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ENVIRONMENTAL SUSTAINABILITY ASSESSMENT OF APPAREL SUPPLY CHAIN: THE CASE OF AN ITALIAN VIRGIN WOOL COAT

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Abstract

An environmental sustainability assessment study was carried out on the entire life cycle of a 100% virgin wool coat, in the framework of the Horizon 2020 TRICK project. Its main goals were to identify environmental hotspots, evaluate possible improvements and assess the application of the European Product Environmental Footprint method to a luxury garment. A broad data collection was performed in the pilot companies, covering all the main life cycle phases of wool coat, from raw material manufacturing up to the assembly phase. Moreover, four alternative scenarios for the coat production and use were analysed to evaluate possible improvement options and to what extent the life cycle results could be affected by some methodological choices made during the study execution. The results show that the most relevant life cycle stage is the “Raw material acquisition and pre-processing”. The most relevant processes are the production of greasy wool, the use of natural gas during fabric production, the use of electricity for fabric production and during coat assembly. The outcomes of the alternative scenarios highlight that both the use of recycled fibres and the increase in the number of coat uses can significantly decrease the product global environmental impacts. Finally, some difficulties and limitations about the application of the Product Environmental Footprint method to the luxury garment were identified. The overall results of the study could support project companies towards a wider application of circularity approaches and a more efficient and sustainable use of resources of the textile sector.

Key words: apparel, coat, environmental sustainability, life cycle assessment, textile

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