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Fibretrace: the technology able to track the product lifecycle also after being recycled

Transparency is at the basis of a technology created to be implanted inside the fibers and to trace the entire production process

Traceability needs of the fashion market

The companies have to correctly communicate the percentages of materials used in the composition of individual garments. Enquiries from the brand side on the production process have been made. The growing demand of transparency, within the supply chain and within the community, enabled Fibretrace to propose a 360-degree view on the product, from the raw fiber. This solution also aims to make clear, from the cultivation process, the derivation of raw materials in order to facilitate the disposal of products through recycling and reuse. To ensure that this primary impact data can be accessed by the manufacturer and retailer is one of the primary goals of the project. Empowering the global textile industry by making them understand their environmental and social impact, the user is requiring more information nowadays. Transparency of verified data and storytelling from which the brand can benefit is the gimmick to allow the consumer to make informed buying decisions. There are no fixed benchmarks for brands to enter the FibreTrace project. Commitment and an awareness of wanting to change is key, as shown by the partnership with Reformation and Noboby Denim. Since it is difficult for brands and retailers to implement this check of the different steps especially in terms of time, Statham stated that «The development of FibreTrace has been strategically built for the fashion industry as a plug and play solution to create easy adoption without disruption to existing systems». Ensuring supply chain tracking should be the first step for a brand that claims to be responsible. Many of the big brands with worldwide distribution are currently struggling to recognize the entire production process, starting from what can be defined as the composition of the product. Regarding this, not only does the brand itself fail to be aware of the ethicality of the steps that follow one another, but it cannot communicate its commitment to the consumer.

Fibretrace, the biodegradable tracking technology

The technology combines physical and digital intertwining within the fiber itself. The biodegradable expedients developed are luminescent pigments embedded into the raw fiber or into the yarn spinning. This does not change or affect the quality of the product or the yield of the yarn, or the versatility of the material, explained the co-founder, Danielle Statham. The pigment functions as a passport during the entire production process, where the following steps can be performed only after the registration of previous ones. The fiber can be scanned at each phase through hardware created specifically to detect and read the unique code of a brands' luminescent pigments. The information is recorded through a security software platform in order to be stored step by step. The significant research conducted in the study of this technology allows it to be indestructible during the production process and to make it resistant even beyond its disposal. Every touchpoint in the supply chain is identified and recorded through a Bluetooth system, from the physical tracer the information is registered on the digital software platform that records the information on the blockchain technology. «By connecting both the physical product from the manufacturing level we enable irrefutable verification of provenance, environmental impact, location, fiber quantification, factory certification and beyond», specified the co-founder. The main focus is on the first step: the production of the raw materials. This system also makes it possible to meet brand requirements, which can be based on specific fabric needs. For example, if 90% recycled cotton is required, this percentage can actually be verified by scanning the recycled material.



FIBRETRACE PIGMENT IN LWB LAB

Fibre Impact Module: how to start from the farms

The FIM (Fiber Impact Module) has been developed by Fibretrace in collaboration with Dr Francois Visser from Carbon Friendly, the organization focused on the development of carbon farming and the reduction of greenhouse gas emissions targeting regional and rural Australian communities. The module creates a framework to analyze the manufacturing level combining traceability with impact measurement, in accordance with the Greenhouse Gas (GHG) Protocol standards. The focus is on the field and farm working methods, especially in terms of reducing carbon emissions. The main data collected analyzes the soil and cultivation methods, including the chemicals used, but also the expenditure of energy and water in production. Different impact and output information available from the implication in creating fibers are collected and evaluated on each farm and production models, based on the methodologies applied. Great stress is placed on studying soil data, the co-founder reiterates, as a means of making a huge difference in environmental impact. On the Carbon Friendly website it is pointed out how storing carbon in soils in grazing or cropping land, when there is no vegetation, is a key component for carbon farming. Statham believes that carbon farming can be the future for the fashion world becoming a movement towards commitment in the very first step of the production process, the cultivation of fibers.

The understanding of the fiber since its cultivation

Through the described methodology the data are collected on FibreTrace platform and this allows the organization to engage directly with farmers around the world. The framework module proposed clearly states the impact of cultivation and raw material into the creation of a sustainable fashion production model. Understanding the fiber attributes starting from the soil level can be the added value of that tracking technology. It is difficult to decide which type of fiber meets the standards of environmental protection when the data at the time of its creation are missing. The environmental score of the garment is evaluated with a high percentage through the acknowledgment of raw materials and insights from the farm and the proof of their origin comes embedded with the fiber. The history of the fiber and the traceability, that facilitates the story, must travel hand in hand being reported in a compliant manner by connecting the physical to the digital. The project was created with the intention of driving conscious change in the production industry of cotton, the most widely used fiber in the world of clothing. The historical complexities of cotton commodities that bind the raw material to the mixing of fibers and its cultivation also make it a fiber often questioned, affirmed Statham, with the conviction that cotton was born as a responsible material and can continue to be so in its use. Now FibreTrace includes man-made and natural fibers such as recycled cotton, recycled polyester and polyamide, responsible viscose, recycled leather, responsible wool and linen.

Lampoon reporting: the effects of blockchain technologies

Brands are the first entity to need this tracked information, especially to maintain credibility and trust with the consumer. In this case the information given to the client is first of all irrefusable, since the transmission takes place without the possibility to be modified. Another positive aspect are the data driven results, based on defined scientific frameworks, and finally verified through a third part methodology. The data give substance to the word sustainability when referring to the production process of a company. It solves the confusion among the brands in verifying and affirming their commitment, as Statham stated many brands have been rewarded in terms of sales after that switch. Direct knowledge of the supply chain on the team side is essential when choosing partnerships and, according to the co-founder, FibreTrace purpose is to encourage the many actors of the process who are truthful to this transparency story and need to be showcased. The developed technology was built up to follow the garment lifecycle even after the recycling process and it is also designed to resist in case the garment is burnt. This strength allows the software to quantify the exact amount of recycled fiber versus virgin fiber or fiber blends. Brand's transparency commitment has been demanded by a customer driven movement, aware and educated, with the urge to buy in an informed way. The customer is invited to share the entire journey of the garment, through in store experience with interactive scanners or through a secure QR code for the online buying experience. FibreTrace implies Smart Contracts in a Chain of Custody model, its blockchain does not require only currencies. The point lies in creating a concatenation of actions that influences each other by giving input to subsequent actions, through the secure recording of each step with blockchain technology.

Fibretrace

The Fibretrace system uses patented nanotechnology particles embedded in cellulose fiber. These fibers can be mixed into any natural or man-made fiber at the very start of the production process (often at the farm itself), with no impact on texture or performance. With Fibretrace in the mix, the fiber can be spun and woven.

CHIARA NARCISO

The writer does not work for, consult, own shares in or receive funding from any company or organization that would benefit from this article.
IMAGE GALLERY

From mangoes to leather: Fruit leather, the idea of two classmates

From the Rotterdam harbor straight to the Fruit leather workspace: the story of Hugo and Koen repurposing rotten mangoes in the European biggest trade-hubs, Netherlands

Environmental data is not only a carbon measuring tool – it tells us what a tree is feeling

Dutch eco-awareness artist Thijs Biersteker's recent work illustrates the complexity of plant communication. Finnish futurologist and author Risto Linturi explores the promises and pitfalls of virtual reality

Infinite Fiber – no more virgin materials: a man-made cellulosic fiber

A fiber regenerated from discarded textiles and can be processed in converted viscose mills: Kirs Terho of Infinite Fiber Company explains how this circular alternative to cotton is made.

[TRANSITION]

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