UMBERTO EFFICIENCY+

A software for calculation, analysis, and improvement of the material, energy, and cost efficiency of production systems

Umberto Efficiency+ is a professional software for integrated resource efficiency. All application possibilities of the software at a glance:

- Material flow analyses to increase material and energy efficiency
- Cost accounting to determine potential savings in production
- Material Flow Cost Accounting (MFCA) to calculate the true cost of material losses
- CO₂ balances for tracking and achieving climate targets

OPTIMIZE PROCESSES AND SAVE RESOURCES IN YOUR PRODUCTION

Materials, energy and therefore costs „flow“ in every manufacturing company. Material flow management is an important approach for the more efficient use of resources in the production.

Gain transparency
By modelling material and energy flows, you gain full transparency over your production system, which enables you to identify inefficiencies at a glance. Working with subnets and hierarchical modelling makes it easier to model even complex production systems. High flexibility in the process specifications enable individual production systems to be calculated as realistically as possible. Even multi-product processes (co-products) can be modelled by using allocations.

Flexible analysis of material and energy flows
How much energy, material or auxiliary material does a certain process or product consume? The numerous analysis options e.g. per processes, products, material groups provide you with the answers to your specific questions. Mass and energy balances can be created for the entire production system as well as for any sub-processes.

Cost drivers at a glance
By using cost accounting in Umberto, you can determine the relationship between material and energy inputs and the resulting costs. Among others, you can consider direct material costs, system and process costs as well as disposal costs.

Material Flow Cost Accounting (MFCA) according to DIN/ISO 14051 offers an additional cost evaluation. It takes a close look at material losses and the associated hidden costs as there is great potential for saving energy and costs in the avoidance of material losses.

Reducing climate impacts
Umberto does not only reveal potentials for material and energy efficiency, but also for reducing CO₂ emissions. Integrated data provides you with information on global warming potential so that you can calculate carbon footprints quickly and easily.

Evaluate improvement measures
The question, which combination of improvement measures is best to achieve saving targets or a higher production volume, is answered on the basis of your modelled scenarios. With the automated scenario analysis several scenarios can be calculated at once.

Convince with Sankey diagrams
The potential for savings can be communicated in a clear and understandable way for everyone with integrated Sankey diagrams. The representation of the flows is intuitive and visualizes influencing variables and correlations - even for non-technical decision-makers - at a glance.
**COMFORT FUNCTIONS**

Umberto users value the well-known functions and tools common in Microsoft Office and other applications.
- Copy & Paste: Easily copy and paste entire models or parts thereof, even between different models.
- Undo/Redo: Changes can be undone with just one click.
- Live Link to Microsoft Excel: Import cell values from Microsoft Excel workbooks.
- Store entire models and model sections to Module Gallery for reuse.
- Export results: Conveniently export data to Microsoft Excel or export the graphics from models as print-ready image files.

You can find a detailed overview of the functions in the [Umberto Efficiency+ data sheet](https://www.ifu.com/cases_resource_efficiency).

**APPLICATION AREAS AND SUCCESS STORIES**

Umberto users are process engineers, chemical engineers, energy experts and other staff from industry or consulting firms. The software has helped them to realize a broad array of projects in different areas of application.

One chemical company, for instance, managed to reduce their solvent emissions by more than 60% through scenario analyses of various recycling options. By adopting the most efficient approach, the firm reduced its cost of treating emissions by 75%. Over a five-year period, its savings amounted to a total of 1,2 million EUR.

In another case, by optimizing its process, a brewery was able to achieve a 70% reduction in its consumption of diatomaceous earth, a filtering agent used in the production of beer.

Further example projects that were successfully realized with Umberto can be found here: [goto.ifu.com/cases_resource_efficiency](https://goto.ifu.com/cases_resource_efficiency).

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