



cielo®

S U S T A I N A B L E T E X T I L E T E C H N O L O G Y

OEKO-TEX®

INSPIRING CONFIDENCE

ECO PASSPORT

17.0.14110 HOHENSTEIN HTTI

Tested and verified chemicals.
www.oeko-tex.com/ecopassport



SYNTHETIC TEXTILE MICROFIBERS ACCOUNT FOR 35% OF MICROPLASTICS IN OUR OCEANS¹ AND ARE FOUND EVERYWHERE ON EARTH.

Polyester serves many functions: it's long-lasting, durable, easy to care for, and offers unique performance benefits. However, tiny synthetic fibers unavoidably shed from fabrics during manufacture, use and care, and end up as pollutants in the environment.

This is no small issue: microfibers are the most prevalent form of microplastic pollution found in all aquatic, atmospheric and terrestrial environments across the globe. Once polyester is fugitive in the environment, like other non-biodegradable plastics, it remains indefinitely. It harms wildlife, contributes to global warming and potentially impacts human health.

CICLO[®] TECHNOLOGY IS A NATURE-BASED SOLUTION TO MITIGATE SYNTHETIC MICROFIBER POLLUTION.

CiCLO[®] technology reduces fugitive synthetic microfiber pollution by allowing microbes to treat synthetic fibers like natural fibers.

Sounds like magic, but it's just science! CiCLO[®] chemistry is blended with recycled or conventional polyester during melt extrusion, permanently embedding countless biodegradable pathways in the fiber.

Unlike standard polyester, CiCLO[®]-treated polyester eventually biodegrades when it ends up in environments where microfibers are prolific pollutants and conditions for biodegradation exist. In other words, naturally occurring microorganisms in wastewater sludge, soil, anaerobic landfill conditions and sea water can completely mineralize CiCLO fibers, leaving behind only basic natural elements.

CiCLO® TECHNOLOGY BENEFITS

CiCLO® technology imparts the inherent characteristic of biodegradability to synthetics, but there are various federal and state laws that limit the allowable verbiage used to market biodegradable plastics. So, the Landau Forward marketing materials featuring CiCLO® technology focus on what's really important—the end benefit of reduced environmental impact.

Landau Forward
Hangtag



Visit ciclotextiles.com for a complete explanation of the technology, how it is tested, and how it helps play a role in reducing the impact of synthetic microfiber pollution.

COMMONLY ASKED QUESTIONS

WHAT IS THE DEFINITION OF BIODEGRADATION?

Biodegradation is the ability of a substance to be broken down physically and/or chemically by microorganisms resulting in the production of basic natural elements including carbon dioxide, methane, water, minerals, and new microbial cellular constituents (biomass). In other words, microbes are able to break down and digest the material, leaving behind only natural elements.

HOW LONG DOES IT TAKE FOR CiCLO® FABRICS TO BIODEGRADE?

The important thing to know is that synthetic fibers made with CiCLO® technology have the ability to biodegrade when they end up as pollutants in the environment, but conventional synthetics persist indefinitely. The “how long” question requires a long answer:

CiCLO® fibers and fabrics are tested by 3rd party labs using internationally recognized ASTM and ISO Test Methods developed to measure rate and extent of biodegradation of plastic materials in various environments. Long term studies repeatedly prove that CiCLO® materials biodegrade at greatly accelerated rates compared to comparable conventional materials. For example, in controlled lab studies, CiCLO® polyester fully biodegrades in approximately 3.5 years while conventional materials only reach single digit biodegradation percentages.

However, lab conditions are controlled and constant, allowing for a comparison in conditions where biodegradation can occur. The length of time it takes for any inherently biodegradable material (whether it's cotton, wool, CiCLO® polyester or other) to break down in uncontrolled conditions (i.e., sea water, sludge, soil) varies greatly because it is dependent on many factors including things like the physical characteristics of the material, moisture levels, temperature, microbial diversity and density. If inherently biodegradable materials (again, consider cotton, wool, CiCLO® polyester or other) wind up in a dry desert or freezing waters, they may remain intact because the environment is not conducive to biodegradation.

COMMONLY ASKED QUESTIONS continued

DOES CiCLO® AFFECT THE QUALITY OF THE GARMENT?

CiCLO® fibers may be blended with other materials like cotton, wool, tencel, spandex or any other textile fiber. The presence of CiCLO® fibers in a product will not have any impact on other fiber types that it may be blended with for yarn. Dyes: While we cannot make a blanket statement that no chemistries affect the degradation performance, we can share that we've tested various finishes and have not yet found a chemistry that hinders biodegradation. We can say with confidence that CiCLO® textiles and associated textile dyes that satisfy 3rd party certifications such as bluesign®, OEKO-TEX® or Cradle to Cradle will safely be biodegraded, decolorized and mineralized into basic chemical compounds that are harmless.

ARE GARMENTS MADE WITH CiCLO® LESS DURABLE AND WILL THEY BIODEGRADE DURING USE AND CARE?

No. Fabrics made with CiCLO® fibers offer the same quality product, but with a reduced environmental impact. CiCLO® technology is designed to maintain the durability and performance characteristics of synthetic textiles, but ultimately allow them to biodegrade when exposed to moisture and microbes over extended periods of time—just like natural fibers do.

Time is a key aspect in the biodegradation process. Just as wool and cotton do not biodegrade during manufacture, use or care, neither will CiCLO® fabrics. Long term studies conducted by 3rd party labs prove that CiCLO® fibers eventually biodegrade in environments where synthetic textiles are prolific pollutants, including waste water sludge, soil, landfill and sea water.

IS CiCLO® CHEMISTRY SAFE?

Yes. The chemistry used to make CiCLO® fibers is ECO PASSPORT certified by OEKO-TEX to be proven to be safe for use in sustainable textiles. The annual certification process confirms that CiCLO® chemistry meets industry statutory requirements and is not harmful to human health.

WHERE CAN I FIND MORE ANSWERS?

More information about CiCLO® technology, including how it works and test data, can be found at ciclotextiles.com.