Bioplastics market data 2019

Global production capacities of bioplastics 2019-2024

Source: European Bioplastics, nova-Institute (2019)
Dynamic market growth continues

Currently, bioplastics represent about one percent of the about 360 million tonnes* of plastic produced annually. But, as demand is rising, and with more sophisticated biopolymers, applications, and products emerging, the market is continuously growing.

According to the latest market data compiled by European Bioplastics in cooperation with the research institute nova-Institute, global bioplastics production capacity is set to increase from around 2.11 million tonnes in 2019 to approximately 2.43 million tonnes in 2024.

Development of innovative materials

New and innovative biopolymers, such as bio-based PP (polypropylene) and PHAs (polyhydroxyalkanoates) show the highest relative growth rates. In 2019, bio-based PP entered the market at commercial scale with a strong growth potential due to the widespread application of PP in a wide range of sectors. Their production capacities are predicted to almost sextuple by 2024. PHAs are an important polymer family, whose production capacities are estimated to more than triple in the next five years. These polyesters are 100 percent bio-based and biodegradable and feature a wide array of physical and mechanical properties depending on their chemical composition.

Bio-based, non-biodegradable plastics altogether, including also the drop-in solutions bio-based PE (polyethylene) and bio-based PET (polyethylene terephthalate), as well as bio-based PA (polyamides), currently make up for over 44 percent (almost 1 million tonnes) of the global bioplastics production capacities. The production of bio-based PE is predicted to continue to grow, as new capacities are planned to come online in Europe in the coming years. Intentions to increase production capacities for bio-based PET, however, have not been realised at the rate predicted in previous years. Instead, the focus has shifted to the development of PEF (polyethylene furanoate), a new polymer that is expected to enter the market in 2023. PEF is comparable to PET but 100 percent bio-based. Besides, it is said to feature additional barrier and thermal properties, making it an ideal material for the packaging of drinks, food and non-food products. Hence, PEF will eventually have the potential to substitute increasing shares of PET.

Biodegradable plastics altogether, including PLA, PHA, starch blends and others, account for over 55.5 percent (over 1.14 million tonnes) of the global bioplastics production capacities. The production of biodegradable plastics is expected to increase to 1.33 million in 2024 especially due to PHA’s significant growth rates.

Applications and market sectors

Bioplastics are used in an increasing number of markets, from packaging, catering products, consumer electronics, automotive, agriculture/horticulture, and toys to textiles and a number of other segments. Packaging remains the largest field of application for bioplastics with more than 53 percent (1.14 million tonnes) of the total bioplastics market in 2019. However, the portfolio of applications continues to diversify with segments, such as automotive & transport or building & construction, significantly increasing their share.

Market drivers and development

The increase in the use of bioplastics in all market segments is driven by the continuously increasing demand for sustainable products by consumers and brands alike. This is due to a growing awareness of the impact on the environment and the need to reduce the dependency on fossil resources as well as the continuous advancements and innovations of the bioplastics industry in new materials with improved properties and new functionalities.

Today, there is a bioplastic alternative for almost every conventional plastic material and corresponding application. Depending on the material, bioplastics have the same properties as conventional plastics and offer additional advantages, such as a reduced carbon footprint or additional waste management options, such as industrial composting.

Economic, political and social development

With a growing number of materials, applications, and products, the number of manufacturers, converters, and end-users also increases steadily. Significant financial investments have been made into production and marketing to guide and accompany this development.

Regarding the political framework, 2019 was an important year for the bioplastics industry. Especially, the adoption of the Single-Use Plastics Directive and, at the end of the year, the publication of the new EU Commission’s European Green Deal led to a strong dynamic, which will even intensify in 2020. As a result, main aspects of the European legal framework for plastics are currently under revision. This provides new opportunities for the role bioplastics can play in achieving a resource-efficient, low-carbon circular economy pursued by the European Union. By mid 2020, the EU Commission will provide guidance to the implementation of its Single-Use Plastics Directive. Besides, the initiatives included in the Green Deal, amongst others a Circular Economy Action Plan and a framework for bio-based and biodegradable plastics, will be developed in the course of 2020 and beyond.

The emerging bioplastics industry has the potential to unfold an immense economic impact over the coming decades. According to a job market analysis conducted by EuropolBio (2016), the European bioplastics industry could realise a steep employment growth. In 2013, the bioplastics industry accounted for around 23,000 jobs in Europe. With the right framework conditions in place, this number could increase more than tenfold by 2030, with up to 300,000 high-skilled jobs being created in the European bioplastics sector.
Regional development

Europe strengthened its position as a major hub for the entire bioplastics industry once again; it ranks highest in the field of research and development and is the industry’s largest market worldwide. By now, one fourth of the global bioplastics production capacity is located in Europe. However, with a view to the actual production of bioplastics and regional capacity development, Asia continues to be the major production hub. In 2019, 45 percent of bioplastics were produced in Asia. At the same time, production in the Americas has also increased.

Land use

The land used to grow the renewable feedstock for the production of bioplastics amounted to approximately 0.79 million hectares in 2019, which remains to account for less than 0.02 percent of the global agricultural area of 4.8 billion hectares, 97 percent of which were used for pasture, feed and food. Despite the market growth predicted in the next five years, the land use share for bioplastics will remain around 0.02 percent. This clearly shows that there is no competition between the renewable feedstock for food or feed and the production of bioplastics.

About the market data report

The market data update 2019 has been compiled in cooperation with the market experts of the nova-Institute (Hürth, Germany). The data for the global production capacities of bioplastics is based on the market study “Bio-based Building Blocks and Polymers” by nova-Institute (2019), which looks at the entire scope of bio-based polymers. For more information on the study and full market data report, please go to www.bio-based.eu/markets.

More information can be found on http://www.european-bioplastics.org/market/.

The market data graphs are available for download on http://www.european-bioplastics.org/news/publications/.