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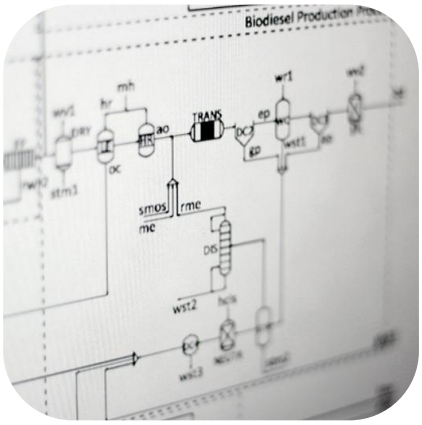
CAPABILITY



Bioplastics Process Modeling

SUPERSTRUCTURE-BASED OPTIMIZATION MODEL FOR BIOPOLYMER PRODUCTION PROCESSES

KEY WORDS

BIOPOLYMER PROCESS MODELING,

SUPERSTRUCTURE OPTIMIZATION,

TECHNO-ECONOMIC ANALYSIS

DESCRIPTION

PLAPIQUI has the following capabilities:

Formulation of dynamic mechanistic models for fermentation process based on mass balances.
Model calibration to specific fermentation conditions through dynamic parameter estimation techniques.
Model validation against experimental data.
Design and optimization of biopolymer production process including:
- Mass and energy balances
- Detailed equipment design
- Cost correlations

Model development using customized software solutions.
Economic assessment of potential processing pathways for the production of PHAs from different carbon sources as raw materials: crude and purified glycerol, corn starch, cassava starch, glucose, sugarcane sucrose, sugarcane molasses.
Parametric sensitivity analysis of key model parameters.

APPLICATIONS

Biopolymer process modeling
Fermentation kinetic modeling
Dynamic process simulation
Parameter estimation
Superstructure optimization
PHA production design
Techno-economic evaluation
Biomass-based polymer production
Feedstock comparison studies
Mass and energy balances
Capital cost estimation
Sensitivity análisis
Sustainable polymer process design
Scale-up assessment

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