

**DATA FORM FOR THE  
ESTIMATION OF THE EPA METHOD 304B FIRST ORDER BIORATE CONSTANT**

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|--|----|-----------------|
| NAME OF THE FACILITY for site specific biorate determination   |    | Example         |
| COMPOUND for site specific biorate determination   |    | <i>METHANOL</i> |
| INLET CONCENTRATION used in EPA METHOD 304B  | 1  | 78              |
| EXIT CONCENTRATION measured by EPA METHOD 304B   | 2  | 6               |
| BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the bench scale bioreactor.   | 3  | 0.075           |
| TEMPERATURE OF BIOREACTOR (deg. C)   | 4  | 35              |
| VOLUME of EPA METHOD 304B bench scale bioreactor (L)   | 5  | 6               |
| FLOW RATE of waste treated in the bench scale bioreactor (L/hr)  | 6  | 0.146           |
| <b>CALCULATIONS FROM EPA METHOD 304B DATA MEASUREMENTS</b>   |    |                 |
| RESIDENCE TIME (hr) Divide the number on line 5 by the number on line 6 and enter the results here.                              | 7  | 41.10           |
| Concentration Decrease ( $\text{g/m}^3$ ). Subtract the number on line 2 from the number on line 1 and enter the results here.   | 8  | 72.00           |
| BIORATE ( $\text{g/m}^3\text{-hr}$ ). Divide the number on line 8 by the number on line 7 and enter the results here.            | 9  | 1.75            |
| Product of concentration and biomass. Multiply the number on line 2 by the number on line 3 and enter the results here.          | 10 | 0.45            |
| BIORATE K1 (L/g bio-hr) Divide the number on line 9 by the number on line 10 and enter the results here.                         | 11 | 3.89            |
| Temperature adjustment. Subtract 25 deg. C from the number on line 4 and enter the results here.                                 | 12 | 10              |
| Temperature adjustment factor. 1.046 is the default temperature adjustment factor. Enter the temperature adjustment factor here. | 13 | 1.046           |
| Biorate temperature ratio. Raise the number on line 13 to the power of the number on line 12.                                    | 14 | 1.567           |
| BIORATE K1 at 25 deg. C (L/g MLVSS-hr) Divide the number on line 11 by the number on line 14 and enter the results here.         | 15 | 2.48            |

Note: With Monod kinetics, use  $K_{\max}=1000$  to convert the Monod kinetics to first order. If a different temperature adjustment factor than the default is entered on line 13, make sure that the adjustment factor used in the calculations agrees with the value entered on line 13.