Paper and plastics

Sustainability
FAQs

Forest products – an environmentally responsible alternative
Forest products like paper, paper packaging and dissolving pulp are sustainable, renewable alternatives to fossil fuel-derived products such as plastic.

What is paper used for?

For centuries, paper has been used to inform and communicate. Despite 21st century information and communication technologies, people are using more paper than ever before, particularly in the developed world. Other uses include packaging, cleaning and various industrial applications.

What is plastic used for?

The most widely used material in the world, plastic is used in a wide variety of applications, including packaging, clothing and industrial uses.

What is paper made from?

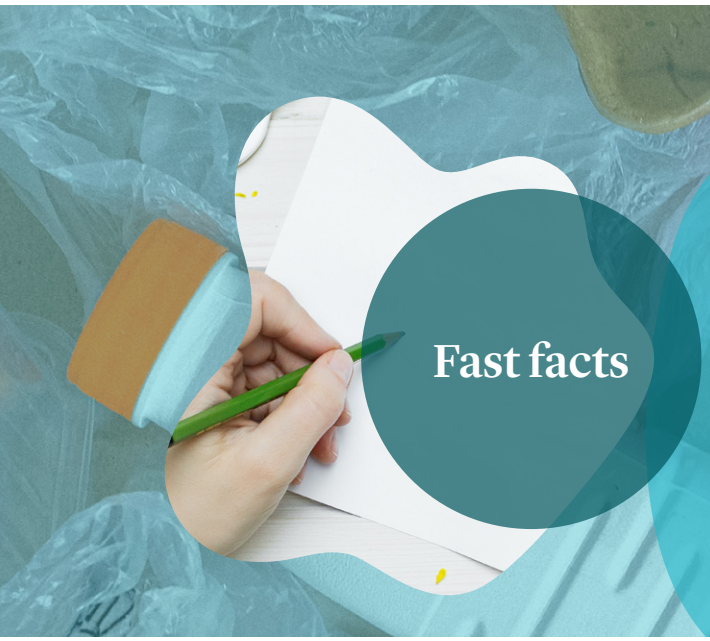
Essentially, paper is still made in the same way as it originally was in China in the first century. The Chinese used plant fibres such as tree bark, bits of rope, rags and worn-out fishing materials. These were pulped and then spread out as a thin layer over screens to dry.

Today, the most common source of fibre used in papermaking is wood pulp from pulpwood trees. Plant fibres such as cotton, hemp, linen, rice and bagasse are also used.

What is plastic made from?

Initially, plastics were based on natural materials such as chewing gum, which led to the use of chemically modified natural materials such as natural rubber, and finally to entirely synthetic molecules such as epoxy, polyvinyl chloride and polyethylene.

Today, most plastics are made from synthetic resins (polymers) through the industrial process of polymerisation, a chemical reaction in which two or more small, similar molecules are combined to make larger molecules.



Fast facts

- Plastic, the most widely used material in the world, is made from fossil fuel-derived synthetic resins.
- Paper is made from renewable resources.
- Integrated pulp and paper production makes extensive use of biofuels. The plastics industry uses mainly fossil fuels.
- Globally, in FY2021, 52.4% of the energy we generated was derived from renewable resources.
- Paper is fully biodegradable, without leaving any toxic residue.
- Plastics like PET (Polyethylene Terephthalate) take over 450 years to degrade. Some hard plastics may never degrade.

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Which is more environmentally friendly – paper or plastic?

There are a number of issues that need to be considered to determine how environmentally friendly a product is, including:

- **Source of raw materials:** Most plastics are made from fossil fuel-derived synthetic resins (polymers) through the industrial process of polymerisation. Oil is a finite, non-renewable resource.

  Our paper, on the other hand, is made from wood, a renewable resource grown in sustainably managed forests.

  We use independently audited third-party forest certification systems to guarantee that the wood used for pulp and paper production complies with the principles of sustainable plantation and forest management.

  We do not endorse one certification as 'better' than another. Our goal is to use as much independently certified wood as possible, which is why we have pursued and achieved certification by the three most internationally recognised forest products certification programmes:[1] Forest Stewardship Council™ (FSC™ N003159); Programme for the Endorsement of Forest Certification™ (PEFC/01-44-43) and the Sustainable Forestry Initiative® (SFI®).

- **Fuel sources:** Most fuels used in the manufacturing of plastics are fossil-based. Burning fossil fuels such as coal and gas releases carbon that has been stored (locked-up) safely within the earth's crust as coal, oil or gas for millions of years. The carbon released into the atmosphere, in the form of greenhouse gases, is responsible for climate change.

  Burning renewable biofuels on the other hand, releases only the carbon stored in the biomass – a carbon-neutral process. We make extensive use of biofuels throughout our manufacturing processes in integrated pulp and paper mills. Globally, during FY2021, 52.4% of the energy we generated was derived from renewable resources, mainly black liquor, sludges and biomass.

- **Biodegradability:** Materials – such as plastic, styrofoam and polystyrene – cannot be readily processed by nature. Some may photo-degrade (break up into smaller pieces when exposed to sunlight), but cannot be naturally assimilated back into the ecosystem in the same way that paper can.

  Under normal environmental conditions (not in a landfill, where the process takes much longer), some plastics like PET, often used to make plastic bottles, take 450 years to degrade and, even then, they will leave toxic residues in the soil and water. Some hard plastics may never degrade.

  Paper, being derived from woodfibre, is strong, versatile, beautiful, reusable and recyclable; it is also generally biodegradable. In seawater conditions, paper biodegrades within 2-8 weeks, assimilated by nature without leaving any toxic residue.

What is the difference between biodegradable and non-biodegradable?

Biodegradable organic materials, such as paper, can be broken down by micro-organisms into simple naturally occurring compounds such as water and carbon dioxide and recycled into the ecosystem. **Non-biodegradable materials**, such as plastic, styrofoam and polystyrene cannot be recycled by nature in this way. Some may photo-degrade – when exposed to sunlight, they break up into smaller pieces. However, these fragments cannot be reabsorbed into nature as useful compounds in the same way that paper can.

Where does all the plastic go?

The world's largest garbage dumps are the Great Pacific Ocean Garbage Patch and the more recently discovered North Atlantic Garbage Patch. The former is estimated to be approximately the size of South Africa. These patches are made up almost entirely of nurdles and discarded post-consumer plastic products that photo-degrade into even smaller fragments of plastic. The nurdles and plastic fragments act as chemical sponges, accumulating harmful industrial and agricultural pollutants. Ingested by fish, they find their way into our food chain, ultimately ending up on our plates.

Hundreds of millions of nurdles (tiny plastic pellets used as raw material in the plastics industry) are spilt or lost every year and work their way into the oceans and other water systems.

[1] *Our mills and forestry certification details, including FSC™, SFI® and PEFC, are available online (https://www.sappi.com/certifications) and summarised in the Sustainability FAQs — Our certifications.*

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Biodegradation in seawater

Paper towels: 2-4 weeks

Orange or banana peel: 2-5 weeks

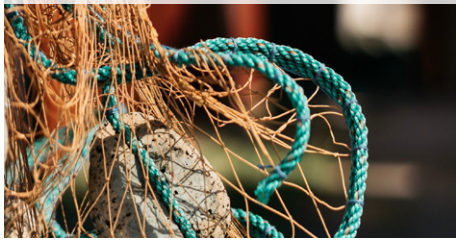
Newspapers: 6 weeks

Photo and mechanical degradation in seawater

Waxed cartons: 3 months

Plastic bags: 10-20 years

Nylon fabric/netting: 30-40 years



Foam cups: 50 years

Tin cans: 50-100 years

Aluminium cans: 80-200 years

Plastic bottles: 450 years

Fishing lines: 600 years

The tables shows how long products take to degrade in seawater. Some paper products biodegrade in as little as two weeks; most biodegrade in less than two months.

Source: https://safety4sea.com/marine-debris-long-gone/

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