B. Calculate the gas phase mass transfer coefficient, k_G, using the following procedure from Reinhardt:[5,6]

Calculate the viscosity of air, μ_a, as follows, (g/cm.s):
$\mu_a = 4.568 \times 10^{-7}\ T + 1.7209 \times 10^{-4}$ _____

Calculate the Reynold's number as follows:
$R_e = d^2 w \rho_a / \mu_a$ _____

Calculate power to impeller, P_I, as follows, ($ft.lb_f/s$):
$P_I = 0.85\ (POWR)\ 550/N$ _____

Calculate the power number, p, as follows:
$p = P_I\ g_c / (\rho_L d^{*5}\ w^3)$ _____

Calculate the Schmidt number, Sc_G, as follows:
$Sc_G = \mu_a / \rho_a D_a$ _____

Calculate the Fronde number, F_r, as follows:
$F_r = d^* w^2 / g_c$ _____

Calculate k_G as follows:
$k_G = 1.35 \times 10^{-7}\ R_e^{1.42}\ p^{0.4}\ Sc_G^{0.5}\ F_r^{-0.21}\ D_a MW_a / d$, (m/s) _____

C. Calculate the partition coefficient, Keq, as follows:
$Keq = H/[R(T+273)]$ _____

D. Calculate the overall turbulent mass transfer coefficient, K_t, as follows, (m/s):
$1/K_t = 1/k_L + 1/Keq.k_G$ _____

E. Calculate the quiescent mass transfer coefficient, K_q, for the impoundment using Form VII.

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F. Calculate the overall mass transfer coefficient, KL, for the impoundment as follows:

$$KL = \frac{K_q(A-A_t) + K_t A_t}{A}$$ _____

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[5]GCA Corporation. Emissions Data and Model Review for Wastewater Treatment Operations. Draft Technical Note. Prepared for U.S. Environmental Protection Agency. Contract No. 68-01-6871, Assignment 49. August 1985. p. 4-3.

[6]Reinhardt, J. R. Gas-Side Mass-Transfer Coefficient and Interfacial Phenomena of Flat-Bladed Surface Agitators. Ph.D. dissertation, University of Arkansas, Fayetteville, Ar. 1977. p. 48.