



DISTRIBUTION OF FREE SO₂

From pH 3.0 – 4.0
(pKa = 1.81)

pH	% Molecular SO ₂ (m)	% Bisulfite (HSO ₃ ⁻)	% Sulfite (SO ₃ ⁼)	Minimum ppm of Free SO ₂	
				0.8 molecular	0.5 molecular
3.00	6.1	93.9	0.012	13	8
3.05	5.3			15	9
3.10	4.9	95.1	0.015	16	10
3.15	4.3			19	12
3.20	3.9	96.1	0.019	21	13
3.25	3.4			23	15
3.30	3.1	96.8	0.024	26	16
3.35	2.7			29	18
3.40	2.5	97.5	0.030	32	20
3.45	2.2			37	23
3.50	2.0	98.0	0.038	40	25
3.55	1.8			46	29
3.60	1.6	98.4	0.048	50	31
3.65	1.4			57	36
3.70	1.3	98.7	0.061	63	39
3.75	1.1			72	45
3.80	1.0	98.9	0.077	79	49
3.85	0.9			91	57
3.90	0.8	99.1	0.097	99	62
3.95	0.7			114	71
4.00	0.7	99.2	0.122	125	78

This table shows the percent of molecular SO₂ present in the pH range from 3.0 to 4.0. Multiplying this percent by the free SO₂ will give the ppm (mg/L) of molecular SO₂. To attain a desired level of molecular SO₂, the amount of free SO₂ needed can be determined by dividing the desired molecular (mg/l) by the percent available at the given pH. For example, if the wine pH is 3.5 and the desired molecular level is 0.8 mg/L, then the needed amount of free SO₂ would be calculated $0.8/0.02 = 40\text{ppm}$ free SO₂.