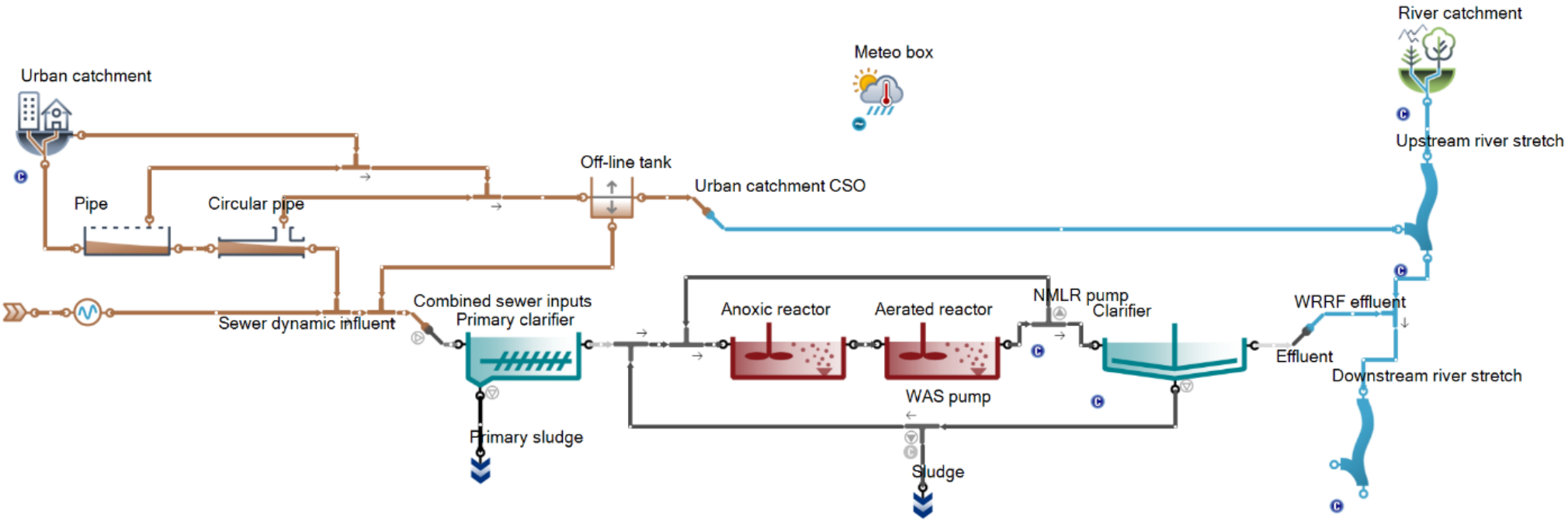
SUMO© - the full featured Wastewater Process Simulator

Why choose SUMO?

The new SUMO24[1] is available now with significant improvements. It comes with new scenario handling with extended analysis and optimization features, PFAS model, optimized IUWS library (urban catchment and river models), denitrification filter, manual (operational data based) and pre-zone SBR, HRT calculation tool. Robust steady-state solver, easy scenario handling, SPA tool and a ton of other new features.



- **Most extensive *calibrated model library* for traditional and advanced wastewater resource recovery processes, GHG, carbon footprint, integrated urban water system**
- ***Supported* by the largest[2] wastewater simulation company round the clock**
- **SUMO is the only commercial *open process source* simulator[2] (coded in Excel tabular format in SumoSlang©)**
- **Virtually *unlimited* activated sludge/anaerobic digester/sidestream treatment *configurations* available[3]**
- **Only simulator that allows complete flexibility to *build your own models* or modify any models in SUMO**
- **Integrated *steady-state* and *dynamic* simulations, Digital Twin, 2-way link to Excel, Python or other programs, popups, sticky notes, undo, Book of SumoSlang, extended documentation in the Dynamita Wiki. Available in Korean, Chinese, Japanese, French, Spanish, Turkish, German and Vietnamese languages**
- **Ask for more details: www.dynamita.com or info@dynamita.com**

Technical specifications

Biokinetic/chemical models

Sumo models (Dynamita in-house researched/developed)

- Sludge production and oxygen uptake
- One step nitrification/denitrification
- Two step nitrification/denitrification, anammox
- Partial denitrification-anammox (PdNA)
- Four step nitrification-denitrification model including N_2O formation
- High-rate process, flocculation
- Industry leading Bio-P with PAOs GAOs (for S2EBPR as well)
- Hydrolysis with two types of particulate organic state variables
- 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
- Dynamic alpha prediction
- Sludge dewaterability prediction
- PFAS removal

Museum models

- ASM1
- ASM2d (original or with TUD bio-P)
- ASM3 (w/wo bio-P)
- Barker-Dold
- ADM1

Other models

- UCTPHO+ (UCT)

Custom models developed in SumoSlang

- SumoSlang – built-in intuitive simulation language for any dynamic or algebraic model

Process units

Influent

- Easy, flexible influent specification

Reactors

- All types of activated sludge reactors (CSTRs, PFRs, oxidation ditches, SBRs etc.)
- Fermenters and anaerobic digesters
- Sidestream reactors
- MBBR, IFAS, TF, Mobile Carrier
- Aerobic Granular Sludge
- MABR, MBR
- BAF, UASB
- Pond/lagoon

Phase separators

- Primary, secondary, high efficiency settlers
- Reverse osmosis, thickeners, centrifuges, cyclone, dewatering, filters etc.

Plantwide tools

- Sum, ratio, totalizers, mapping, noise, min/max, moving average
- Controllers (DO, SRT, ORP, timer, deadband, ratio, PID)
- SRT, HRT and flow dependence

Flow control elements

- Pumps, bypass weirs, channels, EQ basin
- Flow combiners/dividers

Other units

- Energy & cost center
- Carbon footprint (CFP) estimation
- Thermal hydrolysis and advanced oxidation processes

Add-ons (on request, free of charge)

- Mobile carrier (e.g., kenaf)
- Sewer model (including odor)
- Densified sludge model

Built-in analyzer / Optimizer

- Scenarios – tailor operational plans for different conditions
- Scenario evaluation-running all scenarios and comparing outputs in one chart
- Sensitivity analysis – displaying the impact of selected parameters on outputs
- Optimizer – fit to target value (e.g. effluent ammonia setpoint) or measured data, and minimize or maximize

Other features

Easiest software to get up to speed with:

- GUI Windows 10, 11 based (compiled models are platform independent)
- Runs on Mac within Parallels or Windows
- Unique, user-friendly task-flow based software design.
- Excellent expert support (training courses, model transfer, co-authored books, consultancy etc.)
- Open API connection to 3rd party apps (DT Tool)
- In-house developed Excel toolkits:
  Influent Tools, High F/M Tool (Autotrophic growth rate evaluator), OUR tool, Influent Active Biomass Tool, DSRT Tool (sludge age), K_La Tool, Pump and Blower Tools

Flexible configurations:

- Unlimited complexity (largest, most complex plants in the world have been modelled)
- Typical example plants (A2O, MLE, SBRs, AS+Digester, whole plant with sidestream treatment, IUWS, etc.) provided with software
- Mainstream deammonification
- AB process
- Thermal hydrolysis + digestion

and many others

Global offices

- Western Europe (France, Luxembourg, Austria)
- North America (Canada)
- Eastern Europe (Hungary)

Representatives

- Korea, Japan, China, Vietnam, Brazil

Pricing

Single license with controllers: **2400USD/2300EUR[4] pa including support and upgrades**

Volume discounts, educational, research, mobile 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

[1]Sumo19, Sumo21 and Sumo22 remain operational and do not need to be uninstalled
[2]To the best of our knowledge
[3]If we don't have it, we'll build it. Timeline and development cost (if any) are case specific
[4]We reserve the right to change pricing without notice

SUMO© is used worldwide.

Municipalities: DCWater, Washington DC, USA; Hampton Road Sanitation District, Norfolk, USA; Clean Water Services, Portland, USA; City of Boulder, USA; WaterCare, Auckland, New Zealand; Aurecon, New Zealand; and others.

Consultants: Jacobs, USA; AECOM, USA; ARAconsult, Austria; UTB, Hungary; Friedrichbüro, Germany; Ramboll, Finland, Norway and Sweden; InnoWater, Hungary; Black and Veatch, USA; HDR, USA; Stantec, USA; Brown and Caldwell, USA; Nuvoda, USA; SUEZ, France; Atkins, UK; Carollo, USA; Hazen and Sawyer, USA; AquaConsult Baltic, Estonia; BioPolus, Hungary; Veolia, France; R.M. Towill, USA; Headworks International, USA; SWECO, The Netherlands; HEPS Co., Korea; Holinger, Switzerland; Kiewit Corporation, USA; GMB Civiel, The Netherlands; Olsson, USA; Sapoval, France; Çevtaş, Turkey; Hias, Norway; SEEN Technology, Poland; WSP, New Zealand, Canada, UK; etc.

Universities: University of Michigan, Aalto, INSA, France, TU Delft, EAWAG/ETHZ, Università Degli Studenti Firenze, University of Antwerpen, University of Tartu, Northeastern University, University of Kansas, INRA, University of Queensland, University of California, Rice University, Universitat de Girona, LIST Luxembourg, Northwestern University, Federal University of Ceara, BOKU Wien, Harbin Institute of Technology, China; Lunds Universitet, Sweden; Brunel University, UK; Cranfield University, UK; Monash University, Australia; Texas State University, USA; etc.

and others outside these categories such as Hach, USA; Transcend Software, USA; Tanuki Software, Japan; Kurita Water, Japan and others.

(partial client list, 2025)