

Natural Versus Plastic Fibres in Today's Marketplace

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Sustainability is driving the need for the use of natural fiber options, such as hemp, in typically non-woven fiber products.

As consumers' attention turns toward the use of natural fibres rather than nonrecyclable plastics to construct their favorite products, companies are taking notice and responding accordingly.

IFJ gathered insights from Jason Finnis, co-founder and chief innovation officer at Bast Fibre Technologies (BFT). Jason has 30 years of experience in the natural fiber industry and led the development of sero™, BFT's premium hemp fibre.

Hemp is a versatile commodity crop already in generous production around the world and is now re-emerging in the United States as a solution to sustainability issues.

IFJ: *What industry or consumer problem were you hoping to resolve when you began your research and development?*

Finnis: Since the founding of BFT, our goal has been to replace as much plastic as possible. The nonwoven industry is undergoing a period of rapid change as consumers become more concerned with the environmental damage caused by single-use plastics. The industry consumes over 14 million tons of fibre annually for products ranging from building insulation to baby wipes. Nearly 80% of the fibres used are plastic which have little or no viable recycling options. Wipes made from plastic fibres are typically used once and then discarded into landfills or make their way into waterways where they break down into microplastic contamination. Bast fibres like hemp are a great all-natural, compostable, alternative to plastic fibres, due to their natural strength and durability, among many other benefits. In addition, BFT's unique processing method allows the fibres to retain their natural moisture management characteristics. The resulting consumer good products made of our fibre have superior absorbency, wet strength and a cloth-like-feel.



IFJ: *What challenges did you have to overcome to bring the product to its fullest potential?*

Finnis: Because the growth of hemp was limited by regulations in many regions in the world until recently, there is a comparative lack of development in industrial hemp farming and processing. This absence of development has meant that hemp has been excluded from use in consumer goods products like wipes, pads, or

diapers due to inconsistent length, cleanliness, and limited compatibility with the conversion equipment of the manufacturers. Hemp fibres therefore were relegated to low-value applications that included insulation, composites, and construction material.

BFT has worked to address these challenges by developing an advanced processing technology that carefully individualizes, softens, cleans, and brightens raw bast fibres from hemp and flax plants. Our proprietary process successfully separates the fibres without affecting them. As a result, BFT fibres meet the exacting standards required by the nonwoven industry while being truly natural, plastic-free, tree-free, and compostable.

IFJ: *How long was your R&D and trial product phase? What does the production phase entail?*

Finnis: BFT spent its early years analyzing market needs, designing fibre treatments and processes, and developing a robust suite of patents. Producing a natural fibre that not only met the nonwoven industry's exacting standards but also creates a fabric with environmental and performance advantages was a formidable task. The team conducted countless experiments and then validated results via pilot and commercial scale trials.

As a result of that early work, BFT identified and mapped more than 100 critical process control parameters that must be managed to produce a fibre that meets the industry's specific requirements. In addition, BFT has developed a wide range of treatments that allow the fibre to retain and even improve on its natural performance while adhering to the highest environmental standards. Such treatments include cohesion enhancement, sanitizer com-



patibility, softness, color modification, and moisture management. Properly cleaned fibres are homogenous in color and length. Once the processing is complete, our fibre goes to nonwoven converters who creates the final consumer products.

IFJ: *What materials were you working to incorporate into the product – what worked and what did not?*

Finnis: We developed our fibre to blend easily with other fibres typically used by the nonwoven industry. Sero™ fibre is a plug-and-play solution that runs seamlessly on the major nonwoven platforms, while integrating with other fibres as desired to produce a variety of fabric blends. Additionally, sero™ hemp fibres do not compromise production speeds, efficiency, or uniformity.

IFJ: *What is the plan for your company to roll out this innovation to its intended marketplace?*

Finnis: The market for natural fibres is set for rapid growth. This rapid increase in demand is being driven by the combined forces of global plastics legislation, strong consumer preference for natural products and ambitious goals being put in place by major brands to decarbonize and eliminate plastic from their supply chains.

Companies have made a public pledge to reduce or eliminate single-use plastics in their supply chains in the coming decade. This fundamental shift has highlighted the need for a truly natural fibre.

BFT is currently working together with several converters as well as large consumer brands, who will be launching products made with our fibre to the market soon. Having facilities both in Europe and an America allows us to grow, process and sell our fibres in the same geographic region, minimizing our environmental footprint and streamlining our supply chain.

IFJ: *What is the next step for your innovation?*

Finnis: We already enjoy great interest in our sero™ hemp fibre and are working on making it the natural fibre of choice in the nonwoven industry. We are dedicated to continuing to minimize our environmental impact at BFT and are striving to become carbon neutral or better. Introducing additional bast fibres into our product portfolio, such as flax, jute, nettle, is an area of future innovation. Bast fibres have a wide range of characteristics that will make them competitive in a variety of end uses for years to come. **IFJ**

Bast Fibre Technologies was recently nominated for the RISE® Innovation Award from INDA – the Association of the Nonwoven Fabrics Industry.