



Biodegradable Technology

FUNCTIONAL . RECYCLABLE . SUSTAINABLE .
FUNCTIONAL . RECYCLABLE . SUSTAINABLE .

LMP Woven Labels
(Less Micro Plastic)

Summer 2023

Our Philosophy in “Responsible Label”

We are concerned that :

- Options to recover used labels are limited;
- Collecting and recycling mechanisms do not exist (recyclable \neq recycled);
- Integration of material into recycle stream is prevented.


Therefore, we strive to:

- Use synthetics only when high durability, availability and performance parameters are required;
- Design labels for longevity, easy-care, and being recyclable, whenever possible;
- Reduce unnecessary use of synthetics thoroughly;
- Consider the most suitable materials for each design;
- Prevent plastic pollution by widely adopting biodegradable materials.

And we believe:

- Biodegradable synthetics should not be designed to intentionally end up in nature, and
- Biodegradability offer the best chance for our environment to sustain.



A soft-focus photograph of a living room interior. In the center is a light-colored wooden armchair with a white cushion and a grey blanket draped over it. To the right, a low wooden coffee table holds a white mug and a small blue teapot. In the background, a window is covered with white sheer curtains, letting in bright, diffused light. The floor is covered with a light blue carpet. The overall atmosphere is calm and domestic.

**An average household generates 20 kg of dust a year,
which consist of 6 kg of microplastics from
synthetic clothing, carpets and furniture.**

UN Sustainable Development Goals



Relevant UN Sustainable Development Goal for apparel & textiles:

- SGD 12.8 specifically seeks to ...*ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature*
- SGD 14.1 By 2025, prevent and significantly reduce **marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.**

G7 Fashion Pact –Biarritz 2019

ADIDAS - ALDO GROUP - AUCHAN RETAIL - BALLY - BESTSELLER - BONAVERI - BURBERRY - CALZEDONIA GROUP -
CAPRI HOLDINGS LIMITED - CARREFOUR - CHANEL - CELIO - DAMARTEX GROUP - DCM JENNYFER - DECATHLON -
DIESEL - EL CORTE INGLES - ERALDA - ERMENEGILDO ZEGNA - EVERYBODY & EVERYONE - FARFETCH - FASHION3 -
FIGARET - FUNG GROUP - GANT - GALERIES LAFAYETTE - GAP INC. - GEOX - GROUPE BEAUMANOIR -
GROUPE ERAM - GROUPE ETAM - GROUPE IDKIDS - GROUPE ROSSIGNOL - GRUPPO ARMANI - GTS GROUP -
H&M GROUP - HERMES - HERNO - HOUSE OF BAUKJEN - INDITEX - KARL LAGERFELD - KERING - KIABI -
LA REDOUTE - LADY LAWYER FASHION ARCHIVE - MANGO - MATCHESFASHION.COM - MONCLER - MONOPRIX -
NANA JUDY - NIKE - NOABRANDS - NORDSTROM - PAUL & JOE - PRADA S.P.A. - PROMOD - PUMA -
PVH CORP. - RALPH LAUREN - RUYI - SALVATORE FERRAGAMO - SELFRIDGES GROUP - SPARTOO-ANDRÉ -
STELLA MCCARTNEY - TAPE À L'OEIL - TAPESTRY - TENDAM

FASHION PACT



Aim for representation of at least 20% of the global fashion industry. The focus is on three pillars:

A. Climate, B. Biodiversity and C. Oceans.

Global Commitments include:

- Biodiversity #3. Supporting material and process innovations that have no negative impact on key species and ecosystems.
- Oceans #2. Supporting innovation to **eliminate microfiber pollution from the washing of synthetic materials.**



**Estimate of plastic microfiber entering the oceans per year
= weight of 50 billion plastic bottles**



Microfibers are short pieces of textile fibers that have broken away from the main textile construction

They are found in oceans, rivers, agricultural soils and organs of marine animals.



bi·o·de·grad·a·ble

/ˌbɪoʊdəˈɡrādəb(ə)l/

The ability of a substance to be broken down physically and/or chemically by naturally occurring microorganisms, resulting in the production of basic natural elements including carbon dioxide, methane, water, minerals, and new microbial cellular constituents (biomass).



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Conditions for Biodegradation

No activation during garment use or care

- A master batch additive available from Intrinsic Advanced Materials
- Successfully adapted for Polyester & Nylon.
- Nontoxic, safe, biophilic polymer formulation
- Mainly organic macromolecules, similar structure & properties to the base synthetic fiber
- Added during melt extrusion
- Permanently and uniformly embedded in matrix of the plastic
- Creates countless biodegradable spots where microbes can build functional entities that biodegrade the material



Biodegradation Test Methods

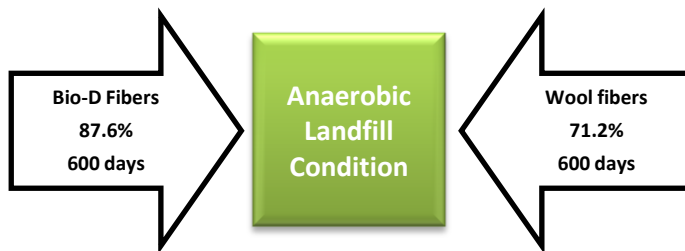
MICROFIBRES		WWTP Sludge ASTM D5210	88% Biodegradation 847 days <small>Vs. 0% for comparable untreated fiber.</small>
		Soil ASTM D5988	88% Biodegradation 742 days <small>Vs. 0% for comparable untreated fiber.</small>
		Sea Water ASTM D6691	92% Biodegradation 844 days <small>Vs. 5% for comparable untreated fiber.</small>
FABRIC		Landfill ASTM D5511	91% Biodegradation 1278 days <small>Vs. 6% for comparable untreated fiber.</small>

- Data shows biodegradation rate and extent of biodegradable vs non- biodegradable polyester microfibers or fabrics in four environments where textiles are prolific pollutants.
- Remaining few percent attributed to carbon converted into biomass.
- Negative control and non- biodegradable polyester samples do not show significant biodegradation in the long-term tests.
- Third party testing confirms biodegradation process is non-toxic to marine life.

Biodegradation studies are conducted and validated by an independent 3rd party laboratory using internationally recognized ASTM test methods. Laboratory studies represent optimal conditions. As with all materials, the actual rate and extent of biodegradation of biodegradable fibers are dependent upon individual conditions in actual environments.

Pace Of Nature

Long term studies show that biodegradable polyester fibers degrade at a similar rate to natural fibers such as wool.



Results are from a report from the ASTM D5511 Test Method, Anaerobic Landfill Condition after one-year anaerobic biodegradation of 100% Recycled Biodegradable Polyester compared to wool and virgin Polyester (2.4% after 600 days). This data represents one point in time. Test performed by 3rd party. These materials will remain in testing until they are completely biodegraded.



**We can't change the world overnight,
but every small step counts.**

Let's work together.

**More eco friendly is your choice!!!
More eco friendly label is your choice!!!**

