

WHAT IS PLASTIC?

A simple question – Yes! A simple answer – No! (But we'll try)

The word Plastic covers a range of materials that are synthetic (not found in nature and usually made using a chemical reaction) or naturally occurring materials like waxes and plant resins (sap). Most of the plastics we see around us use oil as a raw material but an increasing number of environmentally sustainable plastics are made from plants such as corn.

All plastics are polymers, that is, they are made up of long chains of repeating molecules. Think about a chain of beads all clipped together. Each bead is made up of atoms, every bead looks exactly the same and links together with other beads to make a chain. This is what makes plastics so useful, as these chains can be made as long as necessary then woven, stuck or tangled together.

Another characteristic of plastics is that they can be shaped and moulded, usually by heating them. When they cool they then hold their shape. Plastics can be made into objects or films or fibers.

There are now thousands of different types of plastic and every year more are invented to deal with special requirements. They may need to withstand very high temperatures, be resistant to chemicals or filter out certain types of light or be designed to withstand a particular type of physical stress and even to fail or break at a particularly point.

Think about the plastics you find containing foods. Take a plastic screw top for a bottle of breakfast juice. The cap is strong to be able to be screwed on and off many times but the first time you open it, it has to be weak enough to break the seal. This needs a special type of plastic, very different from cling wrap, plastic bags or squishy toys.

Price and the future

Should we value plastics more than we currently do? Almost certainly the answer is yes. One of the great things about plastic is that it's been cheap compared to other materials, but as oil prices increase so plastics will also become more expensive. This in turn should make plastics more valuable to recycle which is a good thing. But oil reserves are also predicted to run out sometime in the twenty-first century. As plastics are so useful this too will drive research to find new plastics made from renewable resources most likely from plants or new materials to replace them.

[This material is based on the entry on www.wikipedia.org/2006]

