic materials, it has become easier for manufacturers, recyclers, and waste specialists alike to categorize plastics properly. There are 7 types of plastic.





Type 1: Polyethylene Terephthalate (PETE or PET)

Is one of the most common types of plastics in use today. It is a strong and lightweight form of plastic, often used for water and soda bottles, along with other food-grade containers or packaging.

This type of plastic is considered to have low toxicity levels and **can be recycled multiple times** without any significant lost in quality. PETE does not pose any health risks, but products made from this type of plastic should not be reheated as it could cause leaching. It's durability makes it a popular choice to create long-lasting products such as curtain rods or furniture frames. To identify if a product is made from PETE, check for the number one inside a triangle located on the bottom of the product. As PET can be recycled and reused several times, it serves the environment well by reducing waste in landfills. Reusing this type of plastic also reduces our consumption of fossil fuels since there is no need to make new materials each time.





Type 2: High-Density Polyethylene (HDPE)



Is a type of plastic which is quite common in everyday life. It can be used for things like packaging material, containers, bottles and pipes. One of the most beneficial features of HDPE is its strength to weight ratio, which is why it is used for a variety of applications where it needs to be **lightweight yet durable**. This strong yet lightweight nature also makes it easy to store and transport. It has excellent resistance to impact, making it highly resistant to cracking or shattering and providing good protection for consumer goods.

Also, HDPE has excellent resistance to many chemicals, meaning it can resist acidic and alkaline solutions as well as organic solvents. This makes HDPE an ideal choice for things such as chemical storage tanks or containers which will hold hazardous materials or corrosive substances. Another benefit of using HDPE is its ability to maintain its shape over time; this makes HDPE suitable for many long-term applications such as piping systems that need ongoing stability and performance.



Type 3: Polyvinyl Chloride (PVC)

is a very versatile and widely used type of plastic. It can be found in pipes, tubes, windows, siding, flooring, cables and even medical products. One of its main features is its ability to withstand chemicals and weather conditions. It also has very **good fire resistance** making it ideal for many applications. PVC has high tensile strength, meaning it can support heavier loads than other plastics. Additionally, PVC is more cost-effective than other plastics which provides savings both in terms of money and energy resources when manufacturing. PVC also offers long lasting **durability** due to its non-corrosive properties. This makes it perfect for outdoor use as it will not warp or deteriorate over time in harsh conditions. PVC does not release toxic fumes when exposed to high temperatures which makes it safer to use for many different applications. All these benefits make PVC an excellent choice for many projects requiring durable and safe plastics.





Type 4: Low-Density Polyethylene (LDPE)

Is a thermoplastic with a low melting temperature and is malleable, making it an ideal material for use in a variety of applications. The light weight, low viscosity, and **ability to form shapes easily** make LDPE a popular choice for consumer products such as food containers, beverage bottles, and even toys. Its properties also make it ideal for use in industrial applications, such as electrical insulation, packaging film, and agricultural coatings.

LDPE is also increasingly being used for medical purposes due to its non-toxicity and chemical resistance.

It is often recycled into film and packaging materials which can be reused for various applications. While LDPE may lack the durability and strength of other types of plastic, it does offer cost-effectiveness and environmental sustainability.





Type 5: Polypropylene (PP)

Is a lightweight, yet strong and versatile type of plastic, making it a popular choice for many industries. This thermoplastic is semi-rigid and offers **good heat and chemical resistance**. PP is commonly used in food packaging, textiles and consumer products such as disposable diapers, stationary, bottle caps and straws. It can also be found in household objects such as kitchen containers, toys and car bumpers. One of polypropylene's key qualities is that the material is recyclable since it does not easily lose its properties when exposed to water or heat. This means that it can be used again for manufacturing new products or remolded into new shapes. The **durability of PP combined with its recyclability** make it desirable for many applications where sustainability is important.





Type 6: Polystyrene (PS)



Is a type of plastic that has been used in a wide range of products for decades. It is a common item found around the home, and is most widely recognized by its use in disposable cutlery and packing material. This type of plastic is created from the polymerization of styrene monomer with a variety of other materials, such as rubber or acrylics. The result of this process is a lightweight, rigid plastic which can be used to create thin sheets or foam insulation boards. Polystyrene is also a very popular material for making kitchen products. Food containers made from this type of plastic are generally heat-resistant and non-toxic, making them ideal for storing food items in the fridge or freezer. The plastic's lightness makes it easy to carry and transport items. It can be molded into intricate shapes and forms to create furniture components or electronic parts, such as toys or phone cases. Additionally, polystyrene can be combined with other plastics to provide additional strength or protection against wear and tear. Despite being lightweight, it has excellent durability and will last for years with careful care and maintenance.



Type 7: Other

Polymer resins that don't fall within the first 6 categories of plastics are classified as Type 7.

These polymers, also known as miscellaneous plastics, **contain other materials** like silica or glass, and do not have consistent chemical composition. Examples of Type 7 plastics include nylon plastic bags, polycarbonate hard water bottles, and acrylic paints.

