Abstract


The continuously effort to reach the sustainable development has led to the creation of new techniques for assess environmental costs of the production systems. Nowadays the production of mineral oil base lubricants is assessed due to the large environmental impacts generated in their production, use and final disposal. As alternatives to the substitution of mineral oil base lubricants, vegetable oil base lubricants have been studied and used because their environmental characteristics.

Hence, this study focused on execute a simplified LCA (cradle-to-gate analysis) for the production phase of 1 kg of mineral base oil and 1 kg of jatropha base oil through a sensitivity analysis. The comparison for both oil bases was performed under the same production scenarios. Results shown that the jatropha base oil production scenario presented 1,01 kg more than the base mineral oil production scenario; the fresh water eutrophication potential had 2,06E-04 kg more than the base mineral oil scenario; the human toxicity potential presented 0,08 kg more than the base mineral oil scenario; the water depletion potential showed 1,33E-01 kg more than the base mineral oil scenario. On the mineral base oil production scenario, the fossil depletion potential shown 0,70 kg more than the base jatropha oil production scenario.

However, it had to still take in consideration parameters such as geographic limitations, due to some discrepancies in the life cycle assessment of oils can occur.

**Keywords**

Allocation; life cycle; assessment; sensitivity analysis; jatropha base oil; mineral base oil.