LIFE CYCLE ASSESSMENT (LCA)

Life Cycle Assessment (LCA) helps the industry to design and optimise product and technology development processes by reducing the environmental impacts of a particular product throughout its entire life cycle.

COMPETENCIES

- Determining the resources and environmental impacts of the entire product life cycle from the raw material extraction to the end-of-life stage
- Optimising the sustainable manufacturing process of products
- Scenarios to establish waste management processes, in particular for Waste-to-Energy technologies
- Investigation of environmental aspects and impacts with GaBi 8.0 sustainability software

SERVICES

- Quantitative analysis of input and output data for life cycle inventory
- Estimation of emissions and environmental impacts of the tested system
- Designing cleaner production options by saving resources, recycling energy and material flows, and minimizing environmental risk
- Complex product life cycle analysis with different impact assessment methods while normalizing and weighting environmental impacts
- Proposing sustainable waste management through end-of-life analyses and design of waste preparation technologies
- Comparison of the investigated system with alternative products, processes, or services, including international professional literature research
- Supporting the development of new products, processes, or services
- Carbon footprint calculation, interactive report (i-report)
- Life cycle costing, life cycle work environment and social life cycle assessment
- Supporting environmental performance assessment, environmental report, environmental product declaration, and sustainability strategy development

TOOLS

- GaBi 8.0 LCA software

REFERENCES

- TÁMOP 4.2.1.B-10/2/KONV-2010-0001 (Improving the quality of higher education based on the development of centres of excellence in the strategic research areas of the University of Miskolc) Scientific Workshop: Development of innovative enviro-friendly technologies and increasing energy efficiency in the chemical industry. Development of enviro-friendly technologies to reduce environmental impact. Environmental, energy-technological, and economic investigations of possible enviro-friendly technologies; *http://kivalosagi-kozpontok.uni-miskolc.hu/*
- Establishment of HEICC of Advanced Materials and Intelligent Technologies at the University of Miskolc, project number:GINOP-2.3.4-15-2016-00004
  - (1) Development of innovative and enviro-friendly plastic thermal insulation materials, products, and technologies based on comparative LCA and LCC analyses
  - (2) LCA-based development of innovative and enviro-friendly concrete structural elements by recycling secondary raw materials or waste
  - (3) Innovative materials and materials technology research to establish an intelligent building management system; *http://fiekprojekt.uni-miskolc.hu/*