



## Polybutylene Succinate Leading the Biodegradable Revolution in the Plastics Industry

Polybutylene succinate (PBS) emerges as a key player in the global shift towards sustainable plastics, offering eco-friendly solutions across various industries and driving advancements in biopolymer technology. This groundbreaking material represents a significant step forward in reducing environmental impact and fostering industry-wide innovation.

Polybutylene succinate (PBS) has emerged as a promising biodegradable thermoplastic polymer, offering a potential solution to the global plastics waste problem.

### The Rise of PBS: A Sustainable Solution to Plastics Waste

PBS exhibits several desirable technical properties that make it an attractive material for a range of applications. PBS is known for its excellent processability, allowing it to be easily moulded into various shapes and forms, including thin films, fibres and complex geometries. It can be processed using conventional plastic manufacturing



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# Biopolymers

## Opportunities Abound in the Indian Market



Plastics and their quality of not getting degraded in the soil is an issue the industry is working towards addressing. One solution being the production of biodegradable polymers i.e. biopolymers, which can degrade into the soil within a specific period.

Biopolymers are used across various industries, from food to manufacturing, packaging and biomedical engineering. They are promising materials due to characteristics such as biocompatibility and unique properties like non-toxicity.

Biopolymers are revolutionising industries, offering sustainable and biodegradable alternatives to traditional plastics across food, medical and consumer sectors, marking a significant shift towards environmental consciousness and resource efficiency.

### Biopolymer – Material of the Future

Biopolymers are suitable for high-value applications that can address complex problems associated with health and well-being. Efforts have been made to replace synthetic polymers with biodegradable materials, especially those derived from natural resources, to reduce the environmental impact.

In this regard, various natural or biopolymers have been developed to meet the needs of the ever-expanding applications. These biopolymers are currently used in food applications and are expanding their usage in the pharmaceutical and medical industries, on account of their unique properties.

Biopolymers have gained popularity as a substitute for petroleum-derived materials in the food and hospital industries.

The scarcity of traditional resources and increasing environmental awareness have led to the growth of biopolymers across the world. They are used in consumer goods like toys, cutlery and household items like cups, plates, spoons, toothbrushes etc.

The main opportunity for biopolymer material lies in replacing several banned single-use plastics used for items such as forks, spoons, knives, straws, trays, and wrapping or packaging films etc.

Biopolymers are suitable for high-value applications that can address complex problems associated with health and well-being. They are currently used in food applications and are expanding their usage in the pharmaceutical and medical industries. Also, biopolymers have gained popularity as a substitute for petroleum-derived materials in the food and hospital industries.



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(Keshawin Biopolymers Pvt. Ltd. collaborates with Exipnos GmbH, Germany for the Indian market)

techniques such as injection moulding, extrusion and blow moulding. PBS possesses good mechanical strength and thermal stability, making it suitable for applications requiring structural integrity and durability. It exhibits high tensile strength, and impact resistance and can withstand moderate temperatures.

Most importantly, PBS is biodegradable, meaning it can undergo microbial decomposition. This characteristic makes PBS an environmentally-friendly alternative to conventional plastics, reducing the accumulation of non-degradable waste in landfills and ecosystems.

## Unlocking PBS's Potential: Advancements in Biodegradable Materials

The market potential for PBS is significant, driven by increasing regulatory pressures to reduce plastics waste and growing consumer demand for sustainable alternatives. PBS finds applications across various industries, including packaging, textiles, automotive, agriculture and consumer goods. In the packaging sector, PBS is used for manufacturing films, bags and containers. Its biodegradability offers an advantage in single-use applications, where reducing plastics waste is essential. The demand for sustainable packaging materials is on the rise, driven by environmental concerns and changing consumer preferences.

PBS is also used in the textile industry, where it can be blended with other fibres or used as a standalone material for producing eco-friendly fabrics. Its biodegradability makes it suitable for applications like disposable clothing, non-woven fabrics and geotextiles.

In the automotive sector, PBS can be employed in interior components, such as seat trims, panels and

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insulation materials. The industry's growing emphasis on reducing vehicle weight and sustainability provides opportunities for PBS to replace traditional plastics, reducing the overall environmental impact of vehicles, where the vast majority of plastics in this sector end up in landfills.

Furthermore, PBS has potential applications in agriculture, where biodegradable mulch films can enhance soil conditions and reduce waste during harvest. It can also be used in horticulture for plant pots, trays and seedling containers. ■

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