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Protein Films Market Forecasts to 2030 – Global Analysis By Protein Source (Animal-Based and Plant-Based), Processing Method (Solution Casting, Extrusion, Electrospinning and Other Processing Methods), Application and By Geography

https://marketpublishers.com/r/P13E51BA2667EN.html
Date: February 2025
Pages: 150
Price: US$ 4,150.00 (Single User License)
ID: P13E51BA2667EN

Abstracts

According to Stratistics MRC, the Global Protein Films Market is accounted for $1.07 billion in 2024 and is expected to reach $1.62 billion by 2030 growing at a CAGR of 7.2% during the forecast period. Protein molecules combine to form cohesive, edible coatings known as protein films, which are thin, biodegradable layers. These films preserve food quality and prolong shelf life by acting as barriers against oxygen, moisture, and other environmental elements. They are used in food packaging and preservation and can be made from a variety of protein sources, including collagen, soy and whey.

According to NCBI research, soy protein isolate (SPI) contains >90% of globulin and exhibits better film-forming properties and degradability, making it a promising material for regeneration in the food packaging industry.

Market Dynamics:

Driver:

Growing demand for sustainable packaging

The increasing demand for sustainable packaging solutions drives the protein films market. As environmental concerns about plastic waste grow, protein films, being biodegradable and eco-friendly, offer an excellent alternative to conventional plastics.

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These films are derived from renewable sources like gelatin, soy, and whey, aligning with global sustainability goals. Their application in food packaging, which reduces waste and extends shelf life, further boosts their appeal. This trend is expected to strengthen as regulatory frameworks favor green packaging solutions.

Restraint:

Limited awareness and understanding

A lack of awareness and understanding about protein films among consumers and industries restrains market growth. Many potential users remain unfamiliar with their benefits, such as biodegradability and versatility in applications. Additionally, misconceptions about their performance compared to traditional materials hinder adoption. Addressing these challenges through education campaigns and product demonstrations is crucial for expanding the market.

Opportunity:

Development of multifunctional films

By incorporating additives like antimicrobial or antioxidant agents, these films can enhance food safety, extend shelf life, and provide superior barrier properties against moisture and gases. Such innovations cater to the growing demand for functional packaging in the food and pharmaceutical industries. This diversification not only increases product value but also expands their application scope across various sectors.

Threat:

Competition from other bio-based materials

Protein films face competition from other bio-based materials like polysaccharides and plant-based plastics. These alternatives often offer similar environmental benefits while being more cost-effective or easier to produce at scale. Additionally, advancements in bio-based polymers with improved mechanical properties pose a threat to the adoption of protein films.

Covid-19 Impact:

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The Covid-19 pandemic had mixed effects on the protein films market. While supply chain disruptions initially impacted production, the heightened focus on hygiene and sustainable packaging drove demand for biodegradable solutions. The food industry’s reliance on eco-friendly materials during the pandemic bolstered the market's growth. However, economic uncertainties slowed investments in new technologies, slightly hindering expansion.

The animal-based segment is expected to be the largest during the forecast period

The animal-based segment is expected to account for the largest market share during the forecast period due to its superior film-forming properties and widespread availability of raw materials like gelatin and whey protein. These films provide excellent mechanical strength and barrier properties against moisture and gases, making them ideal for food packaging applications. Their biodegradability further enhances their appeal in sustainable packaging solutions.

The electrospinning segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the electrospinning segment is predicted to witness the highest growth rate due to its ability to produce ultrathin protein films with enhanced mechanical properties and functionality. This method allows for precise control over film thickness and uniformity, making it suitable for advanced applications in food packaging and pharmaceuticals. The rising demand for innovative manufacturing techniques supports this segment's rapid growth.

Region with largest share:

During the forecast period, North America is expected to hold the largest market share due to its advanced technological infrastructure and strong demand for sustainable packaging solutions. The region's well-established food industry increasingly adopts protein films for eco-friendly applications. Additionally, supportive regulatory policies promoting biodegradable materials further drive market growth in North America.

Region with highest CAGR:

Over the forecast period, Asia Pacific is anticipated to exhibit the highest CAGR due to rapid urbanization and increasing environmental awareness among consumers. Countries like China and India are adopting sustainable packaging solutions driven by

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strict regulations on plastic waste management. The growing food processing industry in this region further accelerates demand for protein films.

Key players in the market

Some of the key players in Protein Films Market include BASF, Solvay SA, DuPont, The Kraft Heinz Company, Nitta Gelatin Inc., Merck Group, Eastman Chemical Company, Dow, FUJIFILM Holdings Corporation, Henkel AG & Co. KGaA, Lonza Group Ltd., SigmaAldrich Corporation, Rousselot, Gelita AG, Evonik Industries, Cargill, Tate & Lyle and Royal DSM N.V.

Key Developments:

In November 2024, Solvay, operating in Brazil under the Rhodia brand, has been named the top company in the Chemical and Petrochemical sector in the Epoca NEGOCIOS 360° ranking for the fifth consecutive year. This recognition reflects Solvay's ongoing commitment to innovation and sustainable growth within the industry.

In January 2024, DuPont and Point Blank Enterprises (PBE), a global leader in protective solutions for military and law enforcement professionals announced an exclusive agreement to offer body armor made with Kevlar® EXO™ aramid fiber for North America State and Local Law Enforcement departments.

Protein Sources Covered:

- Animal-Based
- Plant-Based

Processing Methods Covered:

- Solution Casting
- Extrusion
- Electrospinning
- Other Processing Methods

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Applications Covered:

- Food Packaging
- Pharmaceuticals
- Cosmetics and Personal Care
- Agriculture
- Other Applications

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe

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- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific
- South America
  - Argentina
  - Brazil
  - Chile
  - Rest of South America
- Middle East & Africa
  - Saudi Arabia
  - UAE
  - Qatar
  - South Africa
  - Rest of Middle East & Africa

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What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Contents

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5 GLOBAL PROTEIN FILMS MARKET, BY PROTEIN SOURCE

6 GLOBAL PROTEIN FILMS MARKET, BY PROCESSING METHOD

7 GLOBAL PROTEIN FILMS MARKET, BY APPLICATION

8 GLOBAL PROTEIN FILMS MARKET, BY GEOGRAPHY

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10 COMPANY PROFILING

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List Of Tables

LIST OF TABLES

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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