What digital tools can be used to conduct an LCA ?

Database

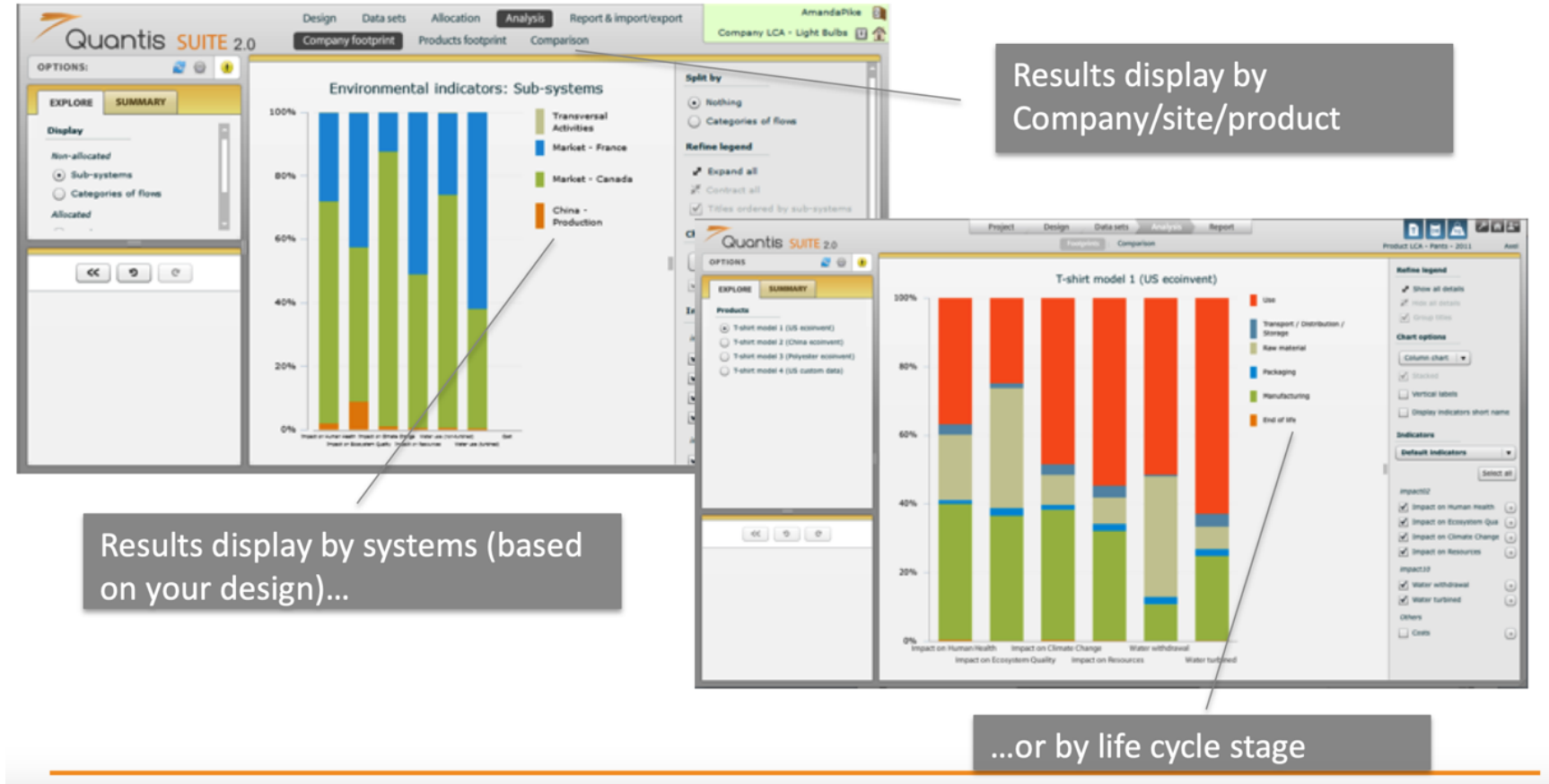
✓ Databases represent the sources used by LCA software to calculate the potential environmental impacts of a product or service.

✓ Three main components are distinguished in the composition of a database :

- Materials, which represent the raw material of manufacturing processes (chemicals, metals, mineral raw materials and plastics, paper, biomass, biological materials).
- Production processes that generate impacts through the energy consumption required for the transformation of raw materials or for waste treatment (incineration, deposition, sanitation). Life Cycle Inventories for energy are often conducted according to their origin and type (electricity, petroleum, coal, natural gas, biofuels, bioenergy, hydroelectricity, nuclear, solar, wind, biogas).
- Transport for availability (road, rail, air, maritime traffic).

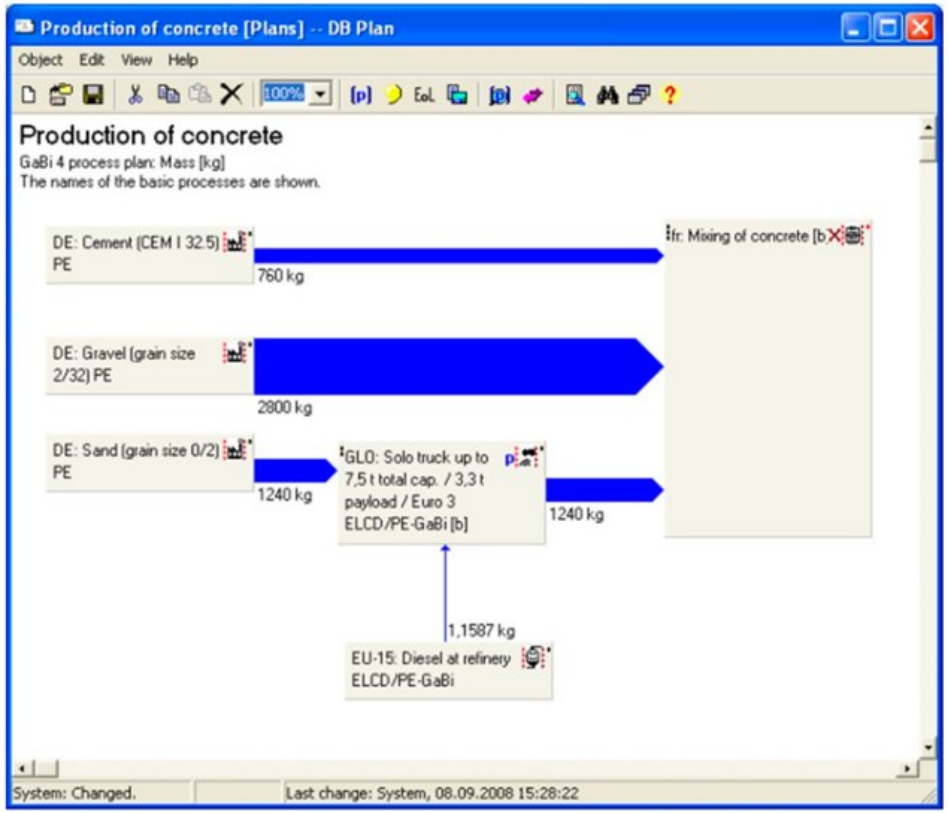
QUANTIS SUITE 2.0.

"Quantis SUITE 2.0" is an LCA software offering forms through which it is possible to collect data internal to the company as well as those concerning its suppliers. Designed to assess the environmental footprints of industrial sites and products using a multi-criteria methodology, the software also includes a database through which water footprint can be calculated and costs integrated simultaneously.



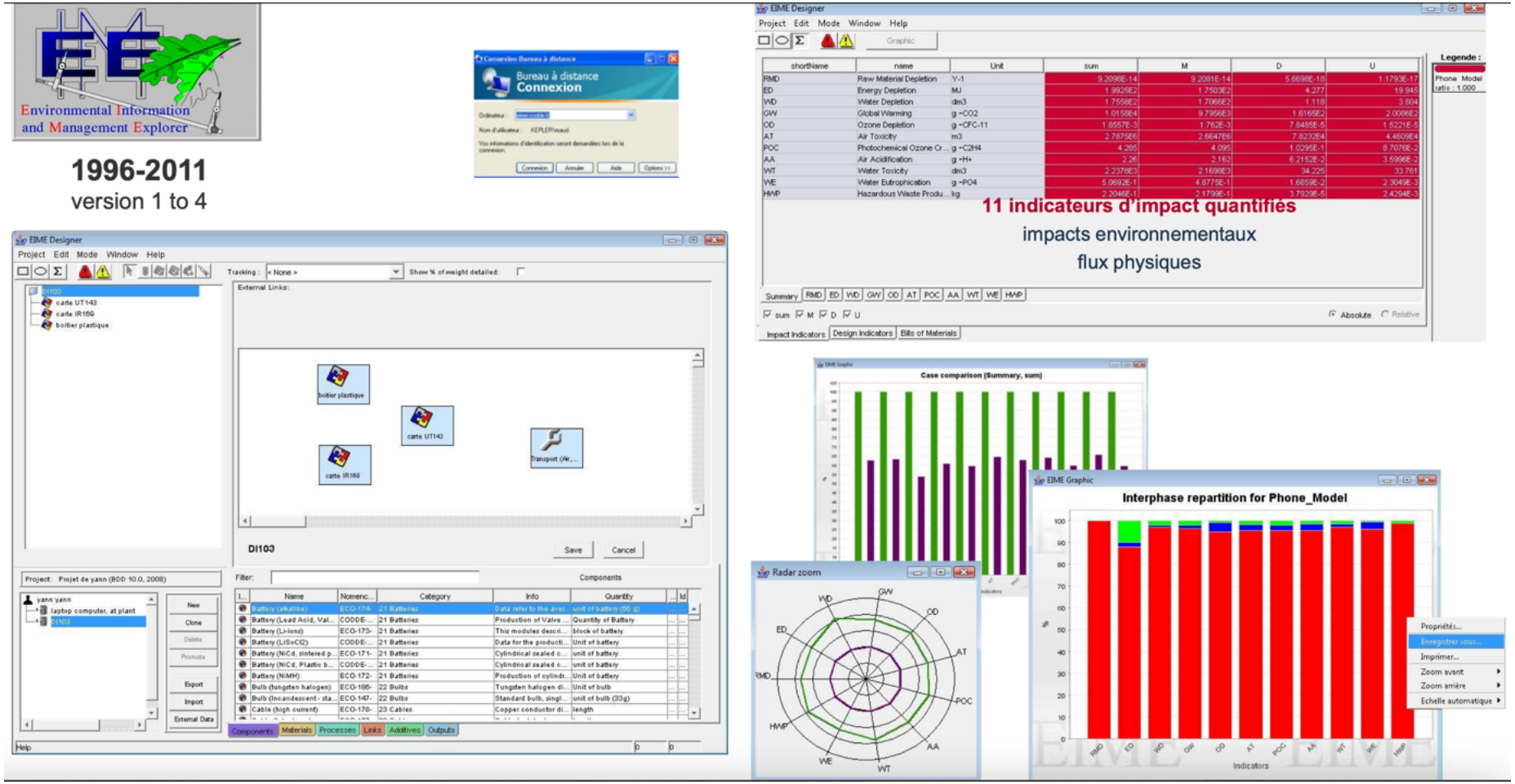
GABI

✓ Based notably on the usage of the Ecoinvent database, the Gabi software has seen tremendous success in the industrial sector, particularly in the automotive industry and among associated subcontracting companies. The software allows for the modeling of over a thousand different industrial processes and increasingly includes data from European Non-Governmental Organizations (European Aluminium Association, Plastics Europe, etc.), as well as data introduced into the database "upon client request."



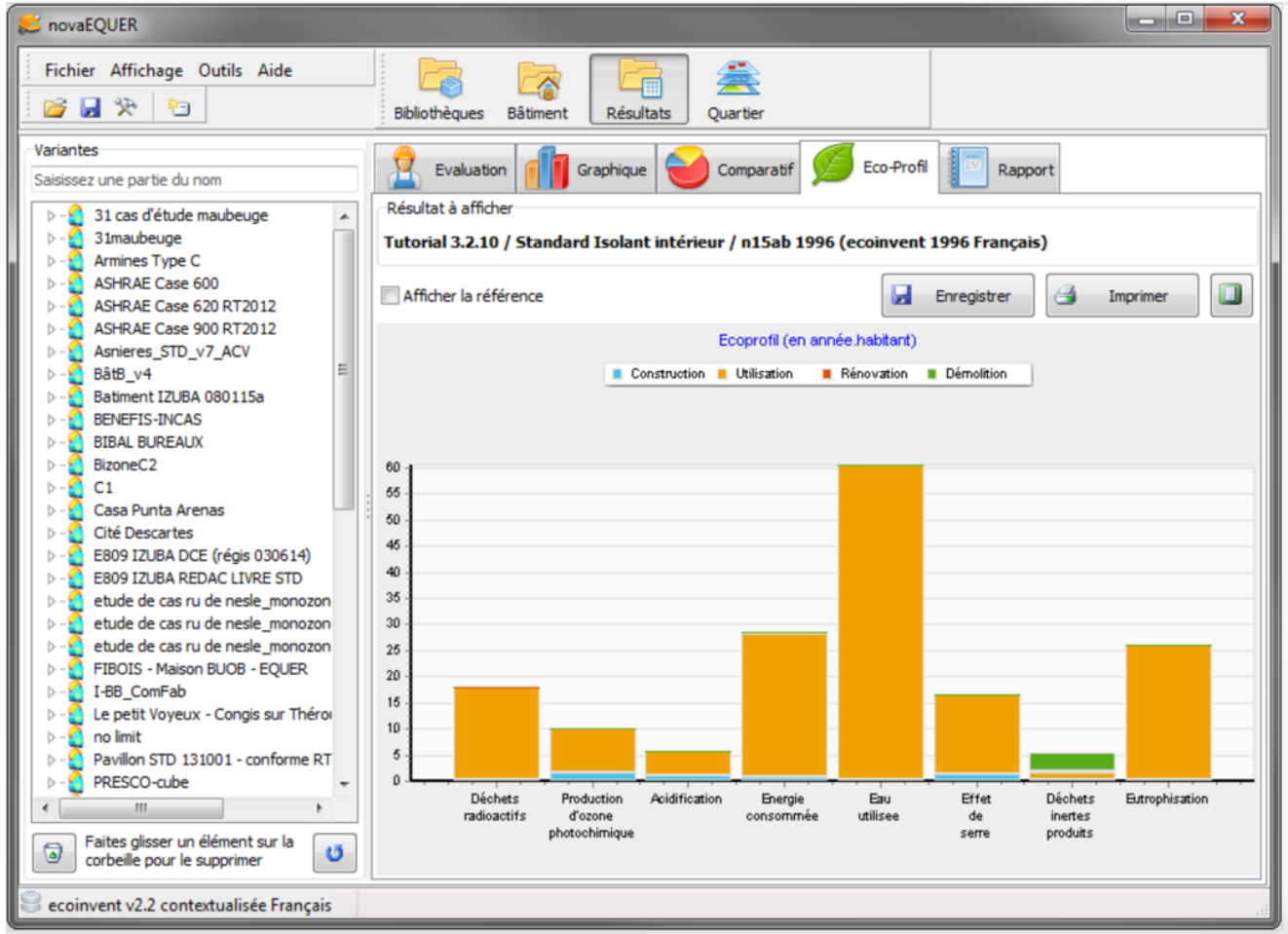
EIME

✓ Drawing on the EIME methodology (initially standing for Environmental Impact Evaluation), a consortium of industrial players predominantly working in the electronics, land transportation, and telecommunications sectors developed the EIME software (Environmental Information and Management Explorer) for eco-designing various products.



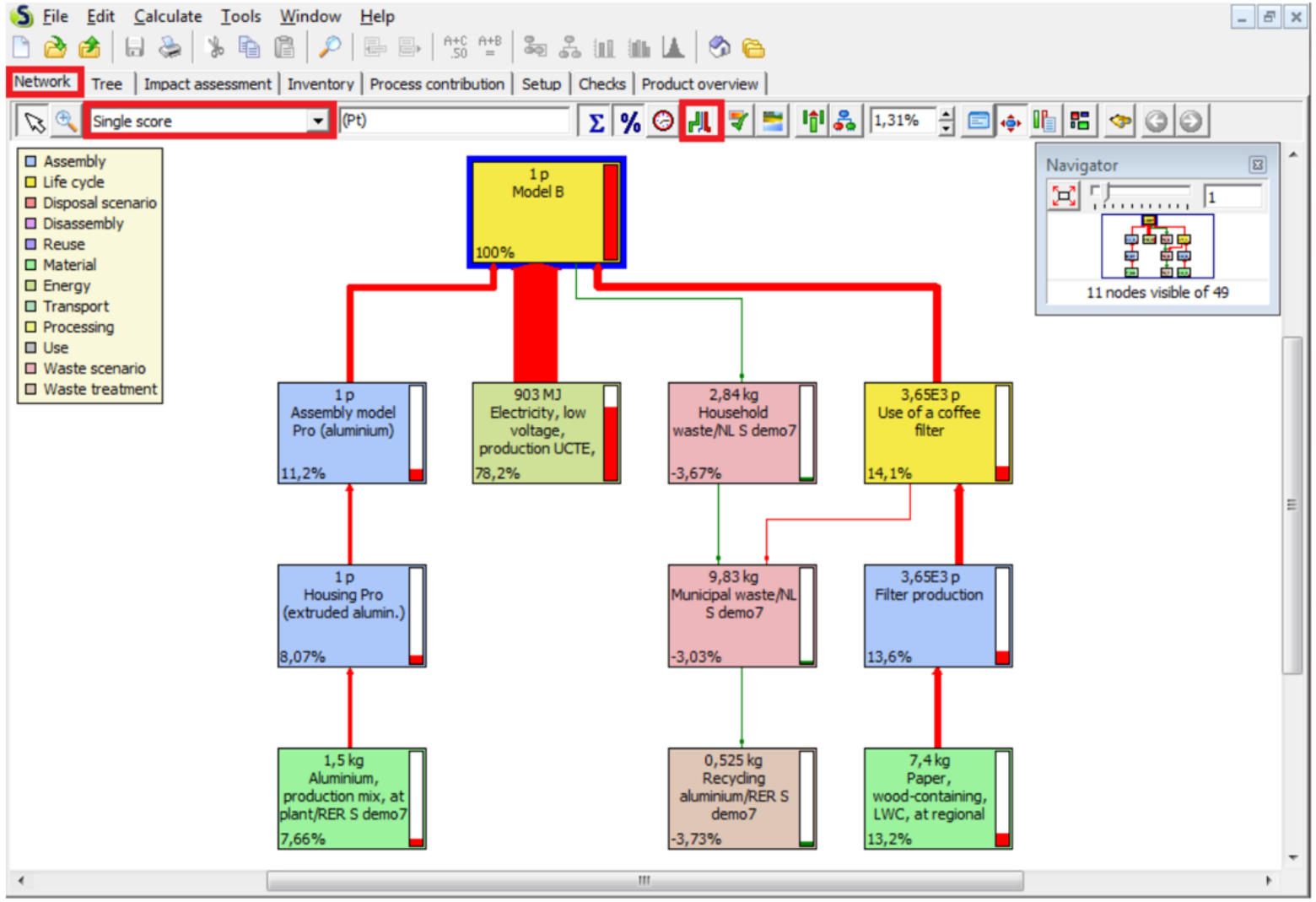
EQUER

✓ EQUER is software that combines Building Life Cycle Assessment with dynamic thermal simulation. It calculates 12 environmental parameters using a life cycle assessment database with inventories of impacts for materials and processes (transport of people or materials, water treatment, etc.).



SIMAPRO

✓ Simapro software is a Life Cycle Assessment modeling tool with numerous features that make it one of **the most recognized** among both specialized and non-specialized users.



BILAN PRODUIT

✓ Very user-friendly, the free tool Bilan Produit ® (developed by ADEME) uses LCA results to provide environmental impacts

MODELISATION DANS BILAN PRODUIT

PHASE DE PRODUCTION

Sous-ensemble	Nom	Quantité	Unité	Commentaires utilisateur
Cadre	Aluminium mix européen	6	kg	
Roues	EPDM	3,6	kg	0,6 chacune X 2 (paire) X 3 (3 paires durant toute la durée de vie)

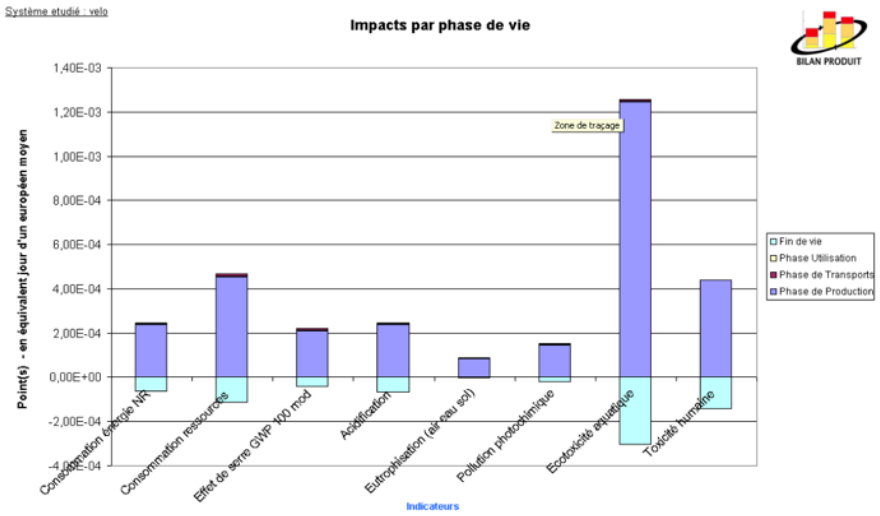
PHASE DE TRANSPORTS

Sous-ensemble	Nom	Quantité	Unité	Commentaires utilisateur
Distributeur / Domicile	Voiture essence (moyenne européenne)	10	pkm	
Fabricant / Distributeur	Camion moyen (>16 T)(moyenne européenne)	2,4	t.km	Distance : 250km Masse transportée : 9,6kg

FIN DE VIE

Phase de vie	Sous-ensemble	Matériaux	% Recyclage	% Incinération	% Enfouissement	% Compostage	Validation
Phase de Production	Cadre	Aluminium mix européen	42,00%	0,00%	58,00%	0,00%	100,00%
Phase de Production	Roues	EPDM	0,00%	50,00%	50,00%	0,00%	100,00%

RESULTATS



Impacts par phase de vie				
Indicateurs	Phase de Production	Phase de Transports	Phase Utilisation	Fin de vie
Consommation énergie NR (MJ eq)	1,00E-01	3,58E-03	0,00E+00	-2,73E-02
Consommation ressources (kg Sb eq)	4,33E-05	1,47E-06	0,00E+00	-1,13E-05
Effet de serre GWP 100 mod (kg CO2 eq)	5,93E-03	2,14E-04	0,00E+00	-1,26E-03
Acidification (kg SO2 eq)	2,91E-05	7,87E-07	0,00E+00	-8,62E-06
Eutrophisation (air eau sol) (kg PO4--- eq)	8,91E-06	2,04E-07	0,00E+00	-6,72E-07
Pollution photochimique (kg C2H4)	2,20E-06	7,81E-08	0,00E+00	-3,51E-07
Ecotoxicité aquatique (kg 1,4-DB eq)	3,49E-03	2,64E-05	0,00E+00	-8,54E-04
Toxicité humaine (kg 1,4-DB eq)	2,47E-02	1,16E-04	0,00E+00	-8,12E-03