

Elements of Chemical Reaction Engineering

Sixth Edition

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When reviewing corrections, always check the print number of your book. Corrections are made to printed books with each subsequent printing.

First Printing: August 2020

Pg	Error	Correction
xxiii	Second line below Figure I-4 Reads: programmed and read for use	Should read: programmed and ready for use
xxvii	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)

xxvii	<p>Section F, Link to Monsanto incident has a space or line break after pdf/ causing the link to NOT work.</p> <p>Reads: (http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(2)PS-Monsanto.pdf)</p>	<p>Should read: (http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(2)PS-Monsanto.pdf)</p>
xxxii	<p>Third line from top</p> <p>Reads: in section 3.5</p>	<p>Should read: in section 3.4</p>
2	<p>Top of Figure 1-1</p> <p>Reads: 9O₂</p>	<p>Should read: 9O₂</p>
2	<p>First paragraph</p> <p>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 degrade toxic chemicals (Chapter 7 on the CRE Web site). Other examples shown are the solid-liquid kinetics of acid-rock interactions to</p>	<p>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 kinetics (Chapter 9) and drug delivery pharmacokinetics (Chapter 9 on the CRE Web site). Also shown in Figure 1-2 are the</p>

	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).	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, second paragraph Reads: is as $10 \text{ mol/m}^3 \cdot \text{s}$.	Should read: is $10 \text{ mol/m}^3 \cdot \text{s}$.
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: Simple batch homogeneous batch reactor (BR).	Should read: 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	Second-to-last paragraph Reads: $C_A = 10 \text{ mole/dm}^3$.	Should read: $C_{A0} = 10 \text{ mole/dm}^3$.
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 _A Reads: $-r = kC_A^2$	Should read: $-r_A = kC_A^2$
49	Equation (E2-2.2) Reads: = 218 m ³	Should read: = 218 dm ³ .
49	Below Equation (E2-2.2) Reads: (218 m ³)	Should read: (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:	Should read:

	volume of 1.6 m ³	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(a) Reads: 80% for	Should read: 80% conversion for
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: $O_2 \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} 2NO_2$
82	Table 3-1, B., (2) Reads: $-r_{CNBr} = kC_{CNBr}C_{CH_3NH_2}$	Should read: $-r_{CNBr} = k[C_{CNBr} C_{CH_3NH_2} - C_{CH_3Br} C_{CNCNH_2}/K_c]$
83	Last line on the page Reads: ethanol	Should read: ethane
84	Near bottom of the page Reads:	Should read:

	Section 9.1.1	Section 9.1.2
84	Last equation on the page Reads: $\approx k_3 C_A C_M$	Should read: $\approx k_1 C_A C_M$
85	Fourth 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	First 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	First equation Reads: Fraction with energies to between	Should read: Fraction with energies between
98	Figure E3-1.2, left side, caption on y-axis Reads: K (sec ⁻¹)	Should read: k (sec ⁻¹)
98	Below Equation (E3-1.1) 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" row Reads: (2-9)	Should read: (2-7)
104	Table 3-2, "Packed bed (PBR)" row, 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, sixth line Reads: Occupation	Should read: Occupational
107	Boxed equation in middle of the page, after "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: $\rightarrow CH_4 + CO$

111	P3-2 _B , part (a) Reads: k at 312.5 K	Should read: k at 313 K
112	P3-7 _A , second line Reads: temperature follow	Should read: temperature are given below
135	Denominator in equation in the middle of the page (below Equation (4-27)) Reads: $1 + K_B P_{A0} X + K_B P_{A0} (1-X)$	Should read: $1 + K_B P_{A0} X + K_T P_{A0} (1-X)$
140	Table E4-5.3, Species column, first row 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 $k_A = 0.5 \text{ min}^{-1}$ in Equation (E4-5.11), we obtain $-r_A$ solely as a function of X for the flow system.
142	First line, no new paragraph, no new sentence. The sentence is continued from previous page as noted above, page 141	

143	Line above " <i>Analysis</i> " Reads: Problem P4-1A (b)	Should read: Problem P4-1A (b)
146	First line on the page Reads: The <i>stoichiometric table</i> for the reaction given by Equation (S4-1) being carried out in a flow system is	Should read: A <i>stoichiometric table</i> for reaction given by Equation (S4-1) for a flow system is shown below in steps 2 through 6
147	Equation (S4-14), numerator on r.h.s. Reads: $kP_{A0}(1-X)p$	Should read: $k_A P_{A0}(1-X)p$
149	Question Q4-5A Reads: 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?	Should read: Example 4-3. Under what conditions will the concentration of the inert nitrogen be constant?
149	Problem P4-1A, part (b), part (v), denominator Reads: X_{er}	Should read: X_{ef}
150	P4-3A, part (c) Reads: $k_A = 2 \text{ dm}^6/\text{mol} \cdot \text{s}$	Should read: $k_A = 2 \text{ dm}^3/\text{mol} \cdot \text{s}$
150	P4-4B	

	Reads: The elementary gas reaction	Should read: The elementary gas phase reaction
150	P4-4 _B , part (f) Reads: $k_A = 2 \text{ dm}^6/\text{mol} \cdot \text{s}$	Should read: $k_A = 2 \text{ dm}^6/\text{mol}^2 \cdot \text{s}$
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
163	Paragraph above Table 5-3, third line Reads: 24-hour reaction,	Should read: 24-hour reaction time,
164	1st paragraph at top of page, start of third line Reads: ethane.	Should read: ethylene oxide.
165	Fifth line below Table E5-1.2 Reads: is 55 moles per	Should read: is 55.5 moles per
165	Third equation from bottom of page, in numerator Reads: $55 \text{ mol}/\text{dm}^3$	Should read: $55.5 \text{ mol}/\text{dm}^3$

165	Third equation 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: $k_1 = \frac{0.311}{min} \times \dots$	Should read: $k = \frac{0.311}{min} \times \dots$
184	First line of text after Equation (E5-3.10) Reads: pipe, 0.81 ft ³ ,	Should read: pipe, 0.82 ft ³ ,
185	First paragraph, third line Reads: 0.81 ft ³	Should read: 0.82 ft ³
185	First paragraph, fourth line 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	Subsection (a), Equation (5-44) number and in text two lines below (change in two places) Reads: Equation (5-44)	Should read: Equation (5-45)
200	First unnumbered equation below Equation (E5-6.1) Reads: $\alpha = 0.037 \dots$	Should read: $\alpha_2 = 0.037 \dots$
200	Second unnumbered equation below Equation (E5-6.1) Reads: $= 0.093$	Should read: $= 0.096$
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 first full paragraph on the page Reads:	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 is 16 kg/m^3 . The rate law is	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	Last sentence before <i>Solution</i> Reads: 25.8 atm/m	Should read: 25.8 kpa/m
205	In the Living Example Problems (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), subpart (i) Reads: $k' = 0.0035 \text{ s}^{-1}$.	Should read: $k' = 0.0074 \text{ s}^{-1}$.
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 , equation	

	Reads: ... - OOH + CH ₃ ...	Should read: ... - OH + CH ₃ ...
230	First paragraph Reads: Steps ④ and ⑤ are used	Should read: Step ④ is used
230	First paragraph, insert Step ⑤ in second-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, first paragraph Reads: Nitrous oxide (NO) gas is used by a number of dentists on their patients (the author being one) to eliminate pain during drilling and tooth extraction. Nitrous oxide can	Should read: Nitric oxide (NO) gas is used to treat acute respiratory distress syndrome as it can improve 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	Second 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	Second paragraph below 5. Evaluate: Reads: Equations (E6-3.2)–(E6-3.9)	Should read: Equations (E6-3.1)–(E6-3.9)
254	Third paragraph below 5. Evaluate: Reads: cyanamide	Should read: cyanamide
264	Problem P6-1 _B , part (e), subpart (ii) Reads:	Should read:

	pressure drop to atmosphere	pressure to drop to atmospheric
264	Problem P6-1 _B , part (f), subpart (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 , equation, r.h.s. of arrows Reads: $C_6H_5COCH_2NC_5H_5Br$	Should read: $C_6H_5COCH_2NC_6H_5Br$
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, equation on line 2 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:	Should read:

	trityl (A)	trityl chloride (A)
277	Equation (E7-1.6), numerator Reads: $(44 - 20)\left(\frac{\text{dm}^3}{\text{mol}}\right)$	Should read: $(45 - 20)\left(\frac{\text{dm}^3}{\text{mol}}\right)$
277	Equation (E7-1.6) Reads: = 0.12	Should read: = 0.125
277	Example 7-1, solution part (c), first equation Reads: 0.12	Should read: 0.125
277	Example 7-1, solution part (c), first 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, first paragraph Reads: (trityl) (A)	Should read: (trityl chloride) (A)
280	Example 7-2, solution Part (1) heading Reads:	Should read:

	trityl	trityl chloride
283	Equation (E7-2.9) Reads: $k' = 0.122$	Should read: $k' = 0.125$
283	Second line after Equation (E7-2.9) Reads: We now set $\alpha = 2$ and regress again to find $k' = 0.122 \text{ dm}^3/\text{mol} \cdot \text{min}$.	Should read: We now set $\alpha = 2$ and use Polymath to regress again to find $k' = 0.125 \text{ dm}^3/\text{mol} \cdot \text{min}$.
283	Second equation from the bottom Reads: 0.122	Should read: 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	Second line after Equation (E7-2.11) Reads: trityl	Should read: trityl chloride
284	Second-to-last sentence of Analysis paragraph after Equation (E7-2.11) Reads: $k' = 0.122$	Should read: $k' = 0.125$

284	Second-to-last sentence of Analysis paragraph after Equation (E7-2.11) Reads: $k = 0.244$	Should read: $k = 0.25$
286	Last line of first paragraph Reads: $k = 5 \text{ (dm}^3\text{/mol)}$.	Should read: $k = 5 \text{ (dm}^3\text{/ mol} \cdot \text{min)}$.
286	Figure 7-7 Reads: $k = \text{(dm}^3\text{/mol)}$.	Should read: $k = \text{(dm}^3\text{/ mol} \cdot \text{min)}$.
288	Equation (E7-2.3) Reads: (E7-2.3)	Should read: (E7-2.5)
289	Second-to-last sentence of Analysis paragraph 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)

310	First of two equations at bottom of the page, r.h.s. of arrow 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 above Part (c) Reads: $= 2 - 0.44 - 1.07 =$	Should read: $= 2 - 0.43 - 1.09 =$
329	Denominator on r.h.s. of equation just above Analysis: Reads: $2 - 0.44$	Should read: $2 - 0.43$
332	First equation Reads: $\left(2 - 0.78 - 0.75 \frac{\text{mol}}{\text{dm}^3}\right)$	Should read: $\left(2 - 0.78 - 0.75\right) \frac{\text{mol}}{\text{dm}^3}$
338	First paragraph Reads:	Should read:

	90% of A is not consumed ...	90% of B is not consumed ...
338	Figure E8-5.1 labels, left to right Read: F_A and F_B	Should read F_B and F_A
343	Figure (2) at bottom of page Reads: $+ \frac{17}{2} O_2$	Should read $+ \frac{15}{2} O_2$
344	Figure (3) at top of page, r.h.s. of arrow Reads: $+CH_4$	Should read $+2CH_4$
344	Last equation on the page 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 E8-8.2 (b) MR, labels left to right Read: F_B and F_D	Should read F_D and F_B
350	Paragraph, Lower Flammability Limit 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 in <i>Additional information</i> : Reads: Overall mass transfer coefficient $k_C = 1.0 \text{ dm}^3\text{...}$	Should read Overall mass transfer coefficient for B is $k_C = 1.0 \text{ dm}^3\text{...}$
362	P8-13 _B in <i>Additional information</i> : Reads: $k_{3E} = 5.0 \text{ dm}^3/\text{mol}^2 \cdot \text{kg-cat} \cdot \text{min}$	Should read $k_{3E} = 5.0 \text{ dm}^9/\text{mol}^2 \cdot \text{kg-cat} \cdot \text{min}$
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 .
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:	Should read

	where the rate law developed in Problem P9-5B(c) is.	where the rate law developed in Problem P9-5B(d) is.
380	Last paragraph above section 9.2.2 Reads: More information about enzymes can be found on the following two Web sites: <i>http://us.expasy.org/enzyme/</i> and <i>www.chem.qmw.ac.uk/iubmb/enzyme.</i>	Should read: More information about enzymes can be found on the following Web site: <i>http://us.expasy.org/enzyme/.</i>
385	Paragraph above Table E9-2.2 Reads: Figure 9-2.1(b).	Should read Figure E9-2.1(b).
386	Second figure in margin, Lineweaver-Burk Plot Reads: $\frac{1}{C_S}$	Should read $\frac{1}{S}$
387	First line Reads: Equation (9-26) can be rearranged in the following forms. For the <i>Eadie-Hofstee</i> form	Should read Equation (9-26) can be rearranged in the <i>Eadie-Hofstee</i> form
387	First line after equation (E9-2.5) Reads: and for the Hanes-Woolf model,	Should read For the Hanes-Woolf model,
390	Second line below equation (9-32a) Reads: and $C_{urea0} = 0.1$	Should read and $C_{urea0} = 0.1$
390	Line before last equation	

	Reads: Substituting into Equation (9-32)	Should read Substituting into Equation (9-32a)
391	Figure 9-8, y-axis label Reads: Log rate of O 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	First sentence of section 9.3.2 Reads: androgen testosterone, as enzyme that	Should read androgen testosterone, an enzyme that
396	First paragraph of section 9.3.3, second-to-last sentence Reads: to the enzyme, it is inactive and cannot	Should read to the enzyme, it becomes inactive and cannot
397	First sentence of paragraph below Equation (9-43) Reads: Figure 9-14 both the slope	Should read Figure 9-14 that both the slope
405	Line below Figure 9-23 Reads: the constant K _s is very small, with regard to	Should read the constant K _s is very small with respect to
407	Paragraph below Equation (9-61) Reads: 310°K	Should read 310 K

407	Paragraph below Equation (9-61) Reads: 312°K	Should read 312 K
407	Paragraph below Equation (9-61) Reads: 310°K	Should read 310 K
408	Second line below Equation (9-64) Reads: (mass product/volume/time).	Should read (1/time)
409	First 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	Top portion of numbered 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:	Should read

	$r_{g1} =$	$r_{g2} =$
419	Line above Equation (9-90) Reads: Substituting for C_s using Equation (9-68)	Should read Substituting for C_s using Equation (9-88)
419	Line above Equation (9-91) Reads: and (9-54),	Should read and (9-51),
424	Closure paragraph Reads: PSSH to reactions in such problems as P9-4 _B	Should read PSSH to reactions in problems such as P9-4 _A
430	P9-1 _A , part (f), subpart (i) Reads: Vary V_{max} and K_m between	Should read Vary V_{max} and K_M between
430	P9-1 _A , part (g), subpart (ii) Reads: Vary the initial concentration for ethanol	Should read 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	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.

	$k_6 = 0.005$ appropriate units. Write one sentence conclusion.	Take initial concentration of CO, H ₂ O, 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 , part (d), numerator in equation Reads: $k_1 C_{H_2} C_{Br}^{3/2}$	Should read $k_1 C_{H_2} C_{Br_2}^{3/2}$
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, $-r'_{CO}$, and a function	Should read: the initial rate, $-r'_{CO}$, 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	

	<p>Reads:</p> <p>with the rate law, $-r'_A$, as a function of conversion, and carry out</p>	<p>Should read:</p> <p>with the rate law, $-r'_A$, and carry out</p>
487	<p>Line before 4. Evaluate:</p> <p>Reads:</p> <p>Maximum catalyst weight for conditions given.</p>	<p>Should read:</p> <p>This is the maximum catalyst weight for conditions given.</p>
489	<p>Paragraph 4. Combine and Evaluate:</p> <p>Reads:</p> <p>in terms of conversion (E10-2.3) and then</p>	<p>Should read:</p> <p>in terms of conversion using Equations (E10-2.3) through (E10-2.5) and then</p>
496	<p>Line above 10.7 Catalyst Deactivation</p> <p>Reads:</p> <p>values of the parameter K_{AE}, which is physically impossible.</p>	<p>Should read:</p> <p>values of the parameter K_{EA}, which is physically impossible.</p>
500	<p>Example 10-4 Solution</p> <p>Reads:</p> <p>1. Mol Balance:</p>	<p>Should read:</p> <p>1. Mole Balance:</p>
501	<p>Equation (E10-4.9)</p> <p>Reads:</p> <p>$\ln X = 1 - e^{-kt} = kt$</p>	<p>Should read:</p> <p>$X = 1 - e^{-kt}$</p>
502	<p>Top of page</p> <p>Reads:</p> <p>$R = 1.987$</p>	<p>Should read:</p> <p>$R = 1.987 \text{ cal/mol}\cdot\text{K}$</p>
502	<p>Line above Figure 10-24</p>	

	Reads: in fixed-bed of catalyst given	Should read: 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 $\text{Cr?Al}_2\text{O}_3^c$	Should read: Paraffin dehydrogenation on $\text{Cr/Al}_2\text{O}_3^c$
510	Link in second-to-last sentence has an errant space 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 an errant space 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), 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 (b), subpart (iii), link has an errant space 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 , second equation, r.h.s. of arrow Reads: C ₃ HOH•S	Should read: C ₃ H ₅ OH•S
530	P10-6 _B , third equation Reads: C ₃ HOH•S \rightleftharpoons C ₃ HOH+S	Should read: C ₃ H ₅ OH•S \rightleftharpoons C ₃ H ₅ OH+S
544	Paragraph below Equation (11-2), link has an errant space causing the link to NOT work. Reads: (Joule bio: http://www.corrosion-doctors.org/Biographies/JouleBio.htm .)	Should read: (Joule bio: http://www.corrosion-doctors.org/Biographies/JouleBio.htm .)
544	Last sentence before Equation (11-3) Reads:	Should read:

	(moles of i per time)	(moles of i per unit time)
551	<p>Middle of page, link has an errant space causing the link to NOT work.</p> <p>Reads: http://www.umich.edu/~elements/6e/icm/index.html.</p>	<p>Should read: http://www.umich.edu/~elements/6e/icm/index.html.</p>
554	<p>Equation (11-19)</p> <p>Reads: $+ \int_{T_R}^T C_{P_c} dT =$</p>	<p>Should read: $+ \int_{T_R}^T C_{P_i} dT =$</p>
556	<p>Below Equation (11-26)</p> <p>Reads: in terms of kJ/mol $\Delta H_{R_x}^\circ(298 \text{ K}) \dots$</p>	<p>Should read: in terms of kJ/mol $\Delta H_{R_x}(423 \text{ K}) \dots$</p>
563	<p>First sentence in full paragraph after Table E11-3.1</p> <p>Reads: 5 dm³ PFR</p>	<p>Should read: 5 m³ PFR</p>
565	<p>Below the sentence, "Using Equations (E11-3.10) and ... "</p> <p>Reads: $k = 14.02 \text{ h}^{-1}$</p>	<p>Should read: $k = 13.9 \text{ h}^{-1}$</p>
565	<p>Last paragraph, second sentence</p> <p>Reads: We note that at the CSTR</p>	<p>Should read: We note that the CSTR</p>

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, change each instance of "degree K" (6 times) Reads: °K	Should read: K
572	Last line of first full paragraph Reads: , 15% naphthas,	Should read: , 15% naphthenes,
574	Below "Also for this example, ..." Reads: $\dot{Q} = F_{A0}(C_{PA} + C_{P1}\Theta_{P1})(T_2 - T_1)$	Should read: $\dot{Q} = F_{A0}(C_{PA} + C_{P1}\Theta_I)(T_2 - T_1)$
574	Margin near bottom of page Reads: $X = 0.9 X_e = 0.9 \cdot 0.72$	Should read: $X = 0.95 X_e = 0.95 \cdot 0.72$
579	Table 11-4, BLEVE link has an errant space causing the link to NOT work.	

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

	http://www.lni.wa.gov/safety/grantspartnerships/partnerships/vpp/pdfs/vppmocbestpractices.pdf	http://www.lni.wa.gov/safety/grantspartnerships/partnerships/vpp/pdfs/vppmocbestpractices.pdf
580	Table 11-4, MSDS link has an errant space 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 an errant space 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 an errant space 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 two errant spaces 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 an errant space causing the link to NOT work. Reads:	Should read:

	http://www.wermac.org/valves/valves_pressur_e_relief.html	http://www.wermac.org/valves/valves_pressur_e_relief.html
580	Table 11-4, PHA link has an errant space causing the link to NOT work. Reads: http://www.oshatraining.org/courses/mods/736m4.html	Should read: https://www.oshatraining.org/courses/mods/736m4.html
580	Table 11-4, PSM link has an errant space 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 an errant space 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 an errant space 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 two errant spaces 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 an errant space 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	Q11-11A Reads: $(F_{A0}/-r_b)$.	Should read: $(F_{A0}/-r_A)$.
588	P11-7B, Additional information Reads: $C_{P_I} = 18 \text{ cal/mol/K}$	Should read: $C_{P_I} = 18 \text{ cal/mol/K}$
589	P11-8B, part (f) Reads: (Ans: At $W = 800 \text{ kg}$ then $X = 0.3583$)	Should read: (Ans: At $W = 1357 \text{ kg}$ then $X = 0.404$)
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:	y axis should read:

	T	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	Solution 7.b. Reads: $\sum C_{P_i} \Theta_i : \Theta_i C_{P_i} = \dots$	Should read: $\sum C_{P_i} \Theta_i \dots$
613	Table E12-2.1 Reads: C_{PA}	Should read: C_{PA}
617	Figure below Case 4 Reads: 1034.7 K	Should read: 1034.5 K
617	Second-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:	Should read:

	brackets in Equation (11-28),	brackets in Equation (11-27),
620	Third margin note, next to Equation (12-13) Reads: $(T_{1a} > T_{2a} > T)$	Should read: $(T_{a1} > T_{a2} > T)$
621	Paragraph above Equation (12-21), second sentence Reads: Equation (11-27), neglecting ΔC_p , in ΔH_{R_x} substituting ...	Should read (adding comma): Equation (11-27), neglecting ΔC_p in ΔH_{R_x} , substituting ...
625	Line below Equation (E12-3.2) Reads: $k = 16.96 \cdot 10^{12} \exp \dots$	Should read: $k = 16.96 \times 10^{12} \exp \dots$
629	Paragraph above Equation (E12-4.4) Reads: given in Equation (E12-3.13),	Should read: given in Equation (E12-3.14),
631	Below Figure E12-3.2A, link in last sentence has an errant space 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: $\kappa = 0$
632	Figure 12-8	

	Reads: Increase K	Should read: Increase κ
637	Last paragraph, last line Reads: (cf. Problem P12-1(j))	Should read: (cf. Problem P12-1A(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, <i>Additional Information</i> Reads: $Ua = 4000 \text{ J/m}^3 \text{ s} \cdot ^\circ\text{C}$	Should read: $Ua = 4000 \text{ J/dm}^3 \text{ s} \cdot ^\circ\text{C}$
641	Table E12-5.1, Explicit equations, line 12 Reads: $12 C_c = C_{t0} \cdot (F_c/F_t) \cdot (T_0/T)$	Should read: $12 C_c = C_{t0} \cdot (F_c/F_t) \cdot (T_0/T)$
647	5. Parameters Reads: (24) $C_{A0} = 0.2 \text{ mol/dm}^3$	Should read: (24) $C_{T0} = 0.2 \text{ mol/dm}^3$
647	5. Parameters Reads:	Should read: (32) ΔH_{Rx1B}

	(32) ΔH_{Rx1B}°	
647	5. Parameters Reads: (33) ΔH_{Rx1A}°	Should read: (33) ΔH_{Rx1A}
650	Analysis: paragraph, second sentence Reads: exchanger, (i.e., 930 K).	Should read: exchanger, (i.e., 886 K).
650	Analysis: paragraph, second-to-last sentence Reads: In Figure 12-7.2(a) ...	Should read: In Figure E12-7.2(a) ...
650	Part (c) , denominator of equation Reads: $\dot{m}c_{p}$	Should read: $\dot{m}C_{pCo}$
652	Last line before section 12.7 Reads: temperature below 750 K.	Should read: temperature below 700 K.
653	Last line on page Reads: See Example 13-7 and	Should read: See Example 13-6 and
654	First line, link has an errant space 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: <i>Hint: Plot Q_r and Q_g as a function of</i>	Should read: <i>Hint: Plot X_{MB} and X_{EB} as a function of</i>
667	P12-9 _A , <i>Additional information</i> Reads: $C_{P_A} = 18 \text{ cal/mol/K}$	Should read: $C_{P_I} = 18 \text{ cal/mol/K}$
667	P12-9 _A , <i>Additional information</i> Reads: $C_{P_{Cool}} = 18 \text{ cal/mol}$	Should read: $C_{P_{Cool}} = 18 \text{ cal/mol/K}$
668	P12-12 _C , part (b) Reads: $Ua =$	Should read: $\frac{Ua}{\rho_b} =$
670	P12-13 _B , part (c), last sentence contains link with an errant space causing the link to NOT work. Reads: http://www.umich.edu/~elements/ 6e/12chap/i_clicker_ch12_q1.html	Should Read: http://www.umich.edu/~elements/6e/12chap/i_clicker_ch12_q1.html
670	P12-15 _B , <i>Additional information:</i> Reads: $E = 40000 \text{ cal/mol}\cdot\text{K}$	Should read: $E = 40000 \text{ cal/mol}$
672	P12-18 _C , sentence below equation Reads:	Should read:

	the reactor at a 450-K flow rate of 10 mol/s, and a concentration of 0.25 mol/dm ³ .	the reactor at a 450 K, flow rate of 10 mol/s, and a concentration of 1.9 mol/dm ³ .
672	P12-18 _C , <i>Additional information</i> Reads: $C_{A0} = 1 \text{ mol/dm}^3$	Should read: $C_{A0} = 1.9 \text{ mol/dm}^3$
675	P12-23 _B , <i>Additional information</i> Reads: $K_{2C2} = 4000 \text{ dm}^9/\text{mol}^3 \cdot \text{min}@310 \text{ K} \dots$	Should read: $K_{2C2} = 4000 \text{ dm}^6/\text{mol}^2 \cdot \text{min}@310 \text{ K} \dots$
677	P12-26 _C , part (f), second-to-last sentence Reads: For an entering stream to ethylbenzene	Should read: For an entering steam to ethylbenzene
678	P12-27 _B , last sentence before part (a) Reads: fed to the rector at a	Should read: fed to the reactor at a
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, third 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 Reads: As seen in Figure E13-1.6	Should read: As seen in Figure E13-1.2 ...
693	End of paragraph below figure, link has an errant space 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, <i>one</i> in the sentence, "Substituting..." and <i>one</i> next to the equation Reads: (3-21)	Should Read: (3-25)
698	Table E13-2.1, Explicit equations, line 9 Reads: $9 \text{ Vaqam} = (mbo + mw) / \rho \text{vaqam} \# m3$	Should read: $9 \text{ Vaqam} = 3.9 \# m3$
701	In text 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	Second paragraph of section 13.3.1, last sentence	

	<p>Reads: This analysis, summarized in Figure PRS13.5</p>	<p>Should Read: This analysis, summarized in Figure R13.5</p>
708	<p>Equation (13-22), two times</p> <p>Reads: C_{P_W}</p>	<p>Should Read: C_{P_C}</p>
708	<p>Equation (E13-4.9), two times</p> <p>Reads: C_{P_W}</p>	<p>Should Read: C_{P_C}</p>
709	<p>Table E13-4.1, Explicit equations, line 29, change Cpw to Cpc</p> <p>Reads: 29 $Qr2 = mc * Cpw * (T - Ta1) * (1 - \exp(-UA/mc/Cpw))$</p>	<p>Should read: 29 $Qr2 = mc * Cpc * (T - Ta1) * (1 - \exp(-UA/mc/Cpc))$</p>
709	<p>Table E13-4.1, Explicit equations, line 30,</p> <p>Reads: 30 $Ta2 = T - (T - Ta1) * \exp(-UA/mc/Cpw)$</p>	<p>Should read: 30 $Ta2 = T - (T - Ta1) * \exp(-UA/mc/Cpc)$</p>
710	<p>Last line on page, link has a space after "CRE/" causing the link to NOT work</p> <p>Reads: (http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/ 344ReactionEngrModule(2)PS-Monsanto.pdf).</p>	<p>Should Read: (http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(2)PS-Monsanto.pdf).</p>
715	<p>End of first paragraph, link has a space after "Engr" causing the link to NOT work.</p> <p>Reads:</p>	<p>Should Read:</p>

	(See http://umich.edu/~safeche/assets/pdf/courses/CRE/344ReactionEngrModule(1)PS-T2.pdf .)	(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/344ReactionEngrModule(1)PS-T2.pdf .)	Should Read: (See http://umich.edu/~safeche/assets/pdf/courses/CRE/344ReactionEngrModule(1)PS-T2.pdf .)
717	Last sentence 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/course/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, opposite "Rate laws" margin note Reads: $A_{1A} = 5.73 \times 10^2 \dots$	Should read: $A_{1A} = 4 \times 10^{14} \dots$
717	Activation Energy near bottom of page Reads: with $E_{1A} = 128000 \text{ J/mol K}$	Should read: with $E_{1A} = 128000 \text{ J/mol}$
717	Pre-exponential factor near bottom of page Reads:	Should read:

	$A_{2S} = 9.41 \times 10^{16} \dots$	$A_{2S} = 1 \times 10^{84} \dots$
717	Activation Energy near bottom of page Reads: with $E_{2S} = 800000 \text{ J/mol K}$	Should read: with $E_{2S} = 800000 \text{ J/mol}$
719	Middle of page (above Equation (E13-6.7)) Reads: Substituting for N_D in Equation (E13-6.3)	Should read: Substituting for N_D in Equation (E13-6.4)
720	Below (5) Stoichiometry: Reads: Neglect reactor-liquid volume change from loss of product gases.	Should read: Neglect reactor-liquid volume change from loss of product gases.
721	Above Table E13-6.1, link has an errant space 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: $2 \text{ d(CB)/d(t) = SW1*r1A}$ change in concentration of cyclomethylpentadiene	Should read: $2 \text{ d(CB)/d(t) = SW1*r1A}$ change in concentration of sodium
721	Table E13-6.1, Explicit equations, line 3 Reads: $3 \text{ DHRx1A = -45400}$ J/mol Na	Should read: $3 \text{ DHRx1A = -45400}$ J/mol A
721	Table E13-6.1, Explicit equations, line 6	

	Reads: 6 A1A = 4E14 per hour	Should read: 6 A1A = 4E14 dm ³ /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, 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: Reads: to rise and initiate a second a reaction,	Should read: to rise and initiate a second reaction,
723	Third line under Analysis: Reads: solvent dygline had not	Should read: solvent diglyme had not
726	Equation (S13-5), right side, start of numerator Reads: $\frac{\dot{Q}_g}{(r_A V)(\Delta H_{RX})}$	Should read: $\frac{\dot{Q}_{gs}}{(r_A V)(\Delta H_{RX})}$
726	Equation (S13-10), both numerators	

	<p>Reads:</p> $[-\Delta H_{RX}(T_0)]X$	<p>Should read:</p> $[-\Delta H_{RX}(T)]X$
727	<p>Equation (S13-13), numerator</p> <p>Reads:</p> $\dots (T - T_0) + \dot{m}_c C_{P_c} (\dots$	<p>Should read:</p> $\dots (T - T_0) - \dot{m}_c C_{P_c} (\dots$
729	<p>Problem P13-1B, part (a), subpart (v), second line</p> <p>Reads:</p> $\dots = 403 \text{ Btu}^\circ\text{R}), \text{ neglect } \dots$	<p>Should read:</p> $\dots = 403 \text{ Btu}^\circ\text{R}), \text{ neglect } \dots$
732	<p>Problem P13-1B, part (f), link has an errant space causing the link to NOT work.</p> <p>Reads:</p> <p>(http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(1)PS-T2.pdf).</p>	<p>Should Read:</p> <p>(http://umich.edu/~safeche/assets/pdf/courses/Problems/CRE/344ReactionEngrModule(1)PS-T2.pdf).</p>
732	<p>Problem P13-1B, part (f), subpart (vi) link has an errant space causing the link to NOT work.</p> <p>Reads:</p> <p>(http://umich.edu/~safeche/assets/pdf/courses/Problems/344ReactionEngineeringModule(2)PS050818.pdf)</p>	<p>Should Read:</p> <p>(http://umich.edu/~safeche/assets/pdf/courses/Problems/344ReactionEngineeringModule(2)PS050818.pdf)</p>
732	<p>Problem P13-1B, part (f), subpart (viii)</p> <p>Reads:</p>	<p>Should Read:</p> <p>value of UA below which you would observe <i>runaway</i>.</p>

	value of UA that you observe a runaway to find the value of UA below which you would observe <i>runaway</i> .	
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) 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 <i>Additional information</i> Reads: $k_{2A} = \frac{1}{3} \times 10^{-3} \text{ (dm}^3\text{/mol)}^2\text{/s}$	Should read: $k_{2A} = \frac{1}{3} \times 10^{-3} \text{ (dm}^3\text{/mol)/s}$
736	Problem P13-9 _B , below Additional information Reads: $k_{3C} = 0.6 \times 10^{-3} \text{ (dm}^3\text{/mol)}^2\text{/s}$	Should read: $k_{3C} = 0.6 \times 10^{-3} \text{ (dm}^3\text{/mol)/s}$
737	Problem P13-11 _B , second line Reads: ... expand Problem P9-7 ...	Should read: ... expand Problem P9-7 _A ...
755	Paragraph below Figure 14-5, last line	



	Reads: ... use $k_r \gg k_s$ so that ...	Should read: ... use $k_r \gg k_c$ 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	After <i>Solution</i> , first sentence Reads: 273 K is 0.046 mol/dm ³ .	Should read: 273 K is 0.0446 mol/dm ³ .
769	After <i>Solution</i> , second paragraph Reads: Rearranging Equation (14-64) gives us	Should read: Rearranging Equation (14-75) gives us
769	Equation (E14-4.5) Reads: $1.42 \times 10^{-5} \text{ m}^2/\text{s}$	Should read: $1.42 \times 10^{-4} \text{ m}^2/\text{s}$
769	Above Equation (E14-4.6) Reads: Substituting Re' and Sc into Equation (14-65)	Should read: Substituting Re' and Sc into Equation (14-76)
770	Incorrect Equation number	

	Reads: (14-79)	Should read: (14-80)
776	Equation (14-77) 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	Should read: sugar plant dust explosion
782	Problem P14-1B, part (a), subpart (ii) Reads: diffusivity	Should read: diffusivity
784	Problem P14-4B Reads: Use the K_S values of the parameter values,	Should read: Use the K_S values and other parameter values,
786	Problem P14-9B, first line 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 P14-12D Reads: (Ans: $t = 5,616$ years)	Should read: (Ans: $t = 2,808$ years)
792	Line above Equation (15-2) Reads:	Should read:

	Substituting in Equation (14-1) one obtains	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, 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, last sentence Reads: arrows in Figures 15-3.	Should read: arrows in Figures 15-4.
807	Line 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: falsified kinetic runaway reactions.	Should read: falsified kinetic is runaway reactions.
812	Last margin note, last line Reads: in Example 15-4.	Should read: in Example 15-3.
815	Middle of the page, fourth paragraph Reads: ... (cf. Equation 14-46).	Should read: ... (cf. Equation (14-45)).
815	Line below Equation (14-60) Reads:	Should read:

	is very small, then	is very large, then
818	First paragraph Reads: Chapter 18 (cf. Equation (18-16)).	Should read: Chapter 18 (cf. Equation (18-10)).
818	Paragraph below Equation (15-67) Reads: solution to Equations (15-67) and (18-16)	Should read: solution to Equations (15-67) and (18-10)
819	Equation above figure in bottom half of page Reads: ... = $(1.4 \times 10^{-6} \text{ g/m}^3)$...	Should read: ... = $(1.4 \times 10^6 \text{ g/m}^3)$...
819	Bottom of the page, list item 6 Reads: concentration of 0.004%, ...	Should read: concentration to 0.004%, ...
823	First equation, numerator Reads: ... = $(1.4 \times 10^{-6} \text{ g/m}^3)$...	Should read: ... = $(1.4 \times 10^6 \text{ g/m}^3)$...
825	Last paragraph Reads: <i>See Professional Reference Shelf R12.1</i>	Should read: <i>See Professional Reference Shelf R15.1</i>
835	Figure P15-4 _A , y-axis label Reads: $\ln(-r'_A)$	Should read: $\ln(-r'_A)$
835	Problem P15-5 _B Reads:	Should read:

	(see Figure 15-3).	(see Figure 15-3 _B).
836	Problem P15-6 _B , part (c) Reads: of the tail. The rate of reaction in the tail is	Should read: of the tail. The rate of reaction, i.e., the molar flow into the tail, is
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). <i>Hint:</i> Multiply both sides of Equation (15-25)	Should read: Derive Equation (15-35). <i>Hint:</i> Multiply both sides of Equation (15-26)
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: concentration at $z = 0$ and $C_A =$	Should read: concentration at $z = 0$ is $C_A =$
848	Figure 16-4, x-axis label is missing Reads:	Should read:

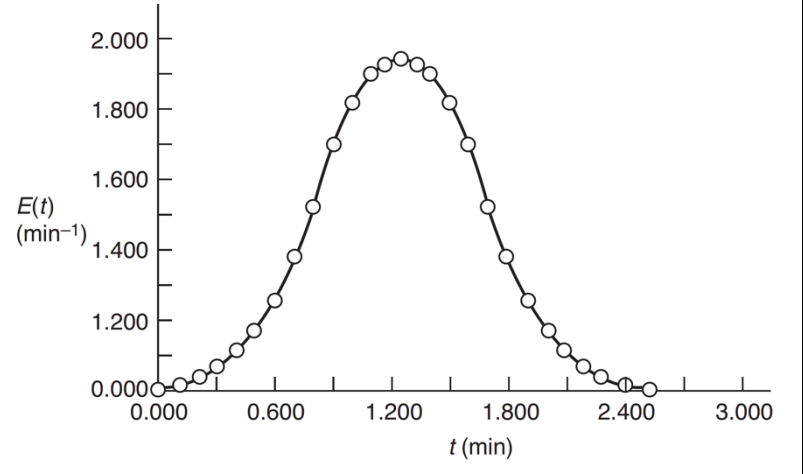
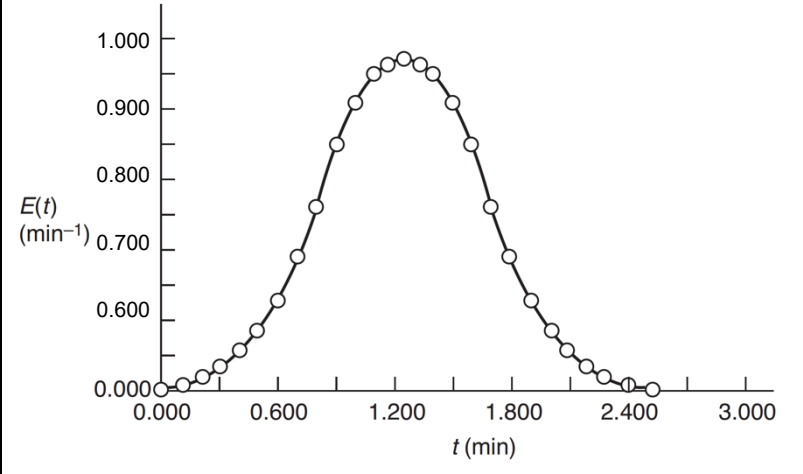
	<p>Step injection</p>  <p>A graph showing concentration C on the vertical axis and time t on the horizontal axis. The concentration is zero until $t=0$, where it jumps to a constant value and remains constant thereafter. The origin is labeled 0.</p>	<p>Step injection</p>  <p>A graph showing concentration C on the vertical axis and time t on the horizontal axis. The concentration is zero until $t=0$, where it jumps to a constant value and remains constant thereafter. The origin is labeled 0.</p>
850	<p>Top of page, item (3) Reads: LEP 16-1.</p>	<p>Should read: for LEP16-1.</p>
856	<p>Table E16-2.1, table title Reads: CONTRUCT</p>	<p>Should read: CONSTRUCT</p>
858	<p>Figure E16-2.2, label Reads: Toil</p>	<p>Should read: Tail</p>
859	<p>End of paragraph above Equation (16-21) Reads: CSTR</p>	<p>Should read: CSTR is</p>
864	<p>Paragraph below Equation (16-45), Reads: Combining Equations (16-42) and (16-45), and then using Equation (16-40) that relates</p>	<p>Should read: Combining Equations (16-42), (16-43) and (16-45), and then using Equation (16-39) that relates</p>
865	<p>Figure 16-9 (a), labeling on l.h.s. Reads:</p>	<p>Should read:</p>

	$E(\theta)$	$E(\Theta)$
865	Figure 16-9 (b), labeling on l.h.s. Reads: $F(\theta)$	Should read: $F(\Theta)$
865	Figure 16-9 (b), x-axis Reads: [label is missing]	Should read: Θ
865	Last paragraph Reads: For example, if one uses as a tracer chemicals...	Should read: For example, if one uses tracer chemicals...
869	Third margin note Reads: the conversion was	Should read: the conversion was not
871	Figure 16-13, center graph, top label Reads: $e^{-t/\tau}$	Should read: $\frac{1}{\tau}e^{-t/\tau}$
875	Figure 16-21, l.h.s., label on y-axis Reads: v_b v_0	Should read: $\frac{v_b}{v_0}$
879	Item 7 at top of page, r.h.s. of figure (b), label on y-axis Reads:	Should read:

	v_b v_0	$\frac{v_b}{v_0}$
879	Expanded Material on the Web Site , item 4 Reads: <i>Solved Problems</i>	Should read: <i>Additional Homework Problems</i>
879	Living Example Problems , item 2 Reads: <i>2. Living Example 16-2T:</i>	Should read: <i>2. Living Example 16-1T:</i>
879	Living Example Problems , item 3 Reads: <i>3. Living Example 16-2 (a) and (b) ...</i>	Should read: <i>3. Living Example 16-2 (a) and (c): ...</i>
884	P16-11 _B , part (k) Reads: Problems P17-14 _C and P18-12 _C .	Should read: Problems P17-14 _C and P18-12 _D .
892	Paragraph below Equation (17-2), last sentence, first link contains erroneous word causing the link to NOT work. Add space after html Reads: <i>(http://www.umich.edu/~elements/6e/17chap/prof-compare.htmland</i>	Should Read: <i>(http://www.umich.edu/~elements/6e/17chap/prof-compare.html and</i>
892	Paragraph below Equation (17-2), last sentence, incorrect link Reads: <i>http://www.umich.edu/~elements/6e/17chap/summary.html-top1a1</i>	Should Read: <i>http://umich.edu/~elements/5e/17chap/summary.html#top1a</i>

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	Unnumbered equation below <i>Solution</i> Reads: $\frac{V}{v_0}$	Should Read: $\frac{V}{v_0}$
898	Equation (17-3.5), r.h.s. denominator Reads: v_0	Should Read: v_0
899	Equation (E17-3.10) 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 an errant space 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, table title 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 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: Equation (18-11) to	Should Read: Equation (17-25) to
914	Figure E17-6.1, y-axis scale is incorrect Reads:	Should Read:

		
914	<p>End of item (b) Reads: (e.g., $\hat{S}_{C/D}$, $\hat{S}_{D/E}$)</p>	<p>Should Read: (e.g., $\tilde{S}_{C/D}$, $\tilde{S}_{D/E}$)</p>
915	<p>Table E17-6.2, <i>Asymmetric Distribution</i> column, third row Reads: $\bar{C}_C = 0.357$ $S_{C/D} = 1.18$</p>	<p>Should Read: $\bar{C}_C = 0.357$ $\tilde{S}_{C/D} = 1.18$</p>
915	<p>Table E17-6.2, <i>Asymmetric Distribution</i> column, fourth row Reads: $\bar{C}_D = 0.303$ $S_{D/E} = 1.70$</p>	<p>Should Read: $\bar{C}_D = 0.303$ $\tilde{S}_{D/E} = 1.70$</p>
917	<p>Table E17-6.4, <i>Bimodal Distribution</i> column, third row Reads: $C_C = 0.275$ $S_{C/D} = 1.02$</p>	<p>Should Read: $C_C = 0.275$ $\tilde{S}_{C/D} = 1.02$</p>

917	Table E17-6.4, <i>Bimodal Distribution</i> column, fourth row 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	Q17-2A Reads: The guidelines are given in Problem P5-1B.	Should Read: The guidelines are given in Problem Q5-3A.
921	P17-1B, part (b), subpart (iii) 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	P17-3C Reads: the exit concentration maximum mixedness equation	Should Read: the exit concentration given by maximum mixedness equation
923	First line, add comma Reads: described by the equations for $2\tau \geq t \geq 0$	Should Read: described by the equations, for $2\tau \geq t \geq 0$
924	P17-6B, 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
930	Top of page, gray box, sixth bullet item Reads: <ul style="list-style-type: none"> • Discuss how combinations of ideal reactors can be used to model a nonideal reactor (Section 18.9). 	Should Read: <ul style="list-style-type: none"> • Discuss how combinations of ideal reactors can be used to model a nonideal reactor (Section 18.8).
930	Top of page, gray box, seventh bullet item Reads: <ul style="list-style-type: none"> • Identify how combinations of ideal reactors can be used in pharmacokinetics modeling (Section 18.10). 	Should Read: <ul style="list-style-type: none"> • 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, equation below Closed-Closed Boundary Condition Reads: $C_{A0} = C_A(0^+) - \frac{D_a}{U} \frac{dC_A}{dz} \Big _{z=0^+}$	Should Read: $C_{A0} = C_A(0^+) - \frac{D_a}{U} \frac{dC_A}{dz} \Big _{z=0^+}$
940	Second line below Equation (E18-1.4)	

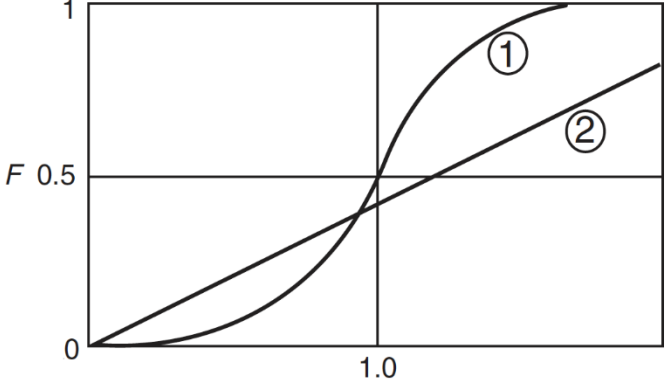
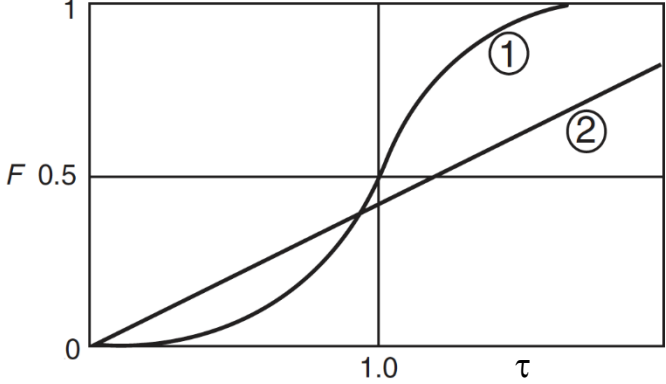
	Reads: MatLab	Should Read: MATLAB
940	Paragraph below Figure E18-1.1, second line Reads: $E(\theta)$	Should read: $E(\Theta)$
940	Last paragraph, second sentence Reads: drops form ...	Should Read: drops from ...
948	First line, replace theta symbol Reads: θ	Should Read: Θ
949	First line below Equation (18-18), add comma and space Reads: where $q = \sqrt{1 + 4Da_1/Pe_r}$, $Da_1 = \tau k$, and $Pe_r = UL/D_a$.	Should Read: where $q = \sqrt{1 + 4Da_1/Pe_r}$, $Da_1 = \tau k$, 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 below Equation (18-40) Reads: very close to the value of 4.35 calculated ...	Should Read: very close to the value of 4.28 calculated ...
954	Top of page, third line Reads: Equation (18-26) and (18-27) to obtain	Should Read: Equations (18-15) and (18-16)
958	Equation (18-51), below Convection label Reads: $F_{i0}H_{i0} - \sum_{i=1} F_i H_i$	Should Read: $F_{i0}H_{i0} - \sum_{i=1}^n F_i H_i$
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, fourth 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, second-to-last sentence 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: ... conversion on concentrations.	Should Read: ... 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, first column, second row, denominator Reads: $C_{T0} - C_r$	Should Read: $C_{T0} - C_T$
967	Equation (E18-5.2) Reads: $v_s C_{A0} - v_s C_A - \dots$	Should Read: $v_s C_{A0} - v_s C_{As} - \dots$
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	Other Models paragraph, last line Reads:	Should Read:

	the conversion in our real reactor.	the conversion in our real reactor.
970	Example 18-6, first line Reads: A pulse trace test was carried out ...	Should Read: A pulse tracer test was carried out ...
971	Second equation (unnumbered) Reads: $0.066 = \frac{-(0.8)(-1.44) + \beta + 1}{(0.8)[-0.434 - (-1.44)]}$	Should Read: $0.066 = -\frac{(0.8)(-1.44) + \beta + 1}{(0.8)[-0.434 - (-1.44)]}$
972	End of last line above section 18.8.3 Reads: (x = 0.56).	Should Read: (X = 0.56).
972	Last paragraph, third sentence Reads: 18-16(a) and (b) on page 973 show ...	Should Read: 18-17(a) and (b) on page 974 show ...
972	Last paragraph, second-to-last sentence Reads: in Figure 18-16(b) was found ...	Should Read: in Figure 18-17(b) was found ...
973	Last paragraph, last sentence Reads: on pharmacokinetics, and on pages 408-409, there are	Should Read: on pharmacokinetics, there are
977	Equation (S18-7) Reads:	Should Read:

	$\frac{\sigma^2}{t^2}$	$\frac{\sigma^2}{\tau_m^2}$
979	Problem Q18-2 _B Reads: Problem P5-3 _A .	Should Read: 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), subpart (v) Reads: ν	Should Read: ν
983	Problem P18-6 _A , part (c) Reads: Using the dispersion calculate	Should Read: Using the dispersion, calculate
983	Problem P18-9 _B , part (b) Reads: (Ans: $X_{\text{Dispersion}} = 0.41$)	Should Read: (Ans: $X_{\text{Dispersion}} = 0.448$)
984	Problem P18-12 _D Reads: Let's continue Problem P16-11 _D . Where $\tau = 10$ min and $\sigma^2 = 14 \text{ min}^2$	Should Read: Let's continue Problem P16-11 _B . Where $\tau = 10$ min and $\sigma^2 = 74 \text{ min}^2$

985	<p>Figure P18-15B, label missing on x-axis</p> <p>Reads:</p>  <p>The graph shows two curves, 1 and 2, on a coordinate system. The y-axis is labeled 'F' with values 0, 0.5, and 1. The x-axis has a label '1.0' at the intersection of a vertical line and a horizontal line at F=0.5. Curve 1 is an S-shaped curve starting at (0,0) and ending at (1,1). Curve 2 is a straight line from (0,0) to (1,1). Both curves are labeled with circled numbers 1 and 2.</p>	<p>Should Read:</p>  <p>The graph is identical to the one in the 'Reads' column, but the x-axis is labeled with the Greek letter τ at the end.</p>
997	<p>Section A.5, first paragraph, link has an errant space causing the link to NOT work.</p> <p>Reads:</p> <p>https://bolide.cs.uoguelph.ca/tutorials/ GLP</p>	<p>Should Read:</p> <p>https://bolide.cs.uoguelph.ca/tutorials/GLP</p>
1001	<p>Top of page</p> <p>Reads:</p> <p>Time Rate of Change of Energy with Time (Power)</p>	<p>Should Read:</p> <p>Rate of Change of Energy with Time (Power)</p>
1006	<p>Below Equation (EC-1.3)</p> <p>Reads:</p> <p>Substituting for the mole fractions in terms of partial pressures gives</p>	<p>Should Read:</p> <p>Substituting for the partial pressures in terms of concentration gives</p>
1010	<p>First paragraph, link has an errant space causing the link to NOT work.</p> <p>Reads:</p> <p>http://www.polymathsoftware .com/fogler/</p>	<p>Should Read:</p> <p>http://www.polymathsoftware.com/fogler/</p>

1011	<p>Last bullet item under Getting Started, add link</p> <p>Reads: Wolfram variable.</p>	<p>Should Read: Wolfram variable (http://www.umich.edu/~elements/6e/software/Tutorial_for_initial_setting_of_Wolfram_Variables.pdf).</p>
1013	<p>Section D.8, first paragraph, link has an errant space causing the link to NOT work.</p> <p>Reads: http://encyclopedia.che.engin.umich.edu/Pages/Reactors/menu.html</p>	<p>Should Read: http://encyclopedia.che.engin.umich.edu/Pages/Reactors/menu.html</p>
1022	<p>Section G.8, second paragraph, link includes an errant square bracket causing the link to NOT work.</p> <p>Reads: (see Chapter 7, R7.5 [http://www.umich.edu/~elements/6e/07chap/prof-7-5.html]).</p>	<p>Should Read: (see Chapter 7, R7.5, http://www.umich.edu/~elements/6e/07chap/prof-7-5.html).</p>
1027	<p>Living Example Problems (LEP) bullet</p> <p>Reads: ... (e.g., Problem P5-2_B), and ...</p>	<p>Should Read: ... (e.g., Problem P5-1_B), and ...</p>