

## Known errors & Corrections

in Leonid M. Blumberg, "Temperature-Programmed Gas Chromatography", Wiley-VCH, 2010

### Summary

All errors found so far in mathematical expressions are of typographical nature. They have no effect on other expressions in the book.

Probably the most harmful is the error in Eq. (10.126) (Correction #24) as the error distorts the essence of the context intended to describe the difference between Eq. (10.126) and Eq. (10.127).

### Correction #1:

Page	Location	Incorrect text	Correct text
IV	Author address	Wilmington, DE 19801 19801	Wilmington, DE 19801

### Correction #2:

Page: XV

Location: after preceding correct line: "PLOT (column) – porous layer open tubular (column)"

Missing line: "PDF – probability density function"

Note: two lines after the correction:

PLOT (column) – porous layer open tubular (column)

PDF – probability density function

### Correction #3:

Page: XVIII

Location: after preceding correct line: " $\gamma_{FA}$  Eq. (7.26)"

Missing line: " $\gamma_p$  Eq. (7.55)"

Note: two lines after the correction:

$\gamma_{FA}$  Eq. (7.26)

$\gamma_p$  Eq. (7.55)

### Correction #4:

Page	Location	Incorrect text	Correct text
27	end of second line after Eq. (3.21)	that 5% (2.5% on	than 5% (2.5% on

**Correction #5:**

Page: 42

Location: Table 5.1

Incorrect first numerical line:

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 $\Delta \mathcal{E}_S$  (J/mol/K)    74.3    76.8    79.3    81.7    85.1    88.4    91.7    95    99.2    103.4    108.4    112.5

Correct first numerical line:

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 $\Delta \mathcal{E}_S$  (J/mol/K)    76.3    78.8    81.3    83.8    87.1    90.4    93.8    97.1    101.3    105.4    110.4    114.6
**Correction #6:**

Page	Location	Incorrect text	Correct text
43	Label of horizontal axis in the graphic of Figure 5.2	Kelvin	kelvin

**Correction #7:**

Page	Location	Error	Correction
55	First line after Eq. (5.41)	[indentation]	[remove the indentation]

**Correction #8:**

Page	Location	Incorrect formula	Correct formula
57	Eq. (5.45)	$q_{\text{char}} = (10^3 \varphi)^{0.14} \theta_{\text{Char}}$	$\theta_{\text{char}} = (10^3 \varphi)^{0.14} \theta_{\text{Char}}$

Notes:

There should be symbol  $\theta_{\text{char}}$  rather than symbol  $q_{\text{char}}$  in the left hand side of Eq. (5.45).

This is a typographical error. It has no effect on other formulae in the book.

**Correction #9:**

Page	Location	Incorrect text	Correct text
58	end of forth line in Example 5.1	and $\theta_{Char,}$	and $\theta_{Char,b}$
58	beginning of fifth line in Example 5.1	$_b = 19.65$	$= 19.65$

Note: Symbol “  $\theta_{Char,b}$  ” should not be broken between two lines.

**Correction #10:**

Page	Location	Incorrect text	Correct text
59	end of the last line before Eq. (5.52)	Figure 5.9,	Figures 5.9 and 8.8,

**Correction #11:**

Page	Location	Incorrect formula	Correct formula
124	Eq. (7.191)	$t_M = \frac{L}{u} = \frac{\pi d_c L p_o}{4 p_{st} f}$	$t_M = \frac{L}{u} = \frac{\pi d_{cx} L p_o}{4 p_{st} f}$

Notes:

Correct symbol  $d_{cx}$  should be instead of incorrect symbol  $d_c$ .

This is a typographical error. It has no effect on other formulae in the book.

**Correction #12:**

Page	Location	Incorrect text	Correct text
159	End of the third line after Eq. (8.40)	48, 50	48-50

Note: Replace the comma with the dash.

**Correction #13:**

Page	Location	Incorrect text	Correct text
177	Beginning of the second line after Eq. (8.114)	Similarly, Eqs. (8.10)	Similarly, Eqs. (8.110)

**Correction #14:**

Page	Location #	Incorrect text	Correct text
206	Fifth line from the top in the Figure 9.5 caption	$\theta_{\text{char}}$	$\Delta\theta_{\text{char}}$

Notes:

Insert symbol  $\Delta$ .**Correction #15:**

Page	Location	Incorrect text	Correct text
211	Middle of the first line	addition	additional

**Correction #16:**

Page	Location	Incorrect formulae in the book	Correct formulae
240	Eq. (10.55)	$\mathcal{H} = \lim_{\tilde{\sigma} \rightarrow 0} \frac{d\tilde{\sigma}_z^2}{dz}$ , $\mathcal{H} = \lim_{\tilde{\sigma} \rightarrow 0} \frac{d\tilde{\sigma}_z^2}{dt}$	$\mathcal{H} = \lim_{\tilde{\sigma}_z \rightarrow 0} \frac{d\tilde{\sigma}_z^2}{dz}$ , $\mathcal{D} = \lim_{\tilde{\sigma}_z \rightarrow 0} \frac{d\tilde{\sigma}_z^2}{dt}$

Notes:

In the second formula, symbol  $\mathcal{H}$  should be replaced with symbol  $\mathcal{D}$ .The type of symbol  $\mathcal{D}$  should be the same script-type as the current type of symbol  $\mathcal{H}$ .In both formulae, subscript “z” should be added to symbol  $\tilde{\sigma}$  below symbol “lim”.

(Cosmetic correction: In both formulae, symbol “lim” should be in regular type, not in italic as it currently is).

This is a typographical error. It has no effect on other formulae in the book.

**Correction #17:**

Page	Location	Incorrect text	Correct text
240	Last word at the end of the first line in Note 10.5	thorough	thought-

Note:

replace the phrase “thorough experiment” with the phrase “thought-experiment”.

**Correction #18:**

Page	Location	Incorrect text	Correct text
256	Second line from the top in the Figure 10.9 caption	(10.100) for	(10.100)) for

Notes:

Insert additional closing parentheses “)”).

**Correction #19:**

Page	Location	Incorrect text	Correct text
256	Third line from the top in the Figure 10.9 caption	gas-specific	specific

Notes:

remove the text “gas-“.

**Correction #20:**

Page	Location	Incorrect formula	Correct formula
256	Eq. (10.99), first line	$H = H(f\bar{u}, p_o) =$	$H = H(f, p_o) =$

Notes:

Remove symbol  $\bar{u}$  in parentheses.

This is a typographical error. It has no effect on other formulae in the book.

**Correction #21:**

Page	Location	Incorrect text	Correct text
265	line before Eq. (10.125)	Eq. (6.19)	Eqs. (6.41) and (6.17)

**Correction #22:**

Page	Location	Incorrect text	Correct text
265	Eq. (10.125)	81	27

**Correction #23:**

Page	Location	Incorrect text	Correct text
265	in the second last line	$H_{\text{thin}}(\bar{u},)$	$H_{\text{thin}}(\bar{u})$

Note:

Delete comma in parentheses

**Correction #24:**

Page	Location	Incorrect formula	Correct formula
266	Eq. (10.126)	$H_{\text{thin}} = \frac{H_{\text{min,thin}}}{2} \left( \frac{\bar{u}_{\text{opt,thin}}^2}{\bar{u}^2} + \frac{\bar{u}}{\bar{u}_{\text{opt,thin}}} \right)$	$H_{\text{thin}} = \frac{H_{\text{min,thin}}}{2} \cdot \left( \frac{\bar{u}_{\text{opt,thin}}}{\bar{u}} + \frac{\bar{u}}{\bar{u}_{\text{opt,thin}}} \right)$

Notes:

There should be no squares in the first term within the parentheses in the right hand side of Eq. (10.126).

This is a typographical error. It has no effect on other formulae in the book.

**Correction #25:**

Page	Location	Incorrect text	Correct text
314	Fourth line in Note 10.20	$\bar{u}$	$H\bar{u}$

**Correction #26:**

Page	Location	Incorrect text	Correct text
319	beginning of the second last line	$\sigma_{\text{m,thin}} = \tilde{\sigma}/u_{\text{oR}}$	$\sigma_{\text{m,thin}} = \tilde{\sigma}_{\text{thin}}/u_{\text{oR}}$

Note:

replace symbol  $\tilde{\sigma}$  with symbol  $\tilde{\sigma}_{\text{thin}}$

**Correction #27:**

Page	Location	Incorrect text	Correct text
323	Forth line in ref. 11	(eds D.H. Destyand	(eds D.H. Desty and

Note:

insert space after the word “Desty”.

**Correction #28:**

Page: 329

Location: after preceding correct line: “*a*”

Missing line: “aberrations, elution-related 144, 145, 246, 248”

Note: two lines after correction:

*a*

aberrations, elution-related 144, 145, 246, 248

**Correction #29:**

Page	Location	Incorrect text	Correct text
330	Column 2	-- thin film 260, 275, 308	-- thin film 229, 230, 232, 233, 235, 248, 251, 252, 254-271, 274, 275, 278-280, 282-292, 294, 296, 298, 308, 319, 320

**Correction #30:**

Page	Location	Incorrect text	Correct text
332	Column 1	abbreviations 144, 145, 246, 248	abbreviations. <i>see</i> abbreviations, elution-related

**Correction #31:**

Page: 333, column 1

Location: after preceding correct line: “flux 218, 231, 315”

Missing line: “focusing, in-column 239, 305”

Note: two lines after correction:

flux 218, 231, 315

focusing, in-column 239, 305

**Correction #32:**

Page	Location	Incorrect text	Correct text
333	Column 1	– decompression 145, 148	– decompression 11, 22, 99, 101, 103-107, 109-111, 114, 115, 123-126, 138, 145, 147, 148, 158, 159, 169, 174, 175, 187, 188, 195, 196, 215, 221, 228, 231, 232, 239, 240, 242-245, 247, 251-256, 258, 260-272, 275, 277, 280, 282, 283, 286-288, 302, 305-312, 314-316, 319, 320

**Correction #33:**

Page	Location	Incorrect text	Correct text
334	Column 1	in-column focusing 239	

Note: Delete this line.

**Correction #34:**

Page	Location	Incorrect text	Correct text
335	Column 1	molecular speed 127	molecular speed, average 67-69, 127, 265, 285

**Correction #35:**

Page	Location	Incorrect text	Correct text
335	Column 1	– average 67, 68, 265, 285	

Note: Delete this line.

## Improvements & cosmetic changes

### Correction #36:

Page	Location	Incorrect formula	Correct formula
25	Eq. (3.13)	$\bar{x} = \int_{-\infty}^{\infty} x y (x) dx$	$\bar{x} = \int_{-\infty}^{\infty} x y(x) dx$

Notes:

Remove the space between symbol “y” and “(”.

This is a typographical error. It has no effect on other formulae in the book.

### Correction #37:

Page	Location	Error	Correction
54	First line after Eq. (5.39)	[indentation]	[remove the indentation]

### Correction #38:

Page	Location	Incorrect text	Correct text
113	Line before Eq. (7.116)	temporal average velocity (briefly, average velocity)	temporal average velocity (briefly, average velocity)

Note: Change from regular type to *italic* type as shown.

### Correction #39:

Page	Location	Incorrect text	Correct text
157	End of the last line before Eq. (8.38)	[3]	[3,49]

**Correction #40:**

Page	Location	Incorrect symbol	Correct symbol
160	Eq. (8.44)	$\mu_{\text{eff}}$	$\mu_{\text{eff}}$

Note: Replace italic subscript “*eff*” with regular subscript “<sub>eff</sub>”.

**Correction #41:**

Page	Location	Incorrect symbol	Correct symbol
160	Eq. (8.45)	$\mu_{\text{eff}}$	$\mu_{\text{eff}}$

Note: Replace italic subscript “*eff*” with regular subscript “<sub>eff</sub>”.

**Correction #42:**

Page	Location	Error	Correction
166	First line after Eq. (8.62)	[indentation]	[remove the indentation]

**Correction #43:**

Page	Location	Error	Correction
166	First line after Eq. (8.63)	[indentation]	[remove the indentation]

**Correction #44:**

Page	Location	Error	Correction
166	First line after Eq. (8.64)	[indentation]	[remove the indentation]

**Correction #45:**

Page	Location	Correct text	Correct text
166	Third line after Eq. (8.64)	hold-up temperature	hold-up temperature

Note: *Italic type* should be instead of regular one.

**Correction #46:**

Page	Location	Incorrect text	Correct text
166	Third and fourth lines after Eq. (8.64)	normalized heating rate	normalized heating rate

Note: *Italic type* should be instead of regular one.

**Correction #47:**

Page	Location	Error	Correction
173	Eqs. (8.99) and (8.100)	Incorrect alignment of equations	All lines in these equations should have the same indentation.

Note: Eqs. (8.99) and (8.100) should be aligned as shown below:

$$R_T = \frac{r_T \theta_{\text{char}}}{t_{\text{M, char}}} \quad (8.99)$$

$$R_{T, \text{norm}} = \Delta T_{\text{M, init}} = r_T \theta_{T, \text{init}} = r_T \theta_{\text{char, st}} (T_{\text{init}} / T_{\text{st}})^{\xi} \approx$$

$$\approx 22^\circ\text{C} (10^3 \varphi)^{0.09} (T_{\text{init}} / T_{\text{st}})^{0.7} r_T \quad (8.100)$$

**Correction #48:**

Page	Location	Error	Correction
173	First line after Eq. (8.100)	[indentation]	[remove the indentation]

**Correction #49:**

Page	Location	Error	Correction
175	First line after Eq. (8.107)	[indentation]	[remove the indentation]

**Correction #50:**

Page	Location	Error	Correction
177	First line after Eq. (8.113)	[indentation]	[remove the indentation]

**Correction #51:**

Page	Location	Error	Correction
177	First line after Eq. (8.114)	[indentation]	[remove the indentation]

**Correction #52:**

Page	Location	Current (correct) equation	Better equation
200	Eq. (9.25)	$\ln(e^{r_T} - 1) - \frac{r_T}{1 - e^{-r_T}}$	$\frac{r_T}{1 - e^{-r_T}} + \ln(1 - e^{-r_T})$

Notes:

Current equation in the book is correct but, sometimes, inconvenient because the signs of the two members of the sum in it might be different. In the alternative (equivalent) better equation, both members are negative.

**Correction #53:**

Page	Location	Incorrect formula	Correct formula
241	Eq. (10.59)	$\frac{\partial a}{\partial t} = \frac{1}{2} \cdot \frac{\partial^2}{\partial z^2} (\mathcal{D} a) - \frac{\partial}{\partial z} (v_{app} a)$	$\frac{\partial a}{\partial t} = \frac{1}{2} \cdot \frac{\partial^2}{\partial z^2} (\mathcal{D} a) - \frac{\partial}{\partial z} (v_{app} a)$

Notes:

In the product ( $\mathcal{D}a$ ), symbol “a” should be in *italic* type (not regular “a” as it currently is).

This is a typographical error. It has no effect on other formulae in the book.