

Abstract

The purpose of this study is to evaluate the environmental impacts of bakery products based on the concept of Life Cycle Impact Assessment (LCIA) and Environmental Design of Industrial Products (EDIP) 2003 methodology. The scope of study includes raw material extraction, manufacturing, and product transportation. The findings would be useful for suggesting ways to improve its environmental performance. The result revealed that raw material extraction had the most significant environmental impact, followed by bread production. Transportation was found to have the least environmental impact. In particular, environmental impact from raw materials was mainly caused by yeast, which was a main input of raw materials. Wheat flour and sugar were found to be other important causes.

This research suggested that improvements should be made by replacing some of the raw materials used in the production of bread, i.e. fresh yeast instead of artificial yeast, rice, cassava, pre gelatinize powder from jackfruit seeds and soybean meal instead of wheat flour. In addition, it was recommended that wastewater treatment system should be installed at the plant. A change of packaging was also suggested by using more environmental friendly materials such as biodegradable plastic bags (Oxo-Biodegradable Bag). Finally a change in transportation fuel was recommended by using alternative fuel such as natural gas, Liquefied petroleum gas (LPG).