Market study on the consumption of biodegradable and compostable plastic products in Europe 2015 and 2020

A comprehensive market research report including consumption figures by polymer and application types as well as by geography, plus analyses of key players, relevant policies and legislation and a special feature on biodegradation and composting standards and labels

Bestsellers

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The full market study (more than 300 slides, 3,500€) is available at bio-based.eu/top-downloads.
Introduction

This short version presents an overview of the content of nova’s latest “Market study on the consumption of biodegradable and compostable plastic products in Europe 2015 and 2020” and highlights selected core results. The full report contains more than 300 slides of well-structured market & company data by geography, application and polymers, case studies on popular and promising products, and a feature on biodegradability and organic waste management. It also features an additional EU & Member States policy review and analysis on 100 slides. In total the study includes over 100 tables and graphs. The study comes in a PowerPoint® format because we wanted to give focused information, for fast readers and self thinkers. Of course we do explain what needs to be explained. But we believe that our data allows views from many angles, offering several ways of interpretation – and not just ours. If you feel that information is missing, please address our team. Each commercial user has an option for two hours of dialogue with a nova analyst – for free. If you want more, ask for a nova session, a full day workshop with experts.

Scope of the report

The study compiles data on the following compostable or biodegradable polymer types:

- PLA
- (Co-)Polyesters (PBAT, PBS(X))
- PLA-Copolyester Compounds
- Starch-Copolyester Compounds
- Others: PHA, compostable Cellophane films.

In terms of sales volumes, the analysis makes a distinction between polymer sales and final plastic product consumption (sales), which can differ in some cases. Polymers, for example biodegradable copolyesters, are double counted if they are sold by the manufacturer and again by the compounding. This is transparently shown in the report.

The applications under investigation were: Biowaste bags, shopping bags, flexible packaging, rigid packaging, disposable tableware, coated paper/board, agri-/horti-/aquaculture/forestry equipment, consumer goods, fibre-based products, technical equipment, and the compounds themselves (in terms of composition).

Geographical coverage: Europe (>95% of the total consumption included) and EU Member States (or grouped into neighbouring regions): Austria (AT) / Germany (DE) / Switzerland (CH), Belgium (BE) / the Netherlands (NL), France (FR), Italy (IT), Sweden / Norway / Denmark / Finland (N-EU), Spain (ES), United Kingdom / Ireland (UK-IE).

Summary & Key findings

Compostable plastic bags, mainly used for shopping or biowaste collection, dominate the market for biodegradable plastic products in Europe. They make up about two thirds of the total market of 100,000 t (error range 90,000 - 110,000 t) of biodegradable plastic products sold in 2015. The market of compostable and biodegradable plastic products could grow to beyond 300,000 tonnes in 2020 – if the legal
framework were to be set more favourably. The legal framework and composting infrastructure of EU member states were found to be either the bottleneck or the key driver for market development.

An in-depth analysis of markets, along with policies and current legislation was carried out for Austria, Belgium, France, Germany, the UK, Italy, the Netherlands, Spain, Switzerland and the Scandinavian countries. Disposable short-life products marketed as waste management solutions and made of compostable polyester-based films are today’s bestsellers. However, functional products such as barrier packaging or fibre products and many outdoor uses have a significant potential for market breakthrough.

The study gives detailed and up-to-date market data on polymer and product consumption by application and geography, and then it goes far beyond the typical market research by also pointing out and quantifying effects of positive and negative framework conditions. Such information is of great importance for bio-based monomer producers, plastic manufacturers, compounders, converters and marketers of biodegradable polymer products to adjust their strategies and expectations.

**Markets by Polymer Type**

Several types of polyesters make up the core of the biodegradable polymer markets. Whereas PLA is used in its pure form, copolyesters are typically used in compounds. We analysed all relevant polymers used for biodegradable and compostable products in Europe. We differentiated between EU producers and importers covering all companies of relevant size and capacity.

The sales of compostable and biodegradable plastic products (end products) reach around 100,000 tonnes.

**Markets by Application**

Disposable, short-life products marketed as waste management solutions and made of compostable polyester films are today’s bestsellers. Thin-walled bags carrying goods or biowaste make up two thirds of the total consumption today and this share is expected to grow further until 2020. Also a variety of bio-based PLA disposable tableware or packaging used for service and retail packaging goods are sold in significant volumes, driven by big event caterers and very active internet-based distributors reacting to convenience and street sale trends. PLA is used for a broad spectrum of applications, ranging from non-woven fibre products or apparel, to beverage bottles and packaging foams. Starch-based materials are also pushing into new markets as, for example, coffee capsules or auxiliaries in aquaculture. Functional products such as barrier packaging and various biodegradable outdoor uses are low volume today but have a significant potential for market breakthrough. They could also provide the increased health-and safety-related benefits consumers are asking for in applications such as toys and other children’s goods.

The study showcases these applications and many more details of different market segments.
Top 5 Bestsellers at EU Markets in 2015: Shopping bags, biowaste bags, rigid packaging, disposable tableware and flexible packaging.

Other uses include applications such as agriculture mulch films, which have only a very small market share today in contrast to their future market potential.

The report does not cover loose-fill packaging foams based on extruded starch. Experts estimate a maximum market volume of 6,000 t in Europe in 2015 for this application.

Markets by Geography

The study differentiates market shares of the different polymers and end products disaggregated by all our focus countries and regions. Furthermore, available end-of-life options, players, main drivers / impacts etc. are discussed in detail for all of the areas.

2020 Growth Perspectives

The study describes two different future scenarios for market development up until 2020. In the “Business As Usual” scenario, we analysed known or expectable trends and impacts of framework conditions on the future market volume. The projections include geographical regions and applications as well as polymer types.

In a best case scenario, the projections assume a maximum positive setting of the political and legal framework (Policy Support Case – PSC) with incentives that positively affect sales. Just imagine a situation in which everything that has been discussed in policies or proposed by legislators were to come true and, for a realistic time period, would support marketing.

In our scenario, this would include suitable and solid European standards for compostability and biodegradability and a more favourable legal framework as well as incentives applied to avoid non-biodegradable microplastics in the environment and to strengthen the Circular Economy.
We calculated that these measures (additional to all the functionality benefits) could drive biodegradable polymer product demand to around 320,000 tonnes in Europe by 2020. This is based on an assumed annual growth rate of about 27% for the 5 years’ period.

Such growth would generate many positive effects and benefits, i.e. new jobs and prosperous SMEs and start-ups in sectors such as innovative plastics, food service and biotechnology. Another positive effect can be expected in the form of better waste management.

Political Landscape

Both nova and narocon have been analysing the bio-based products and polymer markets and policy landscape for more than two decades. We have seen policies come and go, some made a difference and some were just printing ink on white paper.

For innovation, the framework conditions are essential. This is nothing specific for bio-based and biodegradable plastics, it is valid for almost anything that has built a market in the past. In the beginning, small capacities and volumes need to bear high costs, and it seems paradox that growth can happen at all. It is a mix of new functionalities (innovation) – in our case biodegradability and plastic-related properties – and the relevant framework which is responsible for market success or failure.

The authors have analysed policies and legislation and the corresponding waste management infrastructure, i.e. the composting landscape on EU level and in each geographical area included in the scope. We also looked into biodegradability as a waste and littering solution and present a review of standards and labels in a special feature.

The correlation between framework conditions and market success is very high and also strongly affects future projections. Biodegradable plastic markets have become political markets to a larger extent – and we can quantify this now. A positive framework, such as in Italy or France, will guarantee for market growth and investments; a negative setting, such as in Germany, will put successful developments at stake.

The framework is still in the making in most EU Member States, and also on EU level. We show and explain where political discussions and legislative procedures currently stand at, and which kinds of opportunities or threats we expect, arising for example from “bagislation” and biowaste management frameworks.

Special Feature: Standards – Labels – Claims

The standards and test methods that are relevant for compostable and biodegradable polymer products should be known to anybody active in the market place. This includes also certification and labelling schemes, and the consequences arising from claiming properties or using labels.

We felt that a market study which provides deep market and policy intelligence cannot be published without this very important element, often referred to as the technical framework. The feature provides a complete and up-to-date set of information on all relevant standards, certification systems and labels with regard to bio-based and biodegradable plastics – an area which still is “under construction”. Nevertheless, the descriptions will help to build a correct and detailed understanding of what is important to know for strategic leaders as well as for application technicians and marketers.
Structure of the full report

1  Introduction
2  Summary & Key findings
3  Production capacity data – Overview
4  Market data 2015
   a  by polymer type (incl. company data)  
   b  by geography: EU and national markets 
   c  by application
5  Political landscape: Policies and legislation 
   a  EU level 
   b  Member States 
   c  Special: Bagislation
6  Market scenarios 2020
   a  Market trends 
   b  Case studies
7  Special feature: Standards – Labels – Claims
8  Conclusions & Recommendations

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Sales & Availability

The market study has more than 200 PowerPoint® slides of well-structured market and company data, case studies and a feature on biodegradation and composting. It also contains about 100 slides of additional EU policy and legislation review and analysis.

The study is available for 3,500€ at bio-based.eu/top-downloads

For questions, please send us an email at contact@nova-institut.de

Image sources: Huhtamaki, Novamont, BSR, Danone, Harald Käb, NatureWorks, FKuR