The eco-profile of PlasticsEurope: Making available to LCA the primary plastics production datasets

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PwC, pioneering the way for sustainable development consulting

• PwC was one of the first international firms, as early as 1993, to develop a range of services around sustainable development, which was further strengthened in 2000 by the integration of Ecobilan, the product strategy and environmental performance improvement market leader serving both industry and government.

• With close to 40 consultants in France and 700 members of staff present in 65 countries, the sustainable development teams’ ability to operate internationally is coupled with the capabilities of the consulting branch’s other services.
PwC, pioneering the way for sustainable development consulting

• Assessing technologies, services and products requires the use of internationally recognized and efficient methods. The credibility of such studies is only possible if they are based on accurate methodologies in order to produce conclusive and verifiable results. LCA practice follow an internationally standardization: the ISO 14040 series of standards. Referring to these standards allows the studies to be acknowledged and compliance with them is the only guaranty for the credibility of an LCA study.

• PwC Ecobilan (SBS France) is one of the top-five leading consultants in Eco-Design, Life-Cycle Assessment (LCA), and Life-Cycle Costing (LCC) and since its creation in 1990 Ecobilan has completed more than 1000 LCA and/or Eco-Design projects.

http://www.pwc.com/fr/dd
Early 1990s: PlasticsEurope starts compiling environmental info of polymers
Eco-profile scope

Background Dataset (Grid Power, Crude Oil, Nitrogen...)

PlasticsEurope Precursors (Ethylene, Propylene...)

PlasticsEurope Data Collection (activities under operational control)

PlasticsEurope Eco-profile (Average data of the European Production)
Welcome to PlasticsEurope’s Eco-profile Programme!

This website provides you with easy access to PlasticsEurope’s Eco-profiles. Eco-profiles are Life Cycle Inventory datasets (LCI) and Environmental Product Declarations (EPD) for plastics. For more information, please refer to the Life Cycle Thinking section and to the Eco-profile Methodology Document.

Browse LCA by Flowchart
The flowchart shows the interlinking production processes and product flows of the chemical and plastics industry.

Browse LCA by Product Family
These tables enable you to look up polymers and precursors grouped into broad product families.

Browse LCA by Product List
This list provides you with an alphabetical directory of all polymers and precursors.
Eco-profile on methodology

- Follows consensual practices
- Stakeholders consultation
- Tracks Methodological changes
...The Source for other databases

LCA Software Databases
(ILCD, Eco-invent, GaBi, Umberto, SimaPro)
## Eco-profile update program

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Eco-profile development process

PlasticsEurope & Member Companies

Qualified LCA Consultant

Programme Mgr & Reviewer

Goal & Scope Definition

Data Collection

Facilitation & Project Mgmt

Process Ownership & Working Group

Life Cycle Modelling

Review

Inventory Calculation

Publication & Database Mgmt

Impact Calculation

Reporting
Confidentiality

Non Divulgation Agreement

Confidential Data Exchange

Participating Company

Records

LCA Consultant

Eco-profile

PlasticsEurope

Public Domain

External Review

DEKRA
**Production flowchart for PA6**

- **Phenol**
  - Cyclohexanone (from phenol)
  - Oxime
  - **PA6**

- **Cyclohexane**
  - Cyclohexanone (from cyclohexane)
  - Oxime
  - **PA6**

*Two production methods for cyclohexanone*
Production flowchart for PA6.6

- Hydrogen
- Natural gas
- Cyclohexane
- Butadiene
- Adiponitrile

Hexamethylene diamine (method 1)

Polymerization

Hexamethylene diamine (method 2)

Cyclohexanol (from cyclohexane)

Adipic acid

PA6.6
Production flowchart for Polyoxymethylene (POM)

- Natural gas → Methanol → Formaldehyde
  - Trioxane → Polymerization → POM Copolymer
  - Anhydrous formaldehyde → Polymerization → POM Homopolymer
Conclusions

- Reliable and credible raw material data require important efforts but are indispensable to LCA and sustainable roads.
- PlasticsEurope is committed to supply plastics Raw Material dataset (like many other RM associations) thanks to collaboration with LCA consultants and verifiers, …

...and supports LCA developments.
Plastics
The Material for the 21st Century