



## EUROPEAN BIOPLASTICS

*Driving the evolution of plastics*

europaean  
bioplastics

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## DEAR READER

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It is almost impossible to imagine a world today without plastics. Plastics make up an integral part of many products surrounding us in everyday life. Bioplastics are highly complex and sophisticated materials that can help make plastic products more sustainable.

Due to their ability to enhance economic growth and ecologic footprints, bioplastic materials and products should be a welcome supplement to any company's product portfolio.

### *European Bioplastics defines bioplastics as polymers that are biobased, biodegradable, or both.*

Bioplastics today are a large family of materials. They comprise biobased materials featuring identical properties compared to their fossil-based versions as well as new materials featuring additional properties. These add-on qualities, i. e. being derived from renewable resources (biobased), being biodegradable, or both, can reduce the impact on our environment significantly.

European Bioplastics is the European association that represents the interests of the industry along the complete bioplastics' value chain. Bioplastics' advantages are the primary reason for the industry's dynamic development. It is steadily growing, at a rate of roughly 20-100 percent per year. A survey conducted by the University of Applied Sciences and Arts Hanover (Germany) on behalf of European Bioplastics shows that between 2011 and 2016, production capacities worldwide are expected to grow fivefold to roughly 6 million tonnes.

The European Commission has recognised the great importance of the bioplastics sector and identified it as an important pillar of the bio-economy. But how can fossil resources used for the production of conventional plastics be replaced with biomass? Can it be done in a sustainable way? Are there already solutions and if so, on what scale? These are some of the important questions that European Bioplastics is clarifying in partnership with policy makers such as the European Commission, its members and various other stakeholders.

This brochure will give you an overview of the bioplastics industry, its association European Bioplastics, and the market.

*Yours sincerely*  
**European Bioplastics**

# EUROPEAN BIOPLASTICS – *a vision for bioplastics for nearly two decades*

European Bioplastics was founded in 1993 as Interessengemeinschaft Biologisch Abbaubare Werkstoffe e.V. (IBAW, International Biodegradable Polymers Association & Working Group). First, it constituted a German, and later, European representation and platform for the leading companies of biodegradable polymers. In 2005, the association extended its activities under the name

European Bioplastics e.V. to the global bioplastics market and counted roughly 50 organisations among its members. Today, European Bioplastics represents the interests of the industry along the complete bioplastics' value chain. Its members produce, convert, distribute and use bioplastics. With around 75 members, it is the largest association within the bioplastics industry.

## OUR VISION

*Bioplastics drive the evolution of plastics and contribute significantly to a sustainable society.*





## OUR MISSION

*European Bioplastics' mission is to align the bioplastics value chain and work in partnership with various stakeholders towards a favourable landscape enabling the bioplastics market to grow.*

### **Our Market**

Striving to satisfy the societal demand for sustainable products and solutions in the plastics markets, European Bioplastics supports the market introduction of biobased disposable, semi-durable and durable bioplastic products by creating favourable technical, technological and regulatory framework conditions.

### **Our Members**

European Bioplastics aspires to be a knowledge partner to the entire value chain of bioplastics. Our members are located all over the globe and are engaged in the European market.

They rely on European Bioplastics as a platform

- to gain insights into the industry as a whole
- to represent their business interests
- to connect to others in the bioplastics value chain
- for a dynamic and open stakeholder dialogue regarding overarching issues.

### **Our Stakeholders**

As a knowledge partner to all interested stakeholders, from decision-makers to consumers, European Bioplastics seeks to inform others about the bioplastics industry as a whole, its sophisticated products, and their specific and unique societal benefits.

### **Our Environment**

European Bioplastics

- supports and promotes the technological innovation of bioplastics to improve the balance between environmental benefits and environmental impact.
- supports the sustainable growing of biomass crops for the production of biobased plastics.
- promotes efficient recovery, re-use and recycling systems.
- supports standards, certifications and guidelines for transparent claims about bioplastics.

## EUROPEAN BIOPLASTICS – *representing the industry*

The constantly increasing membership of European Bioplastics covers the whole value chain of the bioplastics industry. The member companies and institutions range from SMEs to global players. The majority come from Europe, but there are also numerous members from further afield who have a special interest in the dynamic European market.



*Members according to industry sectors, 2012*



# BIOPLASTICS – *definition, materials and technology*

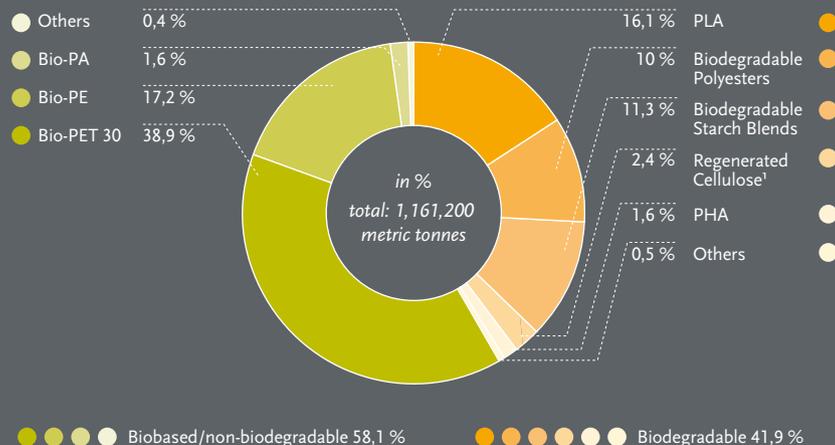
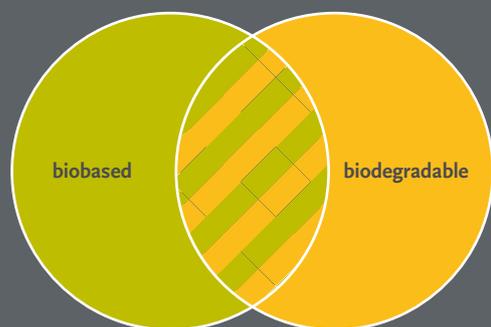
**B**ioplastics are biobased, biodegradable, or both. They are not a single kind of plastic but rather a family of materials that can vary considerably from one another.

There are three groups in the bioplastics family, each with its own characteristics:

- Biobased or partly biobased, non-biodegradable plastics such as PE, PET (drop-in solutions) or technical polymers such as polyamides,
- Plastics that are biobased and biodegradable, including PLA, cellulose and PHA,

- Plastics that are based on fossil resources, and are biodegradable, such as PBAT or PBS.

Bioplastics can be processed into a vast number of products using conventional plastics processing technologies. The process parameters of the processing equipment have to be adjusted to the individual specification of each polymer. An increasing number of converters are transforming bioplastic materials to products these days, several of which are members of European Bioplastics.



According to European Bioplastics' definition, bioplastics are biobased, biodegradable, or both.

Global production capacity  
2011 by type

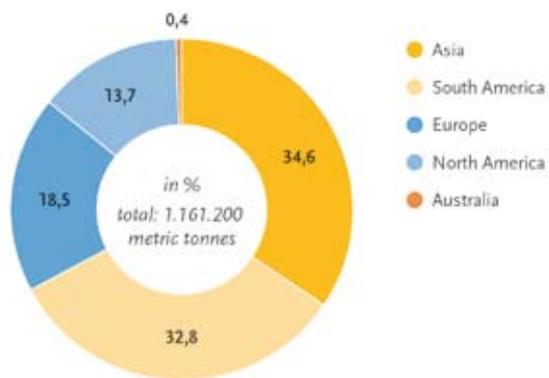
## MARKET – *steady and dynamic growth*

Bioplastics can help to save fossil resources and CO<sub>2</sub> emissions. Furthermore, they can offer additional end-of-life options where appropriate. This makes bioplastic materials and products an attractive alternative for industries and consumers aiming to minimise their impact on the environment.

Demand for bioplastics is rising continuously, and the market is characterised by high and steady growth rates of approximately 20-100 percent per year. As production facilities multiply and capacities

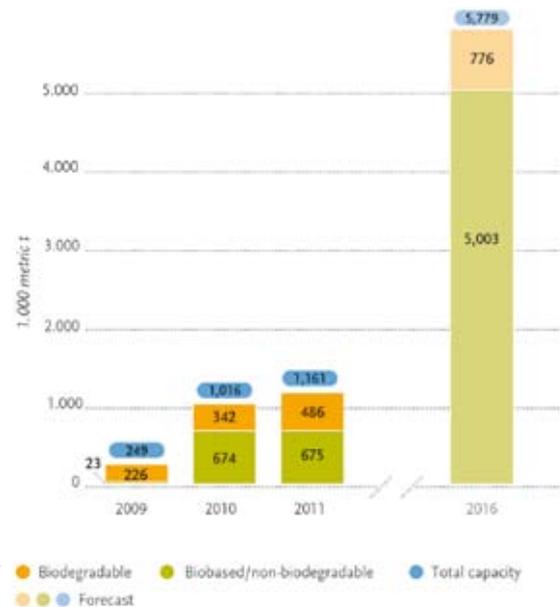
grow, supply options for bioplastic materials and products will increase considerably within the coming years. Europe is a major hub for the entire industry; it occupies the top rank in the field of research and development and is the biggest market of the industry worldwide.

With regard to the actual production of bioplastics a supportive framework at EU- and Member State-level is needed to ensure a balanced global development.



Global production capacity by region in 2011

Source: European Bioplastics | University of Applied Sciences and Arts Hanover



Global production capacity of bioplastics (status 2011)

Source: European Bioplastics | University of Applied Sciences and Arts Hanover



## MARKET – *broad applications for bioplastics*

**B**ioplastics are a large family of materials with varying properties and can be applied for all kinds of products - disposable, semi-durable or durable. The number of application fields is growing constantly. Today, bioplastics can be found in the following segments: packaging, catering, agriculture and horticulture, automotive, consumer electronics, textiles and fibres, toys and sports.

The increasing utilisation of biomass in bioplastic applications has two decisive advantages: renewability and availability. Life cycle analyses show that bioplastics can reduce

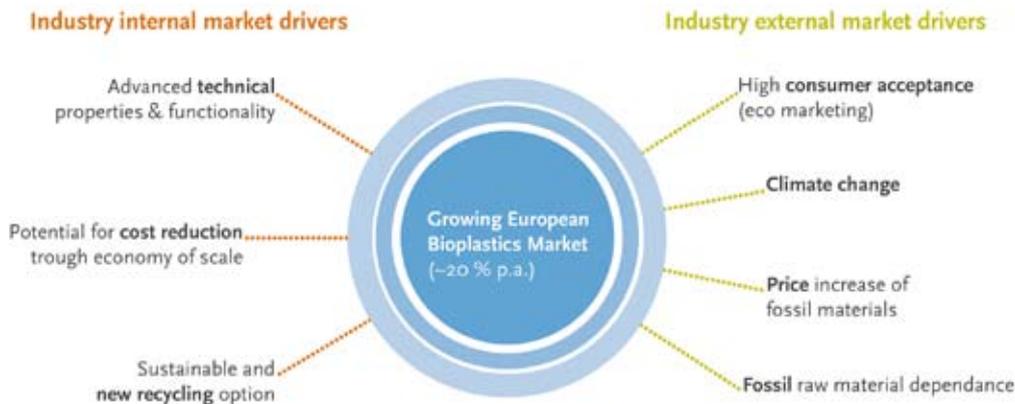
CO<sub>2</sub> emissions by 30-80 percent compared to conventional plastics (depending on material and application). Also the limited domestic crude oil reserves in the EU can be saved and additional crude oil imports from unstable regions can be reduced.

A group of first moving brandowners has recognised the advantages of bioplastics and has switched, or has plans to switch, the production of major brands (partly) to bioplastics. Among these globally known brands are several members of European Bioplastics.



## MARKET – *driven by numerous factors*

Driven by a growing demand for sustainable solutions, the range of available bioplastics is multiplying continuously. Each day, new bioplastic materials, compounds and master batches are created and more and more production facilities go on-stream.



In addition to the market drivers mentioned here, political support will play a decisive role in the coming years. A strong regulatory framework that does not constrict industry is a precondition for a thriving bio-economy in Europe and dynamic and successful development of the bioplastics sector.



## *Creating reliable standards*

The use of independent and internationally respected labels marking bioplastic products is important for transparent and correct consumer information and to protect the posi-

already a reliable and accepted label in place for plastic products fulfilling these criteria: the “seedling”. It assists the buying and disposal decision.

However, the minimum of biobased content to define a biobased product is set at different levels from region to region.

### *A label must be unambiguous, commonly accepted and awarded by a certifier.*

tive image of bioplastics. European Bioplastics supports corresponding certification schemes and labels for product identification and proper disposal, and their EU-wide implementation.

#### **Certifying compostability**

Biodegradable products certified according to EN 13432 / 14995 standards can be called compostable. There is

#### **Certifying biobased content**

Most experts agree that biobased carbon is key to determine the share of renewable material in biobased products (according to CEN/TS 16137 and ASTM D 6866). In addition to biobased carbon, other parameters such as the biobased mass content are communicated (no defining standard available yet).

As with the seedling for compostable products and materials, a reliable biobased label is key to preserving and enhancing consumers’ trust in bioplastics as a whole. To create such a label is an important task for the industry.

# Contact & more information

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## Contact for questions regarding bioplastics, the association or membership:

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[www.european-bioplastics.org](http://www.european-bioplastics.org)

Or follow us on twitter:  
[twitter.com/EUBioplastics](https://twitter.com/EUBioplastics)

## Becoming a member?

Companies that are already involved in the bioplastics business sector, but who are not yet a member of European Bioplastics, should consider the advantages of enlarging their network and connecting to our information platform. Newcomers to our industry and/or the European market, in particular, can rely on European Bioplastics to help them get a foothold in the new sector and benefit from our knowledge and contact networks.



european  
bioplastics  
conference

## BIOPLASTICS - From Niche to Mainstream

Knowledge, networking, negotiations:  
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event of the bioplastics industry in Europe

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