Form V **DATA FORM FOR THE ESTIMATION OF K1 FOR EPA METHOD 304A OR FROM A COVERED, VENTED BIODEGRADATION UNIT.**

For a general discussion of this approach, see Air Emissions Models for Waste and Wastewater, EPA-453/R-94-080A, Chapter 5, November 1994

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the unit.	1		0.075
VENT RATE of total gas leaving the unit (G, m^3/s)	2		1
TEMPERATURE of the liquid in the unit (deg. C)	3		25
INLET CONCENTRATION of compound (g/m^3 or ppmw)	4		100
EXIT CONCENTRATION of compound (g/m^3 or ppmw)	5		5
ESTIMATE OF Henry's law constant (H, g/m^3 in gas / g/m^3 in liquid). Obtained from Form IX	6		0.00021
AREA OF REACTOR (m^2)	7		3400
VOLUME OF REACTOR (m^3)	8		10000
FLOW RATE of waste treated in the unit (m^3/s)	9		0.146
CALCULATION OF THE ESTIMATE OF K1			
TOTAL REMOVAL (g/s) Subtract the number on line 5 from the number on line 4 and multiply the result by the number on line 9. Enter the results here.	10		13.870000
[H G] ESTIMATE (m^3/s) Multiply the number on line 2 by the number on line 6. Enter the results here.	11		0.000021
[K1 B V + H G] (m^3/s) Divide the number on line 10 by the number on line 5. Enter the results here.	12		2.774000
[K1 B V] ESTIMATE (m^3/s) Subtract the number on line 11 from the number on line 12. Enter the results here.	13		2.773979
If the number on line 11 is greater than the number on line 13, this procedure cannot be used to demonstrate that the compound is biodegradable. Do not complete lines 14 and 15.			
Product of B and V. Multiply the number on line 1 by the number on line 8 and enter the results here.	14		750.000000
K1 ESTIMATE (L/g MLVSS-hr) Divide the number on line 13 by the number on line 14 and multiply by 3600 s/hr. Enter the results here.	15		13.315099
EQUIVALENT KL. Divide the number on line 11 by the number on line 7. Enter the results on line 16.	16		6.18e-09

This form may be used to estimate the Equivalent KL with input data for lines 2, 6, and 7.