Textiles begin as singular fibers that are worked, and twisted, dyed, and printed, to create threads used for fabric production. The process is multi-step and includes many tests and re-makes, more testing and trying again to get each textile exactly right. Laura Parzych, Manager of Research and Development at Darlington factory in Westerly, RI, has devoted her career to this process for 37 years. Sourcing new fibers and threads with different constructions, dyes, and finishes is just the beginning as construction of the textile must meet all customer demands. With so much change happening, innovation has become part of daily functions at Darlington, and they have made some drastic improvements.

A family owned business, Darlington has two divisions, the warp knitting stretch fabrics factory, where Parzych is located, and the narrow elastic fabric factory. The narrow elastic fabric factory focuses on silicone linings, boning’s, and structural elastic fabrics like that on shape-wear hems. The warp knitting stretch fabrics factory is focused on the full textile itself. Having worked with companies such as Adidas, the NFL, and Cupid, the business has built a strong customer base due to their ability to meet all customer requests.

Every step of the textile development process has been worked on and improved since the company’s establishment in 1880. Fibers around the world are being produced with less environmental damage with each innovation. At Darlington, the processes of production, dyeing, and finishing are rapidly improving as multiple large vertical warp looms are replaced by just one that can do the same job in less time, saving energy. In addition, conservation of local rivers had become increasingly important to the Westerly factory because they are positioned along a river for power source back in the day. As well as advancing to electric power rather than water power, Darlington has also improved recycling and disposal of chemical waste from dyeing and finishing. All physical waste is reused or incinerated so there is no need for a landfill. Darlington continues to upgrade to and develop innovative machines and processes to improve sustainability and preserve the environment.

Innovations in textile development far surpass improvements in sustainability and delve into specific modification of fibers, yarns, fabrics and finishes to create a final textile that is exact to client demands – no matter how detailed. Adidas, for example, came to the Darlington company wanting a fabric used in women’s panties, as the base for their sports thermal wear. Specifically, Adidas was looking for the same soft, smooth, comfortable wear that the panty fabric had. The challenge was creating a fabric that was a fine to hand as panties, but a strong and supportive as traditional athletic wear, and while keeping the wearer warm and comfortable. Darlington was able to control the fiber content, construction, and finishing of the proto-type textile for Adidas, and after testing and reconstruction, Darlington got the “formula” exactly right. Parzych also discussed innovation through reverse engineering – the process of picking a textile apart to see how it was woven, dyed, and finished to recreate or alter these to construct a similar textile. This is a process that Darlington performs on occasion to determine how a fabric stretches the way that it does, given the fiber content or appearance.

Textiles begin as singular fibers, and from this very first step, modifications and manipulations are occurring to manufacture an ideal product for the client. From the way the fibers are formed into yarn, to the weaving performed to create the textile, anticipation of the textiles expected performance, and knowledge of current properties make this innovation possible.