

ECLIN : RETHINK THE FLAX TEXTILES DESIGN FOR A CIRCULAR ECONOMY

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Objectives:

Development of a methodology to study the consequences related to the textile products lifespan increase. Application to flax textiles.

Methodology:

The lifespan (or lifetime) of a garment has to be defined. In one hand, it depends on the consumer behavior and on the other hand on the technical quality of the materials. This last criterion is taken into account in our study. Quality test should be related to the lifetime value of the garment. First, a methodology will be set up to quantify lifetime of flax textiles. Then, durable textile products will be developed following the 3 main research point of view:

Technical point of view:

-quality optimization of the textile products consist in defining (or redefining) the best manufacturing processes for a selection of representative garments: process speeds, temperature, number of manufacturing steps, etc....

-increasing durability results in better conditions for reuse, repair or recycle. Indeed, in its end of life the textile products often still have good enough intrinsic quality for recycling but not for reuse, because of the presence of accidental default (such as hole or stain). In that case, the initial textile quality will influence the recycling process such as the quality of the recycled material. Those technological aspects related to end of life will be quantified.

Environmental point of view:

Because of the multi-step process of LCA, Environmental impacts will be quantified by Life Cycle Assessment methodology, . The study will answer the question whether the impacts increase for quality manufacturing will be balanced by a longer life of the garment. It will be important to include in this study the different end of life loops modelisation.

Other point of view:

Increasing lifetime of all the garments will induce consequences outside the boundaries of the life cycle of those products. Indeed, their cost will increase, so the consumers purchase behavior will change and consequently the textile retail. The location of the manufacturing may also differ. The new end of life loops will create new textile product supply chains.

A new methodology has to be set up to take all those new aspects into account. Different LCA methodology exists and would be applied such as consequential LCA or associate.

Key words: lifetime, lifespan, textile, supply chain, LCA