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Co-funded by the European Union

BIOECO-UP

BIODEGRADABLE BIOPLASTICS: YES BUT LET'S MAKE IT RIGHT

WHAT IS A BIOPLASTIC?

Bioplastics are a large family of materials with different properties and applications: they can be biodegradable, biobased or both. Plastics from renewable resources like starch-based products or cellulose are bioplastics, as well as plastics from fossil sources but biodegradable under specific conditions. Polylactic acid (PLA), and starch-based plastics are examples of bioplastics already on the market that are both renewable and biodegradable.

BIOBASED & BIODEGRADABLE

"Biobased" means that the carbon atoms of the bioplastic come, partially or entirely, from renewable resources like plants that convert sunlight, water and carbon dioxide into biomass and oxygen through photosynthesis.

"Biodegradable" means that the carbon atoms of the bioplastic can be used by natural microorganisms as energy and carbon source, and converted into carbon dioxide or methane. "Biodegradable" does not mean that a polymer disappears instantaneously in the environment (soil, rivers, oceans).

HOW CAN I DISPOSE OF A BIOPLASTIC?

Bioplastics can be managed at the end-of-life through a variety of options, including reuse, mechanical recycling, organic recycling, and energy recovery. **The dispersion of bioplastics in the natural environment must be avoided! The idea that a biodegradable material can easily and suddenly disappear into the environment without creating pollution is incorrect and unsustainable!**

Oceans, rivers and soils cannot be our dumpsites.

BIODEGRADABILITY & COMPOSTABILITY

Some, but not all, bioplastics can be industrially composted. COMPOSTING occurs thanks to microorganisms which work within controlled temperature and humidity conditions under which they produce a final product, i.e. “COMPOST”, usable as fertilizer to improve soil quality. Such a process can be also homemade, in specific containers called COMPOSTERS. In the case bioplastics are processable in home composters, this is indicated in the label. Polylactic acid (PLA) and starch-based plastics are examples of bioplastics already on the market that are renewable, biodegradable, and compostable.

ATTENTION PLEASE!

Biodegradable bioplastics should never be mixed up with traditional plastics to avoid “contamination” of the latter which would hamper and compromise the overall recycling and re-use process.

DON’T MIX UP THE DUMPSTER!

Learn how to read packaging labels before disposing of them, to provide all the plastic wastes with the end-of-life treatment they deserve! And while in doubt, put it in the compostability bin and not in the home composter!

This is ok for the compost bin

This is ok for the backyard composter too

The word bioplastics can sometimes be misleading: indeed, over time, the term took either the meaning of biodegradable plastics or the meaning of plastics derived from biobased resources, two very different and often unrelated connotations. A bit of clarity was thus needed and in 2010 a standard was issued (CEN 15932-2010, then substituted by CEN 17228-2019) to define what could be righteously defined a Bioplastic: obviously, owing to both the established habits, both meanings were assumed as applicable.

So, bioplastics can be either bio-based materials, derived from biorefinery processed (such as PLA) or simply extracted as natural compounds to be then modified and used (starch-based plastics, i.e. Mater-Bi, etc), or biodegradable products. Sometimes plastics can be both biodegradable and biobased at the same time, but this situation not always applies.

The standards also provide some tool to measure both the degree of biodegradation and/or the fraction of bio-based carbon, when applicable. The ability to measure such figures is a key parameter for commercializing such highly added-value plastics, since informed customers want the proof of the product quality they are buying. Compostability of specific materials can be, indeed, claimed upon the evaluation of the degree of biodegradation in different environmental conditions (i.e. in industrial plant or in backyard composters).

All in all, bioplastics can help saving fossil resources by using biomass and could have the potential of reaching carbon neutrality. Furthermore, biodegradability can be an additional asset for disposing certain types of bioplastics at the end of a product's life.