



## Biorenewable Insights: Biocomposites

**Biocomposites is one in a series of reports published as part of NexantECA's 2021 Biorenewable Insights program.**

### Overview

Green composites are becoming increasingly available as options for low carbon emissions, bio-based, and biodegradable/compostable resins and reinforcements proliferate. From automotive panels to laminated textiles, environmentally friendly composite applications are constantly expanding.

This report is a comprehensive review of the emerging green plastic composites space, covering the sector from the perspective of environmentally friendly resins and solid reinforcements and fillers. It aims to engage directly with the complexity and diversity of composites markets, focusing on strategic factors for green composite product development and methods by which new products have successfully competed in the space.

### Technologies

This report profiles available options for green composites production, both in terms of drop-in replacements and novel products. Rather than focusing on specific manufacturing techniques, the report profiles important resins, reinforcements and fillers that are currently available to produce green composites and their associated advantages and disadvantages. Coverage include thermoplastics (PLA, TPS, aliphatic PA), thermosets (epoxies, thermoplastic PU, furanoates), wood solids (veneers, strands, granulates), natural fibers, and regenerated materials.

The report also provides technical details on green product development in two major case studies covering the green artificial leather industry and the green automotive engineering composite industry.

### Commercial Impact

To provide a holistic view of new product development for green composites in light of the complexity and application-orientated nature of the space, NexantECA's study includes two detailed strategic case studies of green composite products. NexantECA's case studies of these two products serves to explore competing products and processes, assess the strategic drivers and vulnerabilities of the products and the companies that produce them, and ultimately to give examples of how green composites are being adopted and competing in

markets traditionally the preserve of fossil-based composites.

The two case studies cover the bio-based artificial leather product Piñatex by the innovative company Ananas Anam and the partially bio-based fiber-reinforced nylon composite product EcoPaXX by DSM/Covestro. Each serves vastly different markets and faces different major drivers for adoption as a consequence of their different strategic situations.

The aim of these case studies is to give business decision makers a holistic overview of the factors that go into composite product development. Key questions examined include:

- What is the current state of the conventional industry?
- What are the product innovation drivers and rationale for using green composites in this sector?
- What technology is available to produce a new green product?
- What technology has been used by the studied developer to develop the new green product?
- What key technical parameters needed to be addressed by the new product?
- What conditions for market entry exist(ed) for this product?
- How has the developer responded to competition from conventional composites, other green composites, and other competitors?

Selected Production Stages for a Renewable Composite Textile



**For more information. please contact  
Technology@NexantECA.com or www.NexantECA.com**



## Biorenewable Insights: Biocomposites

### Subscribe to BI

The BI program (sister program to the world renowned TECH program, formerly known as PERP) is globally recognized as the industry standard source of process evaluations of existing, new and emerging of interest to the renewable energy and chemical industries.

BI's comprehensive studies include detailed technology analyses, process economics, as well as capacity analysis and impacts on conventional industry. Reports typically cover:

- Trends in technology
- Strategic/business overviews and/or developer profiles
- Process Technology:
- Chemistry
- Process flow diagrams and descriptions of established/conventional, new and emerging processes
- Process economics – comparative costs of production estimates for different technologies across various geographic regions
- Capacity tables of plants and analysis of announced capacities
- Regulatory and environmental issues where relevant

### Subscription Options

A subscription to BI comprises:

- PDF reports including detailed technology analyses, process economics, as well as commercial overviews and industry trends
- Cost of production tables in spreadsheet format (as requested)
- Consultation time with the project team

An annual subscription to BI includes 10 reports published in a given program year. Reports can also be purchased on an individual basis, including reports from previous program years.

For more information, please contact  
[Technology@NexantECA.com](mailto:Technology@NexantECA.com) or [www.NexantECA.com](http://www.NexantECA.com)



**NexantECA Subscriptions & Reports** provide clients with comprehensive analytics, forecasts and insights for the chemicals, polymers, energy and cleantech industries. Using a combination of business and technical expertise, with deep and broad understanding of markets, technologies and economics, NexantECA provides solutions that our clients have relied upon for over 50 years.

**Technology and Costs** comprises the Technoeconomics – Energy & Chemicals (TECH) program, the Biorenewable Insights program (BI), and the new Cost Curve Analysis. These programs provide comparative economics of different process routes and technologies in various geographic regions.

NexantECA serves its clients from over 10 offices located throughout the Americas, Europe, the Middle East, Africa, and Asia.

#### Americas

Tel: +1 914 609 0300  
44 S Broadway,  
5th Floor White Plains  
NY 10601-4425  
USA

#### Europe, Middle East & Africa

Tel: +44 20 7950 1600  
110 Cannon Street  
London EC4N 6EU  
United Kingdom

#### Asia Pacific

Tel: +662 793 4600  
22nd Floor, Rasa Tower I  
555 Phahonyothin Road  
Kwaeng Chatuchak  
Khet Chatuchak  
Bangkok 10900  
Thailand

For more information. please contact  
[Technology@NexantECA.com](mailto:Technology@NexantECA.com) or [www.NexantECA.com](http://www.NexantECA.com)