

### DATA SHEET: BIOCHEMICAL OXYGEN DEMAND (BOD<sub>3</sub> at 30°C)

pH value : \_\_\_\_\_

NaOH or H<sub>2</sub>SO<sub>4</sub> volume : \_\_\_\_\_

| Time,<br>(day) | DO <sub>o</sub> |    | DO <sub>t</sub> |    | BOD <sub>t</sub><br>( mg/L) | (t/BOD <sub>t</sub> ) <sup>1/3</sup> |
|----------------|-----------------|----|-----------------|----|-----------------------------|--------------------------------------|
|                | mg/L            | °C | mg/L            | °C |                             |                                      |
| 1              |                 |    |                 |    |                             |                                      |
| 2              |                 |    |                 |    |                             |                                      |
| 3              |                 |    |                 |    |                             |                                      |

$$BOD_t = \frac{DO_i - DO_t}{P}$$

Where:

|                  |                                                                                                                          |
|------------------|--------------------------------------------------------------------------------------------------------------------------|
| BOD <sub>t</sub> | Biochemical oxygen demand, mg/L                                                                                          |
| DO <sub>i</sub>  | Initial DO of the diluted waste water sample about 15 min. after preparation, mg/L                                       |
| DO <sub>t</sub>  | Final DO of the diluted wastewater sample after incubation for <i>t</i> days, mg/L                                       |
| P                | Dilution factor<br><br>$P = \frac{V_s}{V_s + V_{DW}}$<br>$V_s$ = Volume of sample<br>$V_{DW}$ = Volume of Dilution Water |

### QUESTION:

1. Plot (t/BOD<sub>t</sub>)<sup>1/3</sup> versus time (day)
2. From the graph, determine the intercept (A) and slope (B) and calculate the K value where K = 2.61 (B/A).
3. Calculate value of BOD<sub>5</sub> at 20°C.
4. Discussion and conclusion on the results.