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SUSTAINABILITY OF BLENDED TEXTILE. LIFE CYCLE ANALYSIS

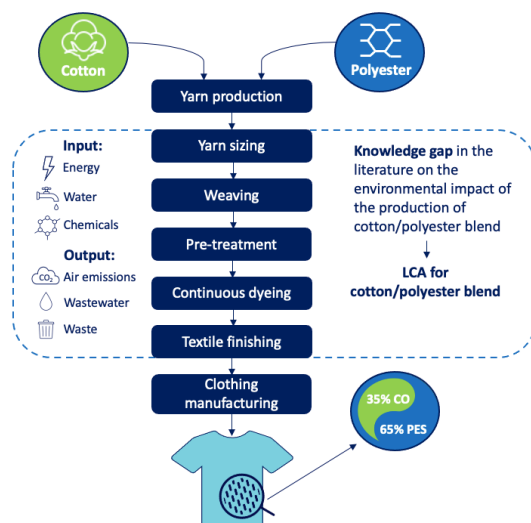
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Abstract – Textile fibers are derived from natural and artificial fibers and, in some cases, are blended together to ensure optimum properties. Textiles made from cotton and polyester blends currently hold a significant market share as they are relatively inexpensive, offer excellent performance, and have complementary properties. This textile blend is commonly used in everyday apparel. However, the production and consumption of textiles contribute significantly to environmental degradation and greenhouse gas emissions, but the scale of the impact is uncertain and under debate. This is also the case in studies of cotton and polyester blends, as a detailed life cycle inventory of the production of this material is absent in the scientific literature, thus affecting its environmental impact assessment. Therefore, the aim of this study is to fill the knowledge gap by assessing the environmental impacts of cotton and polyester blend production and to establish a comprehensive life cycle inventory for the material. The findings of the study can contribute to a more comprehensive evaluation of the life cycle of cotton and polyester blend textile products and work as a baseline scenario for the environmental impact assessment of various innovative textile recycling technologies. This is especially important as recycling of cotton and polyester blends is currently a major challenge. Additionally, these results can be of practical significance to assist businesses and policy makers in making environmentally informed choices.

Keywords – Cotton; environmental impact; fabric; Life Cycle Inventory (LCI); mixed fiber; polyester



Environmental impact assessment of the production of cotton and polyester blends.