

WineLand

NOVEMBER 2023



**Total tartaric
stabilisation
with Enartis**



9 770043 965000 10100
RSA R55,00 INCL VAT

Total tartaric stabilisation with Enartis

By Johannes Richter

Enartis South Africa is known for exceptional products and cutting-edge service delivery. Behind the scenes, the Enartis laboratory tests and develops solutions that allow wineries to meet the highest oenological standards in the most sustainable ways possible.

“Tartrate crystals are as natural to wine as seeds are to a watermelon,” says acclaimed Master of Wine and Master Sommelier Ronn Wiegand. Although not a cause for concern, many wine drinkers think there’s a problem when they see tartrate crystals in the bottom of their wine glass.

Enartis has developed two products that work in tandem to achieve total tartaric stability. **Enocrystal Ca** for calcium tartrate (CaT) and **Zenith** for potassium bitartrate (KHT) are sustainable options that lower production costs while maintaining a wine’s quality.

Although winemakers have all the resources available to inhibit the precipitation of KHT, CaT remains an issue, says Anton Swarts CWM, who completed his dissertation on tartrate instability in South Africa in 2017. “Over the past two years, CaT has become a concerning factor in the South African wine industry.”

Enocrystal Ca advantage

Tartrates are a normal byproduct of potassium and calcium, which are naturally present in wine and can precipitate spontaneously out of a wine solution under certain conditions. “Deposits of calcium tartrate usually appear as colourless or white, bipyramidal or rhomboid crystals that settle at the bottom of the bottle or wine glass,” Basic Wine oenologist Dr Carien Coetzee says. In some cases, co-deposits are also present such as phenolic and protein material, quercetin crystals or yeast cells.

“Seeding with micronised calcium tartrate crystals such as Enartis Enocrystal Ca initiates and accelerates the natural calcium tartrate precipitation, making the crystallisation process predictable and controlled,” Carien says. “This technique relies on the availability of high-quality,

micronised calcium tartrate crystals, which provide millions of crystallising germs and help overcome germ formation, which is the main limiting factor of the crystallisation process. The added germs can grow and form larger crystals without the need to cool the wine and without being hindered by the presence of suspended particles, making it suitable for use in conjunction with clarification processes.”

The advantage of this treatment is that the added micronised calcium tartrate nuclei are insoluble and not consumed by microorganisms. “Together with the effectivity, the feasibility of use and its respect for the wine’s sensorial properties, the addition of micronised calcium tartrate can be a suitable solution to reduce the risk of calcium tartrate instabilities,” Carien says.

Mitigating risk

The Enartis laboratory, which is based in Paarl and celebrates its 10th anniversary this year, conducts a free risk assessment for winemakers to establish whether there’s a high, medium or low risk for CaT precipitation. Many variables make it hard to predict CaT precipitation with any certainty, but after years of research and analysis of thousands of wines from various parts of the world, Enartis has identified several parameters that are strongly associated with calcium tartrate instability.

In general, a high risk of calcium tartrate instability is indicated by high calcium concentration (>60-80 mg/L Ca²⁺), high pH (>3.4) and high tartaric acid (>1.5-3.0 g/L). While instability in wines with pH >3.4 is reduced over time, in wines with pH <3.4, the risk of instability is maintained over time since there’s hardly any dissolved T²⁻. Other inhibitory factors include gluconic acid, malic acid, citric acid and colloids.

However, these parameters can’t be used as a rule, as there are other factors such as calcium and tartaric acid (H₂T) concentration which can change the level of instability and speed up precipitation. Enartis can provide expert advice on the results and recommend a suitable course of action. “It’s an individualised solution,” Enartis general manager Lida Malandra says. “Winemakers can send a sample, which we’ll treat and then measure the parameters

and provide a recommendation based on the results.”

“By predictive testing, a method of quantum mechanics, Enartis can supply the necessary information on whether your wine could precipitate CaT usually at a later stage when bottled,” Anton says. “Enartis can then recommend an addition of Enocrystal Ca to treat the wine, lower the risk and to some degree prevent the potential for the wine to become calcium unstable. I’ve used the product and seen reliable results.”

Total tartaric stability

Enocrystal Ca requires seven to 10 days of contact time without the need to chill the tank, saving energy and decreasing production costs. After reaching calcium stability with Enocrystal Ca, winemakers can proceed to rack off and/or filter the wine. The wine is now ready for the addition of **Zenith** – a solution of potassium polyaspartate that blocks the formation and growth of potassium bitartrate crystals. Zenith should be added homogeneously to clarified and protein-stable wine.

Zenith maintains the sensory characteristics of wine while preserving acidity, colour and structure. It extends a wine’s shelf life while increasing the stabilisation process efficiency. It can also be applied immediately before final filtration. The product also ensures a lasting stabilising effect even under suboptimal storage conditions.

Roodezandt senior winemaker Jean du Plessis has been using Zenith Color on export and bottled wines since 2019, and



Enartis Zenith Color.

Enartis Zenith Uno.

is impressed by its reliability and ease of use. “We haven’t had a comeback so far,” he says. “We’ve done away with traditional cold stabilisation, which is time and energy consuming.”

Aan de Doorns winemaker Gert van Deventer is equally impressed with Zenith Uno, which has provided consistent wine analyses with no comebacks. He especially appreciates the electricity, time and labour savings, and the ability to treat wine at short notice without any effect on its quality.

DGB blending manager Dico du Toit is another satisfied customer, who uses Zenith Uno for white and rosé wines, and Zenith Color for red wines. “Our experience has only been positive in delivery on expectation,” says Dico. “[Zenith] fits in very well with our commitment to quality and environmental targets. We’re able to prepare wines with minimal intervention and physical interference. We’re using a lot less energy and time to stabilise wines than with the more traditional methods we used before.”

Sustainable edge

“The deposit is harmless, but the customer’s reaction might not be,” the late wine scientist Bryce Rankine famously said. Additives such as Zenith and Enocrystal Ca have proven to be revolutionary developments for stabilising wine and are an elegant alternative to for instance cold stabilisation, cation exchange resins or electro dialysis, which typically consume more water and electricity, with a heavy carbon footprint. “You can add Zenith immediately before bottling, without the need for complex schedules and timeframes,” Lida says. “If you want to save money and make your winery as sustainable as possible, look no further than Zenith.” ■



Red wine treated with Enartis Zenith Color (left) versus untreated colour and tartrate unstable red wine (right).