[Elements of Chemical Reaction Engineering]

[Sixth EDITION]

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Corrections for [Dec 15, 2020]

Pg	Error	Correction
xxiii	2nd line below Figure I-4 Reads: programmed and read for use	 Should read: programmed and ready for use
xxxvii	Section F, Link to T2 Laboratory has a space or line break after (1) causing the link to NOT work. Reads: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(1) PS-T2.pdf*)	 Should read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(1)PS-T2.pdf*)

xxxvii	Section F, Link to Monsanto incident has a space or line break after pdf/ causing the link to NOT work. Reads: (http://umich.edu/~safeche/assets/pdf/ courses/Problems/CRE/344ReactionEngrModule(2)PS-Monsanto.pdf)	 Should read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(2)PS-Monsanto.pdf*)
xxxi	3rd line from top) Reads: in section 3.5	 Should read: in section 3.4
Ch1		
Pg	**Error**	**Correction**
2	Top of Figure 1-1 Reads: 90_2	 Should read: $9O_2$
2	First paragraph Reads: These examples, which can be found either in the text or as Web modules, include modeling smog in the Los Angeles (L.A.) basin (Chapter 1 Web module), the digestive system of a hippopotamus (Chapter 2 Web module) on the CRE Web site, (*www.umich.edu/~elements/6e/index.html*), and molecular CRE (Chapter 3 Web module). Also shown are the manufacture of ethylene glycol (antifreeze), where three of the most common types of industrial reactors are used (Chapters 5 and 6), and the use of wetlands to	 Should read: These examples, which can be found either in the text or as Web modules (*www.umich.edu/~elements/6e/index.html*), include modeling smog in the Los Angeles (L.A.) basin (Chapter 1 Web module), the digestive system of a hippopotamus (Chapter 2 Web module), molecular CRE (Chapter 3 Web module), use of wetlands to degrade toxic chemicals (Chapter 6 on the CRE Web site); pharmacokinetics of cobra bites (Chapter 8 Web module); free-radical scavengers used in the design of motor oils (Chapter 9); enzyme

	degrade toxic chemicals (Chapter 7 on the CRE Web site). Other examples shown are the solid–liquid kinetics of acid–rock interactions to improve oil recovery (Chapter 7); pharmacokinetics of cobra bites (Chapter 8 Web module); free-radical scavengers used in the design of motor oils (Chapter 9); enzyme kinetics (Chapter 9) and drug delivery pharmacokinetics (Chapter 9 on the CRE Web site); heat effects, runaway reactions, and plant safety (Chapters 11–13); and increasing the octane number of gasoline and the manufacture of computer chips (Chapter 10).	kinetics (Chapter 9) and drug delivery pharmacokinetics (Chapter 9 on the CRE Web site). Also shown in Figure 1-2 are the manufacture of ethylene glycol (antifreeze), where three of the most common types of industrial reactors are used (Chapters 5 and 6). Other examples shown are heat effects, runaway reactions, and plant safety (Chapters 11–13); and increasing the octane number of gasoline and the manufacture of computer chips (Chapter 10).
3	Figure 1-2 Reads: **Wetlands Remediation of Pollutants (Ch. 7 on CRE Web site)**	 Should read: **Wetlands Remediation of Pollutants (Ch. 6 on CRE Web site)**
6	Example 1-1, 2nd Paragraph Reads: is as 10 $mol/m^3 \bullet s$.	 Should read: is 10 $mol/m^3 \bullet s$.
7	Last paragraph Reads: rate law for $-r_A$ for the reaction	 Should read: rate law, $-r_A$ for the reaction
8	Figure 1-3 Reads: F_j0	 Should read: F_{j0}
11	Figure 1-5(a) Reads:	 Should read:

	Simple batch homogeneous batch reactor (BR).	Simple homogeneous batch reactor (BR).
12	Section 1.4 Continuous-Flow Reactors Reads: for Chapter 1	 Should read: of Chapter 1
14	Above Equation (1-7) Reads: it takes the familiar form known sometimes called the design equation for a CSTR	 Should read: it takes the familiar form which is sometimes called the design equation for a CSTR
15	Below Figure 1-8 Reads: velocity as in turbulent flow	 Should read: velocity in turbulent flow
17	Paragraph above Figure 1-12 Reads: Lets again	 Should read: Let's again
20	Above Equation (1-18) Reads: the design equation	 Should read: the design equation is
22	Last Equation, bottom of page Reads: $= 0.01\ C_0$	 Should read: $= 0.01\ C_{A0}$
23	2nd to last paragraph Reads: $C_A = 10\ mol/dm^3$.	 Should read: $C_{A0} = 10\ mol/dm^3$.
23	Last paragraph	

	Reads: profiles from species A	Should read: profiles for species A
29	Q1-4_A Reads: of A to 1% if its …	 Should read: of A to 1% of its …
30	Q1-6_A Reads: those in Table 1-1?	 Should read: those in Table 2-6?
30	Q1-11_A Reads: the **How to Study**	 Should read: choose the **How to Study**
33	P1-6_B Reads:) 0.5 mol/dm^3.	 Should read:) = 0.5 mol/dm^3.
33	P1-8_B Reads: $-r = kC_A^2$	 Should read: $-r_A = kC_A^2$
Ch2		
Pg	**Error**	**Correction**
49	Equation (E2-2.2) Reads: = 218 m^3	 Should read: = 218 dm^3.
49	Below Equation (E2-2.2) Reads:	 Should read:

	(218 m^3)	(218 dm^3)
51	Figure E2-3.1(b) Reads: Table 2-2.1.	 Should read: Table 2-2.
54	**For Reactor 2,** Reads: $\left(\frac{F_{A0}}{-r_A}\right)_{X=0.8}$	 Should read: $\left(\frac{F_{A0}}{-r_{A2}}\right)_{X=0.8}$
65	Example 2–6 (in 2 places) Reads: 2-3	 Should read: 2-2
68	Table S2-1 heading Reads: PBR TERMS OF CONVERSION	 Should read: PBR IN TERMS OF CONVERSION
70	Question Q2-3 Reads: Q2-3	 Should read: Q2-3_A
71	Q2-4 Reads: Q2-4	 Should read: Q2-4_A
71	Q2-4 Reads: Appendix I.2	 Should read: Web Appendix I.3
71	Problem P2-2_A part (d)	

	Reads: 2.40 CSTR	Should read: 2.40 m^3 CSTR
71	P2-3_B Reads: volume of 1.6 m^3	 Should read: volume of 1.0 m^3
72	P2-4_B Reads: stillbene	 Should read: stilbene
74	P2-11 Reads: P2-11	 Should read: P2-11_B
74	P2-11 Reads: 80% for	 Should read: 80% conversion for
Ch3		
Pg	**Error**	**Correction**
76	Near bottom of the page Reads: Problem P9-5_A	 Should read: Problem P9-5_B
78	Margin note, under Summary Reads: $O_2 \rightarrow 2NO_2$	 Should read: $O_2 \underset{\leftarrow}{\overset{\rightarrow}{}} 2NO_2$
82	Table 3-1, B., (2) Reads:	 Should read:

	$-r_{CNBr} = kC_{CNBr}C_{CH_3NH_2}$	$-r_{CNBr} = k[C_{CNBr}\ C_{CH_3NH_2} - C_{CH_3Br}\ C_{NCNH_2}/K_c]$
83	Last line on the page Reads: ethanol	 Should read: ethane
84	Near bottom of the page Reads: Section 9.1.1	 Should read: Section 9.1.2
84	Last equation on the page Reads: $\approx k_3C_AC_M$	 Should read: $\approx k_1C_AC_M$
85	4th paragraph Reads: The specific reaction rate k has units of	 Should read: The specific reaction rate k’ has units of
85	Margin note Reads: Relating rate per unit volume and rate by per unit mass of catalyst	 Should read: Relating rate per unit volume and rate per unit mass of catalyst
86	1st paragraph Reads: concentration and in (mole/dm^3) and the rate, $-r_T$ in terms of reactor volume, that is,	 Should read: concentration (mole/dm^3) and the rate, $-r_T$ (in terms of reactor volume) that is,
95	1st equation Reads: Fraction with energies to between	 Should read: Fraction with energies between

98	Figure E3-1.2, caption on l.h.s. Reads: K (sec^{-1})	 Should read: k (sec^{-1})
98	Below Equation (E3-1.2) Reads: and Equation (3-20),	 Should read: and Equation (3-24),
103	Paragraph before section 3.5 Reads: (cf. LEP P3-1_A (b))	 Should read: (cf. LEP P3-1_B (b))
104	Table 3-2, Batch line Reads: (2-9)	 Should read: (2-7)
104	Table 3-2, PBR line, move subscript A directly under prime. Reads: $\frac{dX}{-r'_A}$	 Should read: $\frac{dX}{-r'_A}$
104	Equation (3-26) Reads: (3-26)	 Should read: (3-33)
104	Last paragraph Reads: Occupation	 Should read: Occupational
107	Equation in middle of the page, r.h.s. under "Second order"	

	Reads: $-r_{C_2H_6} = k_{C_2H_6}($	Should read: $-r_{C_6H_6} = k_{C_6H_6}($
107	Equation in middle of the page, under "Homogeneous" Reads: $\rightarrow CH_4 + CH_2$	 Should read: $\rightarrow CH_4 + CO$
107	Last paragraph Reads: $-r_{C_2H_6} = k_{C_2H_6}$	 Should read: $-r_{C_6H_6} = k_{C_6H_6}$
111	P3-2_B, Part (a) Reads: k at 312.5 K	 Should read: k at 313 K
112	P3-7_A, 2nd line Reads: temperature follow	 Should read: temperature are given below
Ch4		
Pg	**Error**	**Correction**
135	Denominator in equation in the middle of the page (below equation (4-27)) Reads: $1 + K_BP_{A0}X + K_BP_{A0}(1-X)$	 Should read: $1 + K_BP_{A0}X + K_TP_{A0}(1-X)$
140	Table E4-5.3, Species Reads: N_2O_2	 Should read: N_2O_4

141	Middle of the page Reads: This solution is also shown in Table E4-5.3	 Should read: This solution is also shown in Table E4-5.2.
141	Last line on the page, should continue sentence on the following page Reads: that for a flow system (Equation (E4-5.11)) for gas-phase reactions.	 Should read: that for a flow system (Equation (E4-5.11)). For gas-phase reactions, if we substitute the values for C_{A0}, K_C, ε, and $k_A = 0.5\ min^{-1}$ in Equation (E4-5.11), we obtain $-r_A$ solely as a function of X for the flow system.
142	1st line, no new paragraph, no new sentence. The sentence is continued from previous page as noted above, page 141	
143	Line above "***Analysis***" Reads: Problem P4-1A (b)	 Should read: Problem P4-1_A (b)
146	1st line on the page Reads: The *stoichiometric table* for the reaction given by Equation (S4-1) being carried out in a flow system is	 Should read: A *stoichiometric table* for reaction given by Equation (S4-1) for a flow system is shown below in steps 2 through 6
147	Numerator on r.h.s. in last equation, (S4-14) Reads: $kP_{A0}(1-X)p$	 Should read: $k_AP_{A0}(1-X)p$
149	Question Q4-5_A Reads:	 Should read:

	Example 4-3. Under what conditions will the concentration of the inert nitrogen be constant? Plot Equation (E4-5.2) in terms of $(1/-r_A)$ as a function of X up to value of X = 0.99. What did you find?	**Example 4-3.** Under what conditions will the concentration of the inert nitrogen be constant?
149	Problem P4-1_A, part (b), part (v), denominator Reads: X_{er}	 Should read: X_{ef}
150	P4-3_A, Part (c) Reads: k_A = 2 $dm^6/mol \bullet s$	 Should read: k_A = 2 $dm^3/mol \bullet s$
150	P4-4_B Reads: The elementary gas reaction	 Should read: The elementary gas phase reaction
150	P4-4_B, Part (f) Reads: k_A = 2 $dm^6/mol \bullet s$	 Should read: k_A = 2 $dm^6/mol^2 \bullet s$
152	P4-8_B, Part (b) Reads: of each for	 Should read: for each of
153	P4-11_B Reads: reaction is carried	 Should read: reaction carried
Ch5		
Pg	**Error**	**Correction**

163	Paragraph above Table 5-3 Reads: 24-hour reaction,	 Should read: 24-hour reaction time,
164	1st paragraph at top of page Reads: ethane.	 Should read: ethylene oxide.
165	Bottom of page (below Table E5-1.2) Reads: is 55 moles per	 Should read: is 55.5 moles per
165	Equation, 3rd from Bottom of page, in denominator Reads: 55 mol/dm^3	 Should read: 55.5 mol/dm^3
165	Equation, 3rd from Bottom of page Reads: = 55	 Should read: = 55.5
167	Bottom of page, last line Reads: k (s^{-1}).	 Should read: k (min^{-1}).
175	Equation in middle of the page Reads: $k_1 = \frac{0.311}{min} \times \ldots$	 Should read: $k = \frac{0.311}{min} \times \ldots$
184	3rd paragraph Reads:	 Should read:

	pipe, 0.81 ft^3,	pipe, 0.82 ft^3,
185	1st paragraph Reads: 0.81 ft^3	 Should read: 0.82 ft^3
185	1st paragraph Reads: 81 ft^3	 Should read: 82 ft^3
186	Below Equation (5-19) Reads: (Table 3-5)	 Should read: (Table 4-3)
189	Equation (4-22) near bottom of page Reads: (4-22)	 Should read: (4-21)
192	Equation (E5-4.3) in denominator Reads: (0.413 $lb_m ft^3$)	 Should read: (0.413 lb_m/ft^3)
200	Equation (5-44), change in two places Reads: Equation (5-44)	 Should read: Equation (5-45)
200	Sixth Equation Reads: α = 0.037 …	 Should read: α_2 = 0.037 …
200	Seventh Equation Reads:	 Should read:

	= 0.093	= 0.096
201	Equation (E5-6.4) move inside bracket Reads: $\left(1-\frac{\alpha W}{2}\right)=\left(1-\frac{(0.0164\ \text{kg}^{-1})}{2}\right)(27.5\ \text{kg})=0.77$	 Should read: $\left(1-\frac{\alpha W}{2}\right)=\left(1-\frac{(0.0164\ \text{kg}^{-1})}{2}(27.5\ \text{kg})\right)=0.77$
203	Start of 2nd paragraph Reads: Ethylene and oxygen are	 Should read: Ethylene and oxygen (as air) are
203	Last sentence in paragraph Reads: The density of the 1/4-in. catalyst particles is 1925 kg/m^3, the bed void fraction is 0.45, and the gas density is 16 kg/m^3. The rate law is	 Should read: The density of the 1/4-in. catalyst particles is 1925 kg/m^3, the bed void fraction is 0.45, and the gas density of 0.413 lbm/ft^3 given in Example 5-4 converts to 6.6 kg/m^3. The rate law is
203	Paragraph above solution Reads: 25.8 atm/m	 Should read: 25.8 kpa/m
205	In the LEPs paragraph Reads: (Equations (5-7.11)–(5-7.14)) into	 Should read: (Equations (E5-7.11)–(E5-7.14)) into
218	P5-1$_B$, part (e), part (i) Reads: k’ = 0.0035 s^{-1}.	 Should read: k’ = 0.0074 s^{-1}.
221	P5-9$_A$, part (e)	

	Reads: 90% conversion? Referring to Table 1-1, estimate the cost of the batch reactor.	Should read: 90% conversion? Referring to Table 2-6, estimate the cost of the batch reactor.
221	P5-11_B Reads: (***Ans:*** X = 0.83)	 Should read: (***Ans:*** X = 0.856)
224	P5-19_B Reads: 500 lb m/h of pure A	 Should read: 500 lbm/hr of pure A
226	P5-24_B Reads: … – OOH + CH_3 …	 Should read: … – OH + CH_3 …
Ch6		
Pg	**Error**	**Correction**
230	1st paragraph Reads: Steps ④ and ⑤ are used	 Should read: Steps ④ is used
230	1st paragraph, insert Step ⑤ in 2nd to last line Reads: the rate law to the molar flow rates.	 Should read: the rate law to the molar flow rates. Step ⑤ is used to relate the pressure drop to the molar flow rates.
235	Example 6-1 Reads: Nitrous oxide (NO) gas is used by a number of dentists on their patients (the author being one)	 Should read: Nitric oxide (NO) gas is used to treat acute respiratory distress syndrome as it can improve

	to eliminate pain during drilling and tooth extraction. Nitrous oxide can	oxygenation by selectively improving blood flow to healthy lung segments. Nitric oxide can
237	Equation (4-17) Reads: C_{Aj} =	 Should read: C_j =
237	Equation below **5. Evaluate:** Reads: 0.286 $\frac{\text{mol}}{\text{dm}^3}$	 Should read: 0.283 $\frac{\text{mol}}{\text{dm}^3}$
237	Equation below **5. Evaluate:**, in the numerator Reads: 0.286 mmol	 Should read: 0.283 mmol
241	Paragraph above Equation (6-4) Reads: W_B in (mol/m^2/s)	 Should read: W_B (in mol/m^2/s)
242	2nd paragraph, line above Equation (6-5) Reads: per volume	 Should read: per unit volume
245	Equation below **6. Parameter evaluation:**, in the denominator Reads: k Pa	 Should read: kPa
248	Paragraph above Equation (6-8) Reads: to steady state	 Should read: to reach steady state

254	Paragraph below 5. Evaluate: Reads: $C_B = C_C, = C_D = 0,$	 Should read: $C_{Bi} = C_{Ci} = C_{Di} = 0,$
254	2nd paragraph below 5. Evaluate: Reads: Equations (E6-3.2)–(E6-3.9)	 Should read: Equations (E6-3.1)–(E6-3.9)
254	3rd paragraph below 5. Evaluate: Reads: cynanamide	 Should read: cyanamide
264	Problem P6-1_B, part (e), part (ii) Reads: pressure drop to atmosphere	 Should read: pressure to drop to atmospheric
264	Problem P6-1_B, part (f), part (i) Reads: Why is the conversion almost negligible below 20 minutes for the values of the initial settings?	 Should read: Why is the conversion almost negligible below 20 minutes when all the variables are set at their minimum values?
265	Problem P6-3_C, r.h.s. of arrows Reads: $C_6H_5COCH_2NC_5H_5Br$	 Should read: $C_6H_5COCH_2NC_6H_5Br$
Ch7		
Pg	**Error**	**Correction**
271	Below Equation (T7-1.6) Reads: (3) above use regression.	 Should read: (3) above using regression.

272	Last sentence in first paragraph. Link has a space or line break after "edu" causing the link to NOT work. Read: http://www.umich.edu /~elements/6e/07chap/pdf/excd5-1.pdf)	 Should Read: http://www.umich.edu/~elements/6e/07chap/pdf/excd5-1.pdf)
275	Example 7-1 Reads: Trityl (A)	 Should read: Trityl chloride (A)
275	Example 7-1, Part (c) Reads: methanol and determine	 Should read: methanol, and determine
276	Example 7-1, solution part (a) Reads: trityl (A)	 Should read: trityl chloride (A)
277	Equation (E7-1.6), numerator Reads: $(44 - 20)\left(\frac{\mathrm{dm}^3}{\mathrm{mol}}\right)$	 Should read: $(45 - 20)\left(\frac{\mathrm{dm}^3}{\mathrm{mol}}\right)$
277	Equation (E7-1.6) Reads: = 0.12	 Should read: = 0.125
277	Example 7-1, solution part (c), 1st equation Reads: 0.12	 Should read: 0.125

277	Example 7-1, solution part (c), 1st equation Reads: = 0.24	 Should read: = 0.25
277	Equation (E7-1.7) Reads: 0.24	 Should read: 0.25
277	Paragraph, ***Analysis:*** Reads: trityl	 Should read: trityl chloride
280	Example 7-2, 1st paragraph Reads: (trityl) (A)	 Should read: (trityl chloride) (A)
280	Example 7-2, Solution, Part (1) Reads: trityl	 Should read: trityl chloride
283	Equation (E7-2.9) Reads: k′ = 0.122	 Should read: k′ = 0.125
283	2nd line under Equation (E7-2.9) Reads: We now set α = 2 and regress again to find k′ = 0.122 $dm^3/mol \cdot min$.	 Should read: We now set α = 2 and use Polymath to regress again to find k′ = 0.125 $dm^3/mol \cdot min$.
283	2nd Equation from the bottom Reads:	 Should read:

	0.122	0.125
283	Last Equation on the page Reads: 0.244	 Should read: 0.25
284	Equation (E7-2.11) Reads: 0.244	 Should read: 0.25
284	2nd line under Equation (E7-2.11) Reads: trityl	 Should read: trityl chloride
284	7th line under Equation (E7-2.11) Reads: k’ = 0.122	 Should read: k’ = 0.125
284	8th line under Equation (E7-2.11) Reads: k = 0.244	 Should read: k = 0.25
286	Last line in 1st paragraph Reads: k = 5 (dm^3/mol).	 Should read: k = 5 (dm^3/ mol · min).
286	Figure 7-7 Reads: k = (dm^3/mol).	 Should read: k = (dm^3/ mol · min).
288	Example 7-3, Equation (E7-2.3) Reads:	 Should read:

	(E7-2.3)	(E7-2.5)
289	2nd to last line on page Reads: We note that the reaction order is the same as that in Examples 7-1 and 7-2; however, the value of k is about 8% larger.	 Should read: We note that both the reaction order and k is same as that in Examples 7-1 and 7-2.
294	Last equation on page Reads: k' P_{CO}	 Should read: k P_{CO}
306	P7-11_A, under Figure P7-11_A Reads: volume V (in cm^3)	 Should read: volume V (in m^3)
Ch8		
Pg	**Error**	**Correction**
310	Equation at bottom of the page Reads: $C_{12}C_{26}$	 Should read: $C_{12}H_{26}$
318	Last paragraph Reads: thus $S_{B/XY} \sim C_A$] also	 Should read: thus $S_{B/XY} \sim C_A$], also
321	Last paragraph Reads: CRE Web site (http://www.umich.edu/~elements/6e/08chap/expanded.html).	 Should read: CRE Web site (*https://demonstrations.wolfram.com/MaximizingSelectivityInTheTrambouzeReactions/*).

329	Equation in middle of page Reads: = 2 – 0.44 – 1.07 =	 Should read: = 2 – 0.43 – 1.09 =
329	Denominator in equation above ***Analysis:*** Reads: 2 – 0.44	 Should read: 2 – 0.43
332	1st Equation (move right bracket) Reads: $\left(2 - 0.78 - 0.75\frac{mol}{dm^3}\right)$	 Should read: $(2 - 0.78 - 0.75)\frac{mol}{dm^3}$
338	1st paragraph Reads: 90% of A is not consumed …	 Should read: 90% of B is not consumed …
338	Figure E8-5.1 Labeling *(labeling needs to be swapped)* Reads: F_B and F_A	 Should read F_A and F_B
343	Figure at bottom of page Reads: $+\frac{17}{2}O_2$	 Should read $+\frac{15}{2}O_2$
344	1st Figure, r.h.s. of arrow Reads: $+CH_4$	 Should read $+2CH_4$

344	Last equation on the page (k_1 should be replaced by k_{1A} and k_2 to be replaced by k_{2A} Reads: $S_{D/U} = \frac{k_1 C_A^2 C_B}{k_2 C_B^2 C_A} = \frac{k_1 C_A}{k_2 C_B}$	Should read $S_{D/U} = \frac{k_{1A} C_A^2 C_B}{k_{2A} C_B^2 C_A} = \frac{k_{1A} C_A}{k_{2A} C_B}$
347	Figure E8-5.2 Labeling *(labeling needs to be swapped)* Reads: F_B and F_D	Should read F_D and F_B
350	Paragraph, **Lower Flammability**… Reads: **Lower Flammability Limit (LFL)**: Below the LFL the mixture will not burn as it is below the lower flammability limit; that is, the mixture is too lean (e.g., insufficient fuel) for combustion.	Should read **Lower Flammability Limit (LFL)**: Below the LFL the mixture will not burn as the mixture is too lean (e.g., insufficient fuel) for combustion.
355	Q8-3_A, part (a) Reads: a completing reaction.	Should read a competing reaction.
362	P8-13_B Reads: Overall mass transfer coefficient k_C = 1.0 dm^3…	Should read Overall mass transfer coefficient for B is k_C = 1.0 dm^3…
362	P8-13_B Reads: k_{3E} = 5.0 dm^3/mol^2 • kg–cat • min	Should read k_{3E} = 5.0 dm^9/mol^2 • kg–cat • min
362	P8-13_B, part (d)	

	Reads: (e.g., k_B, k_{1C}, K_{1C})	Should read (e.g., k_C, k_{1C}, K_{1C})
363	P8-16_B Reads: (Cf. Problem **P3-15_B**)	 Should read (Cf. Problem **P3-16_B**)
363	P8-16_B Reads: Figure P8-16.1.	 Should read Figure P8-16_B.
Ch9		
Pg	**Error**	**Correction**
368	Middle of the page Reads: where the rate law developed in Problem P9-5_B(**b**) is.	 Should read where the rate law developed in Problem P9-4_A(**b**) is.
368	Middle of the page Reads: where the rate law developed in Problem P9-5_B(**c**) is.	 Should read where the rate law developed in Problem P9-5_B(**d**) is.
380	Last paragraph above section 9.2.2 Reads: More information about enzymes can be found on the following two Web sites: *http://us.expasy.org/enzyme/* and *www.chem.qmw.ac.uk/iubmb/enzyme*.	 Should read: More information about enzymes can be found on the following Web site: *http://us.expasy.org/enzyme/.*
385	Paragraph above Table E9-2.2 Reads:	 Should read

	Figure 9-2.1(b).	Figure E9-2.1(b).
386	2nd figure in margin, Lineweaver-Burk Plot Reads: $\frac{1}{C_S}$	 Should read $\frac{1}{S}$
387	1st line Reads: Equation (9-26) can be rearranged in the following forms. For the *Eadie–Hofstee* form	 Should read Equation (9-26) can be rearranged in the *Eadie–Hofstee* form
387	1st line below equation (E9-2.5) Reads: and for the Hanes–Woolf model,	 Should read For the Hanes–Woolf model,
390	2nd line below equation (9-32a), change sub "oh" to sub "zero" Reads: and C_{ureao} = 0.1	 Should read and C_{urea0} = 0.1
390	Line above last equation Reads: Substituting into Equation (9-32)	 Should read Substituting into Equation (9-32a)
391	Figure 9-8 Reads: Log rate of 0_2 evolution (mm_3/min)	 Should read Log rate of O_2 evolution (mm_3/min)
392	Line above equation (9-36) Reads: is also zero	 Should read to make it zero

394	Last paragraph Reads: androgen testosterone, as enzyme that…	 Should read androgen testosterone, an enzyme that…
396	1st paragraph Reads: to the enzyme, it is inactive and cannot …	 Should read to the enzyme, it becomes inactive and cannot …
397	Last paragraph Reads: Figure 9-14 both the slope …	 Should read Figure 9-14 that both the slope …
405	Line below Figure 9-23 Reads: For a number of different bacteria, the constant K_s is very small, with regard to	 Should read For a number of different bacteria, the constant K_s is very small with respect to
407	Paragraph below (9-61) Reads: 310ºK	 Should read 310 K
407	Paragraph below (9-61) Reads: 312ºK	 Should read 312 K
407	Paragraph below (9-61) Reads: 310ºK	 Should read 310 K
408	2nd line below equation (9-64) Reads:	 Should read

	(mass product/volume/time).	(1/time)
409	1st equation Reads: $Y'_{c/s}C + Y'_{p/s}$	 Should read $Y'_{s/c}C + Y'_{s/p}$
410	Paragraph above equation (9-72) Reads: phase is relates to the rate of product formation, r_p	 Should read phase is related to the rate of product formation, r_{pn}
410	Above Equation (9-72) Reads: r_p	 Should read r_{pn}
412	Equation (E9-4.7), numerator Reads: –5.03 – 2.14	 Should read 5.03 – 2.14
412	Equation (E9-4.12) Reads: r_{g1} =	 Should read r_{g2} =
419	Line above Equation (9-90) Reads: Substituting for C_s using Equation (9-68) and rearranging, we obtain	 Should read Substituting for C_s using Equation (9-88) and rearranging, we obtain
419	Line above Equation (9-91) Reads: and (9-54), and set m and r_d to zero to get	 Should read and (9-51), and set m and r_d to zero to get

424	Line in the Closure Reads: PSSH to reactions in such problems as P9-4_B to P9-8_B in order	 Should read PSSH to reactions in problems such as P9-4_A to P9-8_B in order
430	P9-1_A, part (f), part (i) Reads: Vary V_{max} and K_m between…	 Should read Vary V_{max} and K_M between…
430	P9-1_A, part (g) Reads: (ii) Vary the initial concentration for ethanol	 Should read (ii) Vary the initial concentration of ethanol
431	P9-2_A, part (c) Reads: Rederive Equation (9-9) assuming the inert gas M (e.g., N_2) involved is also the reaction with the added steps by	 Should read Rederive Equation (9-9) assuming the inert gas M (e.g., N_2) is also involved in the reaction with the added steps by
431	P9-3_C, part (c) Reads: Use Polymath to find out what happens when $k_1 = 0.0001$, $k_4 = 0.02$, $k_5 = 0.05$, and $k_6 = 0.005$ appropriate units. Write one sentence conclusion.	 Should read Use Polymath to find out what happens when $k_1 = 0.0001$, $k_2 = 0.01$, $k_3 = 0.01$, $k_4 = 0.02$, $k_5 = 0.05$, and $k_6 = 0.005$ in appropriate units. Take initial concentration of CO, H_2O, HCl and O_2 to be 1.0. Write a one sentence conclusion.
432	P9-5_B, part (a) Reads: parts (a), (b), and (c), suggest	 Should read parts (b), (c), and (d), suggest
432	P9-5_B, equation in part (d), numerator	

	Reads: $k_1 C_{H_2} C_{Br}^{3/2}$	Should read $k_1 C_{H_2} C_{Br_2}^{3/2}$
Ch10		
Pg	**Error**	**Correction**
458	Line next to margin figure Reads: The pentane isomerization can be written in generic form as	 Should read: The pentene isomerization can be written in generic form as
471	Paragraph above Figure 10-16 Reads: Figure 10-16 for the case when surface-reaction limit is the limiting step.	 Should read: Figure 10-16 for the case when surface-reaction rate is the limiting step.
471	Last paragraph, bottom of page Reads: the initial rate, $-r'_{C0}$, and a function	 Should read: the initial rate, $-r'_{C0}$, as a function
485	Equation (E10-1.4) Reads: $= \frac{K_T P_{A0}(1-X)}{K_B P_{A0} X}$	 Should read: $= \frac{K_T P_{T0}(1-X)}{K_B P_{T0} X}$
486	First paragraph Reads: Our next step is to express the partial pressures P_T, P_B, and P_{H_2} as a function of X, combine the partial pressures with the rate law, $-r'_A$, as a function of conversion, and carry out	 Should read: Our next step is to express the partial pressures P_T, P_B, and P_{H_2} as a function of X, combine the partial pressures with the rate law,

	the integration of the packed-bed design equation	$-r'_A$, and carry out the integration of the packed-bed design equation
487	Above "**4. Evaluate:**" Reads: Maximum catalyst weight for conditions given.	 Should read: This is the maximum catalyst weight for conditions given.
489	Paragraph "**3. Combine and Evaluate:**" Reads: Writing Equation (E10-2.2) in terms of conversion (E10-2.3) and then substituting X = 0.65 and P_{T0} = 12 atm, we have	 Should read: Writing Equation (E10-2.2) in terms of conversion using Equations (E10-2.3) through (E10-2.5) and then substituting X = 0.65 and P_{T0} = 12 atm, we have
496	Line above 10.7 Catalyst Deactivation Reads: values of the parameter K_{AE}, which is physically impossible.	 Should read: values of the parameter K_{EA}, which is physically impossible.
500	Example 10-4 Solution Reads: **1. Mol Balance:**	 Should read: **1. Mole Balance:**
501	Equation (E10-4.9) Reads: ln X = 1 – e^{-kt} = kt	 Should read: X = 1 – e^{-kt}
502	Top of page Reads: R = 1.987	 Should read: R = 1.987 cal/mol·K
502	Line above Figure 10-24	

	Reads: Equation (10-101) for the cracking of a crude oil in fixed-bed of catalyst given	Should read: Equation (10-101) for the cracking of a crude oil in fixed-bed of catalyst is given as
504	Paragraph below Figure 10-27 Reads: concentration of poison in the gas phase is C_P then	 Should read: concentration of poison in the gas phase, C_P then
507	Table 10-7, r.h.s. Reads: Paraffin dehydrogenation on Cr?$Al_2O_3{}^c$	 Should read: Paraffin dehydrogenation on Cr/$Al_2O_3{}^c$
510	Link in 2nd to last sentence has a space after "courses/" causing the link to NOT work. Reads: (*http://umich.edu/~safeche/assets/pdf/courses/ Problems/CRE/344ReactionEngrModule(3)PS-Exxon.pdf*)	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(3)PS-Exxon.pdf*)
513	Link in footnote has a space after "pdf/" causing the link to NOT work. Reads: (*http://umich.edu/~safeche/assets/pdf/ courses/Problems/CRE/344ReactionEngrModule(3)PS-Exxon.pdf*)	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(3)PS-Exxon.pdf*)
522	Incorrect link at top of page Reads: (*http://umich.edu/~safeche/assets/pdf/ courses/Problems/CRE/344ReactionEngrModule(3)PS20419-Exxon.pdf*)	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(3)PS-Exxon.pdf*)

523	Equation (S10-8), in numerator Reads: $\overbrace{C_1 k_S K_A}^{k}$	 Should Read: $\overbrace{C_t k_S K_A}^{k}$
527	P10-1_B, part (a), part (iii), link has a space after "elements" causing the link to NOT work. Reads: (*http://www.umich.edu/~elements /6e/toc/SCPS,3rdEdBook(Ch07).pdf*)	 Should Read: (*http://www.umich.edu/~elements/6e/toc/SCPS,3rdEdBook(Ch07).pdf*)
527	P10-1_B, part (c) Reads: Example 10-3: Hydrogenation Ethylene to Ethane	 Should Read: Example 10-3: Hydrogenation of Ethylene to Ethane
530	P10-6_B, 2nd equation, r.h.s. of arrow Reads: $C_3HOH•S$	 Should Read: $C_3H_5OH•S$
530	P10-6_B, 3rd equation Reads: $C_3HOH•S \rightleftharpoons C_3HOH+S$	 Should Read: $C_3H_5OH•S \rightleftharpoons C_3H_5OH+S$
Ch11		
Pg	**Error**	**Correction**
544	Paragraph below Equation (11-2), link has a space after "www" causing the link to NOT work. Reads:	 Should Read:

	(Joule bio: *http://www .corrosion-doctors.org/Biographies/JouleBio.htm*.)	(Joule bio: *http://www.corrosion-doctors.org/Biographies/JouleBio.htm*.)
544	End of paragraph above Equation (11-3) Reads: (moles of *i* per time)	 Should Read: (moles of *i* per unit time)
551	Middle of page, link has a space after "www." causing the link to NOT work. Reads: *http://www. umich.edu/~elements/6e/icm/index.html*.	 Should Read: *http://www.umich.edu/~elements/6e/icm/index.html*.
554	Equation (11-19) Reads: $+\int_{\mathrm{T_R}}^{\mathrm{T}} \mathrm{C_{P}}_{c} dT =$	 Should Read: $+\int_{\mathrm{T_R}}^{\mathrm{T}} \mathrm{C_{P}}_{i} dT =$
556	Below Equation (11-26) Reads: in terms of kJ/mol $\Delta H^{\circ}_{\mathrm{Rx}}(298\ \mathrm{K})$	 Should Read: in terms of kJ/mol $\Delta H_{\mathrm{Rx}}(423\ \mathrm{K})$
563	Paragraph below Table E11-3.1 Reads: 5 dm^3 PFR	 Should Read: 5 m^3 PFR
565	Below sentence starting "Using Equations (E11-3.10) and … " Reads: k = 14.02 h^{-1}	 Should Read: k = 13.9 h^{-1}

565	Last paragraph, 2nd line Reads: We note that at the CSTR	 Should Read: We note that the CSTR
567	Figure 11-4 Reads: $T_{01} > T_{01}$	 Should Read: $T_{01} > T_0$
568	Equation (E11-4.6) Reads: $X_e =$	 Should Read: $K_e =$
571	End of first paragraph Reads: Equations (E11-4.5) and (E11-4.7)	 Should Read: Equations (E11-4.11) and (E11-4.13)
571	Figure 11-5, degree K, change to K in 6 places Reads: °K	 Should Read: K
572	Last line of first paragraph Reads: , 15% naphthas,	 Should Read: , 15% naphthenes,
574	Below "Also for this example, …" Reads: $\dot{Q} = F_{\mathrm{A0}}\left(C_{\mathrm{P_A}} + C_{\mathrm{P_I}}\Theta_{\mathrm{P_I}}\right)(T_2 - T_1)$	 Should Read: $\dot{Q} = F_{\mathrm{A0}}\left(C_{\mathrm{P_A}} + C_{\mathrm{P_I}}\Theta_{\mathrm{I}}\right)(T_2 - T_1)$
574	Margin near bottom of page Reads: $X = 0.9\ X_e = 0.9 \bullet 0.72$	 Should Read: $X = 0.95\ X_e = 0.95 \bullet 0.72$

579	Table 11-4, BLEVE link has a space after "plumbing/" causing the link to NOT work. Reads: *https://inspectapedia.com/plumbing/ BLEVE-Explosions.php*	 Should Read: *https://inspectapedia.com/plumbing/BLEVE-Explosions.php*
579	Table 11-4, DCS link has a space after "org/" causing the link to NOT work. Reads: *https://www.electricaltechnology.org/ 2016/08/ distributed-control-system-dcs.html*	 Should Read: *https://www.electricaltechnology.org/2016/08/ distributed-control-system-dcs.html*
579	Table 11-4, HAZOP link has a space after "notes/" causing the link to NOT work. Reads: *https://www.oshatrain.org/notes/ 2bnotes21.html*	 Should Read: *https://www.oshatrain.org/notes/2bnotes21.html*
580	Table 11-4, HSE link has a space after "com/" causing the link to NOT work. Reads: *https://www.workplacetesting.com/ definition/16/health-safety-andenvironment-hse*	 Should Read: *https://www.workplacetesting.com/definition/16/health-safety-andenvironment-hse*
580	Table 11-4, LOPA link has a space after "com/" causing the link to NOT work. Reads: *https://hseengineer.wordpress.com/ lopa-layer-of-protection-analysis/*	 Should Read: *https://hseengineer.wordpress.com/lopa-layer-of-protection-analysis/*
580	Table 11-4, MOC link has a space after "safety/" and "pdfs/" causing the link to NOT work.	

	Reads: *http://www.lni.wa.gov/safety/ grantspartnerships/partnerships/vpp/pdfs/ vppmocbestpractices.pdf*	Should Read: *http://www.lni.wa.gov/safety/grantspartnerships/partnerships/vpp/pdfs/vppmocbestpractices.pdf*
580	Table 11-4, MSDS link has a space after "Publications/" causing the link to NOT work. Reads: *https://www.osha.gov/Publications/ OSHA3514.html*	 Should Read: *https://www.osha.gov/Publications/OSHA3514.html*
580	Table 11-4, PPE link has a space after "SLTC/" causing the link to NOT work. Reads: *https://www.osha.gov/SLTC/ personalprotectiveequipment/*	 Should Read: *https://www.osha.gov/SLTC/personalprotectiveequipment/*
580	Table 11-4, P & IDs link has a space after "pages/" causing the link to NOT work. Reads: *https://www.lucidchart.com/pages/ p-and-id-discovery__top*	 Should Read: *https://www.lucidchart.com/pages/p-and-id-discovery__top*
580	Table 11-4, PSSR link has a space after "com/" and "prestartup-" causing the link to NOT work. Reads: *https://www.chemicalprocessing.com/ articles/2018/perform-a-proper-prestartup- safety-review-5-steps/*	 Should Read: *https://www.chemicalprocessing.com/articles/2018/perform-a-proper-prestartup-safety-review-5-steps/*
580	Table 11-4, PRVs link has a space after "*valves_*" causing the link to NOT work. Reads:	 Should Read:

	http://www.wermac.org/valves/valves_ pressure_relief.html	*http://www.wermac.org/valves/valves_pressure_relief.html*
580	Table 11-4, PHA, incorrect link Reads: *http://www.wermac.org/valves/valves_ pressure_relief.html*	 Should Read: *https://www.oshatrain.org/courses/mods/736m4.html*
580	Table 11-4, PSM link has a space after "*SLTC/*" causing the link to NOT work. Reads: *https://www.osha.gov/SLTC/ processsafetymanagement/*	 Should Read: *https://www.osha.gov/SLTC/processsafetymanagement/*
580	Table 11-4, RMP link has a space after "*chemicalexecutiveorder/*" causing the link to NOT work. Reads: *https://www.osha.gov/chemicalexecutiveorder/ psm_terminology.html*	 Should Read: *https://www.osha.gov/chemicalexecutiveorder/psm_terminology.html*
580	Table 11-4, SIL link has a space after "*determiningsafety-*" causing the link to NOT work. Reads: *https://www.crossco.com/blog/determiningsafety- integrity-levels-sil-your-processapplication*	 Should Read: *https://www.crossco.com/blog/determiningsafety-integrity-levels-sil-your-processapplication*
580	Table 11-4, SOPs link has a space after "*Business/*" and "*Standard*" causing the link to NOT work. Reads:	 Should Read:

	https://www.brampton.ca/EN/Business/ BEC/resources/Documents/What is a Standard Operating Procedure (SOP).pdf	*https://www.brampton.ca/EN/Business/BEC/resources/Documents/What is a StandardOperating Procedure (SOP).pdf*
581	Paragraph above SUMMARY, link has a space after "*edu/*" causing the link to NOT work. Reads: *http://www.umich.edu/ ~elements/6e/11chap/live.html*	 Should Read: *http://www.umich.edu/~elements/6e/11chap/live.html*
583	Q11-11$_A$ Reads: ($F_{A0}/-r_b$).	 Should Read: ($F_{A0}/-r_A$).
588	P11-7$_B$, *Additional information* Reads: $C_{F_I} = 18\ cal/mol/K$	 Should read: $C_{P_I} = 18\ cal/mol/K$
589	P11-8$_B$, Part (f) Reads: (***Ans:*** At W = 800 kg then X = 0.3583)	 Should read: (***Ans:*** At W = 1357 kg then X = 0.404)
Ch12		
Pg	**Error**	**Correction**
601	Table 12-2, 6. Solution: Reads: Equations (T12-2.1)–(T12-2) are …	 Should read: Equations (T12-2.1)–(T12-2.16) are …
603	Table 12-2, labeling on figure (c), y axis Reads: *T*	 y axis should read: *X*

603	Table 12-2, labeling on figure (d), y axis Reads: T	 y axis should read: X
606	Figure E12-1.1, labeling on figure (b), y axis Reads: T (K)	 y axis should read: X, X_e
611	Example 12-2, end of first paragraph Reads: ketene and methane is[2]	 Should read: ketene and methane[2]
613	Part b. Reads: Sum $C_{\mathrm{P}_i}\Theta_i : \Theta_i C_{\mathrm{P}_i} = \ldots$	 Should read: Sum $C_{\mathrm{P}_i}\Theta_i \ldots$
613	Table E12-2.1 Reads: C_{PA}	 Should read: $C_{\mathrm{P_A}}$
617	Figure below Case 4 Reads: 1034.7 K	 Should read: 1034.5 K
617	2nd to last paragraph Reads: Table 12-2.5	 Should read: Table E12-2.5
619	Equation (11-28) Reads: (11-28)	 Should read: (11-27)

620	First paragraph Reads: Equation (11-28),	 Should read: Equation (11-27),
620	3rd Margin note, next to Equation (12-13) Reads: (T_{1a}>T_{2a}>T)	 Should read: (T_{a1}>T_{a2}>T)
621	3rd Margin note, next to Equation (12-13) Reads: Equation (11-27), neglecting ΔC_P, in ΔH_{Rx} substituting …	 Add comma, should read: Equation (11-27), neglecting ΔC_P in ΔH_{Rx}, substituting …
625	2. Rate Law:, below Equation (E12-3.2) Reads: k = 16.96 10^{12} exp …	 Should read: k = 16.96 $\times$ 10^{12} exp …
629	Paragraph above Equation (E12-4.4) Reads: Equation (E12-3.13),	 Should read: Equation (E12-3.14),
631	Below Figure E12-3.2A, link in last sentence has a space after "umich" causing the link to NOT work. Reads: *http://www.umich .edu/~elements/6e/software /Polymath_ fooling_tutorial.pdf*	 Should Read: *http://www.umich.edu/~elements/6e/software/ Polymath_ fooling_tutorial.pdf*
632	Figure 12-8, K should be kappa Reads: K = 0	 Should read kappa: κ = 0

632	Figure 12-8 Reads: Increase *K*	 Should read kappa: Increase κ
637	Last paragraph, last line Reads: (cf. Problem P12-1(j))	 Should read: (cf. Problem P12-1_A(j))
639	Example 12-5, Equation (E12-5.1), above arrow Reads: k_1	 Should read: k_{1A}
639	Example 12-5, Equation (E12-5.2), above arrow Reads: k_2	 Should read: k_{2A}
639	Example 12-5, below additional information Reads: *Ua* = 4000 J/m^3 s • °C	 Should read: *Ua* = 4000 J/dm^3 s • °C
641	Table E12-5.1, add end parenthesis Reads: 12 Cc = Cto*(Fc/Ft)*(To/T	 Should read: 12 Cc = Cto*(Fc/Ft)*(To/T)
647	5. Parameters Reads: (24) C_{A0} = 0.2 mol/dm^3	 Should read: (24) C_{T0} = 0.2 mol/dm^3
647	5. Parameters, delete "°" Reads:	 Should read:

	(32) $\Delta H^{\circ}_{Rx1\mathrm{B}}$	(32) $\Delta H_{Rx1\mathrm{B}}$
647	5. Parameters, delete "°" Reads: (33) $\Delta H^{\circ}_{Rx1\mathrm{A}}$	 Should read: (33) $\Delta H_{Rx1\mathrm{A}}$
650	Paragraph ***Analysis:*** Reads: (i.e., 930 K)	 Should read: (i.e., 886 K)
650	Paragraph ***Analysis:*** Reads: In Figure 12-7.2(**a**) …	 Should read: In Figure E12-7.2(**a**) …
650	Part (c), last equation, denominator Reads: $\dot{m}C_{\mathrm{P}}$	 Should read: $\dot{m}C_{\mathrm{P}_{\mathrm{Co}}}$
652	Last line above Section 12.7 Reads: … below 750 K.	 Should read: … below 700 K.
653	Last line on page Reads: … See **Example 13-7**	 Should read: … See **Example 13-6**
654	First line, link has a space after "laboratories-" causing the link to NOT work. Reads: (*https://www.csb.gov/t2-laboratoriesinc- .reactive-chemical-explosion/*	 Should Read: (*https://www.csb.gov/t2-laboratoriesinc-.reactive-chemical-explosion/*

665	P12-5$_C$, part (b) Reads: … *Hint*: Plot Q_r and Q_g as a function of …	 Should read: … *Hint*: Plot X_{MB} and X_{EB} as a function of …
667	P12-9$_A$, Additional information Reads: $C_{P_A} = 18\ cal/mol/K$	 Should read: $C_{P_I} = 18\ cal/mol/K$
667	P12-9$_A$, Additional information Reads: $C_{P_{Cool}} = 18\ cal/mol$	 Should read: $C_{P_{Cool}} = 18\ cal/mol/K$
668	P12-12$_C$, part (b) Reads: $Ua =$	 Should read: $\frac{Ua}{\rho_b} =$
670	P12-13$_B$, part (c) link has a space after "~elements/" causing the link to NOT work. Reads: *http://www.umich.edu/~elements/ 6e/12chap/iclicker_ch12_q1.html*	 Should Read: *http://www.umich.edu/~elements/6e/12chap/iclicker_ch12_q1.html*
670	P12-15$_B$, *Additional information:* Reads: *E* = 40000 cal/mol•K	 Should read: *E* = 40000 cal/mol
672	P12-18$_C$, delete dash after 450 and add comma after 450 K Reads:	 Should read:

	Pure A enters the reaction at a 450-K flow rate of 10 mol/s, and a concentration of 0.25 mol/dm^3.	Pure A enters the reaction at a 450 K, flow rate of 10 mol/s, and a concentration of 1.9 mol/dm^3.
672	P12-18_C Reads: C_{A0} = 1 mol/dm^3	 Should read: C_{A0} = 1.9 mol/dm^3
675	P12-23_B Reads: K_{2C2} = 4000 dm^9/mol^3•min@310 K …	 Should read: K_{2C2} = 4000 dm^6/mol^2•min@310 K …
677	P12-26_C, part (f) Reads: where T_a is virtually constant at 1000 K. For an entering stream to ethylbenzene ratio of 20, …	 Should read: where T_a is virtually constant at 1000 K. For an entering steam to ethylbenzene ratio of 20, …
678	P12-27_B, above part (a) Reads: Pure A is fed to the rector …	 Should read: Pure A is fed to the reactor …
Ch13		
Pg	**Error**	**Correction**
686	Equation (13-19) Numerator Reads: $[-\Delta H_{Rx}(T_0)]X$	 Should read: $[-\Delta H_{Rx}(T)]X$
686	Equation (2-9)), incorrect equation number Reads: (2-9)	 Should read: (2-7)
687	End of second paragraph	

	Reads: (see page 717)	Should read: (see page 715)
687	Fourth paragraph, 3rd line Reads: pure ethylene oxide	 Should read: pure propylene oxide
687	In box under fourth paragraph Reads: A: Ethylene oxide:	 Should read: A: Propylene oxide:
688	Paragraph above Equation (E13-1.6) Reads: (E13-1.5) in the form of Equation (3-21), we get	 Should read: (E13-1.5) in the form of Equation (3-25), we get
689	Equation (E13-1.7) Numerator Reads: $[-\Delta H_{Rx}(T_0)]X$	 Should read: $[-\Delta H_{Rx}(T)]X$
691	Table E13-1.3, Initial value, line 1 Reads: 4.18	 Should read: 4.16
691	Table E13-1.3, Final value, line 1 Reads: 4.18	 Should read: 4.16
691	Table E13-1.3, Explicit equations, line 4 Reads: 4.18	 Should read: 4.16

692	Figure E13-1.5, Reads: as heat-removed trajectories.	 Should read: and heat-removed trajectories.
692	***Analysis*** paragraph at bottom of page Reads: As seen in Figure E13-1.6 …	 Should read: As seen in Figure E13-1.2 …
693	End of first paragraph below figure, link has a space after "Module" causing the link to NOT work. Reads: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/344ReactionEngrModule (1)PS-T2.pdf*).	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/344ReactionEngrModule(1)PS-T2.pdf*).
695	Bottom half of page, incorrect Equation number in **two** places, one in the sentence, Substituting… and one next to the equation Reads: (3-21)	 Should Read: (3-25)
698	Table E13-2.1, Explicit equations, line 9 Reads: 9 Vaqam = (mbo+mw)/rhoaqam #m3	 Should read: 9 Vaqam = 3.9 #m3
701	Below Equation (13-9), incorrect equation number Reads: (12-9)	 Should Read: (13-9)
702	End of second paragraph	

	Reads: Problem P13-1_B (d) (vii).	Should Read: Problem P13-1_B (d) (viii).
702	Paragraph above Example 13-3 Reads: This analysis, summarized in Figure PRS13.5 in the Summary …	 Should Read: This analysis, summarized in Figure R13.5 in the Summary …
708	Equation (13-22) in two places Reads: C_{P_W}	 Should Read: C_{P_C}
708	Equation (E13-4.9) in two places Reads: C_{P_W}	 Should Read: C_{P_C}
709	Table E13-4.1, Explicit equations, line 29, change Cpw to Cpc Reads: 29 Qr2 = mc*Cpw*(T-Ta1)*(1-exp(-UA/mc/Cpw))	 Should read: 29 Qr2 = mc*Cpc*(T-Ta1)*(1-exp(-UA/mc/Cpc))
709	Table E13-4.1, Explicit equations, line 30, , change Cpw to Cpc Reads: 30 Ta2 = T-(T-Ta1)*exp(-UA/mc/Cpw)	 Should read: 30 Ta2 = T-(T-Ta1)*exp(-UA/mc/Cpc)
710	Last line on page, link has a space after "CRE/" causing the link to NOT work. Also, space before). can be removed Reads:	 Should Read:

	(*http://umich.edu/~safeche/assets/pdf/courses /Problems/CRE/ 344ReactionEngrModule(2)PS-Monsanto.pdf*).	(*http://umich.edu/~safeche/assets/pdf/courses /Problems/CRE/344ReactionEngrModule(2)PS-Monsanto.pdf*).
715	End of first paragraph, link has a space after "Engr" causing the link to NOT work. Reads: (See *http://umich.edu/~safeche/assets/pdf/courses/CRE/344ReactionEngr Module(1)PS-T2.pdf*.)	 Should Read: (See *http://umich.edu/~safeche/assets/pdf/courses/CRE/344ReactionEngrModule(1)PS-T2.pdf*.)
715	End of first paragraph, move period outside parenthesis Reads: (See *http://umich.edu/~safeche/assets/pdf/courses/CRE/344ReactionEngr Module(1)PS-T2.pdf*.)	 Should Read: (See *http://umich.edu/~safeche/assets/pdf/courses/CRE/344ReactionEngrModule(1)PS-T2.pdf*).
717	End of second paragraph Reads: T2 Laboratores Safety Modules	 Should Read: T2 Laboratories Safety Modules
717	End of second paragraph, incorrect link Reads: (*http://umich.edu/~safeche/assets/pdf/ courses/Problems/344ReactionEngineeringModule(2)PS050818.pdf*).	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses /Problems/CRE/344ReactionEngrModule(1)PS-T2.pdf*).
717	Pre-exponential factor near bottom of page Reads: $A_{1A} = 5.73 \times 10^{2}$	 Should read: $A_{1A} = 4 \times 10^{14}$
717	Activation Energy near bottom of page	

	Reads: E_{1A} =128000 J/mol K	Should read: E_{1A} =128000 J/mol
717	Pre-exponential factor near bottom of page Reads: A_{2S} =9.41 x 10^{16}	 Should read: A_{2S} =1 x 10^{84}
717	Activation Energy near bottom of page Reads: E_{2S} =800000 J/mol K	 Should read: E_{2S} =800000 J/mol
719	Middle of page (above Equation (E13-6.7) Reads: Substituting for N_D in Equation (E13-6.3) and rearranging	 Should read: Substituting for N_D in Equation (E13-6.4) and rearranging
720	Below **(5) Stoichiometry**: Reads: Neglect reactor-liquid volume change form loss of product gases.	 Should read: Neglect reactor-liquid volume change from loss of product gases.
721	Above Table E13-6.1, link has a space after "to_" causing the link to NOT work. Reads: *http://www.umich.edu/~elements/6e/tutorials/Polymath_Tutorial_to_ solve_numerically_unstable_systems.pdf*	 Should Read: *http://www.umich.edu/~elements/6e/tutorials/Polymath_Tutorial_to_solve_numerically_unstable_systems.pdf*
721	Table E13-6.1, Differential equations, line 2 Reads: 2 d(CB)/d(t) = SW1*r1A change in concentration of cyclomethylpentadiene	 Should read: 2 d(CB)/d(t) = SW1*r1A change in concentration of sodium

721	Table E13-6.1, Explicit equations, line 3 Reads: 3 DHRx1A = -45400 J/mol Na	 Should read: 3 DHRx1A = -45400 J/mol A
721	Table E13-6.1, Explicit equations, line 6 Reads: 6 A1A = 4E14 per hour	 Should read: 6 A1A = 4E14 dm3/mol/hr
721	Table E13-6.1, Explicit equations, line 7 Reads: 7 E1A = 128000 J/kmol/K	 Should read: 7 E1A = 128000 J/mol
721	Table E13-6.1, Explicit equations, line 10 Reads: 10 E2S = 800000 J/kmol/K	 Should read: 10 E2S = 800000 J/mol
721	Table E13-6.1, Explicit equations, line 11, backward parenthesis Reads: 11 k2S = A2S*exp)-E2S/(8.31*T)) rate constant reaction 2	 Should read: 11 k2S = A2S*exp(-E2S/(8.31*T)) rate constant reaction 2
723	Second line under ***Analysis:***, delete "a" Reads: causing the reactor temperature to rise and initiate a second a reaction, and (2) the	 Should read: causing the reactor temperature to rise and initiate a second reaction, and (2) the
723	Third line under ***Analysis:***	

	Reads: solvent dygline had not decomposed at the higher temperature to produce hydro-	Should read: solvent diglyme had not decomposed at the higher temperature to produce hydro-
726	Equation (S13-5), numerator Reads: $\overbrace{(r_A V)(\Delta H_{Rx})}^{\dot{Q}_g}$	 Should read: $\overbrace{(r_A V)(\Delta H_{Rx})}^{\dot{Q}_{gs}}$
726	Equation (S13-10) in both numerators Reads: $[-\Delta H_{Rx}(T_0)]X$	 Should read: $[-\Delta H_{Rx}(T)]X$
727	Equation (S13-13) change plus to minus in numerator Reads: $\ldots (T - T_0) + \dot{m}_c C_{P_c}($ …	 Should read: $\ldots (T - T_0) - \dot{m}_c C_{P_c}($ …
729	Problem P13-1$_B$, Part (a), part (v) Reads: … = 403 Btu^{o}R), neglect …	 Should read: … = 403 Btu/^{o}R), neglect …
732	Problem P13-1$_B$, Part (f), link has a space after "CRE/" causing the link to NOT work. Reads: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/ 344ReactionEngrModule(1)PS-T2.pdf*).	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(1)PS-T2.pdf*).
732	Problem P13-1$_B$, Part (f), part (vi) link has a space after "Engineering" causing the link to	

	NOT work. Also, space before parenthesis can be removed Reads: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/344ReactionEngineering Module(2)PS050818.pdf*)	 Should Read: (*http://umich.edu/~safeche/assets/pdf/courses/Problems/344ReactionEngineeringModule(2)PS050818.pdf*)
732	Problem P13-1_B, Part (f), part (viii) Reads: Vary *UA* between 0.0 and 2.77×10^6 J/h/K to find the lowest value of *UA* that you observe a runaway to find the value of *UA* below which you would observe *runaway*.	 Should Read: Vary *UA* between 0.0 and 2.77×10^6 J/h/K to find the value of *UA* below which you would observe *runaway*.
733	Problem P13-3_B Reads: … and P12-7_A is …	 Should Read: … and P12-7_B is …
733	Problem P13-3_B, Part (b), add comma Reads: Plot and analyze the temperature Q_r, Q_g and conversion	 Should Read: Plot and analyze the temperature, Q_r, Q_g and conversion
735	Problem P13-7_B Reads: The irreversible reaction liquid phase in Problems P11-4_A and P12-7_A	 Should Read: The irreversible liquid phase reaction in Problems P11-4_A and P12-7_B
736	Problem P13-9_B, below Additional information Reads: $k_{2A} = \frac{1}{3}$ x 10^{-3} $(dm^3/mol)^2/s$	 Should Read: $k_{2A} = \frac{1}{3}$ x 10^{-3} $(dm^3/mol)/s$

736	Problem P13-9_B, below Additional information Reads: $k_{3C} = 0.6 \times 10^{-3}$ $(dm^3/mol)^2/s$	 Should Read: $k_{3C} = 0.6 \times 10^{-3}$ $(dm^3/mol)/s$
737	Problem P13-11_B, second line Reads: … expand Problem P9-7 …	 Should Read: … expand Problem P9-7_A …
Ch14		
Pg	**Error**	**Correction**
755	Paragraph below Figure 14-5, last line Reads: … use $k_r >> k_s$ so that …	 Should Read: … use $k_r >> k_c$ so that …
757	First paragraph, first sentence Reads: (kJ/particle)	 Should Read: (kJ/particle/s)
757	Paragraph above Example 14-2, last line Reads: Particle 0.1 cm,	 Should Read: Particle 1 cm,
762	Above Equation (14-60) Reads: where K_S is the burning rate constant, s^{-1}.†	 Should Read: where K_S is the burning rate constant, m^2s^{-1}.†
762	Last paragraph Reads: 273 K is 0.046 mol/dm^3.	 Should Read: 273 K is 0.0446 mol/dm^3.
769	First paragraph	

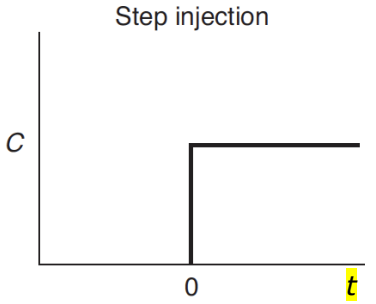
	Reads: Rearranging Equation (14-64) gives us	Should Read: Rearranging Equation (14-75) gives us
769	Equation (E14-4.5) Reads: 1.42×10^{-5} m^2/s	 Should Read: 1.42×10^{-4} m^2/s
769	Above Equation (E14-4.6) Reads: Substituting Re' and Sc into Equation (14-65) yields	 Should Read: Substituting Re' and Sc into Equation (14-76) yields
770	Incorrect Equation number (14-79) Reads: (14-79)	 Should Read: (14-80)
776	Equation (14-77), missing ½, see page 766 Reads: $\left[\frac{k_c d_p}{D_{AB}}\left(\frac{\phi}{1-\phi}\right)\frac{1}{\gamma}\right] = \left[\frac{U d_p \rho}{\mu(1-\phi)\gamma}\right]\left(\frac{\mu}{\rho D_{AB}}\right)^{1/3}$	 Should Read: $\left[\frac{k_c d_p}{D_{AB}}\left(\frac{\phi}{1-\phi}\right)\frac{1}{\gamma}\right] = \left[\frac{U d_p \rho}{\mu(1-\phi)\gamma}\right]^{1/2}\left(\frac{\mu}{\rho D_{AB}}\right)^{1/3}$
779	Second paragraph, last line Reads: sugar dust plan explosion is shown in Figure 14-13.	 Should Read: sugar plant dust explosion is shown in Figure 14-13.
782	Problem P14-1_B, Part (a), part (ii) Reads: diffusity	 Should Read: Diffusivity
784	Problem P14-4_B	

	Reads: Use the K_S values of the parameter values,	Should Read: Use the K_S values and other parameter values,
784	First line, two changes (Problem P14-9_B) Reads: where $-r'_A$ = moles of A reacting per unit area catalyst per	 Should Read: where $-r''_A$ = moles of A reacting per unit area per unit time
787	Problem P14-12_D Reads: (***Ans:*** t = 5,616 years)	 Should Read: (***Ans:*** t = 2,808 years)
Ch15		
Pg	**Error**	**Correction**
792	Above Equation (15-2) Reads: Substituting in Equation (14-1) one obtains	 Should Read: Substituting in Equation (15-1) one obtains
792	Paragraph below Equation (15-2), last line Reads: Problem P15-18_B,	 Should Read: Problem P15-17_B,
793	First paragraph, end of last sentence Reads: shown in Figures 10-6, 14-1, and 15-2.	 Should Read: shown in Figures 10-5, 14-1, and 15-2.
796	First paragraph, end of last sentence Reads: arrows in Figures 15-3.	 Should Read: arrows in Figures 15-4.
807	Above Equation (15-38)	

	Reads: in Equation (15-59) we obtain	Should Read: in Equation (15-37) we obtain
811	Second to last Margin Note Reads: Important industrial consequence of falsified kinetic runaway reactions. Safety considerations!	 Should Read: Important industrial consequence of falsified kinetic is runaway reactions. Safety considerations!
812	Last Margin Note, last line Reads: in Example 15-4.	 Should Read: in Example 15-3.
815	Middle of the page, 4th paragraph, incorrect equation number. Reads: … (cf. Equation 14-46).	 Should Read: … (cf. Equation (14-45)).
815	Below Equation (14-60) Reads: is very small, then	 Should Read: is very large, then
818	First paragraph, 5th line Reads: Chapter 18 (cf. Equation (18-16)).	 Should Read: Chapter 18 (cf. Equation (18-10)).
818	Below Equation (15-67) Reads: As will be shown in Chapter 18, the solution to Equations (15-67) and (18-16)	 Should Read: As will be shown in Chapter 18, the solution to Equations (15-67) and (18-10)

819	Equation above figure in bottom half of page Reads: … = (1.4 x 10^{-6} g/m^3) …	 Should Read: … = (1.4 x 10^{6} g/m^3) …
819	Bottom of the page, # 6, second to last line Reads: concentration of 0.004%, …	 Should Read: concentration to 0.004%, …
823	First Equation, in the numerator Reads: … = (1.4 x 10^{-6} g/m^3) …	 Should Read: … = (1.4 x 10^{6} g/m^3) …
825	Last paragraph, second to last line Reads: See *Professional Reference Shelf R12.1*	 Should Read: See *Professional Reference Shelf R15.1*
835	Problem P15-4_A, Figure P15-4_A, change number "one" to letter "el" Reads: $1\mathrm{n}(-r'_A)$	 Should Read: $\ln(-r'_A)$
835	Problem P15-5_B, Reads: (see Figure 15-3).	 Should Read: (see Figure 15-3_B).
836	Problem P15-6_B, Part (c) Reads: Taking the reaction in the tail to be of zero order, calculate the length of the tail. The rate of reaction in the tail is 23 x 10^{-18} mol/s.	 Should Read: Taking the reaction in the tail to be of zero order, calculate the length of the tail. The rate of reaction, i.e., the molar flow into the tail, is 23 x 10^{-18} mol/s.

838	Problem P15-10$_B$, Part (f) Reads: … similar to the one shown in Figure 15-5.	 Should Read: … similar to the one shown in Figure 15-6.
838	Problem P15-11$_C$ Reads: limiting yielded a specific reaction rate of 0.05 m^6/mol • g-cat • s. Calculate …	 Should Read: limiting yielded a specific reaction rate of 50 m^4/mol • g-cat • s. Calculate …
839	Problem P15-14$_B$ Reads: Derive Equation (15-39). *Hint:* Multiply both sides of Equation (15-25) for *n*th order reaction; that is,	 Should Read: Derive Equation (15-35). *Hint:* Multiply both sides of Equation (15-26) for *n*th order reaction; that is,
840	Problem P15-17$_B$, Part (a) Reads: Show that the dimensionless …	 Should Read: Show that in dimensionless …
841	Problem P15-17$_B$, Part (c) Reads: Solve the gel thickness when the concentration at z = 0 and C_A = …	 Should Read: Solve the gel thickness when the concentration at z = 0 is C_A = …
Ch16		
Pg	**Error**	**Correction**
848	Figure 16-4, add "t" label to lower left hand corner Reads:	 Should read:

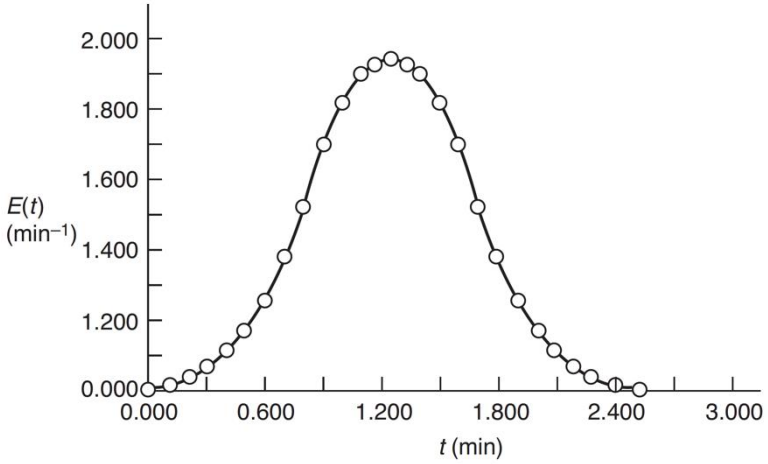
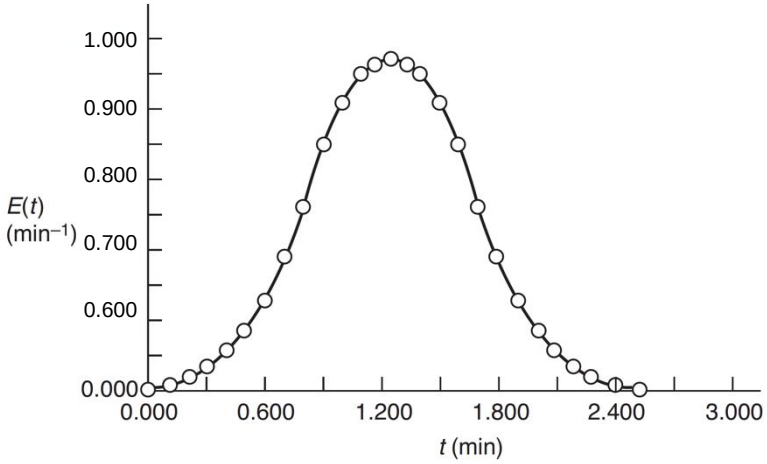
		
850	Top of page, number (3) Reads: LEP 16-1.	 Should read: for LEP16-1.
856	Table heading, Table E16-2.1 Reads: CONTRUCT	 Should read: CONSTRUCT
858	Figure E16-2.2, labeling Reads: Toil	 Should read: Tail
859	End of paragraph above Equation (16-21) Reads: CSTR	 Should read: CSTR is
859	2nd graph in margin, change theta symbol in both y and x axes Reads: $E(\theta)$	 Should read: $E(\Theta)$ and Θ
864	Paragraph below Equation (16-45), Reads:	 Should read:

	Combining Equations (16-42) and (16-45), and then using Equation (16-40) that relates	Combining Equations (16-42), (16-43) and (16-45), and then using Equation (16-39) that relates
865	Figure 16-9 (a), labeling on l.h.s. Reads: $E(\theta)$	 Should read: $E(\Theta)$
865	Figure 16-9 (b), labeling on l.h.s. Reads: $F(\theta)$	 Should read: $F(\Theta)$
865	Figure 16-9 (b), The X axis labelling is missing It should be the symbol as shown in equation (16-49) Reads: θ	 X axes to Figure 16-9 (a) and (b) Should read: Θ
865	Last paragraph Reads: For example, if one uses as a tracer chemicals…	 Should read: For example, if one uses a tracer chemicals…
869	Margin note Reads: While *E*(t) was the same for both reaction systems, the conversion was	 Should read: While *E*(t) was the same for both reaction systems, the conversion was not
871	Figure 16-13, 1/tau is missing in equation, center figure Reads:	 Should read:

	$e^{-t/\tau}$	$\frac{1}{\tau}e^{-t/\tau}$
875	Figure 16-21, l.h.s., line is missing Reads: v_b v_0	 Should read: $\frac{v_b}{v_0}$
879	Top of page, part 7, r.h.s. figure (b), line is missing Reads: v_b v_0	 Should read: $\frac{v_b}{v_0}$
879	Expanded Material on the Web Site, part 4 Reads: *Solved Problems*	 Should read: *Additional Homework Problems*
879	Living Example Problems, part 2 Reads: *2. Living Example 16-2T:*	 Should read: *2. Living Example 16-1T:*
879	Living Example Problems, part 3 Reads: *3. Living Example 16-2 (a) and (b) Finding …*	 Should read: *3. Living Example 16-2 (a) and (c) Finding …*
884	Above P16-12$_B$, part (k) Reads: (k) This problem is continued in Problems P17-14$_C$ and P18-12$_C$.	 Should read: (k) This problem is continued in Problems P17-14$_C$ and P18-12$_D$.
Ch17		

Pg	Error	Correction
892	Paragraph below Equation (17-2), last sentence, first link has "and" attached to hyperlink causing the link to NOT work. Add space after html Reads: (*http://www.umich.edu/~elements/6e/17chap/prof-compare.html*and	 Should Read: (*http://www.umich.edu/~elements/6e/17chap/prof-compare.html* and
892	Paragraph below Equation (17-2), last sentence, last link, incorrect link Reads: *http://www.umich.edu/~elements/6e/17chap/summary.html-top1a1*	 Should Read: *http://umich.edu/~elements/5e/17chap/summary.html#top1a*
896	Last paragraph at bottom of the page Reads: We saw in Example 16-1.1 that…	 Should Read: We saw in Example 16-1 that…
898	First equation (not numbered) below "*Solution*," Reads: $\frac{V}{\nu_0}$	 Should Read: $\frac{V}{\upsilon_0}$
898	Equation (17-3.5), second denominator Reads: ν_0	 Should Read: υ_0
899	Equation (E17-3.10), add equal sign Reads: E_1 0 for …	 Should Read: E_1 = 0 for …

903	Paragraph below Equation (17-14), last line Reads: conversion as shown in Tables 17-1 and 17-2, pages 888, 909.	Should Read: conversion as shown in Tables 17-2 and 17-3, pages 909, 910.
907	Link at the end of the First paragraph has a space after "6e/" causing the link to NOT work. Reads: *http://www.umich.edu/~elements/6e/ 07chap/ Polynomial_Regression_Tutorial.pdf*	Should Read: *http://www.umich.edu/~elements/6e/07chap/Polynomial_Regression_Tutorial.pdf*
910	Table 17-3 heading Reads: COMPARING X_{SEG} OR X_{MM} FOR POWER-LAW MODELS	Should Read: COMPARING X_{SEG} AND X_{MM} FOR POWER-LAW MODELS
911	Equation (17-22) Reads: $$\frac{V_i}{v_0} = \frac{V}{v_0} = \frac{\tau}{n}$$	Should Read: $$\frac{V_i}{v_0} = \frac{V/n}{v_0} = \frac{\tau}{n}$$
911	Equation (17-24), first denominator, change upper limit to ∞ Reads: $$\int_0^v C_n(t)dt$$	Should Read: $$\int_0^\infty C_n(t)dt$$
912	First line Reads: with τ and σ given by	Should Read: with τ and σ^2 given by
912	First paragraph below Equation (5-15), first line	

	Reads:	Should Read:
	Equation (18-11) to	Equation (17-25) to
914	Figure E17-6.1, Divide each number on the y-axis by 2. The scale would then go from 0.00 to 1.00 Reads: 	Should Read: 
914	End of Part (b), below Equation Figure E17-6.2, change caret to tilde over $S_{C/D}$ and $S_{D/E}$ Reads: (e.g., $\hat{S}_{C/D}$, $\hat{S}_{D/E}$)	Should Read: (e.g., $\tilde{S}_{C/D}$, $\tilde{S}_{D/E}$)
915	Bottom of the page, Table E17-6.2, l.h.s. under (*Asymmetric Distribution*) third line, tilde over $S_{C/D}$ is missing Reads: $\bar{C}_C = 0.357 \quad S_{C/D} = 1.18$	Should Read: $\bar{C}_C = 0.357 \quad \tilde{S}_{C/D} = 1.18$

915	Bottom of the page, Table E17-6.2, l.h.s. under (*Asymmetric Distribution*) fourth line, tilde over $S_{D/E}$ is missing Reads: $\bar{C}_D = 0.303 \quad S_{D/E} = 1.70$	Should Read: $\bar{C}_D = 0.303 \quad \tilde{S}_{D/E} = 1.70$
917	Top of the page, Table E17-6.4, r.h.s. under (*Bimodal Distribution*) third line, tilde over $S_{C/D}$ is missing Reads: $C_C = 0.275 \quad S_{C/D} = 1.02$	Should Read: $C_C = 0.275 \quad \tilde{S}_{C/D} = 1.02$
917	Top of the page, Table E17-6.4, r.h.s. under (*Bimodal Distribution*) fourth line, tilde over $S_{D/E}$ is missing Reads: $C_D = 0.269 \quad S_{D/E} = 1.41$	Should Read: $C_D = 0.269 \quad \tilde{S}_{D/E} = 1.41$
917	Paragraph above section 17.6, first line Reads: Living Example CD17-RTD	Should Read: Living Example Web 17-1
920	Q17-2_A, Part (c), part (iv) Reads: The guidelines are given in Problem P5-1_B.	Should Read: The guidelines are given in Problem Q5-3_A.
921	P17-1_B, third sentence, delete tau Reads: Vary *n*, τ, C_{A0}, and *k* and describe what you find.	Should Read: Vary *n*, C_{A0}, and *k* and describe what you find.

922	P17-3_C Reads: the exit concentration maximum mixedness equation	 Should Read: the exit concentration given by maximum mixedness equation
923	First line, add comma Reads: Mathematically, this hemi circle is described by the equations for $2\tau \geq t \geq 0$ then	 Should Read: Mathematically, this hemi circle is described by the equations, for $2\tau \geq t \geq 0$ then
924	P17-6_B, Part (h) Reads: the segregation in the maximum mixedness model?	 Should Read: the segregation and the maximum mixedness model?
925	P17-13_B, Part (e) Reads: Problem P16-3_B	 Should Read: Problem P16-3_C
Ch18		
Pg	**Error**	**Correction**
930	Top of page, gray box, 6^{th} bullet item Reads: • Discuss how combinations of ideal reactors can be used to model a nonideal reactor (Section 18.9).	 Should Read: • Discuss how combinations of ideal reactors can be used to model a nonideal reactor (Section 18.8).
930	Top of page, gray box, 7^{th} bullet item Reads:	 Should Read:

	• Identify how combinations of ideal reactors can be used in pharmacokinetics modeling (Section 18.10).	• Identify how combinations of ideal reactors can be used in pharmacokinetics modeling (Section 18.8).
932	Bottom of page, third line from the bottom Reads: channels or by passes,	 Should Read: channels or bypasses,
934	Paragraph above Equation (18-3) Reads: $\Theta = Ut/L$ can put ...	 Should Read: $\Theta = Ut/L$, one can put …
937	Top of page, minus sign missing in equation below "Closed-Closed Boundary Condition" Reads: $C_{A0} = C_A(0^+) \quad \frac{D_a}{U}\frac{dC_A}{dz}_{z=0^+}$	 Should Read: : $C_{A0} = C_A(0^+) - \frac{D_a}{U}\frac{dC_A}{dz}_{z=0^+}$
940	Second line below Equation (E18-1.4) Reads: MatLab	 Should Read: MATLAB
940	Paragraph below Figure E18-1.1, second line Reads: $E(\theta)$	 Should read: $E(\Theta)$
940	Last paragraph, 5th line Reads: drops form …	 Should Read: drops from …
948	First line, replace theta symbol Reads:	 Should Read:

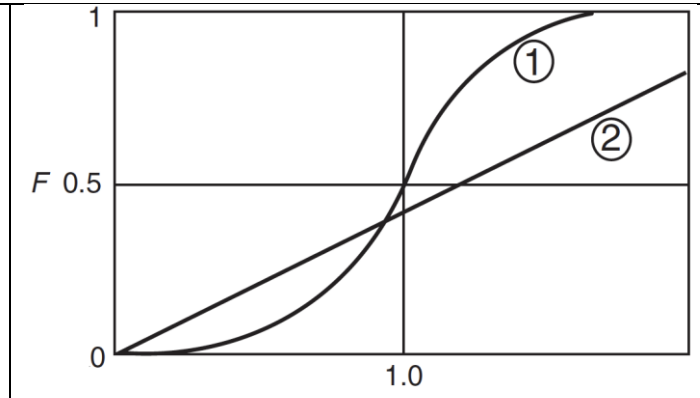
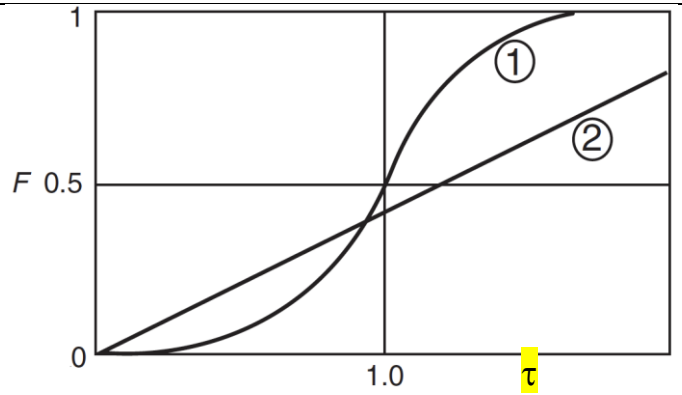
	θ	Θ
949	First line below Equation (18-18), add comma and space Reads: where $q = \sqrt{1 + 4\boldsymbol{Da_1}/Pe_r}$ $\boldsymbol{Da_1} = \tau k$, and $Pe_r = UL/D_a$.	 Should Read: where $q = \sqrt{1 + 4\boldsymbol{Da_1}/Pe_r}$, $\boldsymbol{Da_1} = \tau k$, and $Pe_r = UL/D_a$.
951	Equation (E18-2.8) Reads: $$n = \frac{\tau^2}{\sigma^2} = \frac{(5.15)^2}{6.1} = 4.35$$	 Should Read: $$n = \frac{\tau^2}{\sigma^2} = \frac{(5.15)^2}{6.2} = 4.28$$
951	Equation (E18-2.9), denominator on r.h.s. Reads: $$= 1 - \frac{1}{(1 + 1.29/4.35)^{4.35}}$$	 Should Read: $$= 1 - \frac{1}{(1 + 1.29/4.28)^{4.28}}$$
951	Line in box below Equation (E18-2.9) Reads: X = **67.7% for the tanks-in-series model**	 Should Read: X = **67.6% for the tanks-in-series model**
951	Last box on the page, below Equation (E18-2.10) Reads: Tanks-in-series X = 67.7%	 Should Read: Tanks-in-series X = 67.6%
952	Second paragraph (5th line) below Equation (18-40) Reads:	 Should Read:

	very close to the value of 4.35 calculated …	very close to the value of 4.28 calculated …
954	Top of page, 3rd line Reads: Equation (18-26) and (18-27) to obtain	 Should Read: Equations (18-15) and (18-16)
958	Equation (18-51), below Convection, add n over summation Reads: $\overbrace{F_{i0}H_{i0} - \sum_{i=1} F_i H_i}$	 Should Read: $\overbrace{F_{i0}H_{i0} - \sum_{i=1}^{n} F_i H_i}$
958	Last paragraph Reads: … our annulus (Figure 12-15) with …	 Should Read: … our annulus (Figure 18-12) with …
961	Paragraph below Equation (18-62), first line Reads: Equation (18-61) is…	 Should Read: Equation (18-62) is…
961	Last paragraph, 4th line, incorrect link Reads: (*http://www.umich.edu/~elements/6e/12chap/expanded.html*).	 Should Read: (*http://umich.edu/~elements/6e/18chap/expanded_ch18_radial.pdf*).
965	First paragraph, ninth line Reads: , a CSTR model as two CST in interchange.	 Should Read: , a CSTR model as two CSTR with interchange
965	First paragraph, last line Reads:	 Should Read:

	… conversion on concentrations.	… conversion or concentrations.
966	Paragraph above Equation (18-67) Reads: … well-mixed reactor value V_s is	 Should Read: … well-mixed reactor volume V_s is
967	Table E18-5.2 Reads: $C_{T0} - C_r$	 Should Read: $C_{T0} - C_T$
967	Equation (E18-5.2), second line, denominator Reads: $v_s C_{A0} - v_s C_A - \ldots$	 Should Read: $v_s C_{A0} - v_s C_{As} - \ldots$
968	Top of page, second paragraph Reads: Using the same rate-law parameter values for or an ideal CSTR we find	 Should Read: Using the same rate-law parameter values for an ideal CSTR we find
968	Fourth paragraph, last line Reads: the converstion in our real reactor.	 Should Read: the conversion in our real reactor.
970	First paragraph, first line Reads: A pulse trace test was carried out …	 Should Read: A pulse tracer test was carried out …
971	Second equation (not numbered), move minus sign after equal sign Reads:	 Should Read:

	$0.066 = \frac{-(0.8)(-1.44) + \beta + 1}{(0.8)[-0.434 - (-1.44)]}$	$0.066 = -\frac{(0.8)(-1.44) + \beta + 1}{(0.8)[-0.434 - (-1.44)]}$
972	End of line above section 18.8.3, change to capital X Reads: (x = 0.56).	 Should Read: (X = 0.56).
972	Last paragraph on the page, 6th line Reads: 18-16(a) and (b) on page 973 show …	 Should Read: 18-17(a) and (b) on page 974 show …
972	Last paragraph, 3rd line from bottom Reads: in Figure 18-16(b) was found …	 Should Read: in Figure 18-17(b) was found …
973	Last paragraph, last sentence, delete Reads: As can be seen in Chapter 9, in the figure for *Professional Reference Shelf R9.8* on the CRE Web site on pharmacokinetics, and on pages 408–409, there are two different slopes, one for the drug distribution phase and one for the elimination phase.	 Should Read: As can be seen in Chapter 9, in the figure for *Professional Reference Shelf R9.8* on the CRE Web site on pharmacokinetics, there are two different slopes, one for the drug distribution phase and one for the elimination phase.
977	Equation (S18-7) Reads: $\frac{\sigma^2}{\tau^2}$	 Should Read: $\frac{\sigma^2}{\tau_m^2}$
979	Problem Q18-2_B Reads:	 Should Read:

	Problem P5-3_A.	Problem Q5-3_A.
979	Problem Q18-3_A Reads: Figure 18-2	 Should Read: Figure 18-10
979	Problem Q18-3_A Reads: … , and a viscosity of a kinematic …	 Should Read: … , and kinematic viscosity of …
980	Problem P18-1_B, Part (c), part (v) Reads: υ	 Should Read: ν
983	Problem P18-6_A, Part (c), add comma Reads: Using the dispersion calculate	 Should Read: Using the dispersion, calculate
983	Problem P18-9_B, Part (b) Reads: (***Ans***: $X_{Dispersion}$ = 0.41)	 Should Read: (***Ans***: $X_{Dispersion}$ = 0.448)
984	Problem P18-12_D Reads: Let's continue Problem P16-11_D. Where τ = 10 min and σ^2 = 14 min^2	 Should Read: Let's continue Problem P16-11_B. Where τ = 10 min and σ^2 = 74 min^2
985	Problem P18-15_B, Figure P18-15B, add tau on x axis Reads:	 Should Read:

		
Appen		
Pg	**Error**	**Correction**
997	First paragraph in Section A.6, link has a space after "tutorials/" causing the link to NOT work. Reads: *https://bolide.cs.uoguelph.ca/tutorials/ GLP*	 Should Read: *https://bolide.cs.uoguelph.ca/tutorials/GLP*
1001	Top of page Reads: ***Time Rate of Change of Energy with Time (Power)***	 Should Read: ***Rate of Change of Energy with Time (Power)***
1006	Below Equation (EC-1.3) Reads: Substituting for the mole fractions in terms of partial pressures gives	 Should Read: Substituting for the partial pressures in terms of concentration gives
1010	First paragraph, link has a space after "software" causing the link to NOT work. Reads: *http://www.polymathsoftware .com/fogler/*	 Should Read: *http://www.polymathsoftware.com/fogler/*

1011	Last bullet item under "Getting Started", add link Reads: Wolfram variable.	Should Read: Wolfram variable (*http://www.umich.edu/~elements/6e/software/Tutorial_for_initial_setting_of_Wolfram_Variables.pdf*).
1013	First paragraph in Section D.8, link has a space after "umich" causing the link to NOT work. Reads: *http://encyclopedia.che.engin.umich .edu/Pages/Reactors/menu.html*	Should Read: *http://encyclopedia.che.engin.umich.edu/Pages/Reactors/menu.html*
1022	Second paragraph in Section G.8, link not working, could be caused by brackets, brackets not necessary, not part of URL Reads: (see Chapter 7, R7.5 [*http://www.umich.edu/~elements/6e/07chap/prof-7-5.html*]).	Should Read: (see Chapter 7, R7.5 *http://www.umich.edu/~elements/6e/07chap/prof-7-5.html*]).
1027	Second bullet item, Living Example Problems (LEP). Getting Started", incorrect problem number listed Reads: … (e.g., Problem P5-2_B), and …	Should Read: … (e.g., Problem P5-1_B), and …