

Models...? & Simulation

ASM Matrix Formulation

- Multi-components
- Multi-processes

		Continuity			Process Rate, ρ_j [ML ⁻³ T ⁻¹]
Component →	i	1	2	3	
j Process ↓		X_B	S_S	S_O	
1 Growth		1	$-\frac{1}{Y}$	$-\frac{1-Y}{Y}$	$\frac{\hat{\mu} S_S}{K_S + S_S} X_B$
2 Decay				-1	$-b X_B$
Observed Conversion Rates ML ⁻³ T ⁻¹		$r_i = \sum_j r_{ij} = \sum_j \nu_{ij} \rho_j$			Kinetic Parameters: Maximum specific growth rate: $\hat{\mu}$ Half-velocity constant: K_S Specific decay rate: b
Stoichiometric Parameters: True growth yield: Y		Biomass [M(COD) L ⁻³]	Substrate [M(COD) L ⁻³]	Oxygen (negative COD) [M(-COD) L ⁻³]	

Mass Balance conservation

Check $\Sigma = 0$, like Global Growth equation

$$r_i = q_i \times C_x$$

