

# **French Environmental Labeling of Sunflower and Rapeseed Oils Using Life Cycle Assessment**

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A French national experimentation of environmental labeling on consumer goods, including alimentary products, has been introduced by “Grenelle” laws. The data required for this labeling are provided by carrying out life cycle assessment.

The aim of the study is to provide all necessary information to fit to the national experimentation for two standard oils: sunflower oil and rapeseed oil. The complete life cycle of oils has been studied from the seeds production to the end of life of the packaging. A focus has been made on the impacts of crushing and refining. For the agricultural step, data has been gathered from a 2010 report concerning LCA of first generation of biofuels used in France and has been rounded off by CETIOM expertise. The data for seed transformation have been collected from different industrial sites that illustrate the diversity of all the French crushing, refining and packaging sites.

The inventory data allow the calculation of the indicators identified for environmental labeling: emissions of greenhouse gases (GHG) and water consumption. The methods used will be in accordance with ISO norms, the ILCD handbook and the general methodology adopted for the environmental labeling of consumer goods in France. The production of 100 g of sunflower and rapeseed refining oils leads respectively to the emission of 89 and 127 g CO<sub>2</sub> eq and consumes 1.7 and 0.8 liters of water. The study also evaluates the contribution of packaging in one-liter plastic bottle. The agricultural step is responsible of most impacts on the studied indicators. The other steps that contribute the more are the industrial step, the transport and the packaging.

The results of this study are a relevant overview of all sunflower and rapeseed oils produced in France, and are usable as standard values for both producers and users of vegetable oil. Industrials of oil sector use these values to compare to their own process values and to evaluate the improvement due to their ecodesign strategy. For example, the use of a biomass boiler, the reduction of packaging, different choices for the suppliers of the seeds lead to a lower LCA score.