

Volumes of CO2 in Solution

		Temperature in Degrees F																				
		32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72
Pressure Reading on Gauge	4	2.22	2.14	2.05	1.97	1.88	1.8	1.71	1.63	1.55	1.46	1.38	1.29	1.21	1.12	1.04	0.95	0.87	0.78	0.7	0.62	0.53
	5	2.3	2.21	2.13	2.04	1.96	1.87	1.79	1.71	1.62	1.54	1.45	1.37	1.28	1.2	1.11	1.03	0.94	0.86	0.78	0.69	0.61
	6	2.37	2.29	2.2	2.12	2.04	1.95	1.87	1.78	1.7	1.61	1.53	1.44	1.36	1.27	1.19	1.11	1.02	0.94	0.85	0.77	0.68
	7	2.45	2.37	2.28	2.2	2.11	2.03	1.94	1.86	1.77	1.69	1.6	1.52	1.44	1.35	1.27	1.18	1.1	1.01	0.93	0.84	0.76
	8	2.53	2.44	2.36	2.27	2.19	2.1	2.02	1.93	1.85	1.77	1.68	1.6	1.51	1.43	1.34	1.26	1.17	1.09	1	0.92	0.84
	9	2.6	2.52	2.43	2.35	2.26	2.18	2.1	2.01	1.93	1.84	1.76	1.67	1.59	1.5	1.42	1.33	1.25	1.17	1.08	1	0.91
	10	2.68	2.59	2.51	2.43	2.34	2.26	2.17	2.09	2	1.92	1.83	1.75	1.66	1.58	1.5	1.41	1.33	1.24	1.16	1.07	0.99
	11	2.76	2.67	2.59	2.5	2.42	2.33	2.25	2.16	2.08	1.99	1.91	1.83	1.74	1.66	1.57	1.49	1.4	1.32	1.23	1.15	1.06
	12	2.83	2.75	2.66	2.58	2.49	2.41	2.32	2.24	2.15	2.07	1.99	1.9	1.82	1.73	1.65	1.56	1.48	1.39	1.31	1.22	1.14
	13	2.91	2.82	2.74	2.65	2.57	2.48	2.4	2.32	2.23	2.15	2.06	1.98	1.89	1.81	1.72	1.64	1.55	1.47	1.39	1.3	1.22
	14	2.98	2.9	2.81	2.73	2.65	2.56	2.48	2.39	2.31	2.22	2.14	2.05	1.97	1.88	1.8	1.72	1.63	1.55	1.46	1.38	1.29
	15	3.06	2.98	2.89	2.81	2.72	2.64	2.55	2.47	2.38	2.3	2.21	2.13	2.05	1.96	1.88	1.79	1.71	1.62	1.54	1.45	1.37
	16	3.14	3.05	2.97	2.88	2.8	2.71	2.63	2.54	2.46	2.38	2.29	2.21	2.12	2.04	1.95	1.87	1.78	1.7	1.61	1.53	1.45
	17	3.21	3.13	3.04	2.96	2.87	2.79	2.71	2.62	2.54	2.45	2.37	2.28	2.2	2.11	2.03	1.94	1.86	1.78	1.69	1.61	1.52
	18	3.29	3.2	3.12	3.03	2.95	2.87	2.78	2.7	2.61	2.53	2.44	2.36	2.27	2.19	2.1	2.02	1.94	1.85	1.77	1.68	1.6
	19	3.36	3.28	3.2	3.11	3.03	2.94	2.86	2.77	2.69	2.6	2.52	2.43	2.35	2.27	2.18	2.1	2.01	1.93	1.84	1.76	1.67
	20	3.44	3.36	3.27	3.19	3.1	3.02	2.93	2.85	2.76	2.68	2.6	2.51	2.43	2.34	2.26	2.17	2.09	2	1.92	1.83	1.75
	21	3.52	3.43	3.35	3.26	3.18	3.09	3.01	2.93	2.84	2.76	2.67	2.59	2.5	2.42	2.33	2.25	2.16	2.08	2	1.91	1.83
	22	3.59	3.51	3.42	3.34	3.26	3.17	3.09	3	2.92	2.83	2.75	2.66	2.58	2.49	2.41	2.33	2.24	2.16	2.07	1.99	1.9
	23	3.67	3.59	3.5	3.42	3.33	3.25	3.16	3.08	2.99	2.91	2.82	2.74	2.66	2.57	2.49	2.4	2.32	2.23	2.15	2.06	1.98
	24	3.75	3.66	3.58	3.49	3.41	3.32	3.24	3.15	3.07	2.99	2.9	2.82	2.73	2.65	2.56	2.48	2.39	2.31	2.22	2.14	2.05
	25	3.82	3.74	3.65	3.57	3.48	3.4	3.31	3.23	3.15	3.06	2.98	2.89	2.81	2.72	2.64	2.55	2.47	2.38	2.3	2.22	2.13
	26	3.9	3.81	3.73	3.64	3.56	3.48	3.39	3.31	3.22	3.14	3.05	2.97	2.88	2.8	2.71	2.63	2.55	2.46	2.38	2.29	2.21
	27	3.97	3.89	3.81	3.72	3.64	3.55	3.47	3.38	3.3	3.21	3.13	3.04	2.96	2.88	2.79	2.71	2.62	2.54	2.45	2.37	2.28
	28	4.05	3.97	3.88	3.8	3.71	3.63	3.54	3.46	3.37	3.29	3.21	3.12	3.04	2.95	2.87	2.78	2.7	2.61	2.53	2.44	2.36
	29	4.13	4.04	3.96	3.87	3.79	3.7	3.62	3.54	3.45	3.37	3.28	3.2	3.11	3.03	2.94	2.86	2.77	2.69	2.61	2.52	2.44
	30	4.2	4.12	4.03	3.95	3.87	3.78	3.7	3.61	3.53	3.44	3.36	3.27	3.19	3.1	3.02	2.94	2.85	2.77	2.68	2.6	2.51

Color Volume Range

	1.4 - 1.8	V Low
	1.8 - 2.3	Low
	2.2 - 2.8	Med
	2.8 - 3.4	High
	3.4 - 3.8	V High

These are subjective levels based on The Homebrewers Companion by Randy Mosher and my personal opinion, use as you see fit.

Created by Mike Schwartz based on Formulas by A.J deLange posted to AHA TechTalk 05 March 2007.

$$V=3.2694 + .076221*P - 0.042274*T$$

Volumes of CO2 in Solution

		Temperature in Degrees F																				
		32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72
Pressure Reading on Gauge	4	2.07	1.98	1.89	1.81	1.74	1.67	1.6	1.54	1.48	1.42	1.37	1.33	1.29	1.25	1.22	1.19	1.16	1.14	1.13	1.12	1.11
	5	2.17	2.08	1.99	1.91	1.83	1.76	1.69	1.62	1.56	1.5	1.45	1.4	1.36	1.32	1.28	1.25	1.23	1.2	1.18	1.17	1.16
	6	2.27	2.18	2.09	2	1.92	1.85	1.77	1.71	1.64	1.58	1.53	1.48	1.43	1.39	1.35	1.32	1.29	1.26	1.24	1.22	1.21
	7	2.38	2.28	2.19	2.1	2.02	1.94	1.86	1.79	1.73	1.66	1.61	1.55	1.5	1.46	1.42	1.38	1.35	1.32	1.3	1.28	1.26
	8	2.48	2.38	2.29	2.2	2.11	2.03	1.95	1.88	1.81	1.74	1.68	1.63	1.58	1.53	1.48	1.45	1.41	1.38	1.35	1.33	1.31
	9	2.58	2.48	2.38	2.29	2.2	2.12	2.04	1.96	1.89	1.82	1.76	1.7	1.65	1.6	1.55	1.51	1.47	1.44	1.41	1.39	1.37
	10	2.69	2.58	2.48	2.39	2.29	2.21	2.12	2.05	1.97	1.9	1.84	1.78	1.72	1.67	1.62	1.57	1.53	1.5	1.47	1.44	1.42
	11	2.79	2.68	2.58	2.48	2.39	2.3	2.21	2.13	2.05	1.98	1.91	1.85	1.79	1.74	1.68	1.64	1.6	1.56	1.52	1.49	1.47
	12	2.89	2.78	2.68	2.58	2.48	2.39	2.3	2.22	2.14	2.06	1.99	1.92	1.86	1.8	1.75	1.7	1.66	1.62	1.58	1.55	1.52
	13	2.99	2.88	2.77	2.67	2.57	2.48	2.39	2.3	2.22	2.14	2.07	2	1.93	1.87	1.82	1.77	1.72	1.67	1.63	1.6	1.57
	14	3.1	2.98	2.87	2.77	2.66	2.57	2.47	2.38	2.3	2.22	2.14	2.07	2	1.94	1.88	1.83	1.78	1.73	1.69	1.65	1.62
	15	3.2	3.08	2.97	2.86	2.76	2.66	2.56	2.47	2.38	2.3	2.22	2.15	2.08	2.01	1.95	1.89	1.84	1.79	1.75	1.71	1.67
	16	3.3	3.18	3.06	2.95	2.85	2.74	2.65	2.55	2.46	2.38	2.3	2.22	2.15	2.08	2.01	1.96	1.9	1.85	1.8	1.76	1.72
	17	3.4	3.28	3.16	3.05	2.94	2.83	2.73	2.64	2.54	2.46	2.37	2.29	2.22	2.15	2.08	2.02	1.96	1.91	1.86	1.81	1.77
	18	3.5	3.38	3.26	3.14	3.03	2.92	2.82	2.72	2.63	2.53	2.45	2.37	2.29	2.22	2.15	2.08	2.02	1.96	1.91	1.86	1.82
	19	3.61	3.48	3.35	3.24	3.12	3.01	2.91	2.8	2.71	2.61	2.52	2.44	2.36	2.28	2.21	2.14	2.08	2.02	1.97	1.92	1.87
	20	3.71	3.58	3.45	3.33	3.21	3.1	2.99	2.89	2.79	2.69	2.6	2.51	2.43	2.35	2.28	2.21	2.14	2.08	2.02	1.97	1.92
	21	3.81	3.68	3.55	3.42	3.3	3.19	3.08	2.97	2.87	2.77	2.68	2.59	2.5	2.42	2.34	2.27	2.2	2.14	2.08	2.02	1.97
	22	3.91	3.77	3.64	3.52	3.39	3.28	3.16	3.05	2.95	2.85	2.75	2.66	2.57	2.49	2.41	2.33	2.26	2.19	2.13	2.07	2.02
	23	4.01	3.87	3.74	3.61	3.49	3.37	3.25	3.14	3.03	2.93	2.83	2.73	2.64	2.55	2.47	2.39	2.32	2.25	2.19	2.13	2.07
	24	4.11	3.97	3.84	3.7	3.58	3.45	3.33	3.22	3.11	3	2.9	2.8	2.71	2.62	2.54	2.46	2.38	2.31	2.24	2.18	2.12
	25	4.21	4.07	3.93	3.8	3.67	3.54	3.42	3.3	3.19	3.08	2.98	2.88	2.78	2.69	2.6	2.52	2.44	2.37	2.3	2.23	2.17
	26	4.31	4.17	4.03	3.89	3.76	3.63	3.5	3.39	3.27	3.16	3.05	2.95	2.85	2.76	2.67	2.58	2.5	2.42	2.35	2.28	2.22
	27	4.41	4.27	4.12	3.98	3.85	3.72	3.59	3.47	3.35	3.24	3.13	3.02	2.92	2.82	2.73	2.64	2.56	2.48	2.4	2.33	2.27
	28	4.51	4.36	4.22	4.08	3.94	3.8	3.68	3.55	3.43	3.31	3.2	3.09	2.99	2.89	2.79	2.7	2.62	2.54	2.46	2.38	2.31
	29	4.62	4.46	4.31	4.17	4.03	3.89	3.76	3.63	3.51	3.39	3.28	3.16	3.06	2.96	2.86	2.77	2.68	2.59	2.51	2.43	2.36
	30	4.72	4.56	4.41	4.26	4.12	3.98	3.84	3.71	3.59	3.47	3.35	3.24	3.13	3.02	2.92	2.83	2.74	2.65	2.56	2.49	2.41

Color	Volume Range	
Light Purple	1.4 - 1.8	V Low
Yellow	1.8 - 2.3	Low
Light Green	2.2 - 2.8	Med
Light Blue	2.8 - 3.4	High
Light Purple	3.4 - 3.8	V High

Created by Mike Schwartz based on Formulas by A.J deLange posted to AHA TechTalk 05 March 2007.
 $V = 3.4821 + 0.14562 * P - 0.07437 * T - 6.6194e-05 * P * P - 0.0012952 * P * T + 0.00053484 * T * T$

Original Post

From: A.J deLange
Sent: Saturday, March 03, 2007 8:55 AM
Subject: Handy CO2 Formula

Since there has been a lot of talk about CO2 recently, I have been motivated to do something I've thought about many times before and that is fix the ASBC's dissolved CO2 table.

Over the range 32 to 60 F and between 5 and 30 PSIG, the volume of dissolved CO2 is approximately:

$$V=3.2694 + .076221*P - 0.042274*T$$

where:

T is the Fahrenheit temperature,

P the gauge pressure in pounds per square inch

V the volume of dissolved CO2 per unit volume of beer.

The RMS error over the ASBC table portions within the range mentioned above is 0.003 volumes and the maximum error is 0.15 volumes. As it is a linear formula, you can go outside the range of the fit (e.g. below 5 PSIG) with fair impunity but the error grows.

For more accurate work, use

$$V = 3.4821 + 0.14562*P - 0.07437*T - 6.6194e-05 *P*P - 0.0012952*P*T + 0.00053484*T*T$$

This applies over the same range but the peak error is 0.024 Volumes and the RMS error 0.00006 vols. As this is a non-linear fit, you go above 60 F and 30 PSIG at your peril. It is OK to use the formula below 5 PSIG.