Plastics

By: Adriana Ruiz, Paula Martínez, Gonzalo Alvarez and David Márquez

Contents:

ntroduction:

Today, we are going to talk about plastics, about their types, some examples, symbols they use to identify them, the structure of their molecules...

But first, when you listen to the word plastic, what do you think about?

You think about bottles of water, you can also think about the parts of a car, about clothes, glasses, dishes

But plastic is not always like that. Plastic is most time is harmfull and it can cause cancer, or other things. And also, animals die because of our dirtiness.

There are beaches full of plastic also, because we don't appreciate the things we have and we are also dirty.

We will talk about some resolutions later, so wait.

Plastic symbols

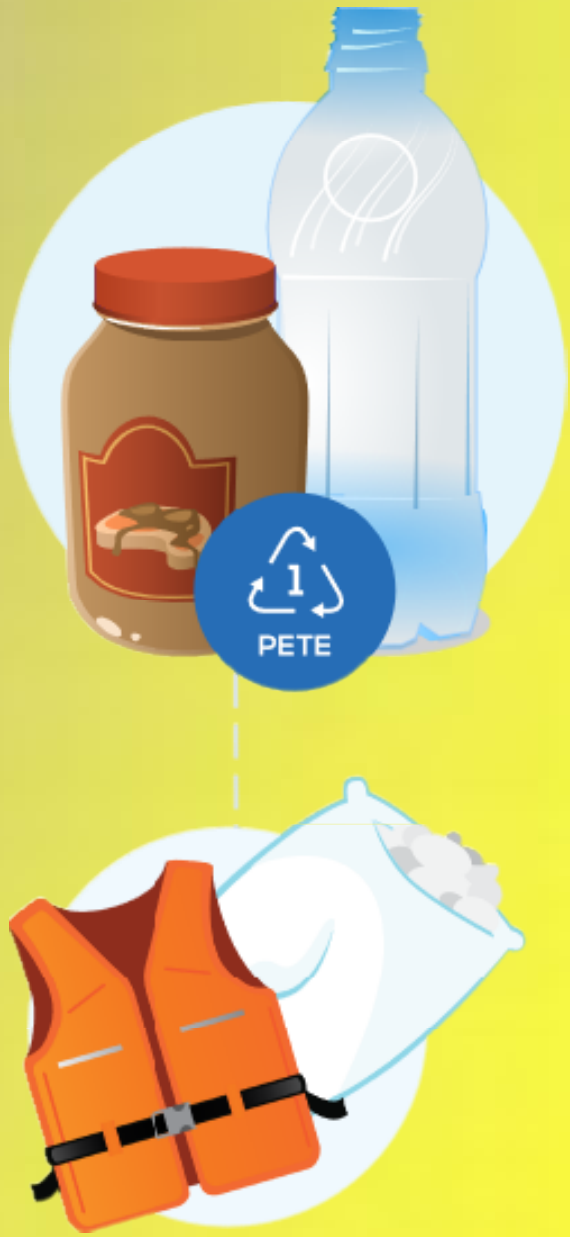
1. PET
2. HDPE
3. PVC
4. LDPE
5. PP
6. PS

1 PET (Polyethylene Terephthalate)

PET-based containers sometimes absorb odors and flavors from foods and drinks that are stored inside of them.

Items made from this plastic are commonly recycled.

PET plastics make up 96% of all plastic bottles and containers in the United States, yet only 25% of these products are

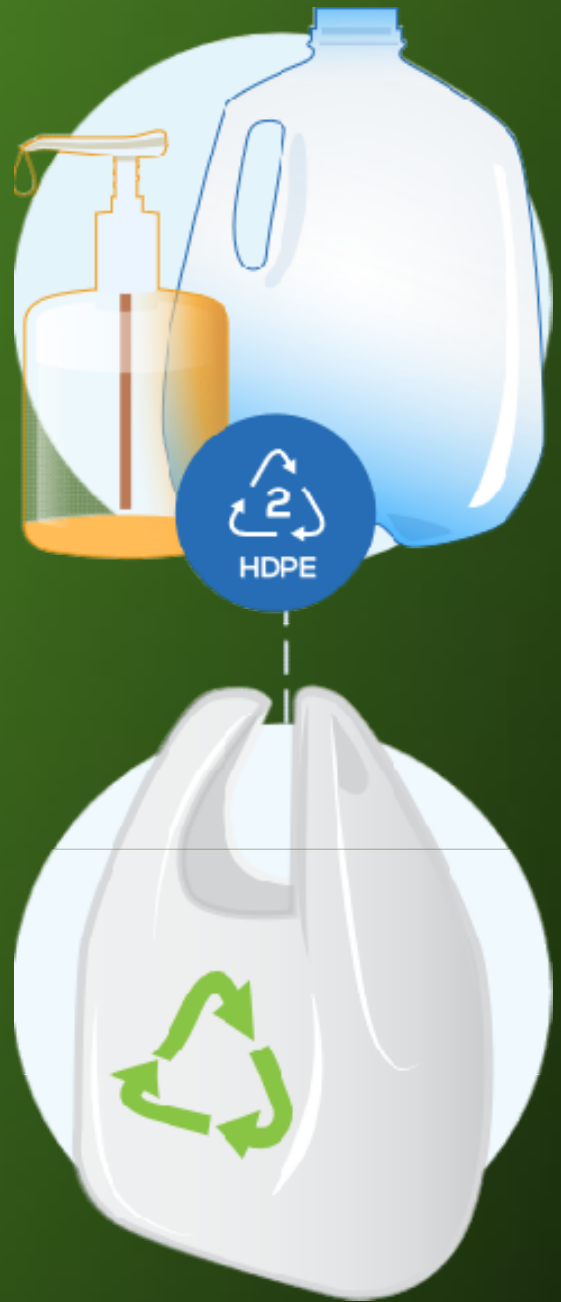


2. HDPE (High-density Polyethylene)

HDPE products are very safe and are not known to leach any chemicals into foods or drinks.

HDPE products are commonly recycled.

HDPE is the most commonly recycled plastic because it will not break under exposure to extreme heat or cold.

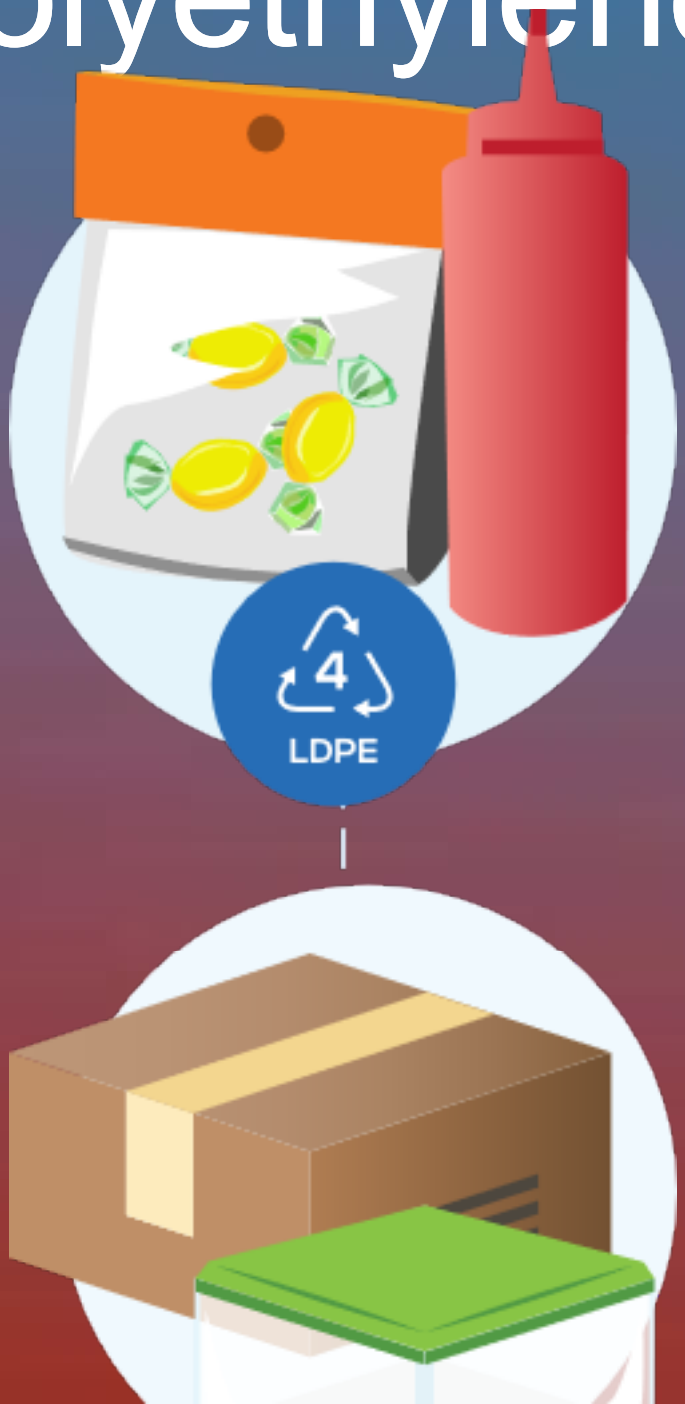


3. PVC (Polyvinyl Chloride)

- PVC is not often recycled and can harmful if ingested. PVC is used fo all kinds of pipes and tiles, but it's most commonly found in plumbing pipes. This kind of plastic should n come in contact with food items. Recycled PVC is used to make flooring, mobile home skirting, and other industrial-grade items.

- It has been called the “poison plas because it contains numerous toxi and is harmful to our health and th

4: LDPE (Low-Density Polyethylene)

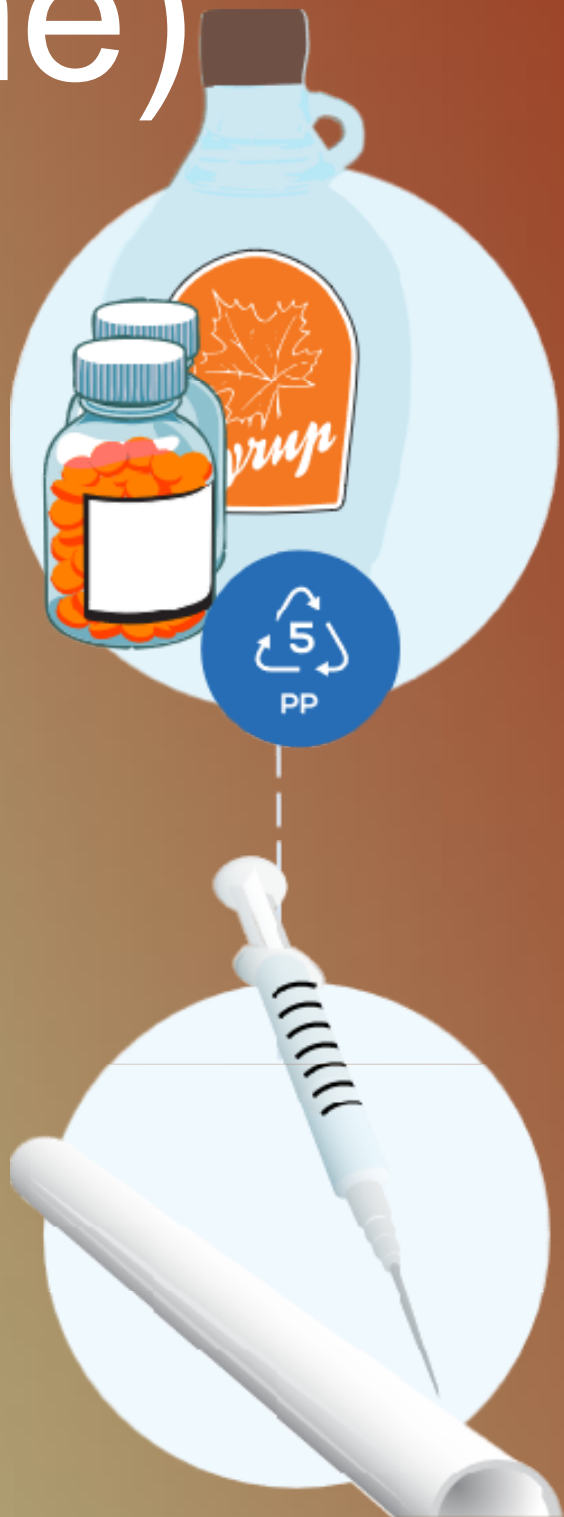


- LDPE is not commonly recycled, but it is recyclable in certain areas. It tends to be both durable and flexible. It also is not known to release harmful chemicals into objects in contact with it, making it a safe choice for food storage

5. PP (Polypropylene)

PP can be recycled but is not accepted for recycling as commonly as PET or HDPE. This type of plastic is strong and can usually withstand higher temperatures.

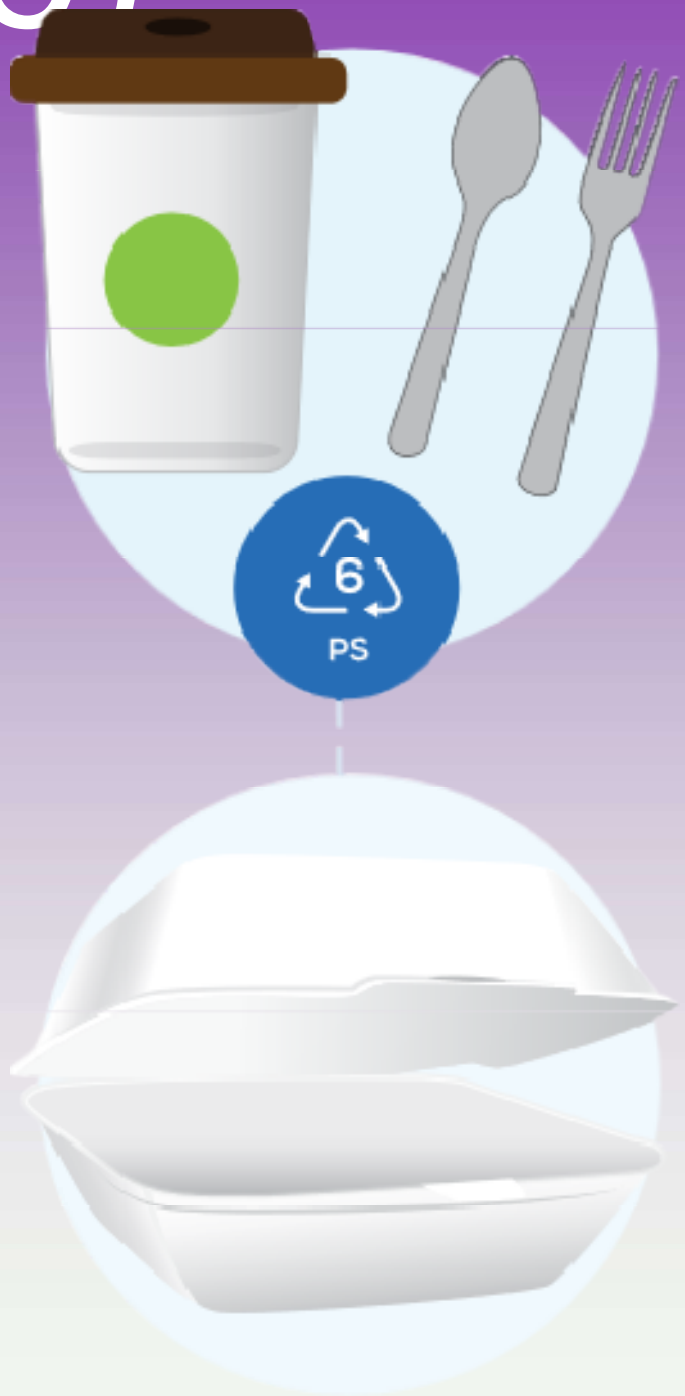
A lot of this plastic is created every year, but only a small fraction of it is actually recycled.



6. PS (Polystyrene)

PS can be recycled, but not efficiently; recycling it takes a lot of energy, which means that few places accept it.

Since polystyrene is lightweight and easy to form into plastic materials, it also breaks easily, making it more harmful to the



7. OTHERS

Polycarbonate and polylactide are included in this category. Plastic CDs and DVDs These types of plastics are difficult to recycle.

It's best to avoid #7 plastics, especially for food products. It is not very easy to break down these plastics once they are created, unless they are exposed to high

Types of plastic

Polyamides or nylon (PA) - Fibers, toothbrush bristles...

Policarbonate (PC) - Compact discs, security windows, traffic lights and lenses...

Polyester (PES) - Textiles...

Polyethylene (PE) - There are three types:

- High-density polyethylene (HDPE) - Detergent bottles, milk jugs...

- Low-density polyethylene (LDPE) - Outdoor forniture, shower curtains...

- Polyethylene terephthalate (PET) - carbonated drinks bottles, peanut butter jars, plastic
n...

Polypropylene (PP) - Toys, automobile parts, loudspeakers, containers...

Polystyrene (PS) - Refrigerators, air conditioners, ovens, microwaves, vacuum cleaners...

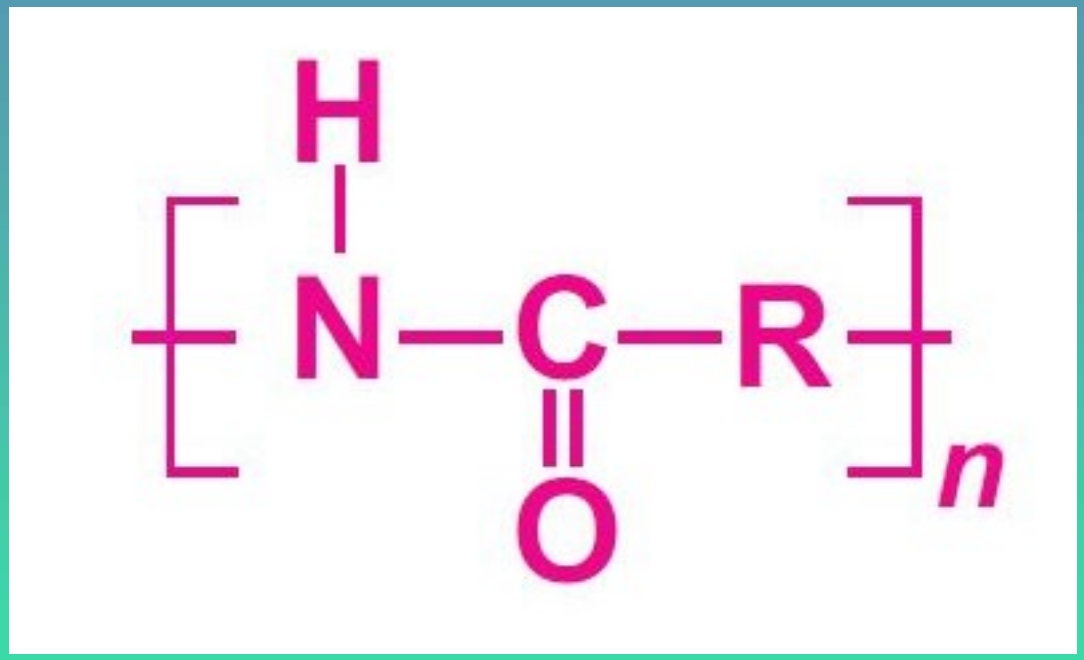
- High impact polyestyrene (HIPS) - Automotive industry, food services, office products...

Polyamides or nylon (PA)

The name "nylons" refers to the group of plastics known as polyamides.

The majority of nylons tend to be semi-crystalline and are generally very tough materials with good thermal and chemical resistance.

Nylons absorb moisture from their surroundings. This absorption continues until equilibrium is reached and can have a negative effect on dimensional stability.



There are many types of nylon available (nylon 6, ny
66, nylon 6/10)

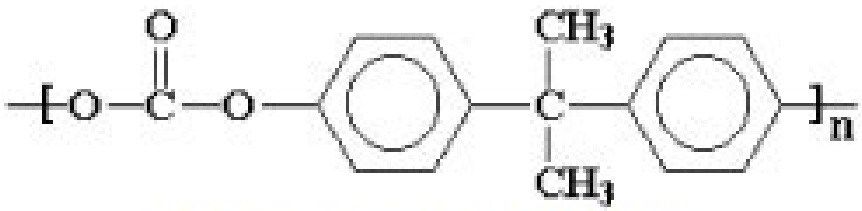
Nylon fibres are used in textiles, fishing line and carpets. Nylon films is used for food packaging, offer toughness and low gas permeability.

Moulding and extrusion compounds find many applications as replacements for metal parts, for instance in car engine comppnents.

Polycarbonate (PC)

Polycarbonate plastics are a naturally transparent amorphous thermoplastic.

Polycarbonate polymers are used to produce a variety of materials and are particularly useful when impact resistance, or for making light pass through them.



Polycarbonate Structure

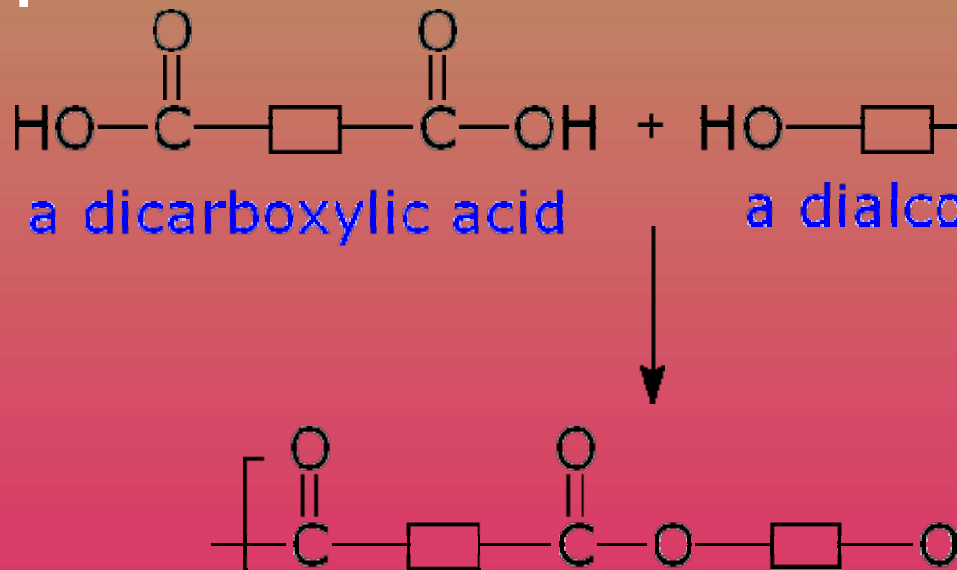
Another feature of polycarbonate is that it is very pliable. It can typically be formed at room temperature without cracking or breaking, similar to the alluminium sheet metal.

Polycarbonate is also an amorphous material, meaning that it does not exhibit the ordered characteristics of crystalline solids.

Polyester (PES)

Polyester is a category of polymers that contain the ester functional group in their main chain.

Depending on the chemical structure, polyester can be a thermoplastic or thermoset. But the most common polyester are thermoplastics.

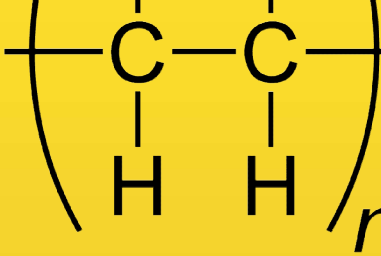


We know that polyester it is a fabric, and that is has certain qualities, which makes it a great choice for clothing.

It is made by mixing ethylene glycol and terephthalic acid.

It was used in the suits of the 70's, like for example, the movie of Saturday Night Fever.

Polyethylene (PE)



Polyethylene is a type of plastic with large range of applications depnding on the particular.

There are three types:

- High-density polyethylene (HDPE) - Detergent bottles, milk jugs...

- Low-density polyethylene (LDPE) - Outdoor forniture, shower urtains...

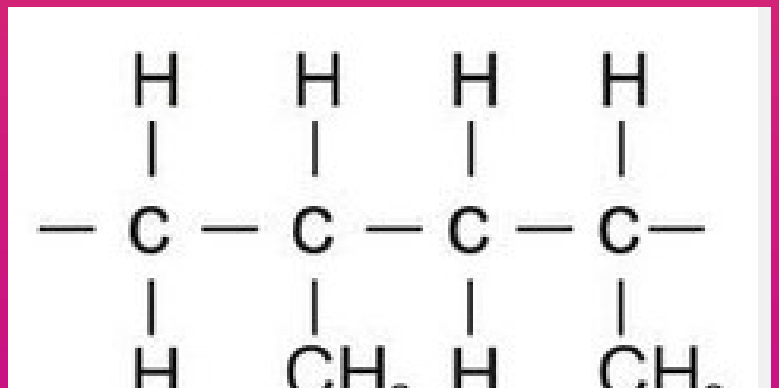
- Polyethylene terephthalate (PET) - carbonated drinks bottles, eanut butter jars, plastic film...

Polyethylene is a thermoplastic polymer with variable crystalline structure. It is one of the most widely produced plastics in the world. The commercial process that made PE such a success was develope in the 1950s.

Polypropylene (PP)

Polypropylene is a thermoplastic made from the combination of propylene monomers.

It is used in a variety of applications: packaging for consumer products, plastic parts for various industries, special devices...



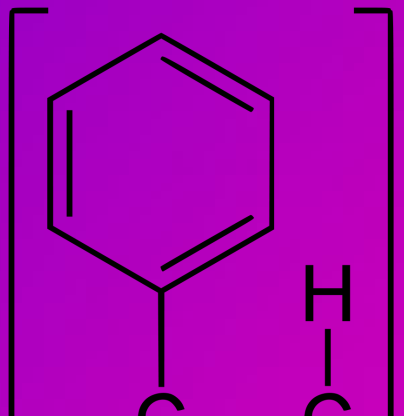
Polypropylene was first polymerized in 1951 by a pa
of Phillips petroleum scientists.

Polypropylene has a relatively slippery surface which
can make it a possible substitute for plastics in low
friction applications like gears or for use as a contact
point for furniture.

Polystyrene (PS)

Polystyrene is a naturally transparent thermoplastic that is available as both a typical solid plastic as well in the form of a rigid foam material.

It has several applications: variety of consumer applications and it is also particularly useful for commercial packaging.



environmental groups because it is slow to biodegrade and is increasingly present as outdoor litter.

The solid plastic form of polystyrene is commonly used in medical device applications like test tubes or petri dishes, or in day-to-day items like the housing on your smoke detectors, the case you used to buy your CDs in, and frequently as a container for foods like y

Posible solutions

To recycle plastics inside the high school we should put recycle bins so that everyone would throw their plastics into them and later send them to fabrics to b treated.

To reobtain plastics, those plastics would be treated in workshops inside the high schools to be used in technology practises.

Also, as we saw in the video, of technology class, we shouldn't throw the plastics to the ocean, river or lake, because if we do that, what we are really doing is damaging the ecosysteme and polluting.

/ideo

How plastic is recycled.

https://www.youtube.com/watch?v=f3BjWvTT9Ro

Bibliography

https://www.creativemechanisms.com/blog/everything-you-need-to-know-about-polycarbonate-pc

http://www.essentialchemicalindustry.org/polymers/polyamides.html

https://es.wikipedia.org/wiki/Poliéster

https://www.britannica.com/science/polyethylene

https://www.chemicalsafetyfacts.org/polystyrene-post/

https://www.thoughtco.com/what-is-polypropylene-820365

https://www.qualitylogoproducts.com/promo-university/different-types-of-plastic.htm

The End