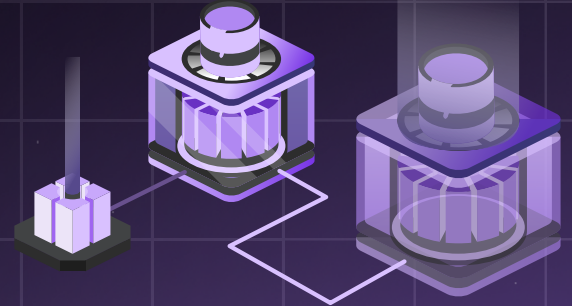


Basetwo for Optimizing Process Scale-Up



The Basetwo AI copilot enables virtual experimentation through **Physics AI** powered digital twins, providing manufacturers with dynamic scale-up recommendations to reduce trial runs and time to market.

Process Modeling on Basetwo

Process Simulation Settings

System Template: Bioreactor

Datasource Controls: Run on 30 batches, 1200 total time steps, 100 s

Parameter Estimation Controls: Set target columns, Set constraints, Set batch

Bioreactor Model: Inlet Stream, Bioreactor, Output Data (23 columns will be displayed in results)

Cell Culture Properties: Initial Cell Seed Density (0.12 g/L), Initial Product Concentration (0 g/L), umax (0.00025 1/s), xmax (909.25 g/L), ks (150 g/L), alpha (2.89), beta (0.00000123 1/s), gamma (4.99), eta (0.000023411/s)

Basetwo has model templates across various industries



Pharmaceuticals



Specialty
Chemicals



Consumer
Goods



Gas
Processing



Building
Materials

The Basetwo Solution

1 Data Extraction

Extract process, lab, formulation, and chemistry data on processes such as hydration, neutralization, emulsification, saponification, crystallization, etc.



Target Specs

Target properties;
product quality



Process Documentation

Current operational
parameters



Process Data

Temperature, flow
rates, energy
consumption, etc.

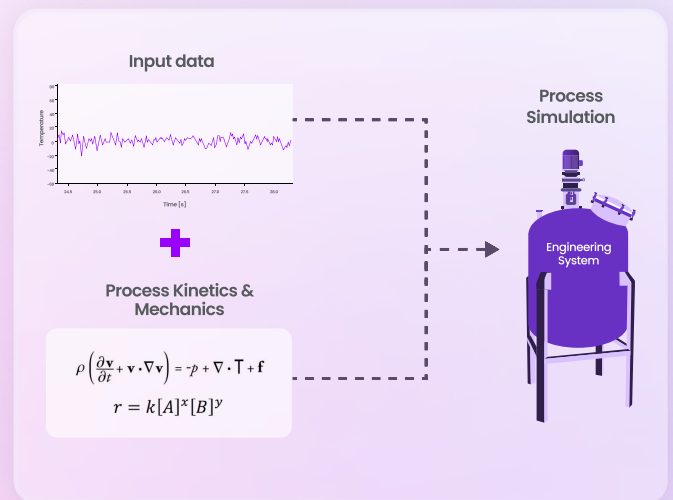


Raw Material & Quality Data

Composition, viscosity,
etc.

2 Simulation of a physical process within a virtual environment

Basetwo leverages models that combine the benefits of traditional physics-driven or thermodynamic models, with the speed and flexibility of data-driven techniques. This allows engineers to rapidly run hundreds of simulations that capture underlying process kinetics and dynamics to predict and optimize process performance across scales.



3 Basetwo runs rapid optimization:

On top of traditional simulation, Basetwo combines physics and AI with optimization algorithms, such as reinforcement learning, to determine the best way to scale-up processes. This “right first time” manufacturing can reduce or replace costly trial runs, improving time to market.

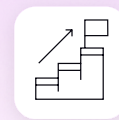
4 The result of real-time process optimization:



Comprehensive process
characterization through
real-time monitoring



Scale-up process conditions
recommended for improved
product quality and yield



Increased time to market
30% faster right first time
manufacturing

Explore how Basetwo can help
reduce costs and increase
efficiency for your team.

[Reach out today!](#)

✉ contact@basetwo.ai