

Corrections needed to “Environmental Transport Processes” [updated: July 28, 2018]

Page Change

- 16 In Figure for problem 1.7, change “ $Q_v = 10 \text{ m}^3 \text{ min}^{-1}$ ” to “ $Q_v = 1.1 \text{ m}^3 \text{ min}^{-1}$ ”
- 34 Change the first equation in the example from “ $x_C \gamma_{Cw} = c_{Cw,eq} x_C \gamma_{Cc}$ ” to “ $x_C \gamma_{Cw} = x_{Cc} \gamma_{Cc}$ ”
- 39 Problem 2.5, Line 4, change from “ $K_{equation}$ ” to “ K_{eq} ”
- 49 In eq. 3-14, change “ T/T_t ” to “ T_v/T ”
- 99 Two lines below eq. 5-15, change “ $y_{C,Equation}$ ” to “ $y_{C,eq}$ ”
- 100 First line, change “ $0.01 \text{ cm}^2 \text{ s}^{-1}$ ” to “ $0.1 \text{ cm}^2 \text{ s}^{-1}$ ”
Second equation change “ $0.01 \text{ cm}^2 \text{ s}^{-1}$ ” to “ $0.1 \text{ cm}^2 \text{ s}^{-1}$ ”. The rest of the example is correct.
- 102 Eq 5-25, the last term denominator should contain L not z , so it is $\frac{c_{Cw,eq} \sinh(\sigma_s Z)}{\tanh(\sigma_s L)}$
- 103 Eq. 5-31, Should be $J_{Cw,z} \Big|_{z=0} = -D_{Cw} \sigma_s \frac{c_{Cw,\infty} - [c_{Cw,eq} \cosh(\sigma_s L)]}{\sinh(\sigma_s L)}$
- 112 Eq 5-66, the sign of the last term should be positive, or $+ D \frac{dc}{dr} 4\pi r^2 \Big|_{r+\Delta r}$
- 115 Eq. 5-79, the first term after the D/r term in the numerator should be dc/dr (not dc/dz).
- 119 Problem 5.17, first line change “with Equation 5-25” to “with Equation 5-24”.
- 138 Problem 6.7, line 4, change “ $10^{-6} \text{ m}^2 \text{ s}^{-1}$ ” to “ $10^{-6} \text{ cm}^2 \text{ s}^{-1}$ ”
- 145 Eq. 7-11 is missing a term in the second part, so change: $G(r) = \frac{du}{dr}$ to $G(r) = \frac{du}{dr} - \frac{u}{r}$. The rest of the equation is correct.
- 146 Eq. 7-12 as an incorrect sign in the integral. Change the term $\left(\frac{du}{dr} + \frac{u}{r}\right)$ to $\left(\frac{du}{dr} - \frac{u}{r}\right)$. The rest of the equation is correct.
- 160 Eq. 7-50, the numerator of the second term should contain 4 rather than 2. The rest of the equation is correct.
- 166 Add to the end of question 7.10, part c, “for a swarm of bubbles”.
- 166 Add to the end of question 7.12, part c “and a concentration of 5 mg L^{-1} ”
- 166 Problem 7.14, second line, change “(fixed)” to “(rotating)”
- 187 Two lines above Eq 8-61, change “in an aggregate” to “per volume of aggregate”
- 191 Problem 8.6, the floc density is wrong, it should be $\rho_f = 1.004 \text{ g cm}^{-3}$.
- 199 The denominator of Eq. 9-12 is missing $Y_{X/c}$, and should be: $R_{b1} = \frac{\mu_{\max} X_{Cb}}{Y_{X/c} K_c} = -k_1 c_{Cb}$
- 214 4 lines above Section 9.6, change – sign to + sign, to read: $c_n = c_0 / (1 + k_1 \tau)^n$
- 231 = sign missing, change to “ $10^3 \text{ Wh} = 860 \text{ kcal}^{-1}$ ”
- 249 4th line below eq 10-64, change to “ $(4L/R) \gg Pe \gg 6.9$, where $Pe = \bar{u}R/D$ ”.
2nd line below eq. 10-65, change “ $\bar{u} = 1 \text{ cm s}^{-1}$ ” to “ $u_{\max} = 1 \text{ cm s}^{-1}$, where $\bar{u} = 0.5 u_{\max}$ ”.
- 257 Table 10.1, change dispersion coefficient column headings from “ E_L ” and “ E_t ” to “ E_L/D ” and “ E_t/D ”
- 270 Eq. 11-18, the coefficient should be 4.4 not 0.44.
- 288 Second sentence from the bottom, change Equation “11-78” to “11-72”.
Eq. 11-74, change the coefficient from “0.92” to “0.31”
- 290 Problem 11.9, the 0.8 exponent is missing to the b_e term; the equation should be: $b_e = 0.75(\rho_c^0)^{0.8}$
- 298 Eq. 12-29, the last term, change “ Γ ” to “ γ ”

- 319 Line above eq. 12-93, change from “Sh⁺ as” to “Sh⁺, if $d_n=d_g$, as”
Caption of Table 12.5, the subscripts on d should be changed from n to g, so the dimensionless numbers should be defined as: “Sh⁺ = $k_w d_g^2/Dn_{Nw}$ ”, and “Re = Ud_g/ν_w ”.
- 325 Eq. 12-107 should have additional parentheses
$$Sh^+ = a_{aw}d_g[(0.023 \pm 0.014) Sc^{1/2} + (0.85 \pm 0.65) Re^{(0.86 \pm 0.34)} Sc^{1/2}]$$
- 359 Problem 13.4, line 7, change “b [cm g⁻¹]” to “b [cm]”.
Line 8, change “Verify that the total mass is in the” to “Calculate the total mass in the”.
- 381 Eq. 14-59, there is no minus sign, so it should be “ $t_{1/2} = \ln 2/b_{sh}$.”
In Table 14.2, there is also no minus sign for this equation.
- 398 Figure 14.16 caption, change the particle size from “ $d_p = 10 \mu\text{m}$ ” to “ $d_p = 20 \mu\text{m}$ ”.
- 399 First line below eq. 14-88, change “ $d_p = 10 \mu\text{m}$ ” to “ $d_p = 20 \mu\text{m}$ ”
Second line below eq. 14-88, change “5600” to “2100”.
- 416 Example 15.1, denominator of η_s , change from “18 $\nu \nu U$ ” to “18 $\nu \nu U$ ”
- 419 4th line below Eq. 15-38, change “ b_H ” in equation to “ $b_H^{1/3}$ ”
- 425 The diffusivity should have units of cm²/s, so “ $D_{pw}[\text{cm}^2]$ ” to “ $D_{pw}[\text{cm}^2/\text{s}]$ ”
The font size of the Peclet number calculation should be reduced
The last terms of the “volume distribution in the effluent” should be changed from “ $\exp[-1.31 \times 10^{-5} dp^{-2/3} (100 \text{ cm})]$ ” to “ $\exp[-1.31 \times 10^{-3} dp^{-2/3} (100 \text{ cm})]$ ”, and from “ $\exp(-1.31 \times 10^{-3} dp^{-2/3} [\mu\text{m}])$ ” to “ $\exp(-1.31 \times 10^{-1} dp^{-2/3} [\mu\text{m}])$ ”
- 454 The density of water in Table A3.2 should be indicated as “ $\rho_w [\text{kg L}^{-1}]$ ” (Not kg m^{-3})