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## ERRATA

*Several errata have been found in API MPMS Chapter 14.6 "Continuous Density Measurement," dated April 1991, Second Edition. Known errata are listed below:*

*Page 7, section 14.6.6.6.2.*

*The second equation on this page, which is the first equation for variable  $C_{BW}$  is only for evacuated weight pycnometers. The  $C_{BW}$  equation found on page 45 is only for air-filled weight calculations, as described in section 14.6.6.6.3, on page 9.*

*Page 25, section 14.6.14.8, steps c, d, and e.*

*The conversion factors listed here should not be used. To obtain appropriate conversion factors with more significant digits, refer to the following document (or its successor): "Standard for Use of the International System of Units (SI): The Modern Metric System" (IEEE/ASTM SI-10; 1997), IEEE Standards Coordinating Committee 14 and ASTM Committee E-43, published by Institute of Electrical and Electronics Engineers, Inc., 345 East 47th St., New York, NY 10017. This document has replaced ASTM E380 and ANSI/IEEE Std. 268-1992.*

*Page 41, equation.*

*Datum pressure,  $P_d$ , is generally equal to 14.696 psia throughout the document, and is never equal to local atmospheric pressure. However, in the equation listed on page 41,  $P_d$  is equal to 0.0 psia.*

*Page 42.*

*The average water data shown on this page is not relevant.*

Pages 42, 43, and 44.

On page 42,  $C_{BW}$  was incorrectly calculated using the air-filled weight calculations, as described in section 14.6.6.6.3. It was not calculated using the 14.6.6.6.2 evacuated weight method. Additionally, the values for  $\rho_{w,ip}$  shown on pages 42, 43, and 44 are not correct. Furthermore, for the Test A and Test B Data tables, only Weigh No.s 2, 4, 10, 12, 17 are significant. The rest of the Weighs are of little use. See the following two tables for corrected values:

Test A Data							
Weigh No.	$P_i$ (psia)	$T_i$ (°F)	$W_i$ (g)	$M$ (g)	$\rho_{w,ip}$ (g/cm <sup>3</sup> )	$PV_{ip}$ (cm <sup>3</sup> )	$PV_p$ (cm <sup>3</sup> )
2	50	76.1	2360.30	994.86	0.9972798	997.57	995.39
4	200	76.3	2360.90	995.46	0.9977180	997.74	995.55
10	800	76.4	2363.47	998.03	0.9995581	998.47	996.28
12	1000	76.4	2364.36	998.92	1.0001724	998.75	996.56
17	1500	76.6	2366.50	1001.06	1.0016708	999.39	997.19

Test B Data							
Weigh No.	$P_i$ (psia)	$T_i$ (°F)	$W_i$ (g)	$M$ (g)	$\rho_{w,ip}$ (g/cm <sup>3</sup> )	$PV_{ip}$ (cm <sup>3</sup> )	$PV_p$ (cm <sup>3</sup> )
2	50	77.5	2360.26	994.76	0.9970810	997.67	995.45
4	200	77.5	2360.89	995.39	0.9975464	997.84	995.62
10	800	77.5	2363.46	997.96	0.9993975	998.56	996.34
12	1000	77.5	2364.30	998.80	1.0000108	998.79	996.57
17	1500	77.4	2366.45	1000.95	1.0015514	999.40	997.18

In the above Test A and Test B tables, the following values also apply:

$P_d = 14.696$  psia datum pressure,

$E_i = 2.88E-5$  per degree Fahrenheit,

$\rho_A = 0.001175$  g/cm<sup>3</sup> for Test A calculated by using the air density equation on page 45 at 79°F,

$\rho_A = 0.001179$  g/cm<sup>3</sup> for Test B calculated by using the air density equation on page 45 at 77°F,

$C_{BW} = 0.99985$  for both Test A and Test B.

Page 45.

The equation for  $K_i$  is incorrect. The value 58.4772 should read: 58.47727. The last line of the equation should start with a division sign, not a multiplication sign. The corrected version is as shown here:

$$\begin{aligned}
 K_i &= \text{isothermal compressibility of water at } 14.696 \text{ psia and } T_i, \text{ in degrees Celsius} \\
 &= [50.88496 + (6.163813 \times 10^{-1})(T_i) + (1.459187 \times 10^{-3})(T_i^2) \\
 &\quad + (20.08438 \times 10^{-6})(T_i^3) - (58.47727 \times 10^{-9})(T_i^4) + (410.411 \times 10^{-12})(T_i^5)] \\
 &\quad \div \{[1 + (19.67348 \times 10^{-3})(T_i)](14.50377 \times 10^{-6})\}
 \end{aligned}$$

Page 48.

Replace the existing  $K_i$  equation with the same corrected version, above, for page 45.

Replace the  $\bar{K}_p$  equation with the correct version as shown on page 45.

Page 48, Table 7.

Several values are incorrect, and have been updated here:

Table 7—Predicted Water Density

Pressure		Water Temperature		George S. Kell Isothermal Compressibility of Water at 14.696 psia ( $K_i$ )			Wagenbreth $\rho_{w_i}$ (g/cm <sup>3</sup> )	MPMS 14.6 $\rho_{w_i}$ (g/cm <sup>3</sup> )
				10 <sup>-6</sup> /bar	1/psi	$\bar{K}_p$ (1/psi)		
77	5.31	0.00	32.0	50.8850	$3.5084 \times 10^{-6}$	$3.5061 \times 10^{-6}$	0.999840	1.000058
77	5.31	20.00	68.0	45.8914	$3.1641 \times 10^{-6}$	$3.1620 \times 10^{-6}$	0.998202	0.998399
77	5.31	50.00	122.0	44.1727	$3.0456 \times 10^{-6}$	$3.0436 \times 10^{-6}$	0.988058	0.988245
611	42.13	0.00	32.0	50.8850	$3.5084 \times 10^{-6}$	$3.4860 \times 10^{-6}$	0.999840	1.001922
611	42.13	20.00	68.0	45.8914	$3.1641 \times 10^{-6}$	$3.1439 \times 10^{-6}$	0.998202	1.000077
611	42.13	50.00	122.0	44.1727	$3.0456 \times 10^{-6}$	$3.0261 \times 10^{-6}$	0.988058	0.989844
1465	101.01	0.00	32.0	50.8850	$3.5084 \times 10^{-6}$	$3.4547 \times 10^{-6}$	0.999840	1.004874
1465	101.01	20.00	68.0	45.8914	$3.1641 \times 10^{-6}$	$3.1157 \times 10^{-6}$	0.998202	1.002733
1465	101.01	50.00	122.0	44.1727	$3.0456 \times 10^{-6}$	$2.9990 \times 10^{-6}$	0.988058	0.992374
3050	210.29	0.00	32.0	50.8850	$3.5084 \times 10^{-6}$	$3.3996 \times 10^{-6}$	0.999840	1.010264
3050	210.29	20.00	68.0	45.8914	$3.1641 \times 10^{-6}$	$3.0660 \times 10^{-6}$	0.998202	1.007579
3050	210.29	50.00	122.0	44.1727	$3.0456 \times 10^{-6}$	$2.9511 \times 10^{-6}$	0.988058	0.996988