BIOWIN VERSION 4.1

WHY BIOWIN?

BioWin wastewater process simulation software ties together biological, chemical, and physical process models to provide insight into the whole plant. BioWin is used world-wide to design, upgrade, and optimize wastewater treatment plants of all types. BioWin simulations help engineers and operators make decisions that reduce capital and operating costs and ensure treatment objectives are met.

BioWin : created by process engineers… for process engineers.

BIOWIN 4.1 NEW FEATURES

THERMAL HYDROLYSIS UNIT

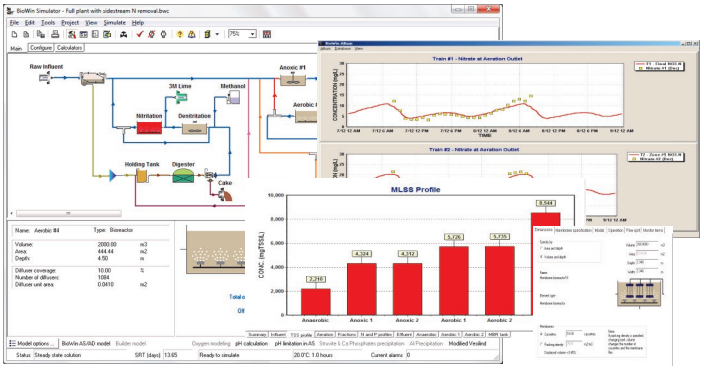
A thermal hydrolysis element has been added to simulate the breakdown of particulate components in a sludge stream. The thermal hydrolysis unit is a dimensionless mass balance converter that instantaneously converts the particulate state variables into predefined sets of other state variables, and the user defines the extent of conversion and the fractional distribution between 'products' of hydrolysis. This highly flexible element allows BioWin users to simulate a variety of sludge pretreatment technologies such as ozonation, sonication and chemical oxidation.

SIDESTREAM MEDIA BIOREACTOR

Media bioreactors using IFAS or MBBR biofilm-based systems are being applied more widely in the context of sidestream treatment; for example, for deammonification of digester centrate streams. A Side Stream Media bioreactor has been added for convenient simulation of these systems.

SUBMERGED AERATED FILTER

A submerged aerated filter (SAF) element has been added to simulate bioreactors with fully submerged fixed media in an upflow configuration. There are two types available: 1) a standard SAF in which the depth is divided into three "slices" and there is a liquid volume and a biofilm mass/volume associated with each "slice"; and 2) a "shallow" SAF which has one completely mixed liquid volume and one biofilm mass/volume for the whole unit. As a result, the "shallow" SAF is less plug-flow in nature than the standard SAF.



EnviroSim ASSOCIATES LTD

THE ENVIROSIM TEAM

Together, over 100 years of wastewater process modeling experience.
www.envirosim.com · info@envirosim.com · **tel** +1 905-481-2607 · **fax** +1 905-481-2610

BIOWIN VERSION 4.1

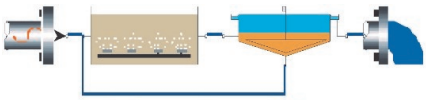
ENHANCEMENTS TO EXISTING ELEMENTS

PRIMARY SETTLING TANKS

- The Ideal Primary Settling Tank element now has a Model tab which allows biological reactions to be toggled on or off.
- It is now possible to specify individual removal percentages for particulate state variables across a primary settling tank element. For example, users can specify additional removal of inert suspended solids to simulate a changing VSS/TSS ratio across a primary settling tank.
- Percentage removals for TKN, TP, COD, BOD, and TSS are now calculated automatically and can be displayed in Album tables or charts.

CYCLONES

- The Cyclone element now allows for individual removal percentages for particulate state variables. This is useful for simulating cyclones and other solids separation technologies proposed for certain mainstream deammonification processes. These rely on preferential retention of anaerobic ammonia oxidizing organisms.
- BioWin 4.1 also includes an ISS Cyclone that preferentially captures only influent inorganic suspended solids.

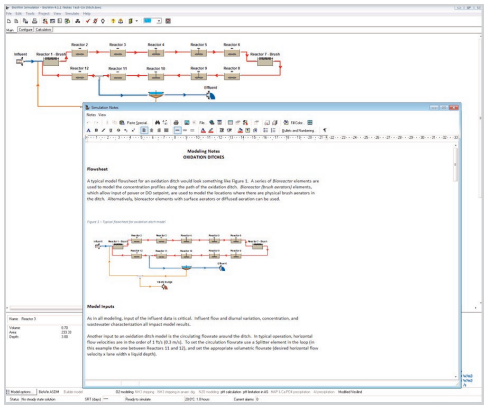


EnviroSim ASSOCIATES LTD.

www.envirosim.com info@envirosim.com
tel +1 905-481-2607 **fax** +1 905-481-2610

USABILITY IMPROVEMENTS

- **New in 4.1.1 :** BioWin's **Notes Editor** has gained significant functionality and now has full Rich Text Format (RTF) capability. Project notes can now contain tables, screenshots from the BioWin Album, and other useful formatting components. The notes also can be easily exported to Word, to streamline your project reporting workflow.



- Any notes added with BioWin's **Notes Editor** are now saved internally to the BioWin file (as opposed to a separate "*.nts" file in previous versions). If notes have been added to a file, BioWin automatically displays these when the file is opened. This greatly improves the utility of the Notes Editor and facilitates knowledge transfer.
- Table column widths are automatically resized to fit headings in the Album.
- User-defined Hydraulic Retention Time (HRT) calculators are now available. Users can select flowsheet elements to define the volume and flowrate terms for an HRT calculation. Multiple HRT calculators can be defined. Defined HRTs also can be plotted in the BioWin Album as a time series.
- BioWin 4.1 also is available in the following languages: Chinese, Spanish, Portuguese