



SOFTWARE FOR THE ECONOMIC, ECOLOGICAL AND SOCIAL ASSESSMENT OF BIOTECHNOLOGICAL PROCESSES

Easy Application, Fast Results

HOW TO MAKE YOUR BIOPROCESS FIT FOR THE FUTURE

Your production and development processes need to be successful in a time-to-market race of competitive pressure and increasingly shorter development cycles. In order to win this race, you need an easy and fast way to assess chances and risks already in a very early phase of process design.

How can you do that? The answer is the software tool **Sabento!**

The **economic, ecological, and social** dimensions of your new developments can hold concealed chances and risks. Sabento should be your tool of choice if you:

- have only little knowledge about your future process,
- want to consider all three dimensions of sustainability adequately in each phase of process design,

- are short on time for the evaluation, and therefore need to concentrate on the essentials,
- or if you want to map and evaluate existing processes in order to evaluate them or to document their sustainability.

Make your process design decisions on a better founded basis!

- How long would the payback period be if you changed some of the process conditions?
- Which process alternative has the least global warming potential (GWP)?
- Will the handling of dangerous substances become safer for your employees because of the new process?
- Which process alternative is the best in all three dimensions of sustainability?



WHO BENEFITS FROM USING SABENTO?

Process Developer | A process developer uses Sabento to map planned bio-processes in early phases of development and to evaluate them in their economic, ecological, and social dimensions. This helps significantly to avoid corrections further down the development process, reducing cycle time as well as costs.

Small- and Medium-Sized Enterprises (SME) SMEs are known as the "engines of biotechnology". They greatly benefit from Sabento because it allows them to analyze the chances and risks of their processes and products with a minimum effort of time and resources.

Plant Developer | Plant developers use Sabento to integrate their plant into the context of an entire bioprocess. They detect the impact that the properties of their new plant have on the entire production process, and are thereby able to influence the overall results.

Decision Makers | Your decisions need a sound basis: Is the new process sustainable? Where are improvement potentials? Is it worthwhile to continue developing the process?

Universities | In an educational setting Sabento is used to study and assess different process alternatives, and to teach students to understand the economic, ecological, and social dimensions of process design.



Bundesministerium
für Bildung
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SABENTO FEATURES

- Navigation through the software is completely guided by assistants
- Automated calculation of substance and energy balances
- Feasibility assessment of new processes
- Estimation of the ecological and social effects of a process
- Analysis of process variants and their effects
- Process comparison
- Large library with modules for enzymatic processes, cell cultures, and microbiological systems of production

WHERE CAN SABENTO BE USED?

Process Development

In process development, Sabento is used for process modeling, comparison and optimization, as well as decision making with regard to sustainability criteria.

Sales and Marketing

In sales and marketing, Sabento is used to de-

monstrate the sustainability properties of the product or process towards the customer.

Research and Education

In research and education, Sabento is used for the modeling and evaluation of bio-processes, and help students to understand all three sustainability dimensions.

The screenshot displays the Sabento software interface. On the left, a 'Materials' list shows various chemical and biological components like amino acids, antibiotics, and carbon hydrates. The main area shows a 'Network Main' diagram with three process units: 'T1 process preparation', 'T2 product formation', and 'T3 downstream processing'. Each unit is connected to various input and output streams labeled P1 through P17. In the foreground, a 'Scaling of existing process' window is open, titled 'Scaling of main reactor'. It contains a 'Progress' sidebar with steps like 'Introduction', 'Scaling of main reactor', 'Result summary', 'Finishing reactor scaling', 'Fin. costs', 'Scaling of downstream aggregates', 'Personnel costs', and 'End of scaling'. The main area of the window asks for process specifications: 'Your overall purification efficiency adds up to: 89.2 %', 'Please enter the following specifications of your process:', 'In how many shifts will the process be run?' (2), 'How high is the production concentration in relation to the fermentation broth?' (1 g/L), 'How high is the dry bio mass concentration?' (10 g/L), 'What is the reaction time?' (12 hours), 'How many days per year are available for production?' (300 days per year), 'How many fermentations will fail (e.g. due to contaminations)?' (0 %), 'What is the reaction temperature?' (37 °C), and 'What is the reactor's degree of filling? (Normally 66% for microbiological processes)' (66 %). Navigation buttons '< Back', 'Next >', 'Cancel', and 'Help' are at the bottom.

Automatic creation of the biotech process model in the background

The user is guided by assistants in order to ensure easy and fast operation

INFORMATION AND ORDERS

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