

FREE SO2 Required vs Wine pH

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pH	Red Wines (0.5 ppm mSO2 required)			White Wines & Rosés (0.8 ppm mSO2 required)			pH	Red Wines (0.5 ppm mSO2 required)			White Wines & Rosés (0.8 ppm mSO2 required)		
	FSO2 Required (ppm)	PMS Stock Solution Required (ml per Liter of wine)	PMS Powder Required (g per 100 Liter of wine)	FSO2 Required (ppm)	PMS Stock Solution Required (ml per Liter of wine)	PMS Powder Required (g per 100 Liter of wine)		FSO2 Required (ppm)	PMS Stock Solution Required (ml per Liter of wine)	PMS Powder Required (g per 100 Liter of wine)	FSO2 Required (ppm)	PMS Stock Solution Required (ml per Liter of wine)	PMS Powder Required (g per 100 Liter of wine)
3.00	8.2	0.2	1.4	13.2	0.3	2.3	3.50	25.0	0.5	4.3	40.0	0.8	7.0
3.01	8.4	0.2	1.5	13.5	0.3	2.3	3.51	25.6	0.5	4.4	40.9	0.8	7.1
3.02	8.6	0.2	1.5	13.8	0.3	2.4	3.52	26.1	0.5	4.5	41.8	0.8	7.3
3.03	8.8	0.2	1.5	14.1	0.3	2.4	3.53	26.7	0.5	4.7	42.8	0.9	7.4
3.04	9.0	0.2	1.6	14.4	0.3	2.5	3.54	27.4	0.5	4.8	43.8	0.9	7.6
3.05	9.2	0.2	1.6	14.7	0.3	2.6	3.55	28.0	0.6	4.9	44.8	0.9	7.8
3.06	9.4	0.2	1.6	15.0	0.3	2.6	3.56	28.6	0.6	5.0	45.8	0.9	8.0
3.07	9.6	0.2	1.7	15.4	0.3	2.7	3.57	29.3	0.6	5.1	46.8	0.9	8.1
3.08	9.8	0.2	1.7	15.7	0.3	2.7	3.58	29.9	0.6	5.2	47.9	1.0	8.3
3.09	10.0	0.2	1.7	16.0	0.3	2.8	3.59	30.6	0.6	5.3	49.0	1.0	8.5
3.10	10.2	0.2	1.8	16.4	0.3	2.9	3.60	31.3	0.6	5.4	50.1	1.0	8.7
3.11	10.5	0.2	1.8	16.8	0.3	2.9	3.61	32.0	0.6	5.6	51.3	1.0	8.9
3.12	10.7	0.2	1.9	17.1	0.3	3.0	3.62	32.8	0.7	5.7	52.5	1.0	9.1
3.13	10.9	0.2	1.9	17.5	0.4	3.0	3.63	33.5	0.7	5.8	53.7	1.1	9.3
3.14	11.2	0.2	1.9	17.9	0.4	3.1	3.64	34.3	0.7	6.0	54.9	1.1	9.5
3.15	11.4	0.2	2.0	18.3	0.4	3.2	3.65	35.1	0.7	6.1	56.1	1.1	9.8
3.16	11.7	0.2	2.0	18.7	0.4	3.3	3.66	35.9	0.7	6.2	57.4	1.1	10.0
3.17	12.0	0.2	2.1	19.1	0.4	3.3	3.67	36.7	0.7	6.4	58.8	1.2	10.2
3.18	12.2	0.2	2.1	19.6	0.4	3.4	3.68	37.6	0.8	6.5	60.1	1.2	10.5
3.19	12.5	0.2	2.2	20.0	0.4	3.5	3.69	38.4	0.8	6.7	61.5	1.2	10.7
3.20	12.8	0.3	2.2	20.4	0.4	3.6	3.70	39.3	0.8	6.8	62.9	1.3	10.9
3.21	13.1	0.3	2.3	20.9	0.4	3.6	3.71	40.2	0.8	7.0	64.3	1.3	11.2
3.22	13.4	0.3	2.3	21.4	0.4	3.7	3.72	41.1	0.8	7.2	65.8	1.3	11.4
3.23	13.7	0.3	2.4	21.8	0.4	3.8	3.73	42.1	0.8	7.3	67.3	1.3	11.7
3.24	14.0	0.3	2.4	22.3	0.4	3.9	3.74	43.1	0.9	7.5	68.9	1.4	12.0
3.25	14.3	0.3	2.5	22.8	0.5	4.0	3.75	44.0	0.9	7.7	70.5	1.4	12.3
3.26	14.6	0.3	2.5	23.3	0.5	4.1	3.76	45.1	0.9	7.8	72.1	1.4	12.5
3.27	14.9	0.3	2.6	23.9	0.5	4.2	3.77	46.1	0.9	8.0	73.8	1.5	12.8
3.28	15.3	0.3	2.7	24.4	0.5	4.2	3.78	47.2	0.9	8.2	75.5	1.5	13.1
3.29	15.6	0.3	2.7	25.0	0.5	4.3	3.79	48.2	1.0	8.4	77.2	1.5	13.4
3.30	16.0	0.3	2.8	25.5	0.5	4.4	3.80	49.4	1.0	8.6	79.0	1.6	13.7
3.31	16.3	0.3	2.8	26.1	0.5	4.5	3.81	50.5	1.0	8.8	80.8	1.6	14.1
3.32	16.7	0.3	2.9	26.7	0.5	4.6	3.82	51.7	1.0	9.0	82.7	1.7	14.4
3.33	17.1	0.3	3.0	27.3	0.5	4.7	3.83	52.9	1.1	9.2	84.6	1.7	14.7
3.34	17.4	0.3	3.0	27.9	0.6	4.9	3.84	54.1	1.1	9.4	86.5	1.7	15.0
3.35	17.8	0.4	3.1	28.5	0.6	5.0	3.85	55.3	1.1	9.6	88.5	1.8	15.4
3.36	18.2	0.4	3.2	29.2	0.6	5.1	3.86	56.6	1.1	9.8	90.6	1.8	15.7
3.37	18.7	0.4	3.2	29.8	0.6	5.2	3.87	57.9	1.2	10.1	92.7	1.9	16.1
3.38	19.1	0.4	3.3	30.5	0.6	5.3	3.88	59.2	1.2	10.3	94.8	1.9	16.5
3.39	19.5	0.4	3.4	31.2	0.6	5.4	3.89	60.6	1.2	10.5	97.0	1.9	16.9
3.40	20.0	0.4	3.5	31.9	0.6	5.6	3.90	62.0	1.2	10.8	99.2	2.0	17.3
3.41	20.4	0.4	3.5	32.6	0.7	5.7	3.91	63.4	1.3	11.0	101.5	2.0	17.7
3.42	20.9	0.4	3.6	33.4	0.7	5.8	3.92	64.9	1.3	11.3	103.9	2.1	18.1
3.43	21.3	0.4	3.7	34.1	0.7	5.9	3.93	66.4	1.3	11.6	106.3	2.1	18.5
3.44	21.8	0.4	3.8	34.9	0.7	6.1	3.94	67.9	1.4	11.8	108.7	2.2	18.9
3.45	22.3	0.4	3.9	35.7	0.7	6.2	3.95	69.5	1.4	12.1	111.2	2.2	19.3
3.46	22.8	0.5	4.0	36.5	0.7	6.4	3.96	71.1	1.4	12.4	113.8	2.3	19.8
3.47	23.4	0.5	4.1	37.4	0.7	6.5	3.97	72.8	1.5	12.7	116.4	2.3	20.2
3.48	23.9	0.5	4.2	38.2	0.8	6.6	3.98	74.5	1.5	12.9	119.1	2.4	20.7
3.49	24.4	0.5	4.2	39.1	0.8	6.8	3.99	76.2	1.5	13.2	121.9	2.4	21.2
							4.00	77.9	1.6	13.6	124.7	2.5	21.7

Typical red pH ~3.5; FSO2 ~28ppm

50ppm - FSO2 tasting threshold. Therefore whites above 3.6 more at risk.

50ppm - FSO2 tasting threshold. Therefore, reds above 3.8 more at risk

Typical white pH ~3.45; FSO2 ~36ppm

Definitions:	1ppm = 1 mg/L; 1 hectoliter (HL) = 100 L												
	57.5% of potassium metabisulfite (K2S2O5) is sulfite (the rest is potassium)												
	Total SO2 = Free SO2 + Bound SO2												
	Fraction of active Free SO2, called molecular SO2 (mSO2) depends on pH (as in above table)												
	- Stock solution addition: Mix 87g Potassium Metabisulfite per liter of distilled water (prepare enough for about 1 week's worth)												
	=> 1ml of stock solution per liter of wine provides 50ppm of SO2 (45 ml solution into 225 L barrel => 10ppm)												
	- Direct powder addition (dissolve in distilled water first - about 100ml per 10g):												
	=> 17.4g Potassium Metabisulfite per HL (100L) of wine provides 100ppm of SO2 (~4g/40ml distilled water into 225 L barrel =>10ppm)												
	- Most sulfite added to must before fermentation becomes bound to wine components, is lost through pressing/racking or is lost via oxidation, and is not present after fermentation.												
	- For Total SO2 < 60ppm , about 50% of SO2 added is bound (and not active), therefore, in that range you need to add twice the amount of desired FSO2.												
	- For Total SO2 > 60ppm , most of SO2 added survives as Free SO2.												
	- Some bound SO2 is lost at every racking, with sediments (therefore reducing Total SO2).												
	- Add 10ppm SO2 at every racking												
	- Free SO2 is gradually lost through reaction with oxygen every time the wine is exposed to air.												

Conversions:
1 gallon = 3.78 liter
1 ounce (weight) = 28.35 grams