ECOENCLOSE

TYPES OF BIOPLASTIC

CATEGORY 3 - COMPOSTABLE

Petroleum based poly that is compostable PBAT – most common compound today. Often blended with PLA or added to paper.

CATEGORY 1 - PLA

- Varying %s of renewable input
- Varying types of renewable input
- Most require industrial compost
- PLA – most common Cat plastic today

CATEGORY 4 - PETROLEUM BASED

Non compostable / biodegradable (though sometimes recyclable).

CATEGORY 2 - PLANT BASED

- Varying levels of renewable content
- Most are "drop-in" plastics that can be recycled with traditional plastic counterparts

Oxo-biodegradable plastics (with additives for rapid degradation) are not considered bioplastics. They are not derived from renewable materials nor are they biodegradable or compostable, and instead rapidly degrade into tiny bits of plastic. They encourage misguided consumer actions, have unknown and potentially harmful impacts on the recycling stream, and are harmful to ocean life because they result in increased microplastics.

BENEFITS AND CHALLENGES OF BIOPLASTIC

	BENEFITS	CHALLENGES
FUNCTIONALITY	Flexible, moisture proof, thin and lightweight	Category 1 and 3 plastic is not as strong, is sensitive to light and more air permeable than petro-plastic
RAW INPUTS	Category 1 and 2 made from renewable resources R&D could lead to more sustainably produced over time – i.e. straw, bagasse, and food waste	Bioplastic = virgin material; no recycled content. Common inputs require resource intensive, industrial ag. Often only partially made with bioplastic.
END OF LIFE	Category 1 compostable in industrial settings. A SMALL set would biodegrade naturally / backyard compost Category 2 can often be recycled with petro-based plastics	Access to industrial compost = limited Bioplastics=limited Vast majority never biodegrade as litter. Ocean pollution – customers being mislead. Consumer confusion leads to high levels of contamination.
CARBON EMISSIONS	Lower GEG emissions than virgin, traditional plastic counterparts.	Often, higher GHG emissions than recycled traditional plastic