

Fact-or-Myth: Bio-based, organic, biodegradable

What are these terms all about?



Bio-based and organic is the same. It's a myth.

Bio-based and organic are not the same.

The prefix “bio” means “life” or “living organisms”. It is generally used to indicate biological or natural materials as opposed to synthetic raw materials such as crude oil or natural gas.

Instead, the term bio-based refers to the *type* of raw material used to manufacture a product, and it does not relate to the materials produced. Which means that if a product is bio-based, it is partly or wholly made from biomass, i.e. renewable materials of plant or animal origin.

Being labelled as “Bio-based” however, says nothing about how such feedstock has been produced, (for example, how plants have been cultivated).

To indicate resource-saving and environmentally friendly way of producing resources, the term "organic" is mainly used instead. This particularly applies to the food sector and in agriculture.

Not every bio-based product is organic. It's a fact.

A product can be “bio-based” and "organic", but it does not have to be. Bio-based simply describes the fact that a product or material is of plant or animal origin. "Organic" means that the cultivation of the plants or the keeping of the animals complies with requirements of the [European organic farming standard](#).

Bio-based is always (per definition) more environmentally friendly. It's a myth.

Bio-based products are not automatically more sustainable than fossil-based products.

When it comes to greenhouse gas emissions and fossil resource consumption, bio-based materials usually perform better than fossil based ones. Conversely, they mostly do worse in the acidification and eutrophication categories.

In addition, factors such as environmental damage from oil drilling or disruption of the ecosystems in mining areas contribute to increasing the environmental impact of oil-based resources.

Bio-based means a product is always biodegradable. It's a myth.

Biodegradability is often discussed for plastics, but not all bio-based plastics and products are biodegradable. Biodegradation is the naturally-occurring breakdown of materials by microorganisms such as bacteria and fungi to water and gases such as carbon dioxide (CO₂) and methane (CH₄) or also new biomass. There is no official definition of biodegradable, in contrast to the term compostable. Since everything eventually biodegrades, even if it takes thousands of years, the claim biodegradable should always come with an explanation of the surrounding environmental conditions (the environmental medium and temperature) under which a product or material biodegrades. Details about different biodegradable and durable bio-based materials can be found in this [facts- or-myth post on biodegradability](#).

Biodegradable and compostable are the same. It's a myth.

This one is a bit tricky. Biodegradation is the naturally-occurring breakdown of materials by microorganisms. There is no official definition of biodegradable, in contrast to the term compostable.

Composting is the organic recycling process in which organic waste is broken down by microbial digestion to create compost. This means composting is one kind of biodegradation in a specific environment. To go through a composting process, organic waste requires the right level of heat, water and oxygen.

When talking about composting of bio-based materials it usually refers to industrial composting. Industrial composting facilities meet the requirements of a controlled environment and high temperatures. Standards (e.g. EN 13432) for industrial composting define what conditions a product needs to meet to be called "compostable", such as disintegration in a defined time, no harmful substances or ecotoxicity.

In home composting temperatures are lower and the environment is not controlled. Consequently, the process also works slower under home composting conditions.

Related resources

http://innprobio.innovation-procurement.org/fileadmin/user_upload/Factsheets/Factsheet_n_3.pdf

[BioCannDo Quiz biodegradability](#)

<http://www.allthings.bio/fact-or-myth/facts-or-myth-biodegradability/>