Polymer Name	Chemical Name	Structure	Feedstock	How it's made	Potential for a net-neutral or net-positive input production?
PVOH / PVA	Polyvinyl alcohol	Clear, thin film in solid form (typically begins as a powder, then mixed into water solution.)	Polyvinyl acetate: largely petroleum-based Water	Polyvinyl acetate (glue) and water are combined in hydrolysis to produce an alcohol.	No. Petroleum-based
BDP	N/A (Synthetic additive for plastics)	Synthetic polymer additive (likely solid pellet or liquid form)	Unclear / not listed	Unclear / not listed	No
BFA	N/A (Synthetic additive for plastics)	Synthetic polymer additive (likely solid pellet or liquid form)	"We discovered an **organic compound within crude oil** that is burned out during the cracking process that is synthesized with nutrients and then grafted onto to the plastic polymer chain." Source	Unclear / not listed	No
Bio-PE **Bio-PET**	Bio-based Polyethylene Bio-based Polyethylene terephthalate	Bio-PET is typically being used in beverage bottles and other rigid container applications, and Bio-PE is used in flexible packaging and bags. These formulations are chemically and physically identical to traditional polyethylene and as such, they cannot biodegrade (but they can be recycled along with their petroleum-based counterparts).	Commonly made from corn, sugarcane or beets*	Unclear / not listed	Yes
PLA + PBAT	Polylactic Acid Polybutylene Adipate Terephthalate	**PLA** is brittle and its application is more restricted than other traditional plastics and bioplastics. It is inferior in strength, thermal robustness, and barrier properties. Therefore, manufacturers must often include additives or polymers, depending on the specific application of PLA. **PBAT** mimics the characteristics of low-density polyethylene such as flexibility, elasticity and pressure residentance, making it a viable material for bags and wraps (and compost bags in particular). PBAT is also often used as an additive that can give rigid bioplastics more flexibility while retaining the biodegradable properties of the final product.	**PLA:** Commonly made from corn, but also sugarcane or beets* **PBAT** is derived from fossil fuels - butylene adipate and terephthalate - but is biodegradable.	**PLA**: PLA is a thermoplastic made through fermentation by bacteria. To transform corn into plastic, corn kernels are immersed in sulfur dioxide and hot water, where its components break down into starch, protein, and fiber. The kernels are then ground and the corn oil is separated from the starch. The starch is composed of long chains of carbon molecules, similar to the carbon chains in plastic from fossil fuels. Some citric acids are mixed in to form a long-chain polymer (a large molecule consisting of repeating smaller units) that is the building block for plastic. **PBAT:** produced by synthetically reacting together: adipic acid, butanediol, and terephthalic acid.	**PLA:** If using a less degenerative input material, yes. Corn is a hugely demanding crop and often produced in monocrop culture. **PBAT** No.
PBS	Polybutylene succinate	PBS has properties comparable to polypropylene (PP), a thermoplastic polymer resin.	Typically Succinate Acid (SA) is formed from petroleum sources, but can also be produced through fermentation of organic carbohydrate sources like food waste. Research thus far on the production of SA from food waste is for waste streams that are monopolized by one crop residue/waste*, not so much for mixed food waste streams, like those from municipal compost pickups	PBS is formed of chains of succinic acid, which is created by most living cells through anaerobic microbial digestion.	Yes
PHA **PHB**	Polyhydroxyalkanoate Polyhydroxybutyrate	PHA is a bioplastic made of polymers that are produced by bacteria.	Commonly made from corn, sugarcane or beets*	PHAs are naturally occurring polymers that can be produced in different ways by specific strains of bacteria. There are two ways to produce PHA. In the first approach, bacteria is exposed to a limited supply of essential nutrients such as oxygen and nitrogen, which promotes the growth of PHA - granules of plastic - inside its cells as food and energy reserves. A separate group of bacteria has also been identified that do not require nutrient limitation for PHA production, but accumulate it during periods of rapid growth. Regardless of how the PHA is produced, it is then harvested and synthesized into different formulations through genetic engineering	Yes
PEF	Polyethylene Furanoate	PEF is a rigid plastic, similar structure to PET	FDCA and Ethylene Glycol. Ethylene glycol: poly-based, used in applications like cleaners, detergents, and antifreeze. FDCA: main components are HMF (Hydroxymethylfurfural) which is formed by the dehydration of reducing sugars. Currently used as a processed food additive (biomarker/flavoring agent), HMF is absent in fresh foods, but is naturally generated when foods containing sugars are cooked or heated.	Produced by polycondensation of Furandicarboxylic acid (FDCA) and ethylene glycol.	No
Cellophane	N/A	A thin, transparent sheet of film made from cellulose.	Common feedstocks: Cotton, Wood, Hemp	The cellulose from these sources is dissolved in alkali and carbon disulfide to create a solution known as viscose, which is then extruded through a slit into a bath of dilute sulfuric acid and sodium sulfate to reconvert the viscose into cellulose. The film is then passed through several more baths, one to remove sulfur, one to bleach the film, and one to add softening materials such as glycerin to prevent the film from becoming brittle. Interestingly, a similar process and source material is used to make rayon.	Yes