

DATA FORM FOR THE DETERMINATION OF ZONE CONCENTRATIONS FROM KS AND INLET/OUTLET DATA

COMPOUND for site specific biorates determination	Methanol	
Influent Flow (m ³ /s)	1	
Inlet Concentration (g/m ³)	2	
Outlet Concentration (g/m ³) - Use value from line 3 as C _i value in column A for final Zone (zone n) in table below	3	
Saturation Coefficient, K _s (g/m ³) From Form 3	4	
Biorate K ₁ (1/s) - Estimate	5	
Number of Zones	6	

Adjust K₁ value (line 5) until Column A, Row (n - line 6) is within +/- 5% of line 2.

Instructions for completion of table: (1) Transfer value from line 3 into row n, column A. (2) Enter data for all zones into columns B, D, E, G, H, & K. (3) Beginning with row n, perform calculations for columns F, I, J, L, M, N, & O for that zone only. (4) Calculate row n-1, column A using results from previous row (i.e., J_{i-1}, M_{i-1}, N_{i-1}). (5) Repeat steps (3) and (4) until a row of calculations has been completed for each zone. (6) row n - line 6, column A is the calculated inlet concentration.

	A	B	C	D	E	F	G	H
	C _i					line 5 * A * C * D		
Zone	(J _{i-1} + N _{i-1})/O _{i-1}	Temp	(1.045) ^(B-25)	biomass	Volume	*E/(line 4+ A)	KL	Area
Number	g/m ³	C		g/m ³	m ³	g/s	m/s	m ²
n								
n-1								
n-2								
n-3								
n-4								

	I	J	K	L	M	N	O
		Reaction		(1+BM _i + BM _{i+1})	BM _{i+1} * C _{i+1}	Flux	(1+BM _i) *
Zone	A * G * H	F+I	Backmix	*C _i * line 1	*line1	L-M	line1
Number	g/s	g/s	BM _i	g/s	g/s	g/s	g/s
n							
n-1							
n-2							
n-3							
n-4							

The backmix ratio, Bm_i, is the ratio of (the return flow from the zone back to the upstream zone) to (the total inlet flow into the unit). This approach assumes that the flow is sequential through the different zones.