

Incorporating a life cycle perspective into chemical education: a first experience

J. Hageman, J.J. van der Boom, J. Venselaar
Brabant University of Professional Education¹

Poster abstract

In our Chemistry course we have made a first step to introduce life cycle assessment of chemical processes. This is part of an overall project of implementing sustainable development in all the courses of the technical colleges of the Brabant University of Professional Education.

The subject of LCA is linked to an organic chemistry theme in the fourth semester of the college. The total study load is 80 hours, divided over an introductory instruction and the application of the theory in a practical project the students have to perform.

In short, the introductory instruction comprises an outline of the principles of Chain Management, Life Cycle Assessment as a tool and the principles of Pollution Prevention in chemical production.

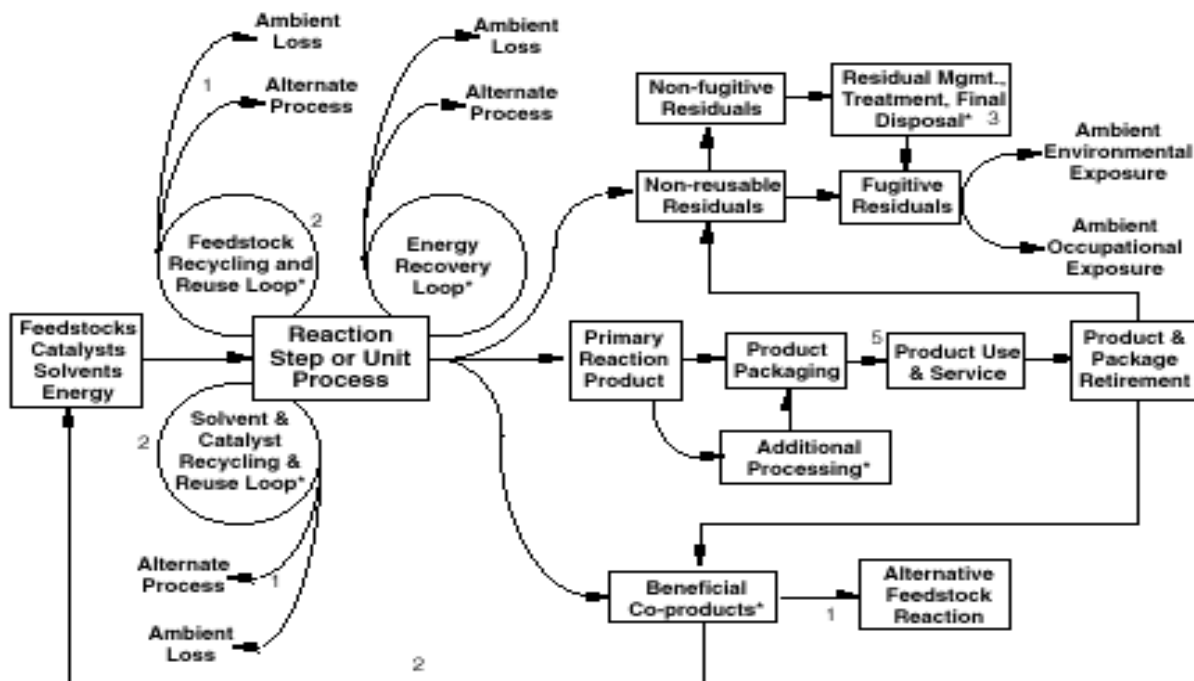
This is illustrated by the comparison of the environmental effects during production of two anti-freezing agents, diethyleneglycol and dipropyleneglycol.

The knowledge and insight obtained during this introductory instruction is tested in two ways. One is the surveying of a standard LCA software tool, the Demo version of the SimaPro software. The other consists of a short essay on the polluting effects of a specific organic chemical synthesis. So far, the evaluation done is mostly qualitative.

Next, the students have to apply theory and skills to all the successive steps in the chemical production processes they perform in the practical project of the fourth semester. They have to report on the environmental impact of their work.

In this poster we will present the specific details of this subject and our experiences so far.

Since we are still developing our program, the main goal of our contribution is to generate the exchange of experiences on this subject.



*Example of presenting the life cycle of chemical compounds to students
(J.W. Greene, incorporating P2 into Chemical Scienc, University of Michigan, 1995)*

¹ PO Box 1097, 5004 BB Tilburg NL, contact J. Hageman +31.76.5238072, hageman.jj@hsbrabant.nl