

Textile Enzymes Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Source (Animal Tissues, Micro-organisms, Plants), By Type (Amylases, Cellulase, Catalase, Pectinase, Laccase, and Others), By Application (Bio-Polishing, De- Sizing, Enzymatic Bleaching, Bio-Scouring), By Region, and Competition

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Abstracts

Global textile enzymes market is anticipated to grow significantly in the forecasted period of 2024-2028F due to textile industries for different processes. The global textiles and apparel market has almost doubled over the last two decades. Markets of raw materials and intermediate markets have also significantly increased over the past few years. The global textile enzyme market is a rapidly growing industry that plays a vital role in the production of high-quality textile products. Enzymes are natural proteins that are used in various industrial processes, including textile manufacturing. They offer several benefits over traditional chemical processes, such as reduced environmental impact and improved efficiency, making them an attractive option for textile producers. The increasing demand for sustainable and eco-friendly textile products, coupled with the growing adoption of enzyme-based technologies in textile processing, is driving the growth of this market.

The global textile enzyme market is a rapidly growing industry driven by the increasing demand for sustainable and eco-friendly textile products and the adoption of enzyme-based technologies in textile processing. With the continued investment in research and development by leading companies, the market is expected to continue its growth trajectory in the coming years. Enzymes will lessen the pollution level, as the use of enzymes in textile manufacturing can help reduce the environmental impact of textile

production while still delivering high-quality products. Furthermore, the development of new and innovative production processes and the expansion of the product portfolio by key players are expected to create lucrative opportunities for the global textile enzymes market.

Growing Interest in Sustainable Textile Products is Driving the Market Share

Currently, there has been a growing interest in sustainable textile products as consumers become more conscious about the impact of fashion on the environment. In response, the textile industry has been seeking ways to reduce its environmental impact and shift towards more sustainable practices. One promising solution is the use of textile enzymes, which can improve the efficiency of textile production while reducing its environmental footprint. Textile enzymes are natural proteins that catalyze chemical reactions, which can help break down fibers, remove impurities, and enhance the texture and feel of fabrics. They can be used in various stages of textile production, such as de-sizing, scouring, bleaching, and finishing. Enzymes can replace or reduce the need for harsh chemicals traditionally used in textile production, resulting in less pollution, less water and energy usage, and less waste.

One of the most significant benefits of using textile enzymes in sustainable textile production is the reduction in the use of chemicals. Traditional chemical processes used in textile production, such as bleach and dye, can be toxic and polluting, causing harm to the environment and human health. By using enzymes instead, textile producers can significantly reduce the amount of chemicals used in the production process, thereby minimizing their environmental impact. Another advantage of using textile enzymes is their ability to improve the quality of textile products. Enzymes can enhance the texture and feel of fabrics, make them more durable, and improve their appearance. For example, enzymes can be used for bio-polishing, a process that creates a softer and smoother fabric, making it more comfortable to wear. Enzymes can also be used to create a stone-washed look in denim, reducing the need for traditional stone-washing processes that require large amounts of water and energy. Hence, the use of textile enzymes in sustainable textile production has also been shown to save energy and water. Enzymes are biodegradable and non-toxic, requiring less energy to break down and less water to rinse away compared to traditional chemicals. Additionally, enzymes can reduce the amount of wastewater generated during the production process, which reduces the need for water treatment. Such efforts and factors are going to increase the demand for textile enzymes worldwide for the forecasted period.

Adoption of Enzyme-Based Technologies in Textile Processing

Enzyme-based technologies are increasingly being adopted in textile processing due to their many benefits over traditional chemical processes. Enzymes are natural proteins that can catalyze chemical reactions, and their use in textile processing can lead to higher-quality products, reduced environmental impact, and improved efficiency. One major advantage of enzyme-based technologies is their specificity. Enzymes can be designed to target specific fibers, such as cotton, wool, or silk, and specific processes, such as bio-polishing, de-sizing, and fabric softening. This specificity means that enzymes can achieve high-quality results with minimal waste, reducing the amount of energy, water, and chemicals required in the process.

Another benefit of enzyme-based technologies is their ability to improve the sustainability of textile production. Enzymes are biodegradable and non-toxic, meaning that they have a lower environmental impact compared to traditional chemicals. Enzymes require less water and energy to produce and use, and they can help reduce the amount of waste and pollution generated by textile processing. These technologies can also improve the efficiency of textile processing means enzymes can speed up chemical reactions, reducing the time required for textile processing and allowing for faster production. Enzymes can also reduce the need for high-temperature and high-pressure processing, which can save energy and reduce wear and tear on machinery. Hence, enzyme-based technologies offer a promising solution for the textile industry seeking to reduce its environmental footprint, increase efficiency, and produce high-quality products, with continued innovation in enzyme technology and increasing demand for sustainable textile products, and adoption of enzyme-based technologies in textile processing. Therefore, the demand for textile enzymes is going to rise globally in the forecasted period.

Rising Use of Textile Enzymes as Bleaching Agent

Bio-polishing is a textile finishing process that uses enzymes to improve the surface smoothness, luster, and hand feel of cotton and other cellulosic fabrics. It is one of the most popular applications of textile enzymes in the textile industry, and it offers several advantages over traditional chemical treatments. In bio-polishing, cellulase enzymes are used to selectively remove protruding fibers from the surface of the fabric, leaving a smooth and uniform surface. This process not only gives a better appearance to the fabric but also reduces the tendency of pilling, which is the formation of tiny balls of fiber on the surface of the fabric. One of the primary benefits of using textile enzymes in bio-polishing is that it is a more sustainable and eco-friendly process than traditional chemical treatments. The enzymes used in bio-polishing are biodegradable and non-

toxic, meaning that they are more environmentally friendly than traditional chemicals used in textile finishing. Furthermore, bio-polishing reduces the amount of water and energy required for the finishing process, which can help to reduce the environmental impact of textile production and increase the demand for textile enzymes globally.

Bio-polishing can also lead to higher-quality fabrics. The use of enzymes can produce a softer, smoother, and more lustrous surface on the fabric, which can enhance its aesthetic appeal and increase its market value. In addition, the process can reduce the shrinkage of cotton fabrics, improving their durability and overall quality. Another significant advantage of using textile enzymes in bio-polishing is that it can increase the efficiency of the textile finishing process. Enzymes are highly specific in their action and can target only the protruding fibers on the surface of the fabric, leaving the underlying fibers unaffected. This specificity means that the bio-polishing process can be completed in a shorter time and with less energy and water than traditional chemical treatments, resulting in cost savings for textile manufacturers. Hence, the use of textile enzymes in bio-polishing offers several advantages over traditional chemical treatments. It is a more sustainable and eco-friendly process, can lead to higher quality fabrics, and can increase the efficiency of the textile finishing process. As consumers continue to demand more sustainable and high-quality textile products, the use of textile enzymes in bio-polishing is likely to become even more popular in the textile industry. Therefore, all these factors will propel the textile enzymes' demand globally in the forecasted period.

Favorable Government Policies

Government policies play a critical role in shaping the textile industry, from the production and processing of textile products to their disposal. Governments around the world have implemented various policies to regulate the textile industry, promote sustainability, and protect the environment and human health. Many governments have implemented regulations to control the use of chemicals and dyes in textile production to prevent pollution and protect human health. For example, the European Union's REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulation aims to regulate the use of hazardous chemicals in textile production and other industries. Similarly, the United States' Toxic Substances Control Act (TSCA) regulates the use of chemicals in industrial processes, including textile production. In addition to regulations on chemical use, many governments have implemented policies to promote sustainable textile production. For example, the European Union's Ecolabel certification program aims to promote sustainable textile production by certifying products that meet certain environmental standards. The program considers the entire

lifecycle of a product, from raw material sourcing to disposal, and evaluates products based on their environmental impact. Similarly, the Global Organic Textile Standard (GOTS) is a certification program that promotes organic and sustainable textile production by evaluating products based on their environmental and social sustainability.

Governments also play a role in promoting the circular economy in the textile industry. The circular economy is an economic model that aims to minimize waste and maximize resource efficiency by keeping products and materials in use for as long as possible. Many governments have implemented policies to promote textile recycling and reduce textile waste. For example, the European Union's Waste Framework Directive sets recycling targets for textiles, and some countries, such as Sweden and the Netherlands, have implemented textile collection and recycling programs. Hence, government policies have a significant impact on the textile industry, from regulating chemical use to promoting sustainability and the circular economy. As consumers continue to demand more sustainable and environmentally friendly textile products, it is likely that governments will continue to play an important role in shaping the industry where textile enzymes will play a vital role and increase the growth rate in upcoming period.

Recent Developments

In 2021, Novozymes A/S, a leading manufacturer of enzymes for the textile industry, opened a new enzymatic solutions plant in India. The plant will produce enzymes for various industries, including textiles, and will help to meet the growing demand for sustainable and eco-friendly products.

In 2019, Dyadic International, a biotechnology company, and DuPont, a multinational conglomerate, announced the launch of a new textile enzyme product called C1. C1 is a fungal cellulase enzyme that can be used for various textile applications, including bio-polishing and fabric softening.

In 2018, Genencor, a division of DuPont, launched a new color retention enzyme called PrimaGreen. PrimaGreen is a bio-based enzyme that can be used to improve the color fastness of dyed textiles, which reduces the need for additional dyeing and saves water and energy.

Market Segmentation

Global Textile Enzymes Market is segmented based on source, type, application, and region. Based on source, the market is segmented into animal tissues, microorganisms, and plants. Based on type, the market is segmented into amylases, cellulase, catalase, pectinase, laccase, and others. Based on application, the market is fragmented into bio-polishing, de-sizing, enzymatic bleaching, and bio-scouring. Based on region, the market is divided into North America, Europe, Asia Pacific, South America, Middle East & Africa.

Company Profiles

Novozymes A/S, BESTZYME BIO-ENGINEERING CO., LTD., AB Enzymes GmbH, BASF SE, Denychem Ltd, Royal DSM NV, Kemin Industries, Inc., Advanced Enzyme Technologies Limited, Ultreze Enzymes Pvt Ltd, and Epygen Labs FZ LLC are some of the key players of Global Textile Enzymes Market.

Report Scope:

In this report, global Textile Enzymes market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Textile Enzymes Market, By Source:

Animal Tissues

Micro-organisms

Plants

Textile Enzymes Market, By Type :

Amylases

Cellulase

Catalase

Pectinase

laccase

Others

Textile Enzymes Market, By Application:

Bio-polishing

De sizing

Enzymatic bleaching

Bio scouring

Textile Enzymes Market, By Region:

North America

United States

Mexico

Canada

Europe

France

Germany

United Kingdom

Spain

Italy

Asia-Pacific

China

India

South Korea

Japan

Australia

Bangladesh

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive landscape

Company Profiles: Detailed analysis of the major companies present in the global Textile Enzymes market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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