



FUNCTIONS FROM A TO Z

Allocations

Individual allocation rules can be defined for transitions representing coupled processes (multi product processes). Predefined allocation methods (e.g. mass, value, material properties).

Calculation

Calculation of unknown flows and stocks in the process system (network) using known flows and process specifications. Fully consistent flow and stocks accounting. Modeling of recycling loops. Calculation over several periods using results from preceding period.

Cost Accounting

Material direct costs and process costs. Free definition of cost types and cost type groups. Build or import chart of accounts structure. Individually define cost drivers. Normal and marginal costing. Define variable and fixed costs per cost center. Product cost accounting analogously to product life cycle inventory. Present cost data as table, chart or Sankey.

Data Quality

Indicate data quality for known flows using categories (e.g. data age, technology used, geography, etc.). Visualize data quality as semaphore ("traffic light").

Export and Print Reports

Pre-configured print reports with project data and calculation results. Export and printing of network diagram and Sankey diagram. Export of data to external databases or spreadsheets. Graphics export in common file formats.

Formula Editor

Set of functions to be used for process definitions: EXP, LN, SQRT, MAX, MIN, ABS, INT, ROUND, trigonometric functions, Boolean expressions, comparison operators, RANGE, DAYS, FIRSTDAY, LASTDAY, PI.

Hierarchical Network Models

A process (transition) can be modeled as a (sub)net in a separate editor window. Any number of subnet levels, fully incorporated in network calculation. Hierarchical tree-view.

Import

Data import in most common data formats (e.g. Excel). SQL database interface. EcoSpold interface for exchange of process data.

Input/Output Inventories

Input/Output display of flows (balance sheet) for the overall process system or sections thereof. Consistency check. Internal flows and stocks. Analysis through grouping by processes or material groups. Detailed or aggregated view. Scale inventory to user-defined units. Integrated chart tool for diagrams. Assessment of inventory and balance comparison.

Life Cycle Assessment

Life Cycle Assessment of the individual products of a process system (functional units) calculated from the material flow network using allocation rules. Parallel calculation for all products in multi product systems.

Materials

Define substances, materials, semi-finished products, products and energy forms in a flexible, configurable material hierarchy with material groups. Standard basic units 'kg' and 'kJ', definition of additional individual units for display if quantities. Synonyms and multi-language support for materials.

Material Properties

Definition of technical, economic and ecological material properties, e.g. density, calorific value, thresholds, CAS number. Use of properties in definition of units, process specifications and assessment systems.

Network Editor

Graphical editor for building network models, interactively insert elements (transitions, places, arrows, labels, graphical objects). 'Look&Feel' for modifying networks and subnets. Grid, ruler, zoom. Free choice of colors. Change size of network elements, add cliparts or standard process symbols, embed graphics, photos, maps.

Performance Indicators

Individual definition and structuring of valuation systems for assessment of calculation results. Free definition of valuation figures and key indicators. Use of mathematical functions, including logical operators and verbal variables (e.g. indicator value on ordinal scale). Export and import, application of assessment systems in other projects. Display of result figures in tables and graphically. Comparison of performance indicators.

Process Library

Umberto contains a library with standard process modules. Process data are from various areas: transportation, energy generation, waste treatment, basic materials, plastics (full list on request). Process modules can be viewed and modified by the user, they are fully documented. Import and export. Numerous processes can be adapted flexibly through parameters. Own modules or process descriptions from other sources can be stored in the process library.

Process Definitions

Use pre-defined processes from the library or individually specify processes. Simple specification using input/output coefficients. Import from spreadsheet files. Non-linear process definitions using mathematical description of material flows. Define parameters for adaptability of processes. Advanced process specification with scripts.

Projects, Scenarios, Periods

Administer any number of projects with alternative scenarios. Material flow networks allow to study process systems for different time periods (fiscal year, quarter, month, day). Updating of flow data and modeling of time-related questions.

Sankey Diagrams

Mass proportional colored flow diagrams for materials, energy or costs. Labeling of Sankey flows. Free setting of colors. Numerous display options. Scaling. Export and printing of Sankey diagrams.

Scripts and Customizing

Advanced process specification with scripts (Python, Perl, VBScript, Java Script). Add new functions and dialog elements for specific corporate requirements. Customizing of Umberto for individual needs.

Umberto Services and Training

Regular training courses for beginners and advanced users. In-house training on site. Update and Support Service. User Forum on the WWW with download of updates and patches. Annual Umberto User Workshop for exchange of experiences.

Units and Number Format

Setting of number format for quantities display. Standard basic units 'kg' for mass and 'kJ' for energy. Definition of additional basic units and any number of entry or display units.

User Administration and Access Rights

User administration with password-protected access to project data and library. Access control on scenario and transition level. Optional encryption of process specification details. Handing over of project results to customer as read-only with lean Umberto viewer.

User Manual and Online Help

Comprehensive user manual with tutorial and training examples. Documentation of the process library as PDF file. FAQ. Context sensitive online help.

System Requirements

Hardware: minimum requirement: Pentium II, 64 MB memory, VGA, 150 MB free disk space. Recommended: Pentium IV, 256 MB, VGA with 1024 x 768 resolution, 800 MB free disk space.

Network Version: TCP/IP network version available. Client/Server database.

Operating System: Windows 98 SE, ME, XP or Windows NT4 with SP6, 2000, XP Pro.