

The Application of Life Cycle Analysis to Investigate the Sustainability of Enzymatic Processing of Oils & Fats

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Enzymatic processing of oils and fats is a new more sustainable way of processing but the potential benefit needs to be quantified. Life Cycle Analysis (LCA) is a method that enables us to quantify environmental impacts of new technology .It addresses all processes in the product chain - from raw material extraction through production and use to final disposal.

LCA is used to compare environmental impacts of two or more alternative processes providing the same benefit to the user.

LCA has been applied to three processes (degumming, interesterification and ester synthesis) used within the industry to examine the environmental impact of the conventional and enzymatic alternative. In each case inputs and outputs have been quantified and the potential savings in terms of energy, global warming contribution, acidification etc have been calculated.

In each case, adoption of an enzymatic processing route reduced the environmental impact of the technology compared to the previous chemical based route. This presentation will highlight how enzyme technology can be applied to develop more sustainable processing and to reduce the environmental impact of oils and fats production.