LOS PLÁSTICOS

PLASTIC MATERIALS

@miguetecnologia
Departamento de Tecnología

PLASTIC MATERIALS

Haz clic sobre los códigos QR para ver los vídeos.

PLASTIC MATERIALS

1 THE ORIGIN OF PLASTIC

Video: History of plastics

Nueva Tecnología

1 THE ORIGIN OF PLASTIC

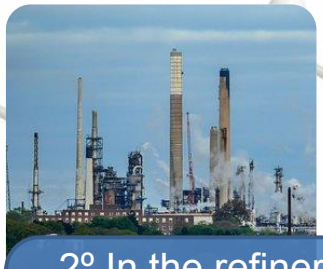
A plastic is a material made up of chains of carbon MOLECULES (together with other elements) called **polymers**. These chains are repeats of small molecules called **monomers.**

BY NC SA

1 THE ORIGIN OF PLASTIC

Polymerization

1º Oil is extracted from oil wells



2º In the refineries the desired hydrocarbon is obtained

3º It is stirred in a reactor together with the additives.

The polymer in granules is obtained.

Nueva Tecnología

1 THE ORIGIN OF PLASTIC

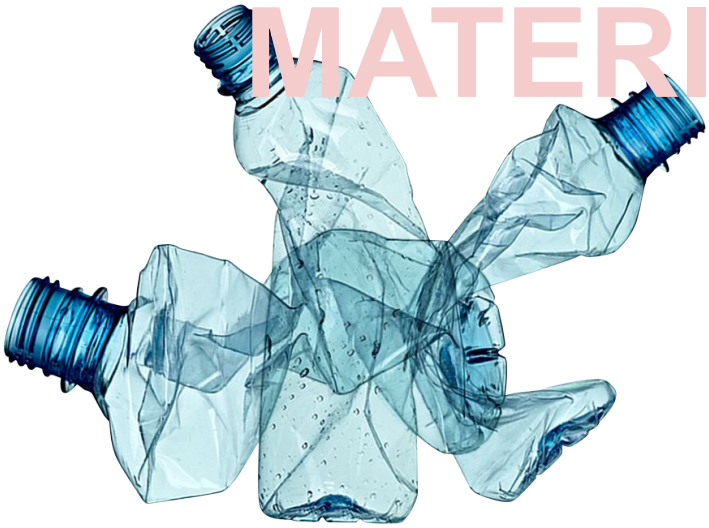
Polymerization

ADDITIVES: a substance added to something in small quantities to improve or preserve it.

e.g. color

BY NC SA

PLASTIC MATERIALS



2 CLASSIFYING PLASTICS

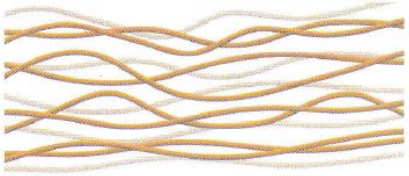
Vídeo: tipos de plásticos

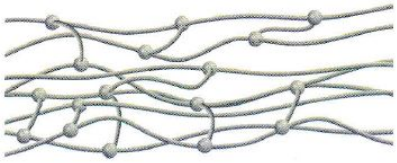
Nueva Tecnología

2 CLASSIFYING PLASTICS

Not all plastics are the same; to distinguish them we classify them according to their properties.

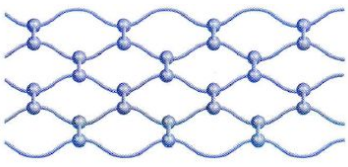
THERMOPLASTICS





THERMOSETTING

ELASTOMERS



BY NC SA

THERMOPLASTICS

www.blogdefarmacia.com

Los plásticos más seguros para la salud

HDPE (polietileno de alta densidad)
Tapers (como los de asas que se engrampan), botellas de yogur, etc.

PP (polipropileno)
Vajilla de plástico duro. Recipientes de plástico opacos como biberones.

PET (polietileno tereftalato)
Botellas de agua, refrescos y otras bebidas. No deben reutilizarse. La estructura de este plástico se altera a partir de los 18 ºC. Las sustancias que lo componen, como el antimonio, migran hacia el contenido.

LDPE (polietieno de baja densidad)
Recipientes para ensaladas (se usan en los supermercados) y bolsas transparentes de plástico.

Plásticos que debemos evitar

PVC y V (policloruro de vinilo)
Empaques transparentes para alimentos, película de pástico pegajoso, potes de aceite para cocina pueden desprender BPA (bisfenol A) y ftalatos.

Otros
Desprenden bisfenol A en el contenido del recipiente.

PS (espuma de poliestireno)
Productos descartables (vasos, bandejas de tecnopor).
Tenga cuidado: el estireno es un producto químico potencialmente tóxico que se libera cuando el recipiente de plástico se usa para guardar o calentar alimentos o líquidos a temperaturas mayores a 80 ºC.

Nueva Tecnología

2 CLASSIFYING PLASTICS

2 CLASSIFYING PLASTICS

OTHER THERMOPLASTICS

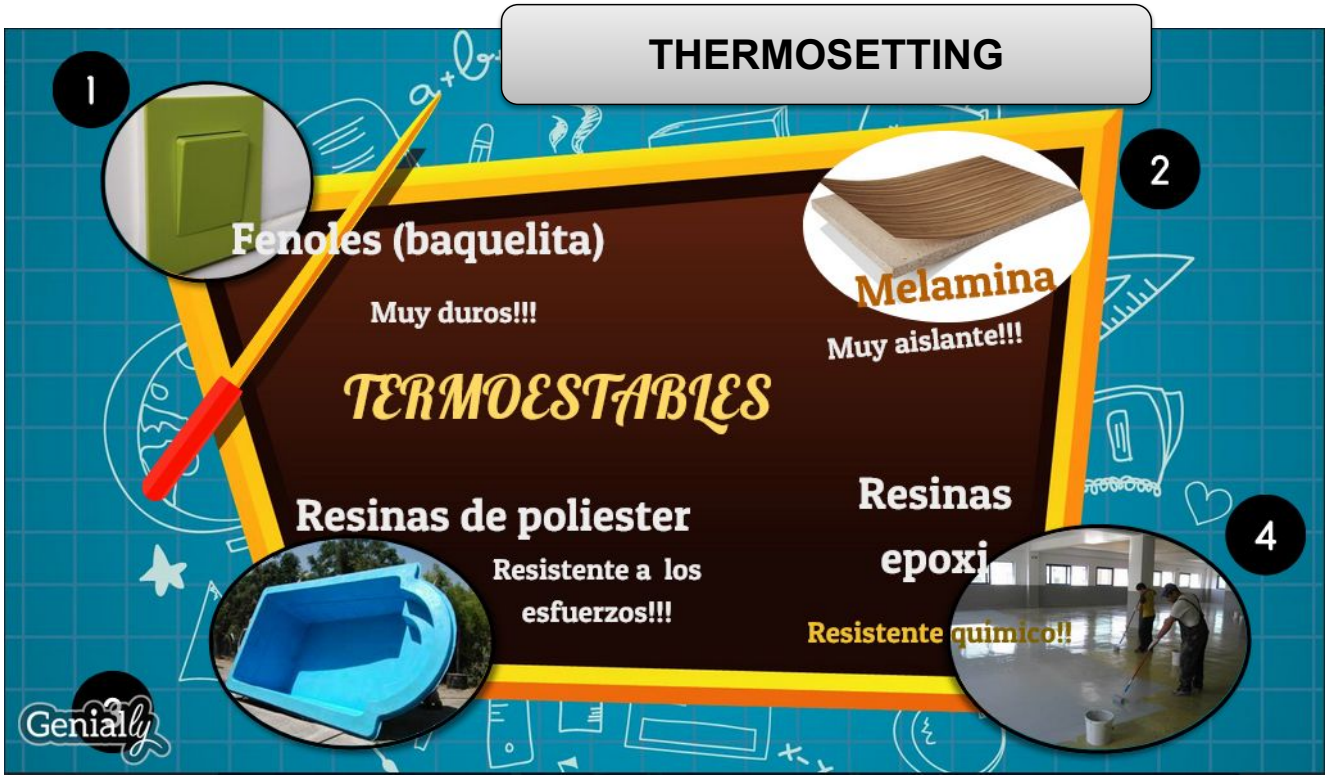
Policarbonato (pc)

Metacrilato

Teflón

Nueva Tecnología

THERMOSETTING



pixabay

Nueva Tecnología

PLASTIC MATERIALS

3 PLASTIC FORMING TECHNIQUES

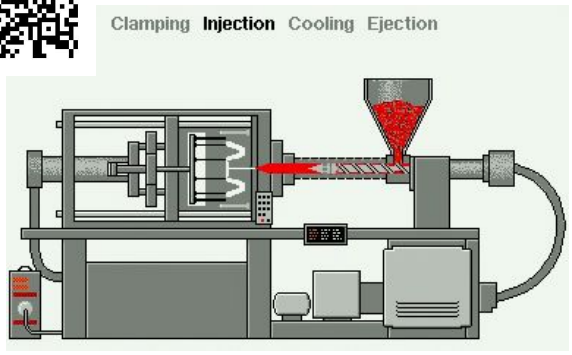
Video: Injection forming

CC BY NC SA

Video: Injection forming

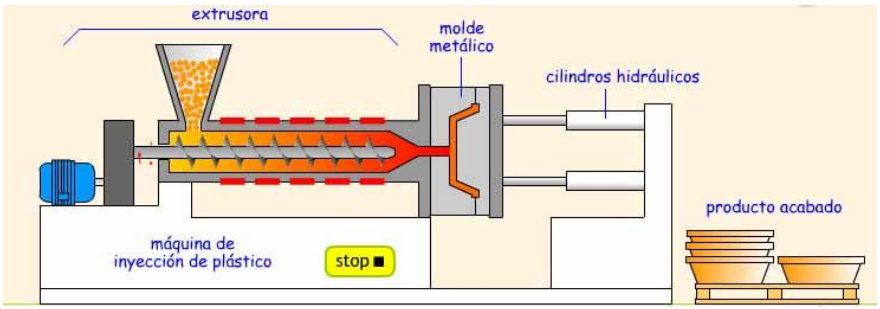
3 PLASTIC FORMING TECHNIQUES

INJECTION MOLDING



1º.- The granules are dragged by the movement of the screw to melt by the action of the heating bands.

2º.- The melted mass is pushed by the screw, injecting it into the mold that will give it its shape.



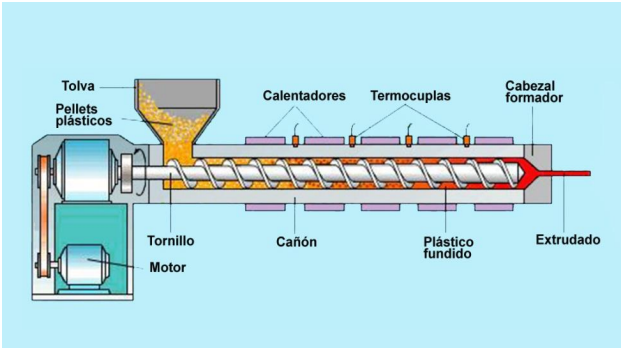
3º.- Once the material has cooled, the piece is removed from the mold.

With it, pieces with complicated shapes are obtained

Nueva Tecnología

3 PLASTIC FORMING TECHNIQUES

EXTRUSION



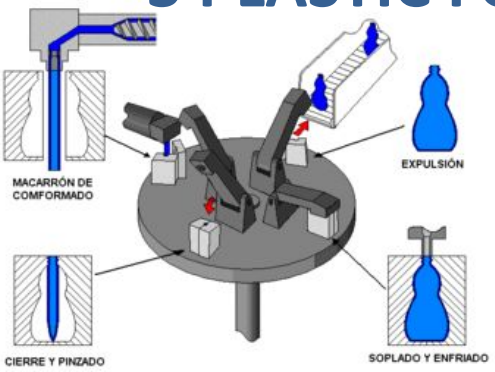
1º.- The granules are dragged by the movement of the screw to melt by the action of the heating bands.

2º.- The molten paste is pushed by the rotating screw and forced to pass through a nozzle that will shape the object.

It is used to obtain carpentry profiles, tubes, pipes…

BY NC SA

3 PLASTIC FORMING TECHNIQUES



BLOW MOULDING

1º.- A cylinder called a preform is inserted into a hot hollow mold.

2º.- The mold is closed and hot pressurized air is introduced so that the material adapts to the mold.

3º.- Once cold, the mold is opened and the piece is extracted.

This process is used to obtain bottles and similar products.

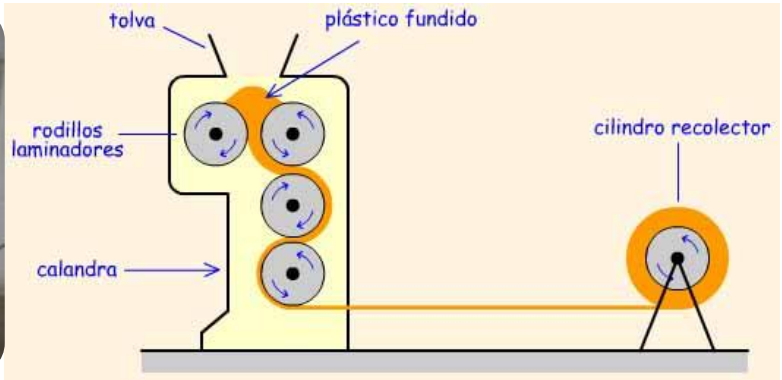
Video: Blow Molding

Nueva Tecnología

3 PLASTIC FORMING TECHNIQUES

CALENDERING

In calendering, thin sheets of plastic are made by passing the plastic under pressure through some rollers. Examples of this type of forming are plastics for greenhouses, films, acetates...



PLASTIC MATERIALS

4 RECYCLING

Video: Plastic pollution

Nueva Tecnología

4 RECYCLING

It is essential to recover the plastic waste generated!

Materia

EL PAÍS

CONTAMINACIÓN MARINA ›

El mundo tira ocho millones de toneladas de plástico al mar cada año

Si se colocara toda esa basura a lo largo de las costas de la Tierra habría cinco bolsas de la compra llenas de plástico cada 30 centímetros, alerta un estudio

Reciclar !!!!

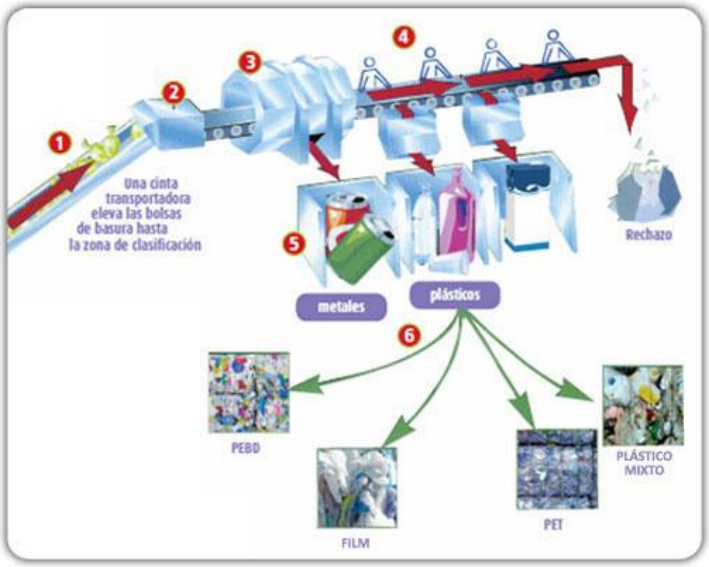
4 RECYCLING

1º- Selective collection in special containers and separation by codes.

Nueva Tecnología

4 RECYCLING

Waste separation plant



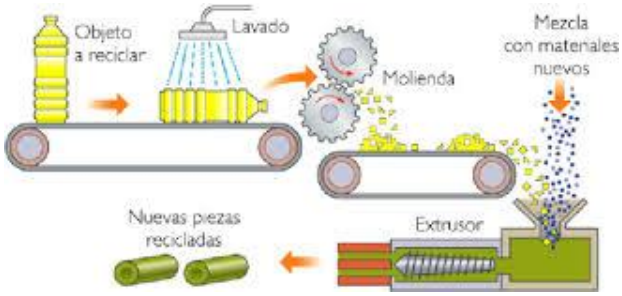
1. Separate by materials
2. Separate by codes

Video: Plastic recycling

4 RECYCLING

2nd mechanical recycling

3. Wash the residue
4. Shred them
5. Manufacture new parts



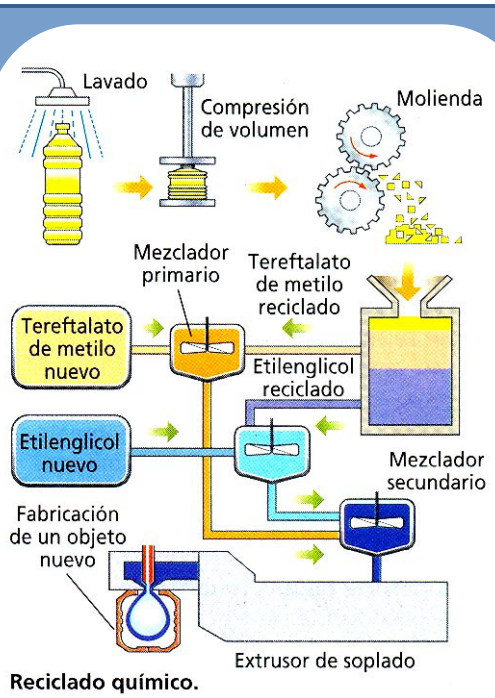
Nueva Tecnología

4 RECYCLING

2nd chemical recycling

It consists of separating the chemical components or monomers that make up the plastic, reversing the steps that were followed to create them.

It is more expensive than the previous one and produces waste.



Reciclado químico.

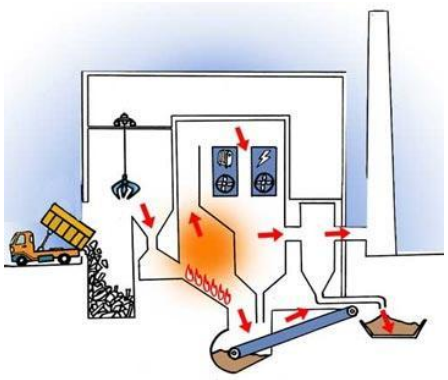
CC BY NC SA

4 RECYCLING

3rd energy recycling

Not all plastics can be recycled mechanically or chemically, for this type of plastic there is a solution:

Production of electricity or heat from its incineration!!



Nueva Tecnología

Fuente imágenes: PIXABAY, freepng y Banco recursos INTEF