

Bioplastics – The Ultimate Guide

Plastic waste is a menace to the environment. Each year over 200 million tons of plastics are released into the atmosphere. Given that plastics are made from non-renewable sources, they are non-biodegradable. This has seen an influx of plastic in the environment both on land and water with adverse effects.

Effects



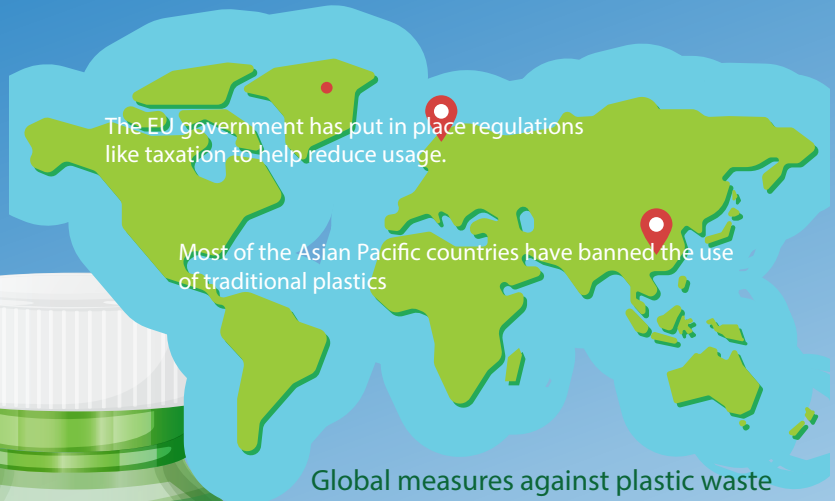
Death of marine species



Death of fowl



clogged sewage systems



The EU government has put in place regulations like taxation to help reduce usage.

Most of the Asian Pacific countries have banned the use of traditional plastics

Global measures against plastic waste

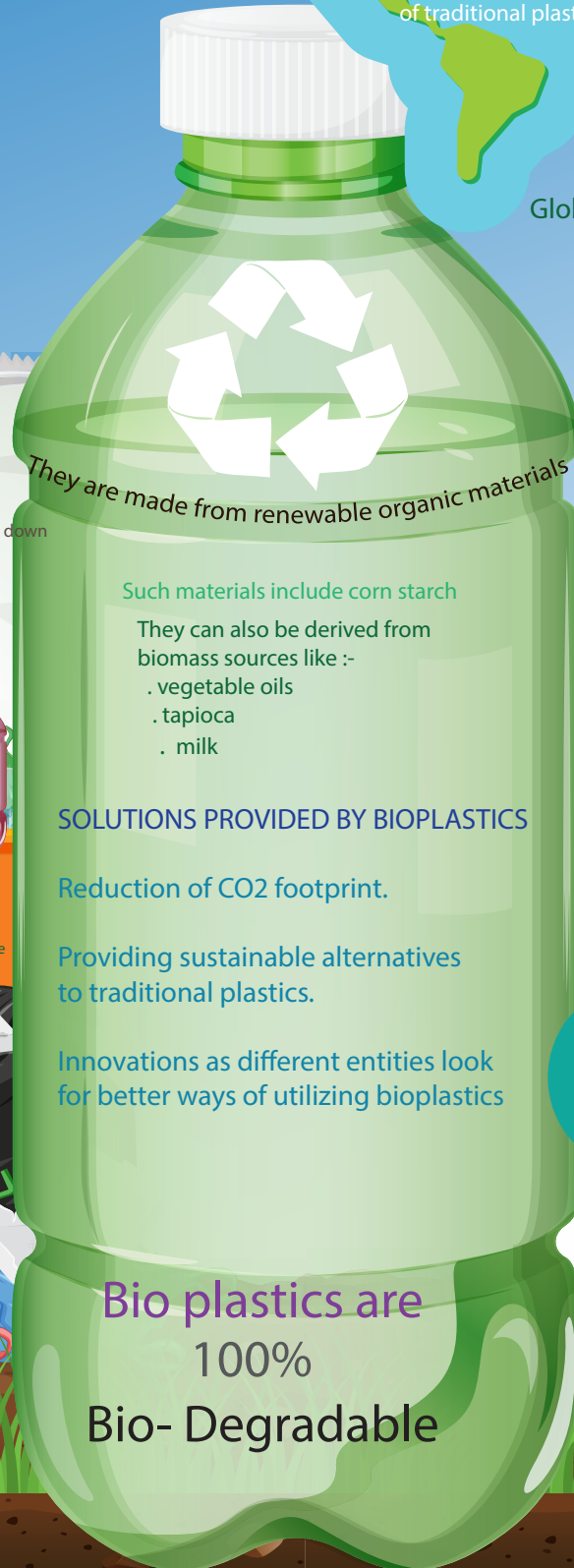
TYPES OF PLASTICS



Degradable – This implies the ability to break down over time into powder or small fragments. All plastics are degradable.

Biodegradable – A biodegradable plastic can break down entirely under the right conditions. Most plastics are broken down into carbon dioxide, water, and compost.

Compostable – This is when plastic can break down in a compost environment. It involves breaking down without leaving any toxic residue or release carbon dioxide to the background.



They are made from renewable organic materials

Such materials include corn starch

They can also be derived from biomass sources like :-

- . vegetable oils
- . tapioca
- . milk

SOLUTIONS PROVIDED BY BIOPLASTICS

Reduction of CO2 footprint.

Providing sustainable alternatives to traditional plastics.

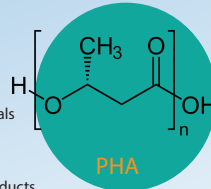
Innovations as different entities look for better ways of utilizing bioplastics

Bio plastics are
100%
Bio- Degradable

types of Bioplastics

(Polyhydroxyalkanoate)

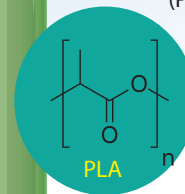
microorganisms genetically engineered to produce plastics from organic materials



The primary use of PHA is in medical products like bone plates, slings, and skin substitutes. They are degradable, readily compostable, and safe for human consumption.

The PHA can withstand high temperatures, which makes it great for several applications as compared to the regular plastics. They also provide high ultraviolet resistance to hydrolytic degradation.

(Polylactic Acid)



PLA bioplastics are derived from renewable resources like sugar cane and corn starch. Currently, PLA has one of the highest production rates among all the other types of bioplastics

relatively cost-efficient to produce as you can manufacture them using the existing equipment meant for making other industry plastics.

Some of the most common applications of PLA are plastic mulch films and bottles. It constricts under high temperatures that allow for its use as shrink wrap materials.

They also melt quickly, which makes it suitable to use in 3D printing as a filament. The versatility and ease of degradation of PLA have made it a good option for bioplastics.