

## Know Your Plastics

Plastic plays an important role in our modern world. Plastic can be molded into almost any shape because of its long chain polymer molecules. The majority of plastics are produced from oil and natural gas. There are more than ten thousand types of plastic in use today. Hydrocarbons can be linked in different ways to make many different kinds of plastic polymer. Each type has its own specific qualities. For example, when polymer strands are held tightly together, the plastic is stiff and tough. When the strands can slip easily over one another, the plastic is very flexible and bendable. There are seven main types of plastics in use today.

Polyethylene is very tough, yet it maintains soft, flexible qualities. This is one of the most widely used types of plastic. Most people would recognize it as the type of plastic we use for soda bottles, plastic grocery bags, toys and shampoo bottles. Developed in 1933, polyethylene is one of the oldest types of plastic around.

High density polyethylene is more commonly recognized as HDPE. HDPE is especially tough. It is basically a thicker, denser form of polyethylene. It is harder and more opaque than polyethylene. HDPE is used to make plastic trash cans, thicker toys (like rubber duckies), laundry detergent bottles and milk jugs.

Low density polyethylene is what we refer to as LDPE. The polymers are more loosely packed. LDPE plastic is very light and flexible. This is the type of plastic used for packaging bread and for kitchen food-wrap. It is also used for making various containers and the plastic rings that hold together six-packs.

PVC, or polyvinyl chloride, is one of the hardest plastics around. Most people are familiar with what a white PVC pipe is. It is also used for sewer pipes and widely used in construction as a building material. Vinyl siding and credit cards are other common uses. When softened with plasticizers, it can be used to make medical blood bags, shoes and upholstery.

Polypropylene is a rugged plastic that is highly resistant to most acids and solvents. Therefore, it is the plastic of choice for containing medicines and harsh chemicals. Polypropylene is used to make photographic film because the plastic isn't harmed by all the chemicals used to develop film.

Polypropylene is somewhat flexible but resistant to wearing out, so it's used on hinged caps for products like mints or liquid coffee creamer.

Polystyrene is hard and clear when it is molded. It is used to make CD cases. If you inject it with tiny gas bubbles, you get the light-weight foam used to package eggs. It's a good insulator and is used to make coffee cups and plastic cutlery as well. It is used most commonly to make Styrofoam.

The last type we'll discuss here is Polycarbonate. Polycarbonate is super strong, very hard to break and can withstand a lot of heat. We use it to house electronics, make MP3 players, compact discs and DVDs. Because it has high optical and mechanical properties, it is also used to produce sunglass lenses and safety glasses.

## About the Author

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