

ORANGE FIBER

NEW GREEN IN TEXTILE PRODUCTION IN ITALY

The [Orange Fiber company](#) based in Catania (Italy), is the first brand transforming residues of industrial juice production from citrus fruits into an innovative sustainable and biodegradable textile. The Orange Fiber company has been developed by two start-uppers and founding partners, Adriana Santanocito, specialized in innovative textile design and Enrica Arena, specialized in marketing and communication.



Orange Fiber fabrics are formed from a silk-like cellulose yarn that can blend with other materials. When used in its purest form, the resulting 100% citrus textile features a soft and silky hand-feel, lightweight, and can be opaque or shiny according to production needs. The fiber extracted from citrus fruits is white and is then colored with 100% natural dyes. The characteristics of the fabric, similar to silk and soft to the touch, make it particularly suitable for producing high fashion clothing. The fabric, being entirely produced from vegetable fibers such as cellulose obtained from citrus fruit pulp, is biodegradable. At the end of its use and through a composting process, the garment produced with Orange Fiber fabric is able to decompose without generating new waste.



Orange Fiber's new production process has been widely recognized in Italy and internationally for the contribution it makes to the management of environmental resources and the creation of a sustainable fashion industry.



The productive process patented by Orange Fiber gives new life to the *pastazzo*, technical term to define what remains of the citrus fruits after squeezing. The process can be used to treat waste from oranges, lemons, mandarins and grapefruit. The wet citrus residual is treated with a special process to be able to extract the cellulose that will form the final yarn. Cellulose is extracted from the leftovers that would normally be discarded after pressing a citrus. The innovation was created in Sicily, a region of Italy where the production of citrus represents an important supply chain of local economy. By transforming fruits into juices, jams and other products, local industries generate a large amount of waste that must be properly disposed of, with costs for both the processing industry and the environment. This waste is often exploited by generating energy through biogas plants.



The Orange Fiber's production process makes it possible to transform this waste into a new resource for a high-quality product, generating an important added value for the local economy. Considering that more than 700.000 tons of citrus waste are produced in Italy every year (400.000 tons in Sicily), this innovation could generate a significant positive impact in many areas dedicated to the production of citrus fruits.



The high-quality fabric made by Orange Fiber also respond to the needs for sustainability of the fashion industry and to the ever-increasing demand from consumers for garments made with natural textiles and materials. In the world of fashion, major initiatives are promoted by international and environmental organizations, renowned brands and manufacturers themselves, to adopt more environmentally friendly production methods. In this context, the Orange Fiber fabric, with its productive process, represents one of the green innovations. In fact, the process does not use new natural resources but, by adopting a circular economy approach, effectively recycles waste harming the environment to generate a product of high added value.

[The Orange Fiber innovative process](#) has been created in collaboration with the Politecnico di Milano University. The start-up company patented the process in Italy in 2013 and extended to an International Patent Cooperation Treaty in 2014. Once the trademark was registered, the textile market has been tested by identifying strategic partners in the supply chain in Italy and abroad, involving the excellence of the industry. The first prototypes of fabric from citrus juice by-product has been presented in 2014 at the Expo Gate of Milano, during the Vogue Fashion's Night Out. The first pilot plant for the extraction of pulp from citrus was opened in December 2015 in Sicily.

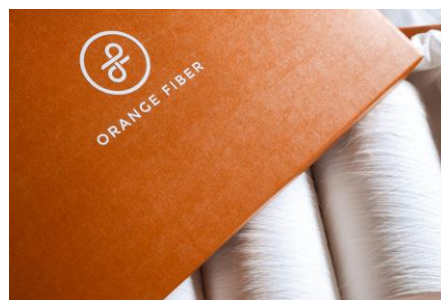
In 2015 the Orange Fiber innovative and high-quality textile was awarded by the [United Nations Economic Commission for Europe \(UNECE\) Ideas4Change competition](#). The Orange Fiber company also won the Global Change Award, organized by H&M Foundation to recognize quality, innovation and attention to the environment of fabrics. The Orange Fibre fabric made out of citrus juice by-products was also included in the [H&M's Conscious Exclusive collection 2019](#), made only with recycled and sustainable materials.

On Earth Day 2017, the first fashion collection made with the Orange Fiber fabric was launched by Salvatore Ferragamo, one of Italian top fashion houses and a world leader in the luxury industry. This collaboration represented a great opportunity to showcase the potential of the Orange Fiber for elegant and sustainable applications. Since 2015 the Orange Fibre company has been participating in the [connect4climate global partnership](#) launched by the World Bank Group to take on climate change by promoting transformative solutions and empowering collective action. In October 2020 Orange Fiber has been a finalist among the top 12 disruptive innovators of the accelerator program [MassChallenge Switzerland](#) and has been awarded with a cash prize and support services provided by the Swiss early-stage accelerator.

The Orange Fibre company is working establishing synergies with citrus squeezers and their processes, and with industrial players in the cellulosic industry for fabrics to adjust the production to their standards, while considering the brand's requests and preferences discovered with the first textiles launched and testing samples on the market with different players. Thanks to the successes achieved so far in many national and international contexts, the company goal is to move forward the R&D process to scaling the technology with a long-term view of optimizing the costs of production.

Looking at future prospects of using its technologies in other contexts, the company registered interest in new territories in Italy, in some European countries, United States, in India, Brazil and Mexico.

To know more



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