

# CiCLO<sup>®</sup>

**Biodegradable** Technology

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# Microplastics are everywhere

AND MUCH OF IT COMES FROM EVERYDAY TEXTILES.

EVERY WASH, EVERY WEAR, SYNTHETIC TEXTILES SHED MICROPLASTIC FIBERS  
THAT PERSIST IN OUR ENVIRONMENT.

MICROPLASTIC POLLUTION IS ACCELERATING, AND SOLVING IT DEMANDS A  
RADICAL OVERHAUL.

IT TAKES INNOVATIVE SOLUTIONS –  
AND A SHARED COMMITMENT TO DO BETTER.



# CiCLO® + Circularity

# Shed happens™

CiCLO® technology supports circularity when shedding happens, From smarter design, to reuse and environmental breakdown.

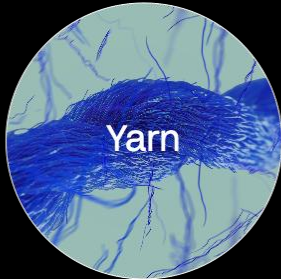
- 01 Design for Circularity**  
Integrates seamlessly with textile-to-textile recycled polyester and nylon, allowing for better design choices without compromising durability.
- 02 Manufacturing with Ease**  
Drops into existing production systems, helping reduce the long-term impact of microplastic fiber pollution generated during manufacturing.
- 03 Engage Brands & Retailers**  
Empowers brands to lead with circularity and responsible storytelling, backed by traceability, third-party testing, and verified results.
- 04 Lower Impact During Use**  
Activates the breakdown of shed microplastic fibers derived from laundering and use, helping reduce their lasting impact in the environment.
- 05 Sorting System Compatible**  
Supports resale and recycling by working with standard systems that sort polyester, nylon, and blended textiles.
- 06 Ready for Recycling**  
Supports mechanical and chemical recycling to lessen the impact of synthetics in circulation while reducing lasting microplastic pollution.



# Microfiber Pollution Starts Before You Even Wear It

## MANUFACTURING PROCESSES

During the manufacturing processes of yarn, fabric, and finished goods production, synthetic microplastic fibers are shed through dyeing, fabric finishing, and industrial laundering.



Shed happens



Shed happens

## HOME LAUNDERING

At home laundering by consumers also creates synthetic microplastic fiber shedding.



Shed happens



## THE ENVIRONMENT

Synthetic microplastic fiber from industrial processes & consumer care end up in our ecosystems (Ocean, Soil, Sludge, Active Biological Landfill)

# What We Wear Ends Up Everywhere

01

Synthetic microfibers are the #1 form of microplastic pollution found in all aquatic, atmospheric & terrestrial environments around the globe.

18

Up to 18 million microfibers can be released during every wash cycle.

35

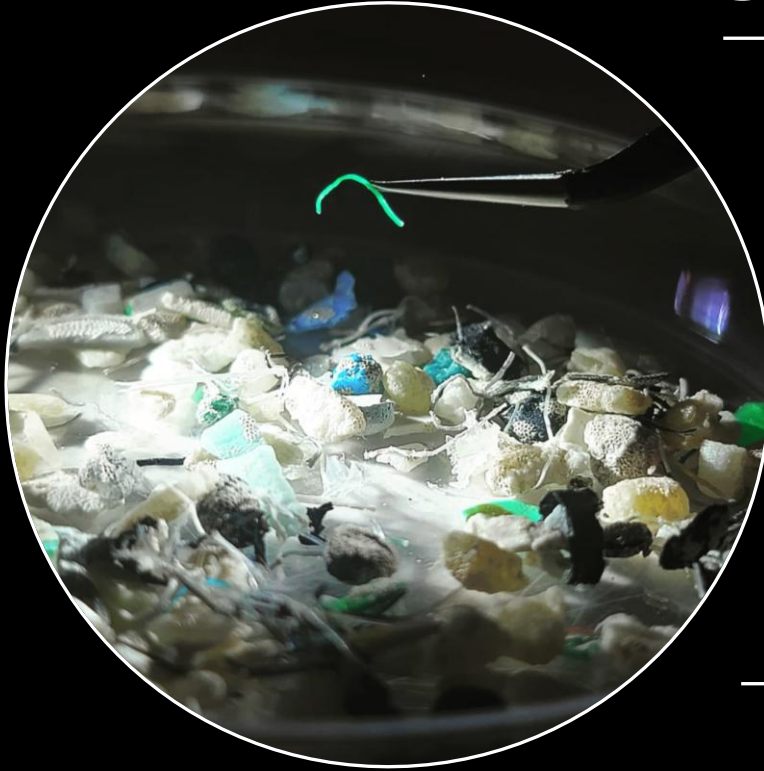
Microfibers from synthetic textiles washing account for 35% of global microplastic pollution entering the oceans.


50

The amount of synthetic microfibers entering the oceans annually is equivalent in weight to over 50 billion plastic bottles.

60

60% of textiles are synthetics, primarily polyester, exceeding 60 million tonnes annually.





# The CiCLO<sup>®</sup> Solution and How it Works

# The Solution

CiCLO® is a proven, safe and patented additive technology that enables the full biodegradation of synthetic textiles in under 4.5 years, compared to centuries.

When blended with recycled or virgin polyester or nylon during melt extrusion, the CiCLO® active ingredients create pathways that attract naturally occurring microorganisms.

This enables complete biodegradation of the CiCLO fibers, leaving only natural elements behind.

**1** Traceable

**3** Proven using ISO & ASTM  
Biodegradation test methods

**5** Tested safe & non-toxic to  
marine & pollutant life



**2** Affordable

**4** Certified safe by OEKO-TEX®  
ECO PASSPORT

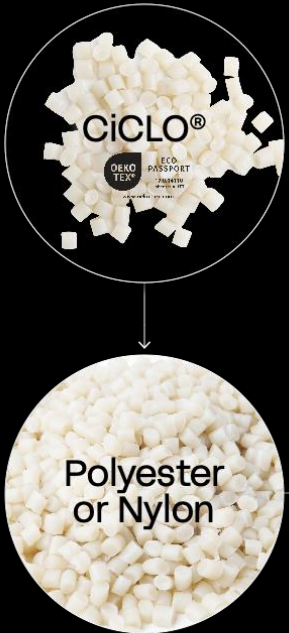
**6** Compatible with recycled  
& virgin polyester



# Made with CiCLO<sup>®</sup> Inside + Supply Chain

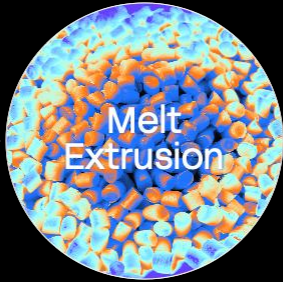
01

CiCLO<sup>®</sup> OEKO-TEX Certified pellets added to nylon or polyester pellet master batch @ 2% dosage.



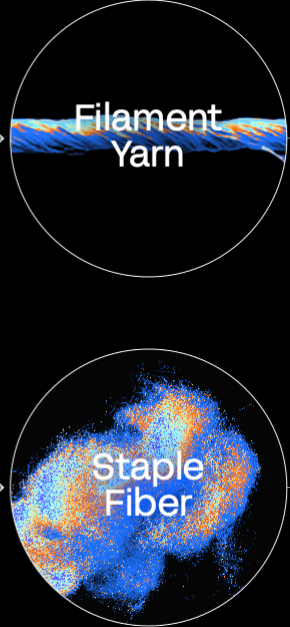
02

CiCLO<sup>®</sup> additive embedded into virgin or recycled polyester & nylon during melt extrusion.



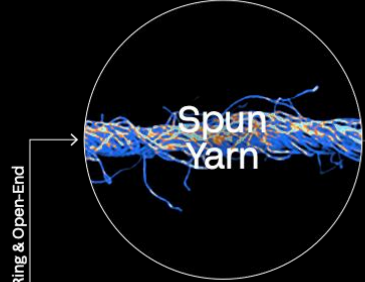
03

CiCLO<sup>®</sup> active ingredients create biodegradable pathways in the filament and staple fiber.



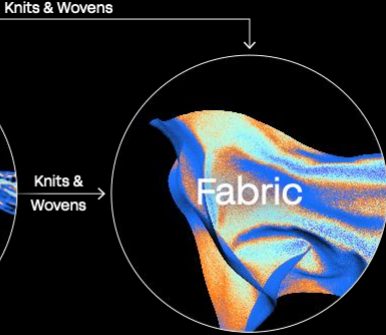
04

Staple fiber with CiCLO<sup>®</sup> can be spun into open-end & ring spun yarns.



05

Filament yarns & staple spun yarns with CiCLO<sup>®</sup> can be converted into knit & woven fabrics.



A proven and patented biodegradable additive technology that enables polyester and nylon to biodegrade at greatly accelerated rates in under 4.5 years compared to centuries.

# How CiCLO<sup>®</sup> Fibers Biodegrade

CiCLO<sup>®</sup> embeds in the matrix of synthetic fiber, creating biodegradable pathways. Fibers can completely biodegrade in environments where microfibers are prolific pollutants – WWTP sludge, soil, landfill, sea water.

01

## Microbes seek out food source (carbon)

for metabolism & secrete enzymes that break bonds

02

## Moisture dissolves materials, breaks down

simple bonds (hydrolytic scission) and allows enzymatic action.

03

## Larger molecules become smaller

macromolecules > oligomers > monomers

04

## Microbes digest smaller molecules

sequestering carbon in biomass and respire gas

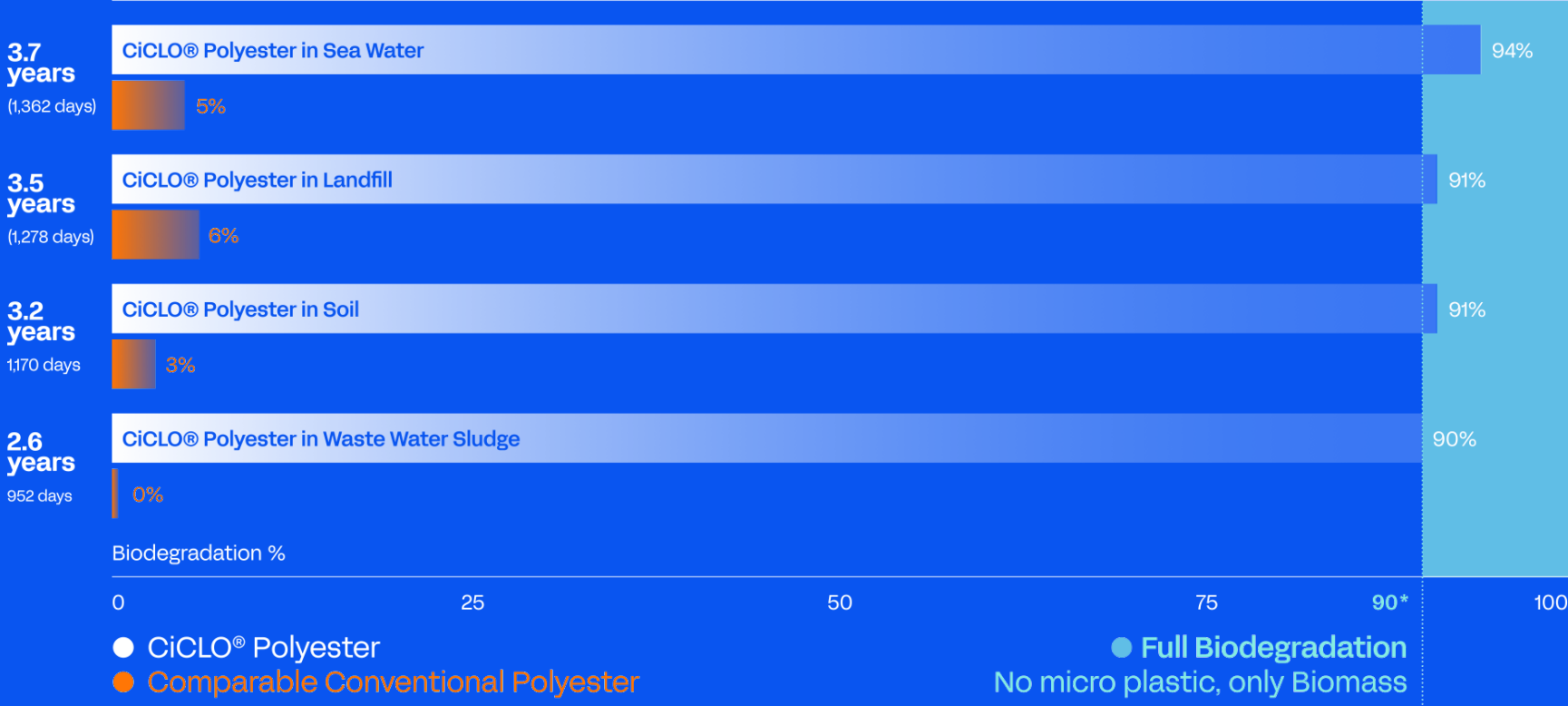
Moisture + Microbes + Time



**Biodegradation**

Biodegradation does not activate during use or care

# Biodegradation Rate Comparison Polyester

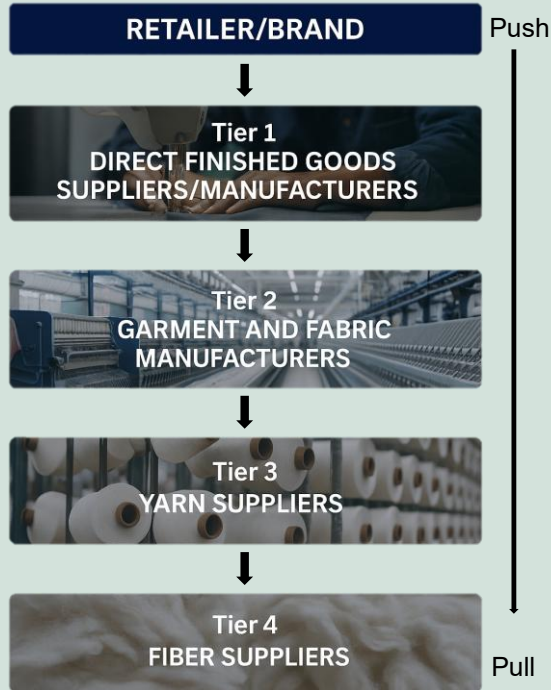


\* Achieving ≥ 90% in respirometry tests is considered full biodegradation. The remaining percentage can be attributed to biomass. Further analysis has been conducted to confirm no microplastics left behind. Data is summarized from studies conducted by third-party labs using ASTM Test Methods. Visit [ciclotextiles.com](http://ciclotextiles.com) for more information and detailed test data.

# Seamless Integration

# Supply Chain Integration

ENGINEERED TO INTEGRATE SEAMLESSLY FROM FIBER TO FINISHED GOODS. DELIVERED IN THREE SCALABLE FORMATS FOR MARKET-DRIVEN APPLICATIONS.



**CicLO**<sup>®</sup>  
Biodegradable Technology

SAFE CHEMISTRY



ECO  
PASSPORT  
17.0.14110  
Hohenstein HTTI  
[www.oeko-tex.com](http://www.oeko-tex.com)

THIRD PARTY TESTED



# Global Supply Chain



CiCLO® Masterbatch  
manufactured in USA & Asia  
Solutions for Batch & Continuous  
Polymerization Processes  
Distributed Globally  
Assured Supply

# Authentic & Verified



CERTIFIED

CiCLO® technology is proven through rigorous testing, using the ASTM and ISO Test Methods to ensure reliable and verified results.

REACH compliant, meeting EU standards to protect health and the environment from harmful chemicals.

Chemistry used to make CiCLO® fiber is OEKO-TEX® ECO PASSPORT certified. Safe and non-toxic to marine and plant life.



TRACEABLE

CiCLO® fibers undergo 3rd party testing for unique tracers, verifying presence and dosage.

CiCLO® Certificates of Authenticity (CCOA) are issued to Certified Manufacturers and used by mills, brands, and retailers.

CCOA documents ensure CiCLO® fiber traceability and authenticity throughout the supply chain.

INTRINSIC ADVANCED MATERIALS  
531 COTTON BLOSSOM CIRCLE GASTONIA NC 28054 USA

**CiCLO**  
FUNCTIONAL. SENSIBLE. SUSTAINABLE.

**CiCLO® CERTIFICATE OF AUTHENTICITY**

CERTIFICATE NO.	00000XX
ISSUED TO:	NAME OF MANUFACTURER
ADDRESS:	ADDRESS
DATE OF ISSUANCE:	9/1/2019

DESCRIPTION OF ARTICLE:

Type	UNKNOWN
Fiber Type	Filament Yarn
Negative/Recycled	glycolated
Yarn Spec	60s/22Z
Poly/Nylon	Poly
Yarn Lot Number	100TXVZ133
Yarn Production date	July 1, 2019
CiCLO® Grade	101
CiCLO® Lot	UNKNOWN
CiCLO® Authentication	PASS

The article described herein has been verified and tested according to the CiCLO® verification standard. The article is confirmed to contain CiCLO® fiber or yarn and complies with the required minimum CiCLO® content which enables the bioremediation process to be activated when the article is subjected to prolonged exposure to nutrient and microbially active anaerobic wastewater treatment environments and landfills, as well as seawater.

PLACE OF ISSUANCE: BELMONT, NC 28012 USA

SIGNATURE OF AUTHORIZED TESTING EXPERT  
NAME: Sidup Manojit Paul, PhD, Chief Scientist  
9/1/2019

INTRINSIC ADVANCED MATERIALS | 531 Cotton Blossom Circle | Gastonia NC 28054 USA



Eden Research  
Laboratory

# Brand & Retailer Adoption

## MARKETS SERVED

- ACTIVEWEAR
- AUTOMOTIVE HEADLINER NONWOVENS
- BATH & AREA RUGS
- BEDDING AND BATH PRODUCTS
- DENIM
- DURABLE AND DISPOSABLE PPE
- FILTRATION
- INSULATION
- HEADWEAR
- HOSPITALITY BEDDING & BATH
- MICROFIBER CLEANING PRODUCTS
- OUTDOOR GEAR
- PERFORMANCE APPAREL
- SWIM AND SPORTING APPAREL
- SEWING THREAD
- SOCKS
- SWEATERS
- UNDERWEAR & INTIMATE APPAREL
- UNIFORMS
- UPHOLSTERY FABRICS

# Uniforms & Corporate Wear Applications

# Fruit of the Loom Hoodies & Sweats

## Two new Iconic Sweats ranges. A new standard in fabric sustainability.

While widely used and essential in the garment industry, a downside of synthetic textiles is that they can shed long-lasting microplastics into the environment through everyday wearing and washing. As part of Fruit of the Loom's uncompromising commitment to sustainability, we're proud to announce our new Iconic Sweats collection – Iconic Premium Sweats and Iconic 250 Sweats – made using CiCLO® polyester!

Unique in the world of fabric development, CiCLO® technology helps synthetic fibres biodegrade naturally, behaving more like natural fibres such as wool, preventing them from lasting forever in the environment. We're proud to be the first garment manufacturer to use CiCLO® technology to help us make even more of a difference to the world.

Made to last, not here forever.™



# McDonald's USA CiCLO® Textiles PR



McDonald's • Following  
Restaurants



McDonald's crew uniforms are getting a more sustainable makeover! 🍷 Thanks to **CiCLO® Textiles**, a new, breakthrough textile ingredient, the polyester used in select crew aprons, jeans and T-shirts at restaurants across the United States will now biodegrade at rates comparable to wool.

Learn more about these outfits and how partners, like our uniform supplier, are the key to unlocking our sustainability ambitions: [https://lnkd.in/gMBgs\\_t8](https://lnkd.in/gMBgs_t8)



**Dressed to Impress: McDonald's Debuts New, More Sustainable Uniforms in the U.S.**

corporate.mcdonalds.com • 3 min read



## McDonald's invests in sustainable team uniforms that makes synthetic fibers biodegradable

As part of its growing company-wide sustainability goals, McDonald's announced Friday the investment in new sustainable team uniforms. The new crew uniforms will be made with CiCLO technology, which allows synthetic materials like polyester to biodegrade at similar rates to natural fibers, like wool.



While polyester uniforms are generally preferred by fast-food companies for team uniforms because of their durability and washability, they shed plastic microfibers when being created and washed, which often will end up in our oceans and other natural ecosystems, becoming part of the estimated 358 trillion microplastic particles floating around in the oceans.

[Read More](#)



ROFA Germany launched a new collection Move Easy workwear at A+A in November 2025. The woven fabric combined Tencel lyocell with CiCLO fibres to provide both comfort and durability.



# KENTAUR®



Made with CICLO® technology, which accelerates the biodegradation of polyester fibers: quality 80319 and 80321

CICLO® technology is used in the knitted piqué panels, helping synthetic fibers naturally biodegrade, and reducing microplastic fiber pollution without compromising quality or longevity.

The CICLO® marks are registered trademarks of Intrinsic Advanced Materials, LLC.

Available in black, white and grey, this is workwear that looks sharp, moves with you and performs to perfection.

Our new Piqué Shirts combine the sharp look of a shirt with the comfort of a polo. Available in both men's and women's fits, and in short- and long-sleeved models, they are designed for professionals who need style, flexibility and all-day comfort.

Stretch and breathable piqué panels in the back and under the sleeves provide freedom of movement through long shifts, while details such as a shirt collar, chest pocket with ID loop, Pull-Up cuffs, hidden snap buttons and side slits make them as practical as they are comfortable.

Made with recycled polyester, T400 fibers and CICLO® technology, the Piqué Shirt offers durability with a lighter footprint.



## RHYTHM 2-POCKET CICLO® SCRUB TOP

GREY'S ANATOMY™ BY BARCO EVOLVE

\$26.00

★★★★★ 151 Reviews

Core: Ciel Blue

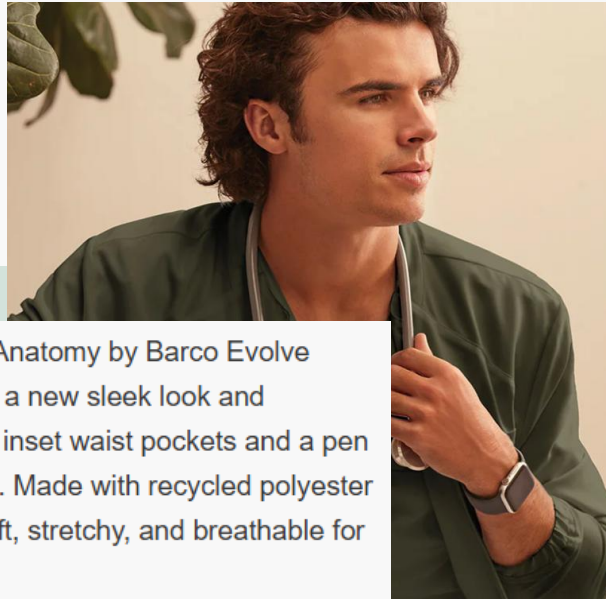


Seasonal:



Select a size:

[Sizing Chart](#)



The Rhythm Scrub Top from the Grey's Anatomy by Barco Evolve collection is your classic V-neck top with a new sleek look and flattering princess seams. Featuring two inset waist pockets and a pen pocket offering a clean and modern look. Made with recycled polyester and CiCLO® technology, the fabric is soft, stretchy, and breathable for all-day comfort.

# JOURNEY FORTH

Gainesville or Guatemala City, Kalispell, or Kampala, you have the right to feel at home. The Evolve Stretch collection is made with lightweight and breathable fabric that keeps your temperature regulated on stuffy flights and in humid climates. Built-in stretch allows you to move without restriction in small spaces and rugged environments. Plus, they're made with recycled polyester and CiCLO® technology because you care about the planet just as much as you care about the people on it.

SHOP SET

**GREY'S ANATOMY**  
PROFESSIONAL WEAR BY  
BARCO EVOLVE  
**EVOLVE STRETCH**

# Landau Forward

Landau



## Product Detail

Introducing the newest innovation from Landau - Landau forward. The Landau Forward Women's 2-Pocket V-Neck Scrub Top comes from a new range of performance-driven scrubs. Premium fabrics and activewear inspired design deliver style, comfort, and adaptability. Garments made with CiCLO sustainable textile technology are kinder to our planet, helping to reduce the accumulation of plastic waste in landfills and plastic pollution in our oceans.



## Fabric & Care

- 92% CiCLO Polyester/8% Spandex Twill
- 4-way stretch
- Moisture wicking
- Fade resistant
- Wrinkle resistant
- Shape retention
- Landau item #LT101

# Shop Pant Denim

**DOVETAIL**  
WORKWEAR



## FABRIC

**A denim that goes back to dirt when you're done.**

- Heavy duty denim
- Fabric weight: 12 oz
- Fabric content: 88% cotton/ 11% CiCLO® nylon/ 1% spandex
- High stretch
- Ultra breathable

We're not smart enough to explain how smart this fabric is. But we'll try. It has all the breathability of cotton denim, but it's strengthened by CiCLO® nylon, a manmade fiber that behaves like a natural fiber at the end of its life. Basically, the CiCLO® in your pants lives its life as a synthetic. On its deathbed, this fiber says to itself, "Believe in a green afterlife, and you will go to there." And so it does. Bonkers! But SCIENCE. For more, visit [CiCLO®](#).

# Responsible Co-Marketing

# Consumer Product Messaging

## CiCLO® Standard Hangtag



## On-Package Branding Options

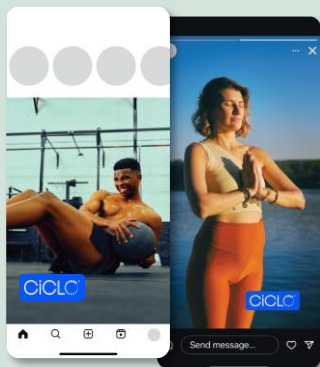


### ALTERNATE MESSAGING OPTIONS FOR CUSTOM HANG TAGS

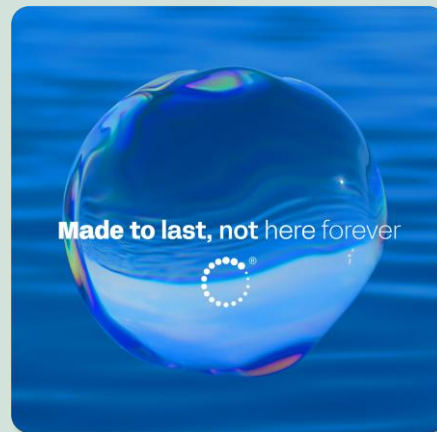
1. Made with CiCLO® technology to reduce the environmental impact of microplastic pollution from synthetic textiles.
2. CiCLO® technology enables synthetic fibers to mimic natural ones in the environment.
3. Made with CiCLO® fibers to reduce microplastic pollution from persisting in the environment.

# Visual Branding Solutions

Digital e-commerce and social media ingredient branding assets ready for integration, including brand copy framework for product detail applications and materials branding.



A library of usable image assets paired with plug and play brand concepts, applicable to digital marketing deployment including website features, social media posts, and co-marketing campaigns.



# Cohesive Communication Tool Kit

B2B Primary



B2C Primary



## KEY BENEFITS

### SCALABLE

Integrates into existing manufacturing processes globally.  
Lower costs through high efficiency and minimal disruptions.  
Ready for mass production, from small to large-scale adoption.

### DURABLE

No loss in performance, recyclability or longevity.  
Works with other technologies and sustainable fibers.  
No impact on durability or wearability.

### EASE

Integrates into existing manufacturing processes globally.  
Efficient supply chain where you need it.  
Versatile use across multiple product categories.

### PROVEN

Verified by rigorous industry standards and certifications.  
Adopted by global world-renowned brands and retailers.  
Backed by independent, scientific research and real-world applications.

### TOGETHER

Works alongside circular economy solutions and partners.  
Aligns with industry regulations for responsible change.  
Does not impede mechanical or chemical recycling of fibers or fabrics.

# ciclo®

[www.ciclotextiles.com](http://www.ciclotextiles.com)

**Made to last, not here forever.™**

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