

# NuCycl™ by Evrnu® Technical Summary



**NuCycl by Evrnu technology takes garment waste diverted from the landfill and turns it into fiber.** Evrnu has developed and studied the process from waste diversion to garment production. The NuCycl process starts with sorting the feedstock. Waste material is sorted from using a multi-spectral optical sensor that detects different material blends as well as contamination and other impurities. As the material passes through the sorting system, it is diverted to different streams based on composition. The cleaning and separation processes used for each stream is based on its composition.



**Evrnu has developed multiple cleaning and separation processes to prepare material for fiber production.** The separation process is a multistage system designed to separate each material, while preserving the quality of the textile materials. The implementation of these are based on the starting condition of the sorted material streams and a system is setup for each blend. This process can include removal of contaminants such as metals and dyes, liquid separation where one or more material is dissolved, and depolymerization when necessary.



**Each separated and purified material is then processed for fiber spinning.** Synthetic (non-cellulosic) materials are chemically processed to their block components and diverted into the fiber making process where applicable. Cellulose is treated in a pulping process. Evrnu has developed a process for different cellulose solvent systems, including Lyocell, Rayon, and Cupro. The pulping process is versatile and can be tailored for specific pulp requirements.



**Evrnu pulp and the other materials separated using Evrnu technology can be used in various types of fiber.** The quality of the material allows Evrnu fiber to replace existing product fiber with equal or improved performance. The current fiber portfolio include cellulose (lyocell), polyester, and recoverable elastane. Evrnu technology can also be used to make specialty fibers including microfiber and carbon fiber.

