

It's in
our
hands.



Biodegradability

A material can be defined as biodegradable if microorganisms are capable of breaking it down into its basic elemental components, such as carbon, oxygen, hydrogen, etc. The time required for the decomposition process can vary. Whether or not a material is biodegradable depends on its chemical composition.

Theoretically, virtually all materials decompose sooner or later. The key point is the rate at which decomposition takes place, whether it takes days, weeks, years, or centuries. This speed is related on the one hand to the nature of the material and on the other hand to external conditions (e.g. temperature, amounts of oxygen, water, and light).

Here is a table of materials with their typical decomposition timescales in a terrestrial environment for reference*:

 <p>Vegetables</p> <p>5 days-1 month</p>	 <p>Paper</p> <p>2-5 months</p>	 <p>Cotton t-shirt</p> <p>6 months</p>	 <p>Milk carton</p> <p>5 years</p>	 <p>Nylon</p> <p>30-40 years</p>
 <p>Tin can</p> <p>50-100 years</p>	 <p>Aluminum can</p> <p>80-100 years</p>	 <p>Glass bottle</p> <p>1 Mio years</p>	 <p>Styrofoam cup</p> <p>500 years-forever</p>	 <p>Plastic bag</p> <p>500 years-forever</p>

If materials persist long after they are discarded, they can cause significant environmental damage. This is often the case with conventional plastic, for example.

There is an area in the Pacific Ocean between Asia and North America where ocean currents collect a huge amount of floating plastic waste: the Great Pacific Garbage Patch. Here, about 100,000 tons of plastic float in an area of about 600,000 square miles, twice the size of Texas.

Animals mistake plastic waste for food, which can then cause considerable internal damage. Chemicals contained in the plastic are also ingested by humans and cause health problems for us as well. That is why work is being done to develop materials that decompose quickly after use.

* Source: <https://www.sciencelearn.org.nz/>