

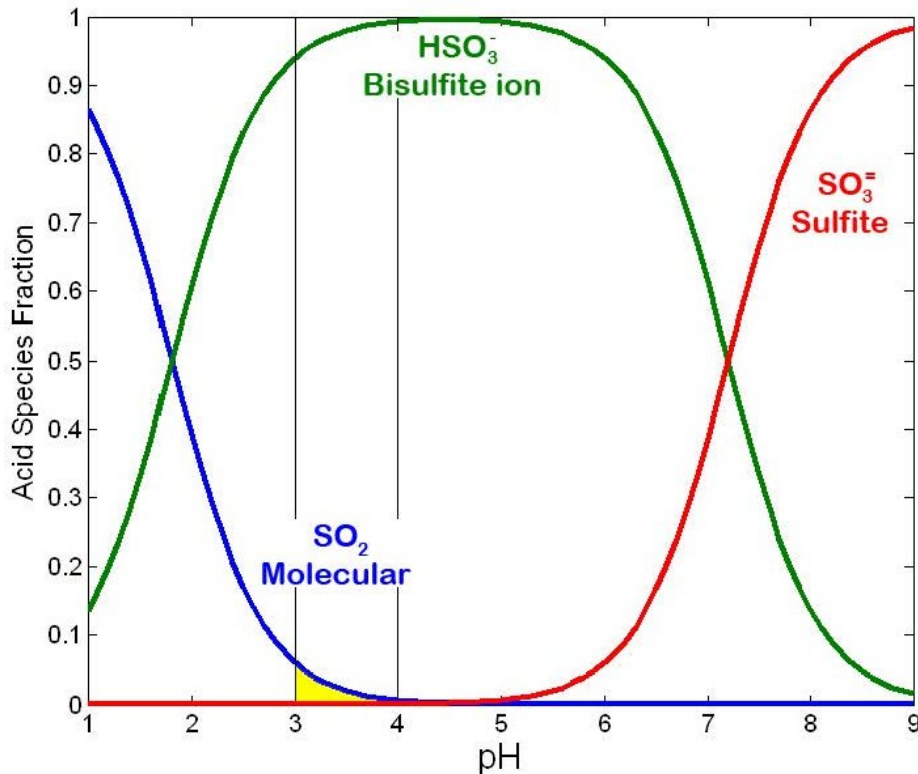
CAVEAT LECTOR: GEEK ZONE

The Mr. Natural Mourvèdre has been in bottle since late August of 2019, more than enough time to notice any mice jumping ship. We love funky as much as the next winery. But only in the Clintonian/Parliament sense of the word. The only relevant Brownian motion should be Jamesian, and occur in the hips, and *not* as a phenomenon which resuspends the byproduct of spoilage organisms. As we are fond of noting, with regard to microbial shenanigans, We Take the FU out of Funky®. This wine certainly benefits from decanting, but it is rock solid. Critical, of course, to successful execution of the zero/zero method is maniacal fastidiousness in the winery, and here a special shout-out goes to our crew in the cellar, headed by Ryan Kobza.

Is this the best way to make these wines? We quite frankly have not yet decided for ourselves. This approach certainly seems to have merit. Zero/zero wines may not age quite as well as those with added sulfur. They certainly reveal a more immediate side, which might otherwise remain hidden. We see no reason this should not age effortlessly for several years, though decades seems optimistic. Keep it cool to provide the best chance of success. We have three barrels worth of the Mr. Natural Mourvèdre, so we shall be able to see just how well it stands up to our insistence that all Birichino wines be distinctive, utterly free of what we consider defects, and not tire the palate. We want to know what you think. Tell us.

Should you wish to learn *still* more about the wine chemistry which informs our decisions regarding sulfur additions, read on.

Distribution of SO₂ Species: Molecular, Partially Dissociated and Fully Dissociated



Notes about Free SO₂

%Molecular SO₂ is tiny and drops dramatically as wine pH increases (see yellow area)

%Bisulfite is huge and relatively stable across Wine pH

Sulfite ion levels (SO₃) are irrelevant.

Wine pH between 3-4

This is often the first graph one sees when learning anything remotely technical about winemaking. It depicts the relative concentrations of the molecular and dissociated forms of free sulfur dioxide [free SO₂, or for the purposes of this note, “sulfur”] in an aqueous solution as they change with pH. Free sulfur dioxide is that portion of total sulfur dioxide not bound up with other compounds.

Wine pH ranges, with vanishingly few exceptions, from 3.0 to 4.0, and most often between 3.2 and 3.8. In this range, the majority of free sulfur appears as bisulfite. The bisulfite form can bind with, among other things, acetaldehyde and anthocyanins. Acetaldehyde occurs as the byproduct of oxidative reactions with alcohol both in barrel and in bottle. Bisulfite also acts to inhibit browning of juice by deactivating polyphenol oxidase [which also rapidly browns apples, bananas, etc.], and wine [by inhibiting or delaying the oxidative development of brown phenolic polymers]. Bisulfite also destroys thiamin, a vitamin key for yeast growth. SO₂ can be added to intentionally starve native microbes of thiamin thus inhibiting their activity,, or intentionally withheld, to preserve thiamin for native fermentation.

The antioxidant form of sulfur is sulfite ion, the concentration of which under normal SO₂ levels at a typical wine pH is extremely low. The rate of oxygen scavenging by sulfite ion is also much slower than the rate of oxygen uptake of other wine constituents, and thus, as we often learn in the texts, “there is essentially no oxygen-consuming capability provided by sulfur dioxide under normal wine conditions.”

The most important form of sulfur for the purposes of winemaking is molecular SO₂, the concentration of which drops significantly - by an order of magnitude - as pH descends from 4.0 to 3.0. This is the form responsible for antimicrobial activity, and thus theoretically inhibits spoilage via lactobacillus, pediococcus and other so-called spoilage microbes. Molecular SO₂ is also the form which is important for olfactory considerations. The sensory threshold for molecular sulfur varies greatly with temperature and pH - the lower the temperature, the less the molecular form will vaporize and thus the less it will be perceptible. This is why one might generally drink high acid/low pH riesling in a relatively narrow glass at a cold temperature, while one would rarely notice sulfur aromatically in a low acid/high pH syrah served in a Burgundy glass.

This is a scandalously brief presentation on the uses of sulfur in winemaking, but with a little more assigned homework we may be able to draw some conclusions. For instance, there are many reasons a winemaker might want to add sulfur to must or wine. Here are a few of the biggies:

1. To inhibit the activity of bacteria and yeast
2. To inhibit the enzymatic browning of juice
3. To inhibit/delay the polymeric browning of wine
4. To bind acetaldehyde and other undesirable compounds such as hydrogen peroxide [too complicated to get into here]

There are many reasons a winemaker might want to make a wine without sulfur. Here are few:

1. To encourage the activity of natural flora which might otherwise be inhibited by sulfur. They may want these flora to be actively metabolizing sugar or malic acid, and have been known to proclaim they wish microbes, after the completion of alcoholic and malolactic fermentation, to be latently present after main metabolic responsibilities have been completed.. In other words, they want the wine to be alive
2. Similar to, but not completely equal to the above; to make a wine as “naturally” as possible without any of the intervening additions or treatments which have propagated in tandem with industrialization and, more specifically, the technologically based approach, which esteems predictability over natural processes
3. To obviate the need for filtration, in as much as they have allowed alcoholic and malolactic fermentation to complete, and thus the supply of everything a microbe might wish metabolize has ideally/hopefully been exhausted
4. To avoid the binding up of compounds such as anthocyanin which might “bleach” the wine, rendering a portions of the anthocyanin colorless
5. To experiment and see what actually are the differences, organoleptically, between wines which have added sulfur, and those which do not.
6. To be cool
7. To satisfy what they believe a particular demographic demands [lofty ideals aside, there remains a remarkable correlation between Natural Winemaking self-identification, and a generalized preference for capitalism [of an admittedly gentler formulation] verses collectivization.

Our response to the above list is as follows:

1. In the vast majority of cases, we would prefer not to add cultured yeast, and we work very diligently to bring in immaculate fruit and therefore avoid in most - but not all - cases, adding sulfur to juice or must.
2. We have a great preference for not filtering our red wines, as we have found that, over time, in most cases filtration seems to have a perceptibly deleterious effect on wine expression. The successful execution of this practice, however, relies on experience and strict, nay, stern, if gentle, cellar protocols.
3. We prefer sites which produced grapes relatively high in acid and low in pH, and plan our picking similarly, to reduce the quantity of sulfur necessary to deliver to you a stable, clean, expressive wine which will develop elegantly over time.
4. We believe that one of the greatest ways to obscure the specificity of a site and homogenize a wine, is to allow microbial activity beyond “normal” alcoholic and malolactic fermentation.
5. We are apparently now old, don’t have Tik Tok, and have never been cool, and there seems only the slightest chance of our ascension to that appellation..
6. Shit happens. Small amounts of sulfur have proven, in our opinion, to be effective for the elegant and beneficial evolution of wines towards their evolutionary acme, with little or no observable negative effect.
7. We have tasted far too many self-proclaimed Natural Wines which we believe would have been vastly improved by the judicious addition of sulfur [and likely more rigorous cellar practices.] As I always tell Alyssa, “It’s a burden being right.”

No. 7 above notwithstanding, we, Birichino, do not know, *really 100% know with certainty*, at the best sites, if adding A] zero, or B] a judicious amount of sulfur, more likely facilitates a wine rising to its highest calling. It could well be that each method can reveal something profound, which the other does not. All we know is that by holding the benevolent hand of Mr. Natural, you are about to become more intimate participants in this inquiry.

This above lesson addresses, with barely tolerable brevity, only a discussion of sulfur, the only addition which is common to our red wine vinification. A longer meditation on what, precisely, we believe constitutes “Natural Wine” will follow in coming installments. In the meantime please let us know what you might want to learn about winemaking or viticulture or, not to put too fine a point on it, what we talk about when we talk about wine.