

**DATA FORM FOR THE ESTIMATION OF K<sub>1</sub>  
FROM FULL SCALE UNIT DATA WITH BIODEGRADATION**

NAME OF THE FACILITY for site specific biorate determination		example
COMPOUND for site specific biorate determination		<i>methanol</i>
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the full-scale bioreactor.	1	0.075
VOLUME of full-scale system (cubic meters)	2	100000
AREA of the liquid surface of the full-scale system (square meters)	3	10000
INLET CONCENTRATION of compound (g/m <sup>3</sup> or ppmw)	4	100
EXIT CONCENTRATION of compound (g/m <sup>3</sup> or ppmw)	5	5
ESTIMATE OF K <sub>L</sub> from Form II (m/s)	6	0.00001
FLOW RATE of waste treated in the full-scale bioreactor (m <sup>3</sup> /s)	7	0.146
<b>CALCULATION OF THE ESTIMATE OF K<sub>1</sub> FROM FIELD DATA</b>		
REMOVAL WITH BIODEGRADATION (g/s) Subtract the number on line 5 from the number on line 4 and multiply the results by the number on line 7. Enter the results here.	8	13.87
[K <sub>L</sub> A] ESTIMATE (m <sup>3</sup> /s) Multiply the number on line 3 by the number on line 6. Enter the results here.	9	0.10
[K <sub>1</sub> B V + K <sub>L</sub> A] (m <sup>3</sup> /s) Divide the number on line 8 by the number on line 5. Enter the results here.	10	2.774
[K <sub>1</sub> B V] ESTIMATE (m <sup>3</sup> /s) Subtract the number on line 9 from the number on line 10. Enter the results here.	11	2.674
Product of B and V. Multiply the number on line 1 by the number on line 2 and enter the results here.	12	7500
K <sub>1</sub> ESTIMATE (L/g MLVSS-hr) Divide the number on line 11 by the number on line 12 and multiply by 3600 s/hr. Enter the results here.	13	1.28352