



# Academic

## INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“TEN YEARS WORKING TOGETHER FOR A SUSTAINABLE FUTURE”

## Cycle Assessment of Jeans Pants Production

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### Abstract

Brazil is the second major manufacturer and the third greater consumer of fabric for jeans pants production in the world. Considering this situation, in the present work it was studied the environmental impacts of the jeans pants production chain in Brazil. It was considered an analysis since the fiber extraction to the finishing stage of the jeans pants or a cradle to gate analysis. Life Cycle Assessment was used in the evaluation of the environmental performance of the jeans pants production considering practices, proceedings and operating conducts regularly in use in Brazil. The environmental impacts relative to the gas and liquid emissions and solid waste in the environment were considered. ReCiPe Midpoint method was used to the categories climate change, territorial acidification, fresh water eutrophication, territorial eco-toxicity, photochemical ozone formation and water depletion. After this, the impacts related to the resources consumption were computed, using the method Cumulative Energy Demand, to the categories non-renewable fossil, non-renewable nuclear, non-renewable biomass, renewable biomass, renewable wind, renewable solar and renewable water. Results showed that the stages of the cotton cultivation, thread transportation and jeans pants finishing have very important contribution in the environmental impacts categories evaluated. In terms of primary energy the consumption of crude oil and natural gas are the most important contributions. It is suggested for the reduction of these impacts substituting natural cotton by synthetic fibers, changing technology for finished jeans pants washing, using steam generators that burn biomass and, finally, developing studies to identify lower distances between the fiber production and the pants manufacturing to reduce the environmental impacts to acceptable levels.

**Keywords:** *LCA, environmental impacts, jeans pants.*