



# 7<sup>th</sup> INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

## Academic

“CLEANER PRODUCTION FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS”

---

## Design for Environment: Framework with Theoretical and Empirical Practices

ALVES-PINTO JR, M. J. <sup>a\*</sup>, MENDES, J. V. <sup>a</sup>

*a. Universidade Federal de São Carlos, Campus Sorocaba, Brasil*

*\*Corresponding author, marcos\_alvesjr@yahoo.com.br*

---

### Abstract

Design for Environment (DfE) is a product development technique that contemplates principles of environmental management covering the entire product cycle and can be an opportunity to reduce the environmental impact and to minimize the resources used by a product in its life cycle. In the face of growing pressure from society and governments in organizations for the development of products and services that reduce environmental impacts, the dissemination of DfE practices can facilitate the adoption of environmental practices, thus contributing to product life-cycle management. Theoretical studies on DfE did not show the existence of a systematized set of these practices. Thus, to fill this gap, this study aims to gather DfE practices in a framework. For this, the theoretical practices of DfE were mapped in the literature, by systematic review and, through a case study, DfE practices were identified, empirically observed. After the theoretical-empirical identification, they were analyzed, compared and gathered in a framework that presents the practices classified according to the stages of the product development cycle.

*Keywords: Design for Environment. Theoretical Practices. Empirical practices.*

---