Vinho Verde: Vinho Verde is the second-highest selling wine in Portugal. The region was demarcated in 1908 and is considered to be one of the oldest regions in Portugal and one of the largest in Europe. The classic **White Vinho Verde has high acidity, low alcohol and a tiny bit of spritz.**  **Low alcohol also means there will be some residual sugar in the wine. However, the residual sugar is counter balanced by the high acidity from the grapes.**

As a result, grapes ripen with moderate sugar levels and it is this characteristic which sets the wines apart. **Crisp acidity and lively fruit flavors, combined with lowish alcohol (usually around 10-11%) make this one of the most refreshing styles of dry wine.**

**Chemistry of Wine:**

The chemistry of wine and its resultant quality depend on achieving a balance between three aspects of the berries used to make the wine: the presence of secondary compounds such as **sulfates, acidity, alcohol content,**

1. **Sulfates**

Those little words “Contains Sulfites” on the bottom of a label often stir up concern. What are sulfites in wine? And, are they bad for me?

**(**Sulfites, also commonly called sulfur dioxide, are chemical compounds that contain the sulfite ion.)

The US requires a "sulfite" warning label but you are not being warned about it when purchased the wine abroad.

**Cons**

* One study in 80 people with a history of wine-induced headaches found that consuming wine with a higher concentration of sulfites was linked to a greater risk of headaches. <https://pubmed.ncbi.nlm.nih.gov/30962515/>
* While some people can tolerate sulfites, others may experience serious side effects, such as hives, swelling, and stomach pain.

Typical symptoms of an allergic reaction to sulfites include:

* headache
* rash
* hives
* swelling of the mouth and lips
* wheezing or trouble breathing
* asthma attack (in people with asthma)
* anaphylaxis

**Pros**

* Sulfates can help prevent the wine from browning, a process that can alter the wine’s color and flavor. In other words, they are used by winemakers to help minimize oxidation in wine and maintain its freshness.
* Sulfur has an effect on aromatics during and after fermentation, particularly in red wines
* Wines with lower acidity need more sulfites than higher acidity wines. At pH 3.6 and above, wines are much less stable, and sulfites are necessary for shelf-life. Wines with more color (i.e., red wines) tend to need less sulfites than clear wines (i.e., white wines).

Régis Gougeon, a professor of enology (a science that deals with wine and wine making) at the [University of Burgundy](http://en.u-bourgogne.fr/) in Dijon, France who has been studying the subject of sulfites for well over a decade once said - “What research is increasingly showing, is that changing sulfite additions—or eliminating them—means modifying the organoleptic characteristics of the wine and its whole chemical profile.”

A [study](https://www.nature.com/articles/s41598-018-19185-5) published in *Nature* in January 2018 that was led by Fulvio Mattivi, a researcher at the [Fondazione Edmund Mach](http://fmach.it/) in Trento, Italy, and a leader in the use of metabolomics in wine research, showed that compounds called flavanols and indoles, which play a role in the mouthfeel and aging characteristics of wine**, are significantly affected by the use of SO2 (sulfites) during winemaking.** This research led to conclusion that the effects of sulfite on a wine’s character and evolution during bottle aging are significant. Wines that have had sulfite additions from the beginning have been protected from interaction with oxygen at all times. As a result, their longer-term resistance to oxygen tends to be greater.

**The no-sulfur wines** tend to taste older when they’re young. That goes with their color, which can have a slight orange tinge—but as the wines get older, they keep showing a remarkable freshness of fruit.” **In the no-sulfur wines**, the focus is entirely on fruit, more floral notes in unsulfured wines are present. Since oxygen has entered the process more actively and earlier on, aromatic traits usually linked to aging tend to emerge earlier. As a counterpoint, the wine usually remains more aromatically stable over time, since the oxidative reactions that yield those traits have already taken place.

1. **Acidity and pH**

* Wine acidity can affect its flavor and aroma in many ways. High acidity can cause a rather sharp taste. Acidity can also affect how well your wine sits in your stomach, with higher acid content naturally causing a higher risk of indigestion and the ever-dreaded acid reflux.
* Total acidity tells us the concentration of acids present in wine, whereas the pH level tells us how intense those acids taste. For example, if you have a wine with 6 g/l total acidity and a pH of 3.2 it will taste more acidic than a wine with 4 g/l total acidity with the same pH level.

pH is a logarithmic scale, so theoretically, a wine with a pH of 3 is ten times more acidic than a wine with a pH of 4.

#### Sweetness decreases the sensation of acidity

The perfect way to contextualize how sweetness reduces the sensation of acidity in wine is to compare how you react to tasting a raw lemon to Coca-Cola.

Technically, they have the same pH (around 2.5), but since coke is sweet, it’s not as intense.

Currently winemakers in California  are pushing wines to high pH levels, as high as 4.0, while 20 years ago pH's above 3.6 were unusual.  This makes wines taste softer.

**Alcohol content**:

Higher alcohol wines have less sugar and lower alcohol wines have more sugar.

Alcohol content in wines: <https://www.realsimple.com/holidays-entertaining/entertaining/food-drink/alcohol-content-wine>

**Residual sugar**:

The sugar content in wine is usually a measure of residual sugars left behind during the fermentation process. In most cases, wine does not have sugar added to it – although there are a few exceptions where flavored wines have sugar added. The residual sugars in wine are those sugars that don’t convert to alcohol during the wine’s fermentation process.

In general, the residual sugar content after fermentation is inversely proportionate to the alcohol level. This means that higher alcohol wines have less sugar and lower alcohol wines have more sugar.

The measure of residual sugar in wine is often referred to as Brix. measure residual sugar in wine in grams per liter. The abbreviation for this is g/L.

<https://www.winebutler.ca/sugar-content-wine-2/>