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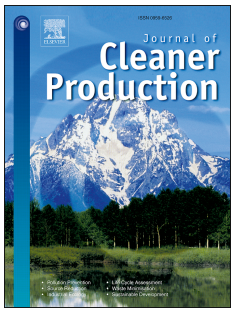

Comparative life-cycle assessment of ordinary and water-saving taps

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Comparative life-cycle assessment of ordinary and water-saving taps

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Abstract

The replacement of plumbing fixtures is a regular practice in the implementation of water conservation programmes in existing buildings. However, even though such programmes aim at reducing water consumption, it is necessary to understand the environmental implications of the replacement of ordinary plumbing fixtures with water-saving versions. The feasibility of such a practice, in terms of environmental aspects, should be evaluated in order to verify its effectiveness. This paper describes the application of a methodology to evaluate the environmental impacts involved in the replacement of ordinary taps with water-saving ones based on life-cycle assessment. The method quantifies inputs and outputs in the production, use, and disposal phases of the plumbing fixtures under analysis. The impact categories considered are global warming potential, depletion of the ozone layer, human toxicity, acidification, water consumption, and energy consumption. In order to assess the economic impacts, Life Cycle Cost methodology was applied. The method was applied in a water conservation programme of a university campus in Southern Brazil. The results indicate that the use phase of both ordinary and water-saving taps present strong influence in four impact categories (global warming potential, depletion of the ozone layer, water consumption, and