

Plastic is light, versatile and here to stay—for now

July 8 2018, by Etienne Balmer, Marie Heuclin



A huge array of goods and packaging we use in our everyday lives is made of plastic

Because of their role in global pollution, plastics are hugely controversial.

But the resilient, supple, light and malleable materials play a key role in our lives and, according to experts, will remain crucial for a long time to come.

Here are a few things to know about the world of plastic.

How it's made

The classic production process involves the distillation and refining of fuel or natural gas, breaking down hydrocarbons.

Various raw materials make up the building blocks of the resulting plastic. Monomers build more complex molecules called polymers—the scientific name for plastics.

There are two families of polymers.

Thermoplastics, accounting for some 80 percent of global plastics consumption, melt when they are heated and then harden when cooled.

Then there are thermosets, which do not soften after moulding.

How it's used

Five polymers account for the majority—71 percent—of global plastics consumption.

First, there is polyethylene, found above all in single-use packaging, then polypropylene, used in car bumpers, dashboards and drinking straws.

Next up is polystyrene, used for packaging, insulation panels and yoghurt pots.



Plastic plays a huge role in our lives

There is also polyvinyl chloride—better known as PVC—used in windows and drains—and then polyethylene terephthalate (PET), commonly used for synthetic fibres or bottles.

Lighter is better

There is much innovation in conventional plastics, with new properties being added to maximise performance.

Lighter is better, and slimming the volume of plastic is a constant

challenge, not least to reduce the amount of plastic clogging the oceans and to wage war on waste.

But lighter plastic also means lighter finished products, including in transport.

"The need for (greater) lightness in auto transport is a massive innovation factor," Christophe Cabarry, founder and president of SpecialChem, an online platform connecting sellers and buyers of chemicals and materials, told AFP.

A few grams a year are being shaved down, even on products as mundane as plastic bottles.

What about the environment?

The wait is on for the breakthrough of bioplastics—plastics made using biodegradable materials or natural recyclable [materials](#).

"There is much innovation in the sector," says Cabarry.



Despite the war on plastic bags, they are still a huge problem for the environment

But of the 2.05 million tonnes of bioplastics produced worldwide last year less than half was actually biodegradable, according to European Bioplastics, an industry association.

The association put their market penetration at barely 0.75 percent in 2017, owing to bioplastic's much higher costs.

But we recycle, right?

Europe managed to re-use around 31 percent of 26 million tonnes of plastics waste in 2016.

"Europe has initiated a transition from a linear towards a circular and resource efficient society", says the PlasticsEurope association of manufacturers.

But the rate in the United States is much lower, at 10 percent, and across the world, only 9 percent of the nine billion tonnes of [plastic](#) produced to date has been recycled, a recent UN report said.

Some 12 million tonnes per year, mostly in the form of single-use packaging, are dumped into the world's oceans, creating an ecological nightmare, according to Greenpeace.

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