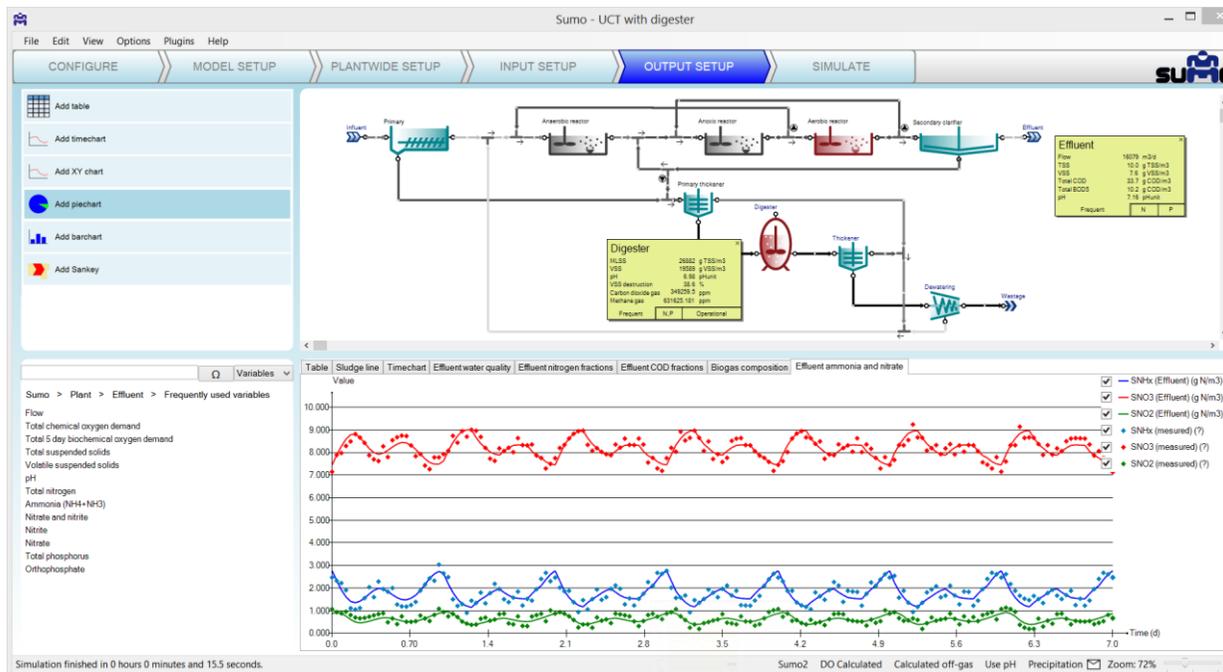


The Sumo[®] full featured Wastewater Process Simulator

Why choose Sumo?

The new Sumo19¹ comes with controllers at no extra cost. It has brand new calibrated models: carbon capture, extended bio-P (PAO-GAO) and sulfur/iron/alum biokinetic and chemical interactions models, EPS, ORP, new equipment specific aeration models, trickling filters and sand filter. Aerobic granular sludge and MABR. Fast Never-To-Fail[®] steady-state solver, easy scenario handling, and a ton of other new features.



- Most extensive *calibrated model library* for traditional and advanced wastewater resource recovery processes
- *Supported* by the largest² wastewater simulation company round the clock
- Sumo is the only *open process source* commercial simulator² (coded in Excel tabular format in SumoSlang[™])
- Virtually *unlimited* activated sludge/anaerobic digester/sidestream treatment *configurations* available³

- Integrated *steady-state and dynamic simulations*, 2-way link to Excel or other programs, popups, sticky notes, undo(!), Book of SumoSlang, extended Manual, software in Korean, Chinese, Japanese, Spanish, Turkish.
- Only simulator that allows complete flexibility to *build your own models* or modify any models in Sumo
- *Fast! Very fast!* Ask for more details: www.dynamita.com or info@dynamita.com

Technical specifications

Biokinetic/chemical models	Process units/configurations	Strong points
<p>Sumo models (Dynamita in-house researched/developed)</p> <ul style="list-style-type: none"> • Sludge production and oxygen uptake • One step nitrification/denitrification • Two step nitrification/denitrification, anammox • High-rate process, flocculation • Bio-P for all configurations • Fermentation, anaerobic digestion • Sulfur oxidation/reduction/precipitation • Chemical P removal (iron/alum) • Struvite and other precipitates, nutrient recovery • Greenhouse gases • Methanol dosing • Aeration • pH, alkalinity • Gas transfer, stripping • Controllers (DO, SRT, timer, on-off, ratio, PID) <p>Museum models</p> <ul style="list-style-type: none"> • ASM1 • ASM2d (original or with TUD bio-P) • ASM3 (w/wo bio-P) • Barker-Dold • ADM1 <p>Other models</p> <ul style="list-style-type: none"> • UCTPHO+ (UCT) <p>Your own models</p> <ul style="list-style-type: none"> • Model editor/automated mass balance check • Dedicated process engineering/research support • SumoSlang – built-in intuitive simulation language for any dynamic or algebraic model 	<p>Easy, flexible influent specification</p> <p>Reactors</p> <ul style="list-style-type: none"> • All types of activated sludge reactors (CSTRs, PFRs, oxidation ditches, SBRs, etc.) • Fermenters • Anaerobic digesters • Sidestream reactors • MBBR, IFAS, TF, Mobile Carrier • Aerobic Granular Sludge • MABR, MBR <p>Phase separators</p> <ul style="list-style-type: none"> • Primary, secondary settlers, • Thickeners, centrifuges, cyclone, dewatering, filters, etc. <p>Other units</p> <ul style="list-style-type: none"> • Thermal hydrolysis process • DO, MLSS, SRT, pH, ORP control <p>Flow control elements</p> <ul style="list-style-type: none"> • Pumps, bypass weirs, channels • Flow combiners/dividers <p>Configurations</p> <ul style="list-style-type: none"> • Unlimited complexity (largest plants in the world have been modelled) • Typical example plants (MLE, UCT, SBRs, AS+Digester, whole plant with sidestream treatment, etc.) provided with software • Main stream deammonification • AB process • Thermal hydrolysis + digestion • and many others 	<p>Easiest software to get up to speed with</p> <ul style="list-style-type: none"> • GUI Windows 7, 8.x, 10 based (compiled models are platform independent). • Runs on Mac within Parallels or Windows • Unique, user friendly task-flow based software design, undo, Excel report • Expert support in process software • Training courses, technology transfer • Sumo team co-authored books (WERF Influent Characterization Manual, Good Modelling Practice Guidelines, various MOPs) • Industry standard layered settling model for all types of settlers, clarifiers, thickeners with compression • Open API connection to 3rd party apps Excel toolkit complementing Sumo (included) • Dynamita Influent Tool • Dynamita High F/M Tool (Autotrophic growth rate evaluator) • Dynamita OUR tool • Dynamita Influent Active Biomass Tool • Dynamita DSRT Tool (Do you know your sludge age?) • Dynamita $K_L a$ Tool <p>Offices</p> <ul style="list-style-type: none"> • Western Europe (France, Austria) • North America (Canada) • Eastern Europe (Hungary) <p>Representatives</p> <ul style="list-style-type: none"> • Korea, Japan, China, Spain, Indonesia

PRICING

Single license with controllers 1800 €⁴ pa including support

Volume discounts, educational, research and network licenses are available as annual lease or outright purchase. Training at your location or in Dynamita offices available.

Ask for a detailed pricelist: info@dynamita.com



¹Sumo16 remains operational and does not need to be uninstalled

²To our best knowledge

³If we don't have it, we build it. Timeline and development cost (if any) is case specific

⁴We reserve the right to change pricing

Sumo[®] is used worldwide.

Municipalities: DCWater, Washington DC, USA; Hampton Road Sanitation District, Norfolk, USA, Clean Water Services, Portland, USA, City of Meridian, Idaho, USA; City of Boulder, USA; First Utility District of Knox County, USA; Great Lake Water Authority, USA; Trinity River Authority, USA; City of Kunming, China, WaterCare, Auckland, New Zealand

Consultants: CH2M, USA; AECOM, USA; ARAconsult, Austria; UTB, Hungary; Friedrichbüro, Germany; EnviTreat, USA; Ramboll, Finland; InnoWater, Hungary; Black and Veatch, USA; HDR, USA; Stantec, USA; Brown and Caldwell, USA; RF Wastewater, USA; SUEZ (CESMAE), France; Atkins, USA; Carollo, USA; Hazen and Sawyer, USA; Trojan Technologies, USA; AquaConsult Baltic, USA; InCTRL, Canada; BioPolus, Hungary; Veolia USA; R.M. Towill, USA; OptVantage, New Zealand; Headworks International, USA, Volkert & Associates, Inc. USA; HKF Technology, USA, SWECO Nederland B.V., The Netherlands; HEPS Co., Korea; Kinnear Engineering, USA; Holinger, Switzerland, BG Ingénieurs Conseils SA, Switzerland; Hunziker Betatech, Switzerland, Jiacheng Environmental Protection&Engineering, China

Universities: VirginiaTech, University of Michigan, Aalto, INSA University of Colorado, TUD (Delft), EAWAG/ETHZ, Università Degli Studenti Firenze, University of Antwerpen, University of Tartu, Technische Universität Darmstadt, Northeastern University, University of Kansas, INRA, University of Queensland, University of California, Rice University, Universitat de Girona, LIST Luxembourg, University of Washington, Northwestern University, Federal University of Ceara, Lappeenranta University of Technology, BOKU Wien

and others outside these categories such as CAMBI, Norway; UNESCO, Paris; World Water Works, USA; Tanuki Software, Japan; Kurita Water, Japan

(partial client list, 2019)