



UNDERSTANDING WINE TARTRATES

“Tartrate crystals are as natural to wine as seeds are to a watermelon.”

-- Ronn Wiegand, Master of Wine/Master Sommelier

What are tartrates?

Tartrates, affectionately known by industry professionals as “wine diamonds,” are tiny, crystalline deposits that occur in wines when potassium and tartaric acid, both naturally occurring products of grapes, bind together to form a crystal. Tartrates are scientifically known as potassium bitartrate, which is the same thing as cream of tartar used in cooking. They are completely harmless and natural. The formation of wine diamonds is less common in red wines, as their level of tartaric acid is lower, and crystals tend to fall out naturally during the longer barrel-aging process.

Why do wine diamonds form?

Tartrates are a normal byproduct of wine as it ages—but if the wine is exposed to temperatures below 40°F, wine diamonds can form within one week of a wine bottle’s exposure to extreme temperatures (think a bartender’s cold box where beers, wines and juices are all stored at the same temperature). It is these chilly conditions that make the tartaric acid compounds in a wine naturally combine with potassium to form a crystal.

Why does tartaric acid remain in wine?

All wine contains naturally occurring organic acids (malic and tartaric acids being the primary ones). Malic acid—“malum” is Latin for “apple”—can almost entirely be converted to the weaker acid, lactic, through a bacterial fermentation. Tartaric is the primary acid we taste in all wines; it is essential to a wine’s mouthfeel and balance. Tartaric acid tends to be more stable in wine, unless the wine is exposed to very cold temperature. Ensuring the perfect balance of these acids in a wine while minimizing the chance for wine diamonds to form is truly where art and science converge.

What methods are used to remove tartrates?

Winemakers do employ a process called cold stabilization to remove tartrates from white wine before it is bottled. Many producers do use this technique for purely aesthetic reasons with the hopes of eliminating wine diamonds. The old standard for cold stability in California winemaking was 28°F for 10 days, which is only acceptable if you are selling a product that is mass marketed at a very low price. Very cold stabilization strips a wine of its aromas and flavors, so we at Jordan cold stabilize our Chardonnays to what might seem like a cold, winter day (38° to 40°F), depending on the delicacy of the vintage. Maintaining our quality and consistency is critical to our reputation, so we don’t resort to extreme measures of cold stability that put quality of taste at risk.

Do tartrates affect the quality of the wine?

No. Actually, the presence of tartrate crystals is viewed by many winemakers, sommeliers and academics as a sign of quality, indicating that the wine was not overprocessed. Wine crystals never impart an unpleasant taste.

How do you identify wine diamonds?

Potassium bitartrate can resemble crystalized sugar granules or crystal shards as they fuse together. They may appear as a powdery white substance at the bottom of a wine bottle. The crystals can also stick to the bottom of the cork.

How can tartrate crystals be avoided?

Delicate white wines that offer a suggestion of new oak, a hint of malolactic fermentation and a moderate approach to cold stabilization should be stored at 55 to 60°F and only chilled down to 45 to 48°F just prior to serving to mitigate the formation of crystals. When possible, wines should not be stored in refrigerators overnight that maintain temperatures lower than 45°F.

How should I serve wine that has tartrate crystals?

If wine diamonds appear on a cork, simply wipe them away with a cloth. If their appearance in a glass is disagreeable to the consumer, decant the last quarter-bottle of wine, leaving any crystals behind. Pouring through a cheesecloth is also acceptable.