Market Study: Bioplastic Films

World Report (1st edition)

Ceresana
Market Research Since 2002

This brochure provides further information on the study "Bioplastic Films - World (1st edition)"

The Market Study in Brief

Wafer-thin films, often less than 1 millimeter thick, are one of the first areas of application in which bioplastics are able to establish themselves. Although casings made from petroleum products are still usually sold cheaper and in larger quantities, biobased materials do not only offer a better public image regarding environmental awareness, but often also tangible advantages: Food packaging made from biodegradable plastics does not have to be disposed of at high cost, but can be composted; organic mulch films can simply be left on the field and plowed under. The report forecasts that revenues will increase to USD 14.2 billion by 2032.

Increasing demand for biobased films

If a film is supposed to crackle nicely, be transparent and permeable to water vapor, cellulose hydrate is hard to beat: The original bioplastic has been used since 1908 under names such as cellophane to package chocolates, flowers, spice jars or even cigarettes. For films made of polyethylene or polypropylene, biobased alternatives have long since ceased to be made only from wood or waste paper cellulose. Ceresana expects annual growth of over 14.6% in Asia, around 11% in North America and just over 8% in Europe.

Biobased films mainly package food products

Bags, pouches and sacks currently are the best-known application for bioplastics. Food packaging is the most important market for films made from bioplastics: In 2022, it accounted for around 47% of their market volume. However, shrink and stretch films are by no means only used in the packaging industry. Bioplastic films are also used, for example, for labels, adhesive tapes, technical insulating layers or medical wound dressings. In horticulture, forestry and agriculture, the consumption of films is increasing, as well as in the construction industry, the printing industry and other sectors. Ceresana expects the highest CAGR of 12% for agricultural films, industrial films and construction films. Increasingly, bioplastics are even conquering high-tech products: Membranes for water filters are made of polymer films, and plastic films are also used in batteries for electric cars.

The current Ceresana market study:

Chapter 1 analyzes the global market - including forecasts up to 2032: The development of demand (tonnes) and revenues (USD and EUR) is presented for Europe, North America, Asia-Pacific and the rest of the world.

In **Chapter 2**, the 13 countries with the largest revenues generated with films are considered individually. Demand and revenues are presented in each case. In addition, demand is broken down by application:

- Packaging – Food and beverages
- Packaging – Consumer products
- Packaging – Other
- Agricultural films
- Other films

The study provides detailed data on the use of the different types of bioplastics in films:

- Polylactic acid (PLA)
- Starch-based plastics
- Other biodegradable plastics
- Biobased, but non-biodegradable plastics

Chapter 3 provides 47 profiles of the most important producers of films made from bioplastics, e.g. Bio Packaging Films, Cortec, Folietec, Futamura, Hubei HYF, Kuraray, and Stermitz.

Ceresana
Market Research Since 2002

Table of Contents (1/3)

1 Market Data: World and Regions

1.1 Welt

1.1.1 Basics

1.1.1.1 Definition and properties of bioplastics

1.1.1.2 Bioplastics for films

1.1.1.3 Regulation and certification

1.1.2 Demand

1.1.3 Revenues

1.1.4 Demand split by application

1.1.4.1 Packaging – Food and beverages

1.1.4.2 Packaging – Consumer products

1.1.4.3 Packaging – Other

1.1.4.4 Agricultural films

1.1.4.5 Other films

1.1.5 Demand split by product

1.1.5.1 Polylactic acid (PLA)

1.1.5.2 Starch-based plastics

1.1.5.3 Other biodegradable plastics

1.1.5.4 Biobased, but non-biodegradable plastics

1.2 Europe

1.2.1 Demand

1.2.2 Revenues

1.2.3 Applications and products

1.3 North America

1.3.1 Demand

1.3.2 Revenues

1.3.3 Applications and products

1.4 Asia-Pacific

1.4.1 Demand

1.4.2 Revenues

1.4.3 Applications and products

1.5 Rest of World

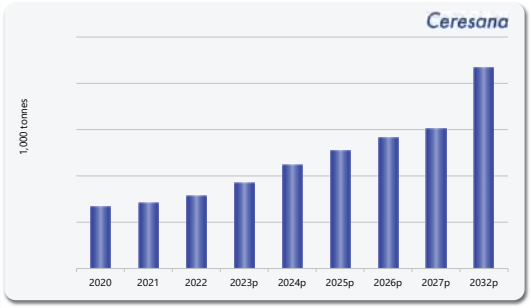
1.5.1 Demand

1.5.2 Revenues

1.5.3 Applications and products

2.2.2 USA

In 2022, the demand for bioplastic films in the USA amounted to approximately X tonnes. Globally, the USA constitutes the second largest domestic market after China. We expect the market volume to increase to approximately X tonnes by 2032. Based on the year 2022, this corresponds to an average increase of X% per year. Revenues generated with bioplastic films amounted to around USD X million in 2022. By 2032, we expect this value to increase to approximately USD X billion. Relative to 2022, we expect an average growth rate of X% per year.



Graph: Demand in the USA from 2020 to 2032

Revenues	2020	2021	2022	2023p	2024p	2025p	2026p	2027p	2032p	2022-2032
Million USD	X	X	X	X	X	X	X	X	X	X% p.a.
Million EUR	X	X	X	X	X	X	X	X	X	X% p.a.

Table: Revenues generated in the USA from 2020 to 2032 in million USD and million EUR

in 1,000 tonnes	2020	2021	2022	2023p	2024p	2025p	2026p	2027p	2032p	2022-2032
Packaging - Food and beverages	X	X	X	X	X	X	X	X	X	X% p.a.
Packaging - Consumer products	X	X	X	X	X	X	X	X	X	X% p.a.
Packaging - Other	X	X	X	X	X	X	X	X	X	X% p.a.
Agricultural Films	X	X	X	X	X	X	X	X	X	X% p.a.
Other Films	X	X	X	X	X	X	X	X	X	X% p.a.
Total	X	X	X	X	X	X	X	X	X	X% p.a.

Table: Demand in the USA from 2020 to 2032 – split by application

in 1,000 tonnes	2020	2021	2022	2023p	2024p	2025p	2026p	2027p	2032p	2022-2032
PLA	X	X	X	X	X	X	X	X	X	X% p.a.
Starch	X	X	X	X	X	X	X	X	X	X% p.a.
Other Biodegradables	X	X	X	X	X	X	X	X	X	X% p.a.
Non-Biodegradables	X	X	X	X	X	X	X	X	X	X% p.a.
Total	X	X	X	X	X	X	X	X	X	X% p.a.

Table: Demand in the USA from 2020 to 2032 – split by product

In 2022, the „Packaging – Food and beverages" application area constituted the largest sub-market. From 2022 to 2032, demand in the "Agricultural Films" application area is expected to record the highest growth in terms of percentages.

Table of Contents (2/3)

2 Market Data: Country Profiles

(For each country: data on revenues as well as demand split by application and split by product)

2.1 Western Europe
- 2.1.1 France
- 2.1.2 Germany
- 2.1.3 Italy
- 2.1.4 Spain
- 2.1.5 The Netherlands
- 2.1.6 United Kingdom
- 2.1.7 Others

2.2 North America
- 2.2.1 Canada
- 2.2.2 Mexico
- 2.2.3 USA

2.3 Asia-Pacific
- 2.3.1 China
- 2.3.2 Japan
- 2.3.3 South Korea
- 2.3.4 Taiwan
- 2.3.5 Others

Ceresana
Market Research Since 2002

Table of Contents (3/3)

3 Company Profiles*

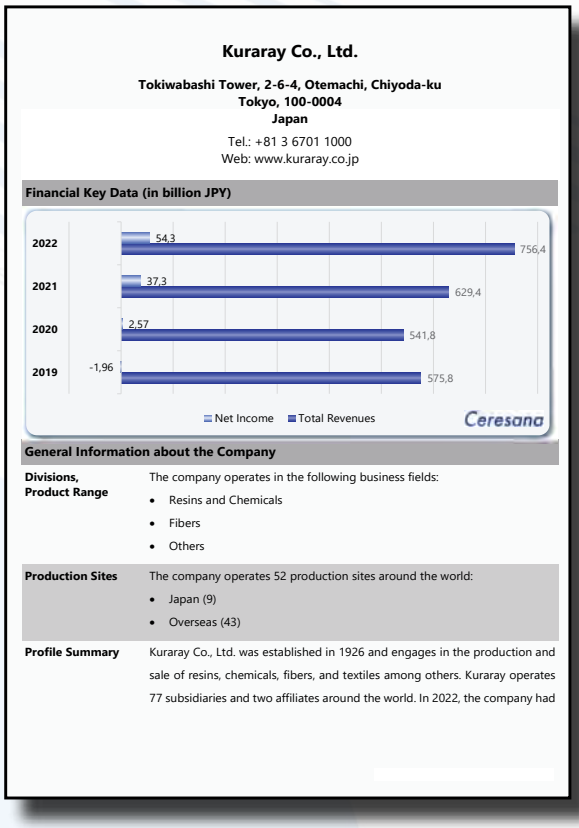
3.1 Western Europe
Austria (2 Producers)
Germany (10)
Ireland (1)
Italy (4)
Norway (1)
Switzerland (1)
United Kingdom (2)

3.2 Eastern Europe
Slovenia (1)

3.3 North America
Canada (2)
USA (6)

3.4 Asia-Pacific
China (7)
India (1)
Japan (3)
South Korea (1)
Taiwan (3)
Thailand (1)

3.5 Middle East
United Arab Emirates (1)



Kuraray Co., Ltd.

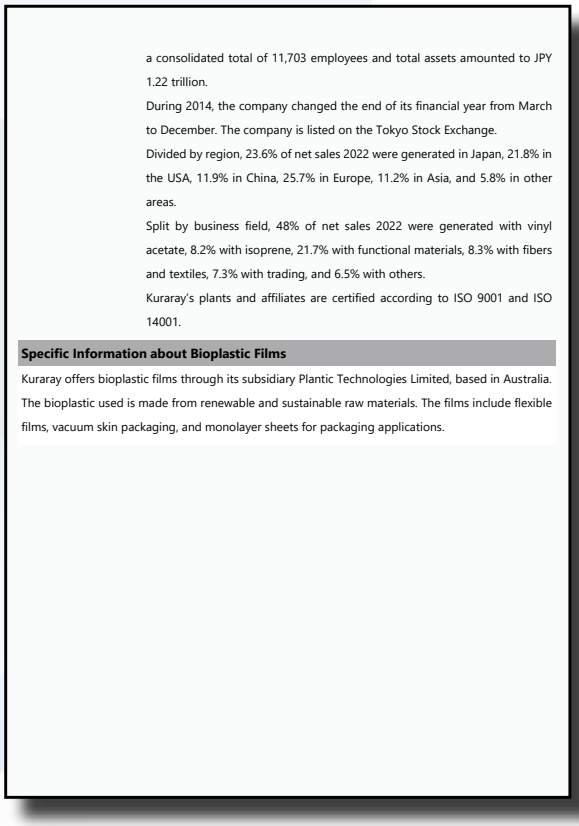
Tokiwabashi Tower, 2-6-4, Otemachi, Chiyoda-ku
Tokyo, 100-0004
Japan

Tel.: +81 3 6701 1000
Web: www.kuraray.co.jp

Financial Key Data (in billion JPY)

General Information about the Company

Divisions, Product Range	The company operates in the following business fields: • Resins and Chemicals • Fibers • Others
Production Sites	The company operates 52 production sites around the world: • Japan (9) • Overseas (43)
Profile Summary	Kuraray Co., Ltd. was established in 1926 and engages in the production and sale of resins, chemicals, fibers, and textiles among others. Kuraray operates 77 subsidiaries and two affiliates around the world. In 2022, the company had



a consolidated total of 11,703 employees and total assets amounted to JPY 1.22 trillion.

During 2014, the company changed the end of its financial year from March to December. The company is listed on the Tokyo Stock Exchange.

Divided by region, 23.6% of net sales 2022 were generated in Japan, 21.8% in the USA, 11.9% in China, 25.7% in Europe, 11.2% in Asia, and 5.8% in other areas.

Split by business field, 48% of net sales 2022 were generated with vinyl acetate, 8.2% with isoprene, 21.7% with functional materials, 8.3% with fibers and textiles, 7.3% with trading, and 6.5% with others.

Kuraray's plants and affiliates are certified according to ISO 9001 and ISO 14001.

Specific Information about Bioplastic Films

Kuraray offers bioplastic films through its subsidiary Plantic Technologies Limited, based in Australia. The bioplastic used is made from renewable and sustainable raw materials. The films include flexible films, vacuum skin packaging, and monolayer sheets for packaging applications.

*Note: The profiles are assigned to the country in which the company or holding is headquartered. Profiles also include JVs and subsidiaries.

Ceresana – Your Partner in Market Research

As one of the world's leading institutes for market research, we have been specializing in the areas of mobility, chemicals, plastics, packaging, industrial goods, and bio-economy for the past 21 years. 10.000 customers have already benefited from our analyses and forecasts. You too can choose from our wide range of market studies to gain the knowledge base for your company success!

Ceresana
Market Research Since 2002

Your advantages at a glance

1. Adequately assess new projects, investments and product innovations with the newest information.
2. Gain a holistic insight into your industry – that way, you can plan and implement your strategies even more effectively.
3. Discover which markets hold the biggest opportunities for your company and thus gain a decisive competitive advantage.
4. Identify chances and risks early on – in upstream and downstream markets.
5. Benefit from the industry knowledge of our experienced team of experts.
6. Draw on reliable forecasts on countries, application areas and products for successful business planning.
7. Strengthen your negotiation powers and gain new business partners.
8. Find out which global and regional developments influence supply and demand.

Who benefits in particular:

- Producers, processors, traders, suppliers, as well as engineering companies
- Associations, institutes, consultants, banks, investors, founders, freelancers, entrepeneurs, and service providers
- Executive boards, finance, business development, strategic planning, market research, marketing, sales, distribution, R&D, and procurement

Thank you for your trust!

If you have any questions, please do not hesitate to contact us.

Ceresana
Mainaustr. 34
78464 Konstanz
Germany

++49 7531 94297 0

info@ceresana.com

www.ceresana.com

Ceresana
Market Research Since 2002

Reliable Data and Facts for Your Knowledge Advantage:

- Revenues, demand, production, import, and export until 2034
- Macroeconomic and sector-specific explanations per country
- Segmentation into applications, technologies, and products
- 7 world regions and up to 40 countries
- Profiles from manufacturers with capacities

Click on Any Topic to Receive Further Details on Our Current Studies:

Bio-Economy

Biobased Adhesives – Europe / – World
Biobased Insulation Material – World
Biobased Paints & Coatings – Eur. / – World
Biobased Solvents – Europe / – World
Biobased Surfactants – Europe / – World
Bioplastic Packaging – World
Bioplastic Films – World
Bioplastics – World
Polylactic Acid – World

Chemicals

Carbon Black – World
Fillers – Europe / – World
Flame Retardants – World
Pigments – World
Plastic Additives – World
Plasticizers – World
Solvents – World
Stabilizers – World
Surfactants – World
Titanium Dioxide – World

Packaging

Bags, Sacks & Pouches – Europe / – World
Corrugated Board & Solid Board – Europe
Flexible Packaging – Europe
Food Packaging – Europe
Labels – Europe
Plastic Caps & Closures – Europe / – World
Plastic Films – Europe / – World

Industry

Adhesives – Europe / – World
Insulation Material – Europe / – World
Paints & Coatings – Europe / – World
Plastic Extrusion – Europe / – World
Plastic Injection – Europe / – World
Plastic Pipes – Europe / – World
Plastic Windows – World
Printing Inks – Europe / – World
Windows & Doors – Europe

Plastics

Composites (CFRP & GFRP) – World
Engineering Plastics – World
Expandable Polystyrene – World
Masterbatches – World
Plastics – Europe / – World
Polyethylene (LDPE) – World
Polyethylene (LLDPE) – World
Polypropylene – World
Polyvinyl Chloride – World
Silicones – World
Synthetic Rubber – World
Thermoplastic Elastomers – World

Mobility

Automotive Coatings – World
Automotive Plastics – Europe / – World
Hybrid & Electric Cars – Europe