

**Project title:** Spun EcoYarn (SPEY)  
Wirtschaftliches Verspinnen von Kurzstapelfasern  
aus Polylactid

**Partner:** Centexbel, Belgium

**Duration:** 01/2016-12/2017

**Funding agency:** Cornet AiF

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### Goal

PLA staple fibre yarn for use in different textile applications.

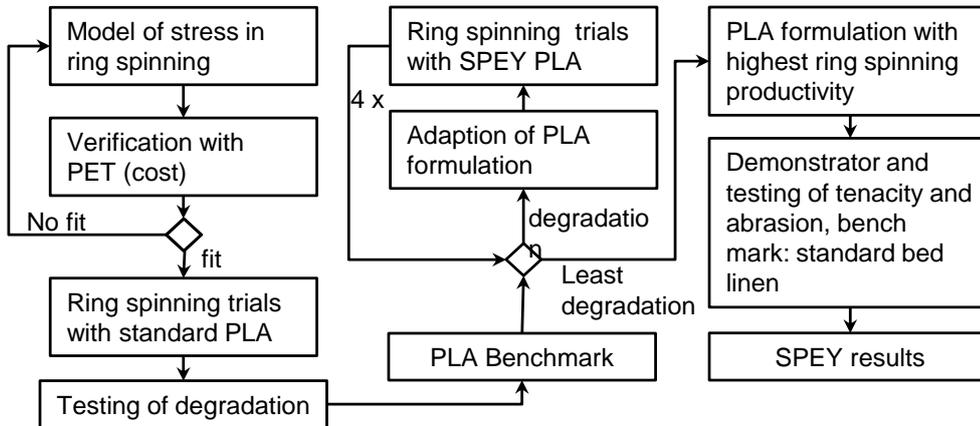
### Background

The SPEY project aims to establish poly (lactic acid) (PLA) staple fibre yarns in home textiles e. g. upholstery fabrics, bedding textiles, mattress thickening, in technical applications e. g. work wear and medical textiles using a methodological approach and process analysis, with the goal of avoiding degradation phenomena.

Former PLA projects targeted composite applications. Due to degradation and mechanical disadvantages e. g. elongation at rupture of 2 % PLA does not suit composite application yet. SPEY targets textile applications and the project end product will be bed linen for bench marking. Bed linen are less vulnerable for degradation compared to applications like T-shirts that's need to be washed after each use. Former PLA projects with textile application like Biotext 1 & 2 had a low economic feasibility due to low spinning speeds. SPEY provides higher spinning speeds and less degradation for PLA suited applications. Additionally polymer formulation will be adapted and modified that could lead to benefits for further field of application aside of PLA fibre processing, e. g. matrix polymer with higher mechanical properties for composites and less degradation.

PLA is made from natural resources and considered at present as the best placed biopolymer, in terms of a high LOI value, a good UV stability, bacteriostatic properties, a similarly feel like cotton – especially when cut into staple fibres.

## Approach



## Economic Impact

The research project will create opportunities along the entire textile production chain. Biopolymers like PLA are still in their infancy but have huge growth potential. **For Germany a turnover of at least 13 million €/year** (for spinning and weaving mills) **is expected** and **for Belgium of at least 18.5 million €/year** (for melt spinning mills and weaving mills). Short term (1-3 years) implementation is feasible.

## Project Consortium

The proposal is introduced by the associations Centexbel and Forschungskuratorium Textil (FKT). Centexbel and Institut für Textiltechnik der RWTH Aachen University (ITA) (appointed by FKT) will perform the research needed. Centexbel will be responsible for the overall management. Dissemination of the project results will be carried out by both Centexbel and FKT. The users committee covers all parties of the targeted process chain (spinning machine manufacturers, fiber producers, spinning mills, finishers, weaving mills etc.): work wear, home textiles (e. g. bed linen), technical textiles and medical gauze bandages.

## Acknowledgement

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