São Paulo - Brazil - May - 20th to 22nd - 2015

INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

"CLEANER PRODUCTION TOWARDS A SUSTAINABLE TRANSITION"

Life Cycle Assessment of Composite Wood-Based Panels: Case Study in OSB

FERRO, F. S.[a*], BRUGNERA, R. R.[a], SILVA, D. A. L.[a], ROCCO LAHR, F. A.[a]

a. Universidade de São Paulo, São Carlos

**Corresponding author, fsferro@usp.br*

Abstract

The use of wood panels has grown in Brazil, and one panel that could be highlights is the OSB (Oriented Strand Board), which could replaces, in many cases, the plywood. At the same time, is also growing environmental concerns related to products, from it manufactured, use and disposal. Life Cycle Assessment (LCA) is an important technique for environmental assessment of entire products life cycle, in holistically way. Thus, combining the increasing of OSB use and environmental concerns, this study makes an LCA crade-to-gate for OSB panels. The aim of this study was to identify the main potential environmental impacts related to the OSB manufacture in laboratory scale and to propose some opportunities for environmental improvements to their life cycle. The functional unit as well as the flow reference adopted was 1m³ of uncoated OSB manufacture. For the environmental impacts assessment, it was used the EDIP-97 method for 12 impact categories. The LCA results indicated that the Laboratory Manufacture stage was responsible for the greatest environmental impacts (from 0.38% to photochemical ozone formation to 100.00% for ozone depletion, and 100.00% for Ecotoxicity by air), and was also where there are the largest consumption of renewable resources and energy. Finally, based on the identified environment hotspot, environmental improvements have been suggested for the OSB panel life cycle manufacture.

Keywords: *Life cycle assessment (LCA), Oriented Strand Board (OSB), environmental performance, environmental impact.*