

# WHY BIO

## WHAT ARE BIOPLASTICS?

Bioplastics come in various types with distinct properties and applications. A plastic material is defined as bioplastic if it is biobased, biodegradable, or possesses both attributes.

**Biobased:** This term indicates that the material or product is derived, at least partially, from biomass, such as plants. Common sources for bioplastics include corn, sugarcane, or cellulose. Bio-based plastics contribute to reducing dependency on fossil fuels

PLASTIC

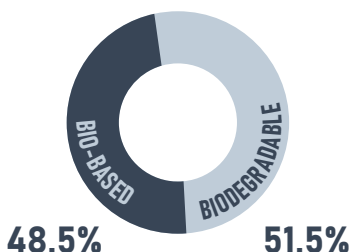
Synthetic material, most commonly derived from petrochemicals.

VS

BIOPLASTIC

Plastic material made from renewable biomass sources.

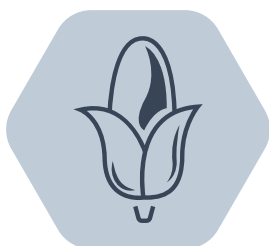
## GLOBAL BIOPLASTIC PRODUCTION



Currently, bioplastics represent about one percent of the 390 million tonnes of plastic produced annually. As demand is rising, and with more sophisticated materials, applications, and products emerging, the market is growing dynamically.

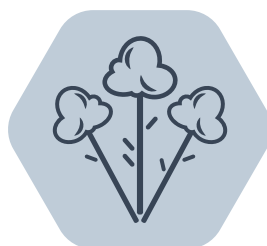
## COMMON BIO SOURCES

### POLYLACTIC ACID (PLA)



Made from the sugars in corn starch, cassava or sugarcane. It is biodegradable, carbon-neutral and edible.

### POLYHYDROXYALKANOATES (PHAs)



Made by microorganisms, sometimes genetically engineered, that produce plastic from organic materials.

### THERMOPLASTIC (TPS)



Made from starch, often derived from potatoes, or other plants. It has the unique property of becoming soft and moldable when heated, solidifying again when cooled.

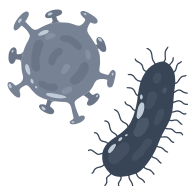
## SUITABLE CONDITIONS FOR BIODEGRADING



ADEQUATE MOISTURE



OXYGEN AVAILABILITY



MICROBIAL PRESENCE



PROPER pH LEVEL



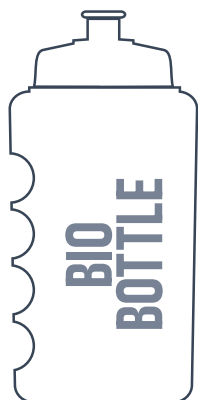
OPTIMAL TEMPERATURE

Compostable plastics break down faster than regular plastics, but they require special conditions to decompose. If they end up in landfill instead of being recycled, their decomposition process takes longer.

Biodegradable plastics, although more expensive than fossil fuel-derived plastics, have a lower environmental impact. This is because the production of biodegradable plastics involves cultivating raw materials, which requires land. However, the overall greenhouse gas emissions associated with their production are lower.



## OUR USE OF BIOPOLYMERS



BIO BOTTLE DECOMPOSES IN A COMPOSTABLE ENVIRONMENT

PLA products have swiftly become one of the most popular biodegradable and environmentally-friendly options on the market. This is the key component in our Bio Bottles and also finds extensive application in packaging and food containers.