



**FIBRES** AND  
**FILAMENT YARNS**  
MADE FROM  
**BIOPOLYMERS**

**INNOVATIVE**

**SUSTAINABLE**

## SUSTAINABLE AND INNOVATIVE: PLA FIBRES AND PLA FILAMENT YARNS FROM TREVIRA



### SUSTAINABLE MAN-MADE FIBRES

The growing demand for more environmentally friendly products creates a necessity for new primary products and materials. Innovative man-made fibres can offer solutions that cannot be attained with natural fibres alone. Alongside optimising existing products, for example new polyester fibres, this includes also the replacement of fossil resources – which are of limited availability – with renewable primary materials. Therefore, one pillar in Trevira's concept of sustainability is the development of fibres and yarns from biopolymers.

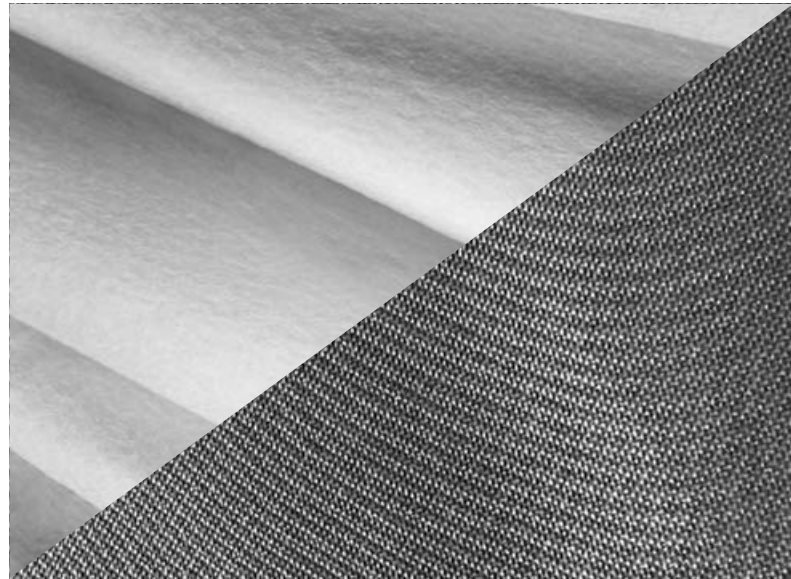
### PLA: THE RAW MATERIAL

Our current partner and supplier of the raw material polylactid acid (PLA) is Nature Works LLC (Ingeo™). Among the biopolymers made from plant materials, polylactid acid is accorded by far the greatest technological opportunities, since it combines the desired functions with outstanding properties in terms of degradation.

For the most part, PLA is made from grain (corn). At present, work is also being done to produce the biopolymers in future from plant residues (biomass) – and at the moment, work is even going on to produce PLA from methane and CO<sub>2</sub>.

PLA fibres represent a sustainable alternative to petroleum-based fibres and constitute the basis for intelligent materials with added functions, new applications and niche products. In so doing they are equally economic and efficient.

During the polycondensation of PLA, a primary material is produced from which it is possible to make fibres and filaments for all conceivable applications. This is particularly true for the use of PLA materials in combinations with other biologically degradable materials, which means that the whole product can be disposed of ecologically at the end of the life cycle.



## THE ADVANTAGES OF PLA

- ◉ 100 % from renewable raw materials
- ◉ Up to 70 % less CO<sub>2</sub> emission and up to 42 % less use of energy in manufacturing the raw material
- ◉ Recyclable and up to 100 % biologically degradable (industrially compostable)
- ◉ Good UV stability
- ◉ Good fastness to light
- ◉ Good moisture conductance (important e.g. for functional apparel)
- ◉ Higher elasticity than PET
- ◉ Energy saving in dyeing due to low dyeing temperature of 110 °C
- ◉ ISEGA certificate for specific fibre types in the area of applications with hot water filtration (coffee and tea filters) as well as packaging materials with food contact

## TREVIRA PLA STAPLE FIBRES

Fields of application of Trevira PLA fibres are hygiene products and technical end uses such as technical non-wovens or food packaging. Alongside homopolymer types, the product programme also comprises bicomponent fibres (core/sheath: PLA/PLA):

- ◉ Fibres for mechanical bonding (high volume nonwovens, e.g. nonwoven mattresses)
- ◉ Fibres for spunlace/hydroentanglement (wet wipes, hygiene)
- ◉ Fibres for wetlaid, uncrimped wet and dry (technical papers, hygiene products, food packaging)
- ◉ Bicomponent fibres for thermal bonding (wet wipes, hygiene products, nonwovens for agriculture)
- ◉ Hollow fibres for fillings

## TREVIRA PLA FILAMENTS

Filament yarns are new to the Trevira PLA product programme. Possible applications range from apparel and home textiles to technical areas and their usage in the food industry is also being evaluated.

The following can be supplied: Multifilament yarns in raw-white or spun-dyed black (air or false twist textured and flat yarns) in various types (167 f 64, 76 f 32), also in multiples of each titre; further titres on request.



## QUALITY THAT ENSURES CERTAINTY

Trevira is an important European manufacturer of man-made fibres and at the same time the only one that offers, for the greater part of its products, the complete range from polymer to fibres and textured filament yarns. The special expertise and competence of Trevira research, product development and services guarantee quality without compromise to our customers and success in the market.

Trevira maintains a quality and environmental management system to ISO 9001 and 14001 as well as an energy management system to ISO 50001.

# Trevira

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