

Two different concepts underlie the term 'Bioplastics':

a) Compostable plastics certified according to EN13432 and based on renewable (biobased) and/or non-renewable (fossil) resources

The focus here is on their functionality "compostability".

b) Biobased plastics produced on the basis of renewable resources.

The focus here is "their raw materials basis".

a) Compostable plastics

Industrial users, consumers and waste management operators need to be able to identify products and assign them to composting where appropriate. The compostability of plastics therefore must be proven by recognised testing standards (Europe: EN 13432, the legally binding standard for the compostability of plastics in all EU member states or EN 14995, USA: ASTM D-6400, other countries: ISO 17088).

Products made thereof should be certified by independent third party certifiers and labelled with the trademarked "seedling" logo.

A large proportion of certified compostable plastic products available on the market today contain a high proportion of renewable raw materials. There are also synthetic polymers (based on fossil raw materials), which are compostable according to the above-mentioned standards and certification.

Example

Definition: What Are Bioplastics?

Compostable polymer products: starch based materials (starch blends), PLA (polylactide), PHA (polyhydroxyalkanoate) type polyesters e.g. PHB, PHV, cellulosic materials from chemically modified cellulose; other materials produced from chemically modified cellulose; specific synthetic polyesters made from crude oil or natural gas.

b) Biobased plastics

Rather than using fossil carbon in manufacturing conventional plastics, bio-based polymers use carbon from renewable resources such as sugar, starch, vegetable oils or cellulose in production. Corn, potatoes, cereals, sugar cane and wood are the most commonly used feedstock.

The proportion of renewable carbon used in the product can be determined using analytical methods e.g. ASTM D-6866. Bio-based polymers are not in all cases biodegradable and compostable.

Example

Bio-based polymer products (here: not compostable): Specific polyesters e.g. based on bio-propanediol (PDO); specific polyamids e.g. made from castor oil; in future also e.g. polyethylene (PE) or polyvinylchloride (PVC) based on bio-ethanol (e.g. from sugar cane).

The idea of a natural product lifecycle is based upon the plain fact that in a finite world, usual production processes will not have any future if they are not managed in a natural cycle. In the immediate future, the hitherto used fossils resources will be wasted as resources, whereas on the other hand, the available disposal options will be used for the unavoidable waste. Recycling takes the material cycle of nature as a role model and attempts to use materials and energy in an as long and as ecological as possible manner through intelligent, cascade usage without waste (zero waste) and without emission (zero emission). In the recycling management, the used materials should be sent back to the production process through lifecycle again.