

Accepted Manuscript

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

Andreza Kalbusch, Enedir Ghisi

PII: S0959-6526(15)00806-9

DOI: [10.1016/j.jclepro.2015.06.075](https://doi.org/10.1016/j.jclepro.2015.06.075)

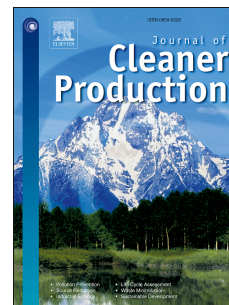
Reference: JCLP 5732

To appear in: *Journal of Cleaner Production*

Received Date: 19 August 2014

Revised Date: 9 June 2015

Accepted Date: 15 June 2015



Please cite this article as: Kalbusch A, Ghisi E, Comparative life-cycle assessment of ordinary and water-saving taps, *Journal of Cleaner Production* (2015), doi: 10.1016/j.jclepro.2015.06.075.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Comparative life-cycle assessment of ordinary and water-saving tapsAndreza Kalbusch^{a,*}, EneDir Ghisi^b

^aSanta Catarina State University (UDESC), Civil Engineering Department, Campus Universitário, CEP 89219-710, Joinville, SC, Brazil

^bFederal University of Santa Catarina (UFSC), Civil Engineering Department, Campus Universitário, CEP 88037-000, Florianópolis, SC, Brazil

*Corresponding author: Tel.: +55 47 4009 7807; fax: +55 47 4009 7936. E-mail addresses: andreza.kalbusch@udesc.br (A. Kalbusch); enedir.ghisi@ufsc.br (E. Ghisi).

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

Download English Version:

<https://daneshyari.com/en/article/10688003>

Download Persian Version:

<https://daneshyari.com/article/10688003>

[Daneshyari.com](https://daneshyari.com)