2020-2021
PRODUCT CATALOG

enartis

Inspiring innovation.

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CREATING A SUSTAINABLE FUTURE

The integration of sustainability in our commercial and production activities allows us to promote operational efficiency, provide the best solutions for customers and support to communities.

ENVIRONMENTAL SUSTAINABILITY

UNI EN ISO 14001: 2015 Certification
Is a voluntary international standard for designing and implementing an environmental management system. Taking care of the planet and preventing our societies from causing negative impacts on nature and the landscape are two of the most important challenges for today's businesses. This integrated system is made up of policies, processes, plans and practices that define the rules that guide the company's interaction with the environment.

Charter of Principles for Environmental Sustainability
The Charter of Principles promoted by Confindustria joins, on a voluntary basis, the companies and organizations of associated companies which, with this initiative, intend to highlight the positive and virtuous part of the Italian industrial world in terms of environmental sustainability and stimulating less dynamic companies to start a virtuous path.

The Areas of our Commitment

RESPONSIBLE ELECTRICITY CONSUMPTION

- By recovering thermal energy originating from the chemical production processes, an amount of electricity exceeding the needs of our production center is generated without CO_2 emissions.
- Installation of inverters on our machinery in order to optimize energy consumption based on actual needs.

PROTECTION OF WATER RESOURCES

- Reduction of the consumption of process water from deep aquifers, more valuable water, in favor of the use of water taken from surface stratums, of less value.
- Treatment of wastewater which is controlled directly by our laboratory, purified and released into surface water.

EMISSION REDUCTION

- SO_2 emissions in relation to the production needs of our plants have drastically decreased in recent years and have come to be far below the limits prescribed by the AIA.

WASTE REDUCTION AND RECYCLING POLICY

- Gradual reduction of current polylaminate plastics used for packaging with fully recyclable mono-materials.
- Over the years, a policy has been implemented to reduce hazardous and non-hazardous waste, leading to a 30% recovery and significant savings on disposal costs.
- Plastic cups and coffee scoops have been replaced by biodegradable versions and plastic bottles have been completely replaced by dispensers.
- The gradual replacement of old office furniture with eco-sustainable furniture and furnishings has recently started.
- The Forest Stewardship Council (FSC), an organization that promotes environmentally friendly forest management worldwide, is a guarantee of a sustainable and transparent supply chain. Their logo shown on Enartis packaging is an added value to our business and our products.

SUSTAINABLE PRODUCTS

- Enartis invests € 2M annually in research, development and innovation in order to develop processes, products and services with an ever lower environmental impact. Zenith represents the last great achievement in terms of sustainability, guaranteeing a 90% reduction in CO_2 emissions and 80% of energy and drinking water during the wine stabilization process.

SOCIAL AND ECONOMIC SUSTAINABILITY

Responsible Care is a voluntary program for the promotion of sustainable development of the global chemical industry in order to protect the environment, health and safety in the workplace. The signatory companies agree to enhance their activities in order to protect the environment, guarantee safety, protect health, better manage logistics and production and share company best practices.

BS OHSAS 18001: 2007 Certification is a voluntary international standard for designing and implementing a workplace health and safety management system that allows an organization to control its risks and improve its performance in the field of health and safety.

MOG 231 and **Code of Ethics** constitute a further valid tool for raising awareness of all employees and collaborators in order to follow correct and transparent behavior in line with ethical and social values.

Areas of our Commitment

HEALTH AND SAFETY PROMOTION

- The company adheres to the Workplace Health Promotion program, for companies that are committed to implementing interventions of proven effectiveness in the field of health promotion such as proper nutrition and the promotion of physical activity.
- Awareness and training initiatives are promoted every year, in order to involve the organization in the implementation of its environmental policy and in compliance with safety equipment.

Our efforts to protect health, safety and the environment don't end there. We work every day to find new solutions to support the enhancement of people and nature, a primary asset to be protected and passed on to future generations.

enartis

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ENZYMES

Enartis developed the EnartisZym Range through the combination of knowledge about individual enzymatic activities and practical experience in the winery. EnartisZym Range comprises a series of enzymatic preparations formulated to obtain the maximum effectiveness when used in classic and newer applications.

MUST CLARIFICATION

EnartisZym RS

EnartisZym RS (Rapid Settling) was created to resolve fining problems in musts that are notoriously difficult to clarify, such as Muscat, Sauvignon Blanc and Verdejo. It has strong pectolytic and hemicellulase activities. In fact, this liquid enzyme has a very intense clarification action that takes place in a short amount of time. It can also be used to clarify musts that are particularly rich in pectins resulting from mechanical grape processing and high temperatures during harvest. In difficult-to-clarify wines, EnartisZym RS improves their clarification and filterability.

Application: *settling of difficult-to-clarify musts; improve wine clarification and filterability*

Dosage: *1-3 mL/hL in must, 2-5 mL/hL in wine*

Packaging: *1 kg*

MACERATION OF WHITE GRAPES

EnartisZym AROM MP

Micro-granulated enzymatic preparation for maceration of white grapes. Its secondary activities, hemicellulases and proteases, break cell walls and membranes localized in the skin. This not only causes the solubilization of aromatic precursors contained in the vacuole, but also those bound to solid cell structures. Wines treated with EnartisZym AROM MP have an aromatic profile characterized by intense fruit aromas with complexity and persistence. Moreover, the protease activity contributes to protein stabilization thus reducing bentonite additions.

Application: *maceration of white grapes; production of fruity white wines; improved protein stability*

Dosage: *20-40 g/ton*

Packaging: *250 g - 1 kg*

I use EnartisZym COLOR PLUS for better colour extraction during maceration of red wines on the skins. We add it during crushing. I found that wines treated with this product had better colour stability over time during aging. Colour intensity in red wines are also better when using EnartisZym COLOR PLUS vs a control.

Louwritz Louw, Winemaker at KWV - South Africa

MACERATION OF RED GRAPES

EnartisZym COLOR

Pectolytic enzyme with side activities specifically developed for the maceration of red grapes. It accelerates and intensifies the extraction of polyphenolic substances (anthocyanins and tannins in particular) contained in grape skins. Wines produced using EnartisZym COLOR are therefore richer in phenolic substances, more intense on the nose and more structured on the palate. EnartisZym COLOR also improves press yield, wine filterability and often color intensity. Recommended for a faster extraction of color and tannins from unripe or moldy grapes.

Application: *rosé wines; young and medium aged reds; optimal color extraction in case of short maceration*

Dosage: *20-40 mL/ton*

Packaging: *20 kg (liquid form)*

EnartisZym COLOR PLUS

Micro-granulated enzyme for maceration of red grapes. EnartisZym COLOR PLUS is effective in the extraction and mainly in the stabilization of color compounds. Its secondary activities, cellulase and hemicellulase, degrade cell walls, thus accelerating and increasing the solubility of anthocyanins and tannins associated with cellular structures. The protease activity degrades proteins and decreases their ability to precipitate tannins and pigments. EnartisZym COLOR PLUS results in wines with a bigger structure and with intense and stable color.

Application: *extraction and stabilization of color from red grapes*

Dosage: *20-40 g/ton*

Packaging: *250 g - 1 kg*

EnartisZym EZFILTER

NEW

- Liquid enzymatic preparation with primary pectolytic and betaglucanase activities and secondary hemicellulase activities.
- EnartisZym EZFILTER improves clarification and filterability of must and wine due to its ability to hydrolyze pectins and polysaccharides from grapes and polysaccharides produced by microorganisms, such as glucans. It can be used also to accelerate the release of mannoproteins both in fermentation and during maturation on lees.

Application: *improvement of filterability and clarification of musts and wines, from botrytis infected grapes; accelerate mannoprotein extraction.*

Dosage: *2-4 mL/hL*

Packaging: *1 kg*

	Clarification/ Cold Settling	Clarification of Difficult Juices	Clarification by Flotation	Maceration of White Grapes	Rosé Wine Production	Maceration of Red Grapes	Color Stability	Flash Détente/ Thermovinification	Yeast Lysis	Improve Filtration	Botrytis	Form	Dosage	Package Size
RS	♠♠♠	♠♠♠	♠♠		♠♠					♠♠		Liquid	1-3 mL/hL	1 kg
Arom MP	♠			♠♠♠						♠		Powder	20-40 g/ton	250 g - 1 kg
Color						♠♠♠	♠♠			♠♠		Liquid	20-40 mL/ton	25 kg
Color Plus					♠♠♠	♠♠♠	♠♠♠	♠♠		♠♠		Powder	20-40 g/ton	250 g - 1 kg
EZFilter	♠♠	♠♠♠							♠♠♠	♠♠♠	♠♠♠	Liquid	2-4 mL/hL	1 kg

ABOUT ENOLOGICAL ENZYMES

WHY USE ENOLOGICAL ENZYMES?
Enzymes are essential for improving press yield, clarification, flotation, wine filterability, aroma and polyphenol extraction, as well as enhancing aromatic expression, improving mouthfeel, contributing to protein stability and helping to stabilize color.

WHAT ARE ENZYMES EXTRACTED FROM?
Enological enzymes are produced by diverse species of fungi such as *Aspergillus*, *Rhizopus* and *Trichoderma*, except for lysozyme which is extracted from egg whites.

WHY SO MANY PECTOLYTIC ENZYMES?
Pectolytic enzymes include enzymes (Figure 1) that break down homogalacturonan chains and enzymes that break down other pectin components such as rhamnogalacturonans I, II and their side chains. The balance between these pectolytic activities impacts the performance of the enzyme preparation.

- Pectin lyase (PL) randomly separates the pectin chain and releases midsize polymers. This activity promotes a fast depectinization and fast reduction of viscosity.
- Polygalacturonase (PG) separates galacturonic acids only when they are not esterified.
- Pectin methyl esterase (PME) de-esterifies galacturonic acid, allowing PG to perform.
- Rhamnogalacturonase, arabinanase and galactanase break down "branched pectins," commonly referred to as the "hairy zone." These activities are especially important to improve settling or filtration of difficult juices.

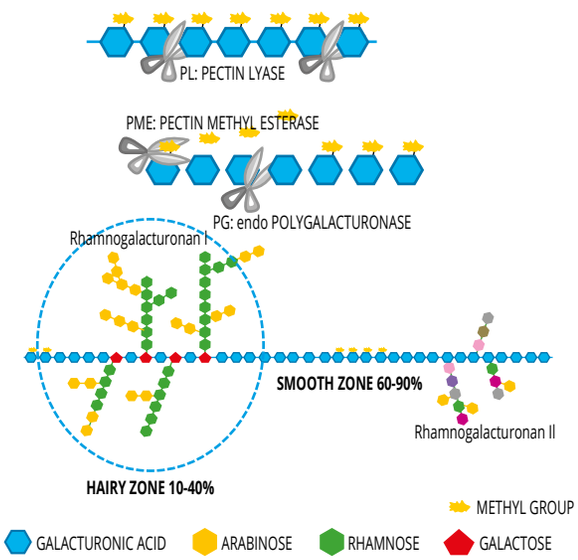

Figure 1: Representation of main pectolytic activities on pectin chains.

WHAT ARE THE DIFFERENCES BETWEEN POWDERED AND LIQUID FORMS OF ENZYMES?
Powdered enzymes are easy to store, have a long shelf life with limited risk of contamination and require no preservatives. Liquid enzymes are convenient to use and dose. They require cold storage and have a shorter shelf life due to possible microbiological contamination after opening.

HOW LONG WILL POWDERED/GRANULAR ENZYMES REMAIN ACTIVE AFTER REHYDRATION?
Rehydrated powdered/granular enzymes should not be kept in liquid form for more than a few hours at room temperature.

HOW DOES TEMPERATURE AFFECT ENZYMATIC ACTIVITIES?
Most enzymes are denatured at temperatures above 60°C and inactivated at temperatures below 5°C. Optimum temperature for enological enzymes is around 40°C.

DOES SO_2 AFFECT ENZYME ACTIVITY?
Even with an addition of 2000 ppm of SO_2, the enzymatic activity of EnartisZym RS, for example, is not affected (Figure 2). Using SO_2 and enzymes is fine, however timing is important. Add enzymes after SO_2 has adequately dispersed or vice versa. Do not add SO_2 and enzymes at the same time.

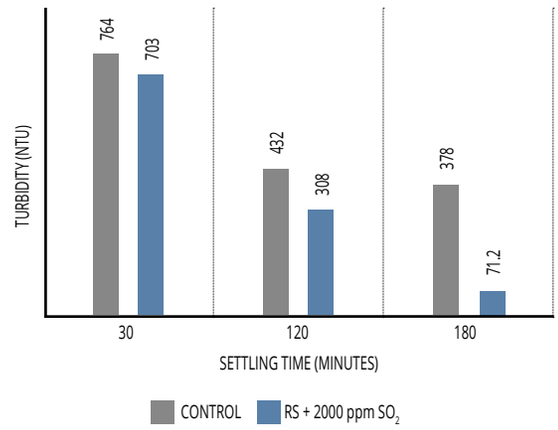

Figure 2: Impact of SO_2 addition on EnartisZym RS effectivity.

HOW DO TANNIN OR BENTONITE ADDITIONS INTERFERE WITH ENZYME ACTIVITY?
As shown, the addition of bentonite or tannin does not have a significant effect on the clarification capacity of EnartisZym RS (Figure 3). We recommend waiting 30 minutes after the complete homogenization of the enzyme before adding tannin or bentonite.

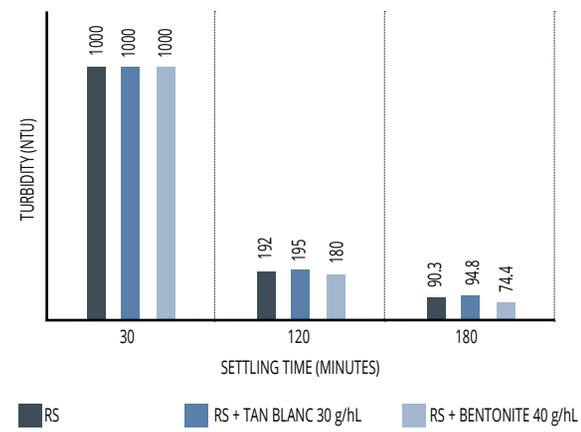

Figure 3: Impact of tannin and bentonite addition on EnartisZym RS effect. (trial carried out at 15°C).

HOW DO I DECIDE WHAT DOSAGE OF ENZYME TO USE?
Dosage is related to the desired effect, contact time, temperature and inhibiting factors. Cold temperatures, short contact times and alcohol presence can be compensated by applying a higher dosage rate.

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YEAST NUTRIENTS

Understanding the nutritional requirements for yeast is fundamental in accomplishing a successful fermentation and preventing stuck fermentations. Managing nutrient requirements not only allows for regular and complete fermentations but enhances sensory quality. Enartis has a wide range of nutrients which provide solutions for many different conditions and purposes.

NUTRIFERM AROM PLUS is far and away the best performing complex yeast nutrition in the market! Added whilst rehydration of the yeast takes place it ensures a complete and steady fermentation, assisting the yeast in fermentation to produce a complex flavor profile in any wine style.
Rianco van Rooyen, Winemaker at Robertson Winery - South Africa

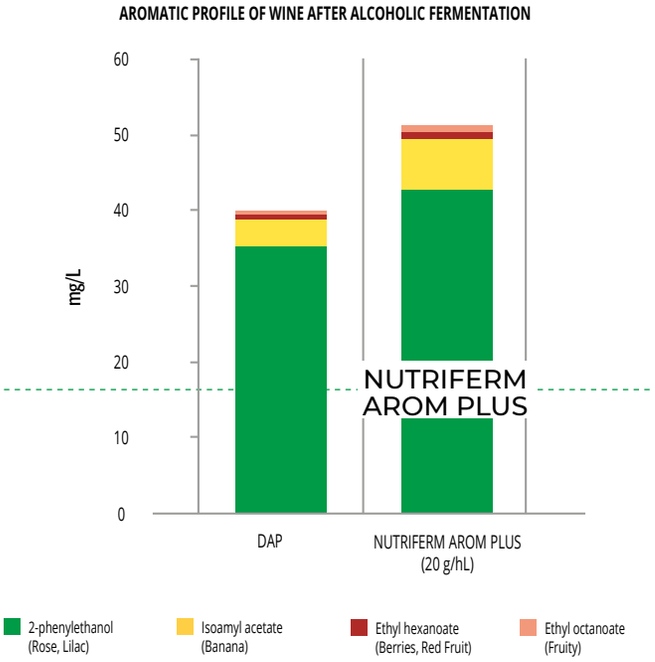
NUTRIFERM AROM PLUS

Nutrient and biological fermentation regulator comprised of autolyzed yeast with an elevated content of free amino acids and thiamine. NUTRIFERM AROM PLUS supplements mainly branched chain amino acids that yeast can use to produce esters and other aromatically active compounds. When it is used in combination with a yeast that has the metabolic pathways necessary to exploit this amino acidic content, NUTRIFERM AROM PLUS significantly increases the aromatic intensity and complexity of the wine. It also provides survival factors that help with yeast viability and thus ensures successful fermentations.

Application: *enhance secondary aroma production*

Dosage: *15-30 g/hL*

Packaging: *1 kg - 10 kg*



NUTRIFERM AROM PLUS increases the production and content of aromatic compounds in wine.

NUTRIFERM ENERGY

NUTRIFERM ENERGY provides amino acids, trace elements and mineral salts naturally contained in yeast cells. The addition of nutrients and vitamins are vital in the exponential phase of yeast multiplication, when external elements such as alcohol, sulfur dioxide and lack of oxygen have not yet intervened to modify yeast metabolism and its ability to select nutrients. NUTRIFERM ENERGY is recommended during the preparation of the starter culture and at yeast inoculation. Because of its nutritional and energetic contributions, it shortens lag phase, prevents the formation of hydrogen sulfide and acetic acid, and increases production of glycerol and polysaccharides.

Application: *complete nutrition for yeast; prevention of stuck or sluggish fermentations*

Dosage: *10-30 g/hL*

Packaging: *1 kg - 10 kg*

I've been using NUTRIFERM ENERGY on red wines at yeast inoculation. It's a very reliable nutrient that allows smooth and clean fermentations without challenges. NUTRIFERM ENERGY respects the aromatic profile of the fruit.
Alberto Bianchi, Winemaker at Newton vineyards - California, USA

NUTRIFERM SPECIAL

Complex nutrient containing inorganic nitrogen, thiamine and inactivated yeast. Designed to facilitate primary fermentation and to prevent stuck fermentations due to biochemical causes. Providing suitable amounts of YAN, vitamins and mineral salts, it ensures that the yeast will produce a pleasant aroma as well as negligible levels of hydrogen sulfide and other unwanted characteristics.

Application: *musts with low YAN; very clean musts*

Dosage: *30-50 g/hL*

Packaging: *1 kg - 10 kg*

I am very happy with NUTRIFERM SPECIAL. We inoculated six red wine tanks just this moming together with NUTRIFERM SPECIAL. It is so easy to work with, and works with any yeast! Fermentation starts quickly when using this product. I can definitely recommend it to other winemakers.
Hanlie Schönbom, Assistant Winemaker at Napier Winery - Wellington, South Africa

NUTRIFERM VIT

Containing ammonium sulfate, diammonium phosphate, thiamine, NUTRIFERM VIT, supplies immediately available nitrogen to the yeast hence guaranteeing a stable fermentation.

Application: *yeast basic nitrogen nutrition*

Dosage: *10-30 g/hL*

Packaging: *1 kg - 20 kg*

During the 2020 harvest Van Loveren used NUTRIFERM VIT as a fermentation aid on their wines and believes the product ensures enough nutrients for the yeast to complete and allow for a stable alcoholic fermentation.
Chris Crafford, Winemaker at Van Loveren Family Vineyards, Robertson - South Africa

NUTRIFERM NO STOP

Inactivated yeast rich in sterols and long-chain fatty acids. Used at mid-fermentation, it helps maintain yeast membrane integrity and therefore prevents and correct fermentation anomalies. In case of stuck fermentation, its addition can help the fermentation restart without the need for another yeast inoculation.

Application: *prevent and treat stuck fermentations.*

Dosage: *20-40 g/hL*

Packaging: *1 kg - 10 kg*

NUTRIFERM GRADUAL RELEASE

This blend of DAP and tannin is contained in a special bag that gradually releases its content during fermentation. NUTRIFERM GRADUAL RELEASE is to be added before the filling of the fermentation tank but it will start to release its content only at the end of the exponential growth phase of the yeast. By using NUTRIFERM GRADUAL RELEASE, the second addition of nutrient is not necessary and its formulation guarantees a complete fermentation and the prevention of reductive characters. Also recommended for the fermentation in pressure tank.

Application: *yeast nutrition and prevention of the reductive character; second fermentation in pressure tank*

Dosage: *5 kg bag for 250-500 hL*

Packaging: *5 kg*

I have been using Enartis nutrients almost exclusively for 7 years, and my copper sulfate purchases have dropped significantly, as well as my restart products.
Lucas Meeker, The Meeker Vineyard at Robertson Winery - Virginia, USA

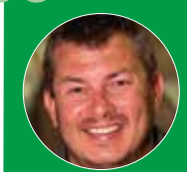
NUTRIFERM BIANCO

Dedicated to the wineries that struggle in managing the addition of multiple products during fermentation. NUTRIFERM BIANCO is a complete nutrient for yeast and an excellent stabilizer for white and rosé juice. Its composition based on ammonium salts, inactivated yeast and thiamine offers all the essential elements for yeast metabolism while the tannin component helps juice antioxidant protection and protein stability.

Application: *yeast nutrition and stability improvement during white and rosé juice fermentation*

Dosage: *30-50 g/hL*

Packaging: *10 kg*



NUTRIFERM WM is a well balanced fermentation nutrient consisting of yeast nutrient polysaccharides and important tannins that makes it very easy to add during fermentation by adding only one product. The components are very well thought out to contribute to quality, It helps to create mouthfeel, keeping the aromas fresh and support good structure. The biggest contribution is the stabilization of the color for long periods. It also helps with the ageing potential of the wine.
Pieter-Niel Rossouw, Head Winemaker at Darling Cellars - South Africa

NUTRIFERM WM

Dedicated to the wineries that struggle in managing the addition of multiple products during red and rosé vinification. NUTRIFERM WM is a complete nutrient for yeast and an excellent stabilizer for wine color. Its composition based on ammonium salts, inactivated yeast and thiamine offers all the essential elements for yeast metabolism while the tannin and polysaccharide component helps to create long-term stable color compounds and improve overall wine quality.

Application: *yeast nutrition and color stability improvement during red and rosé juice fermentation*

Dosage: *30 g/hL rosé wine; 50 g/hL red wine*

Packaging: *10 kg*

EnartisGreen NUTRIENTE

Fermentation aid made of organic yeast hulls certified organic in accordance with European Regulation [Reg. (EC) N° 834/2007 and Reg. (EC) N° 889/2008]. It helps yeast metabolism providing physical support to the fermenting cells, helping CO_2 liberation and absorbing toxic compounds present in the juice or produced during the fermentation.

Application: *fermentation aid*

Dosage: *10-40 g/hL*

Packaging: *1 kg*

ENARTIS NUTRIENTS AND FERMENTATION AIDS MAIN FEATURES

	NUTRIFERM AROM PLUS	NUTRIFERM ENERGY	NUTRIFERM SPECIAL	NUTRIFERM BIANCO	NUTRIFERM WIM	NUTRIFERM VIT	NUTRIFERM GRADUAL RELEASE	ENARTISGREEN NUTRIENTE	NUTRIFERM NO STOP
APPLICATION	Supply of precursors for the synthesis of fermentation aromas	Reinforce fermentation capacity of yeast	Balanced and complete nutrition	Complete yeast nutrition, juice protection and stabilization	Complete yeast nutrition, juice protection and red color stabilization	Basic nitrogen nutrition	Complete and clean fermentations	Detoxification of must	Prevention and treatment of stuck fermentation
NITROGEN FROM AMINOACIDS	♦♦♦♦♦♦	♦♦♦♦	♦♦	♦	♦				
INORGANIC NITROGEN			♦♦♦	♦♦	♦	♦♦♦♦♦♦	♦♦♦♦♦		
AROMATIC PRECURSORS	♦♦♦♦♦♦	♦♦♦	♦	♦	♦				♦
STEROLS & FATTY ACIDS	♦♦♦	♦♦♦♦	♦♦	♦♦	♦			♦♦♦	♦♦♦♦♦♦
MINERALS	♦♦♦	♦♦♦	♦♦	♦	♦				♦♦
VITAMINS	♦♦♦	♦♦♦♦	♦♦	♦♦	♦	♦			♦♦♦
TANNINS				♦	♦♦		♦		
SULFATE	NO	NO	NO	NO	NO	YES	NO	NO	NO
ADSORPTIVE EFFECT	♦♦♦♦	♦♦♦♦	♦♦♦	♦♦	♦			♦♦♦♦♦♦	♦♦♦♦♦♦
TIMING OF ADDITION	Yeast inoculation	Yeast inoculation	Yeast inoculation	Yeast inoculation	Yeast inoculation	Yeast inoculation or starting from 24 hrs after organic nitrogen addition	Before filling the fermentation tank	Any time during fermentation and in case of sluggish or stuck fermentation	Second half of fermentation and in case of sluggish or stuck fermentation
RECOMMENDED DOSAGE	15-30 g/hL	10-30 g/hL	30-50 g/hL	30-50 g/hL	30-50 g/hL	10-30 g/hL	20 g/hL	10-40 g/hL	20-40 g/hL
MAXIMUM LEGAL DOSAGE (EU REGULATION)	40 g/hL	40 g/hL	60 g/hL	60 g/hL	60 g/hL	30 g/hL	110 g/hL	40 g/hL	na
SUITABILITY FOR ORGANIC WINE (EU REGULATION)	YES	YES	YES	YES	YES	NO	YES	Organic certified	YES

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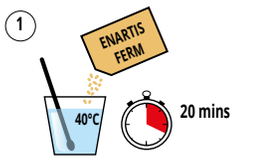
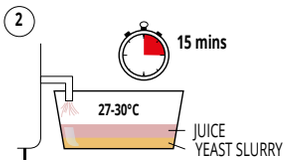
YEAST

One of the most important requirements a yeast must possess is the ability to ensure a healthy and complete fermentation, as this is the first step to create a quality wine. The knowledge and understanding of microbial characteristics, in addition to the practical experience gained over many years, has allowed us to understand the needs of the market and to suggest the application of each yeast to achieve the best quality wine, meeting winemakers' expectations.

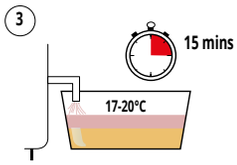
PROTOCOL FOR YEAST REHYDRATION



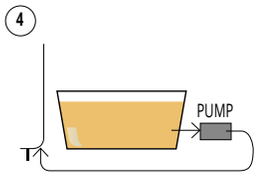
Rehydrate 20-40 g/hL of active dry yeast in 10 times its weight of chlorine-free water at 35-40°C.
Stir gently to break up any clumps.
Wait 20-30 minutes.



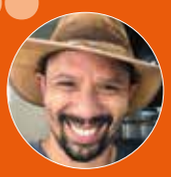
Slowly add some juice/must to yeast suspension to drop temperature: temperature drop should not be more than 10°C.
This helps yeast acclimate to cool temperature of the juice and avoid cold shock. Let stand for 15 minutes.



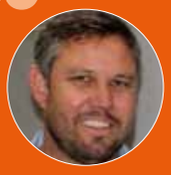
Repeat (2) until the temperature difference between the tank and yeast slurry is below 10°C.



Add yeast slurry to the bottom of the fermentation vessel and mix the tank.



We trialed EnartisFerm VINTAGE WHITE on our Unwooded Chardonnay and Grenache Blanc during our 2020 harvest. We were delighted by the resulting wines. The yeast lived up to its promise of increased varietal aromas and increased weight on the pallet. Although fermentation takes place at a moderate speed it is well worth the wait! **Craig Christians, Winemaker at Rustenberg Wines - Stellenbosch, South Africa**



I have been using ES181 more than 10 years. Without fail it has been a reliable companion helping me produce quality white wines my clients have become accustomed to. **Henri Swiegers, Production Manager - Winemaker at Badsberg Wine Cellar - South Africa**

WHITE WINE FERMENTATION

EnartisFerm AROMA WHITE

Yeast strain that preserves varietal characters and produces fermentation aromas. When fermented at temperatures between 15-17°C, it enhances citrus and mineral notes. At higher temperatures (18-21°C), it produces intense aromas of white and tropical fruit. Due to its ß-lyase activity, it is recommended for the fermentation of thiol-producing varietals such as Sauvignon Blanc, Chenin and Colombard.

Application: *fruity white wines obtained from neutral grapes and thiol-producing varieties*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm ES U42

NEW

Blend of a cryophilic strain *Saccharomyces uvarum* and a strain of *Saccharomyces cerevisiae* ex ph. r. *bayanus*. In fermentations at low temperatures, it finds the ideal conditions to express its enological qualities: low yield sugar/alcohol, high glycerol, low volatile acidity, high ß-phenyl alcohol (rose and spicy aromas). It preserves juice acidity producing malic and succinic acids.

Application: *white, red and rosé wines; low temperature fermentations; late harvest.*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm VINTAGE WHITE

Increases varietal aromas and releases large quantities of polysaccharides during the *sur lie* stage. Its tendency to form lightly compacted lees reduces the number of *bâtonnage* and pump-overs. Because of its moderate fermentation speed, it is advised for barrel fermentation.

Application: *varietal expression; barrel fermentation; lees ageing; large volume on the palate*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

EnartisFerm ES181

Good fermenter at low temperatures and in reductive winemaking conditions, EnartisFerm ES181 is recommended for the production of varietal wines fermented in stainless steel tanks. When properly fed, it produces fermentation aromas that increase the aromatic complexity without overshadowing the primary aromas. It also contains intense ß-lyase activity, therefore it is recommended for the fermentation of thiolic varieties such as Sauvignon Blanc, Semillon, Verdejo etc.

Application: *fermentation at low temperatures; reductive fermentation; varietal white wines; Sauvignon Blanc*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

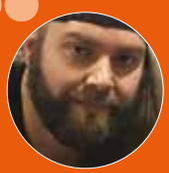
EnartisFerm Q CITRUS

Yeast strain selected for the production of white wines characterized by intense aromatic expression. EnartisFerm Q CITRUS expresses the fruit and floral aromas of grape terpenes, norisoprenoids and thiols. At the same time, it intensifies the varietal character by producing zesty and complex notes of citrus (grapefruit), tropical fruit (guava, passion fruit, pineapple) and flowers (jasmine, lime blossom).

Application: *varietal expression; improves aromatic expression of wine from neutral grapes*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*



EnartisFerm Q CITRUS gave my wines incredible aromatics and massive sensory expression. We frequently perceive distinct notes of pineapple, orange and guava. EnartisFerm Q CITRUS reminds me of landing in Hawaii!
Lucas Meeker, Winemaker at The Meeker Vineyards - California, USA

(Talking about EnartisFerm Q CITRUS). Extremely efficient yeast ensuring constant fermentation at cool 12°C temperatures. One of the few types of yeast that are aptly named as it produces wines that are full and well balanced with aromas of lemon- and orange peel along with citrus. Well suited to Chenin blanc and Colombard and on wines where extremely low residual sugars are required. Since starting to use it 5 years ago we have placed increasing orders in subsequent vintages!
Rianco van Rooyen, Winemaker at Robertson Winery - South Africa

EnartisFerm TOP ESSENCE

Yeast with good fermentation properties. It is suitable for the production of young white wines from grapes low in primary aromas in order to enhance the aromatic expression of pineapple, passion fruit, banana, grapefruit, etc.

Application: *young and easy-to-drink wines*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

Ek wou bietjie wegbreek van die industrie-gedomineerde giste, wat oor die laaste paar jaar nie juis in ons kelder beindruk het nie. Ek het TOP ESSENCE op my Sauvignon Blanc en Chenin Blanc gebruik en ongelooflike resultate gekry. Beste vruguitdrukking in jare en dit trek deur na die palet. Ek het dit selfs in van my vate gebruik en die resultate was beter as verwag. In 2019 sal ek moeilik iets anders as Top Essence op die wit kultivars gebruik.
Hardus van Heerden, Winemaker at Welbedacht - South Africa

RED WINE FERMENTATION

The EnartisFerm D20 has improved the mouthfeel of our wines while delivering a more balanced wine that had increased phenolics.
Daniel Daou, Co-Proprietor and Winemaker of Daou Vineyards & Winery - California, USA

EnartisFerm D20

EnartisFerm D20 was isolated by Enartis from the top Cabernet Sauvignon block on DAOU Mountain in the Adelaida Appellation of Paso Robles. Besides its ability of extracting high quantities of polyphenols, promoting rich, dense and stable color and enhancing dark fruit and spicy aroma, EnartisFerm D20 was selected because of its capability of fermenting at high temperatures. This makes it suitable for the production of high concentrated red wine and for fermentation with low or no temperature control.

Application: *red wine with high ageing potential; Bordeaux varieties; high temperature fermentation*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm ES488

Wines produced with this strain are both powerful on the nose and palate and suitable for ageing in oak. EnartisFerm ES488 produces intense black fruit and spicy aromas that are evident during the first stages following fermentation and remain persistent. Given its high extraction capacity, it results in wines with great structure and color. It also helps mask herbaceous notes in unripe grapes.

Application: *thiol production; reduce herbaceous note; unripe grapes; medium to long ageing*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

EnartisFerm Q7

Alcohol tolerant strain (up to 17%) which heightens fresh fruit notes such as blackberry, plum and spice. It is recommended for fermenting grapes produced in hot climates or in vintages affected by drought. In these conditions, EnartisFerm Q7 ensures stable and complete fermentations and revitalizes the aromas by masking overripe fruit notes.

Application: *hot climate area; freshen overripe grapes; high °Brix grapes; medium-long ageing*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm RED FRUIT

One of the most loved strains of the EnartisFerm range! It produces very intense aromas of fruit and violets along with elevated quantities of glycerol and polysaccharides. The resulting wines are round on the palate and have good color and aroma.

Application: *rosé wines; fruity, young or moderately aged red wines*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

EnartisFerm ES454

Yeast for the production of red wines destined for ageing. It gives the best results when fermenting ripe and high-quality grapes. It produces unique wines characterized by elegant, ripe fruit and spicy aromas and smooth mouthfeel.

Application: *varietal expression; medium to long ageing; premium red wines*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm VINTAGE RED

Moderate fermenter, capable of fermenting in a wide range of temperatures (18-35°C), EnartisFerm VINTAGE RED is known for its ability of producing soft and structured wines. It is also suitable for the production of wines made from slightly unripe grapes. Aromatically respectful of varietal characteristics, after the initial phase in which the wine appears closed and austere on the nose, with ageing it opens up and shows notes of ripe fruit and spices.

Application: *varietal expression; medium to long ageing; grand red wines; oak ageing*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

EnartisFerm WS

Isolated from late harvest Zinfandel from Williams Selyem Winery, EnartisFerm WS is considered one of the most robust California yeast strains. It is well suited for a wide spectrum of red varietals and is recommended for fermentation of high °Brix juice and to restart stuck fermentations. EnartisFerm WS respects varietal and *terroir* characters and boosts fruit and spice expression, while contributing to both excellent complexity and structure enhancement with soft tannin extraction. It is particularly recommended for the production of high alcohol wines destined for medium- to long-term ageing.

Application: *wide spectrum of red varietals, particularly Pinot Noir, Shiraz and Pinotage; high °Brix grapes; restart stuck fermentations*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

I love the fruity and clean aromas that EnartisFerm WS gives to the wine.
Heather Perkin, Associate Winemaker at Elk Cove Vineyards - Oregon, USA

I use EnartisFerm WS on my late harvest wines; it ferments up to 18% alcohol with no problem. **Ken Wright, Winemaker at Ken Wright Cellar - Oregon, USA**

In 2017, I used EnartisFerm WS on our 2017 Zinfandel and 25% of our Cabernet Sauvignon to produce intense color, rich mouthfeel and balanced tannin structure and was very happy with the results.
David Bradley, Owner/Winemaker of Vindemia Vineyards - California, USA

TECHNICAL STRAINS

EnartisFerm BIO

Saccharomyces cerevisiae selected for the vinification of white, red and rosé wines that express the terroir and the varietal character with clean aromas. EnartisFerm BIO does not contain E491 sorbitan monostearate and is certified organic in accordance with European Regulation [Reg. (EC) N° 834/2007 and Reg. (EC) N° 889/2008].

Application: *white, red and rosé wine fermentation*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm EZFERM 44

EnartisFerm EZFERM improved! This strain combines high alcohol tolerance (17.5%), strong fermentation kinetics and minimal nutritional needs with a strong affinity for fructose metabolism. EnartisFerm EZFERM 44 is the recommended yeast for solving problems of sluggish and stuck fermentations.

Application: *restarting sluggish and stuck fermentations*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg*

EnartisFerm SB

It produces wines with a clean and intense varietal character and ensures regular and complete fermentation. Recommended for the fermentation of big volumes.

Application: *white, red and rosé wines; varietal expression*

Dosage: *20-40 g/hL*

Packaging: *10 kg*

EnartisFerm SC

Versatile strain that can be used in the fermentation of white, red and rosé wines. It allows the production of wines with clean, fresh, intense varietal aroma.

Application: *white, red and rosé wine; varietal expression*

Dosage: *20-40 g/hL*

Packaging: *10 kg*

EnartisFerm TOP 15

A vigorous strain with high alcohol tolerance (17%), able to ferment at low temperatures. It can be used in the vinification of white, red and rosé wines as well as in the production of sparkling wine fermented in bottles and stainless-steel tanks. It produces wines with very clean aromas that express the characteristics of the grape.

Application: *white, red and rosé wines; sparkling wine; varietal expression; high °Brix*

Dosage: *20-40 g/hL*

Packaging: *0.5 kg - 10 kg*

ENARTIS YEAST CHARACTERISTICS

	TEMPERATURE	LAG PHASE	FERMENTATION SPEED	ALCOHOL TOLERANCE	KILLER FACTOR	COMPATIBILITY WITH MLF	NITROGEN NEEDS	OXYGEN NEEDS	AROMATIC FEATURES	WHITE	RED	ROSÈ	BUBBLES
Aroma White *S. cerevisiae*	15-24°C	Medium	Medium	15%	Killer	Neutral	High	Medium	F - V	♠			
Bio *S. cerevisiae*	15-28°c	Medium	Medium	14%	Neutral	Neutral	Medium	Low	N	♠	♠	♠	
D20 *S. cerevisiae*	18-38°C	Short	High	17%	Neutral	Neutral	Medium	Medium	F		♠	♠	
ES181 *S. cerevisiae*	10-20°C	Short	High	16,5%	Killer	Low	Low	Medium-Low	F - V	♠		♠	♠
ES454 *S. cerevisiae*	18-30°C	Short	Medium	16%	Sensitive	High	Medium	Medium	V		♠		
ES488 *S. cerevisiae*	15-28°C	Short	Medium-slow	16%	Killer	High	High	High	F - V		♠		
ES U42 *S. uvarum + S. bayanus*	8-28°C	Medium	Medium	15%	Neutral	Good	Low	Medium-Low	F - V	♠	♠	♠	
EZferm 44 *S. bayanus*	15-30°C	Short	Medium	17,5%	Neutral	Neutral	Low	Low	N	♠	♠	♠	
Q Citrus *S. cerevisiae*	10-20°C	Short	High	15%	Neutral	Low	Medium	Medium	F	♠		♠	
Q7 *S. cerevisiae*	16-30°C	Medium	Medium-slow	16,5%	Neutral	Neutral	Medium	Medium	F		♠		
Red Fruit *S. cerevisiae*	14-34°C	Short	High	16%	Killer	Neutral	High	High	F		♠	♠	
SB *S. bayanus*	15-30°C	Medium	High	15%	Neutral	Low	Low	Low	V	♠	♠	♠	♠
SC *S. cerevisae*	18-32°C	Short	High	13%	Neutral	Good	Medium	Medium	V	♠	♠	♠	
Top 15 *S. bayanus*	10-28°C	Short	High	17%	Killer	Neutral	Low	Low	V	♠	♠	♠	♠
Top Essence *S. cerevisiae*	15-25°C	Short	Medium	15%	Killer	Low	Medium	Medium	F	♠			
Vintage Red *S. cerevisiae*	18-32°C	Short	Medium	16%	Neutral	High	Medium	Medium-High	V		♠		
Vintage White *S. bayanus*	14-24°C	Short	Medium	15,5%	Killer	Good	High	Medium-High	V	♠			
WS *S. cerevisiae*	16-30°C	Medium	Medium-High	18%	Neutral	Neutral	Low	Low	V	♠		♠	

F = fermentation aroma
V = varietal
N = neutral

RESTART AND/OR COMPLETE A STUCK FERMENTATION

The successful restart of a stuck fermentation depends upon three critical factors:
> Diagnose the causes of fermentation arrest.
> Appropriate wine treatment.
> Proper acclimation of the yeast.

1- TREAT THE STUCK WINE BEFORE THE RESTART - 24 HOURS PRIOR TO YEAST PREPARATION
1. Press off skins or rack of lees.
2. Remove spoilage microbes with EnartisStab MICRO M at 15 g/hL
3. Rack off lees 24 hours after treatment and add NUTRIFERM NO STOP at 20 g/hL.

2- PREPARE AND ACCLIMATE THE YEAST

STEP 1: Prepare starter

Tip: Use a sanitized tank able to hold the entire volume of stuck wine.
- Take 2.5 % of stuck wine.
- Add the same amount of water (2.5% of total volume).
- Add 10 g/hL of NUTRIFERM Energy (calculated on the volume of stuck wine).
- Adjust sugar level to 50 g/L (5°Brix).
- Maintain temperature at 20-23°C.

STEP 2: Yeast rehydration

Rehydrate 30 g/hL (calculated on the volume of stuck wine) of EnartisFerm EZ FERM 44 in 10 times its weight of chlorine-free water at 40°C and wait 20 minutes.

STEP 3: Acclimate the yeast and start fermentation
- Add rehydrated yeast to STEP 1 and monitor °Brix and Temperature.
- At 1/2 °Brix depletion, add 20% of stuck wine + 5 g/hL of NUTRIFERM Special (calculated on volume of stuck wine).
- At 1/2 °Brix depletion, add another 20% of stuck wine.
- At 1/2 °Brix depletion, add the remaining stuck wine.

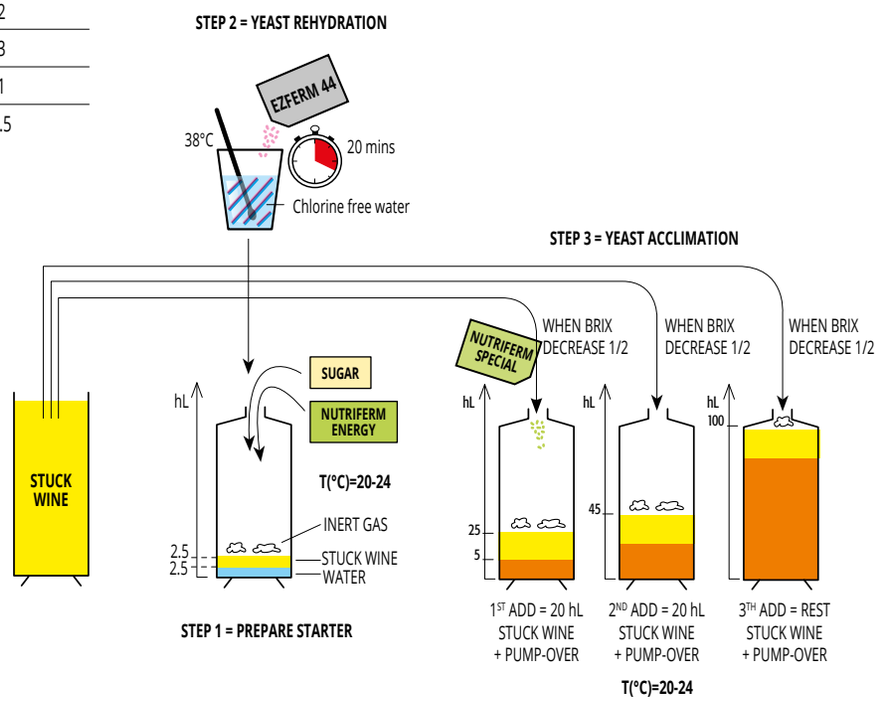
Why use NUTRIFERM NO STOP?
NUTRIFERM NO STOP acts as a protector by improving yeast membrane integrity. Additionally, it eliminates medium chain fatty acids and pesticides residues which may inhibit fermentation.

Why use NUTRIFERM ENERGY?
Nutrient content in stuck wine cannot support yeast growth. Complex yeast nutrients improves yeast activity and facilitates their acclimation to hostile wine conditions. NUTRIFERM ENERGY provides essential elements for yeast development.

Why use EnartisFerm EZFERM 44?
It is a fructophilic yeast, vigorous fermenter with low nutrition needs. It has high implantation rate and strong resistance to alcohol and VA.

3- PRODUCT NEEDS FOR 100 hL:

WINEMAKING PRODUCT	QUANTITY (kg)
EnartisStab MICRO M	1.5
NUTRIFERM NO STOP	2
EnartisFerm EZFERM 44	3
NUTRIFERM ENERGY	1
NUTRIFERM SPECIAL	0.5



Inspiring innovation.

TANNINS

Many wines benefit from the addition of tannins, provided that the treatment is carried out at the most appropriate time. Since the different origins and properties of tannin can produce substantially different results, care must be taken to select the best tannin for each winemaking application. In conjunction with the foremost research centers, Enartis has studied exogenous tannins and their effects for many years. These studies have enabled Enartis to select and produce a comprehensive range of the highest quality tannins for winemaking.

WHITE VINIFICATION

EnartisTan AROM

EnartisTan AROM is a blend of tannins and yeast specifically formulated for the treatment of white and rosé juice. The tannins, consisting of hydrolyzable, high molecular weight tannins, are particularly reactive with grape proteins that affect protein stability in finished wines. The inactivated yeast provides amino acids with antioxidant activity that are an important source of thiol precursors.

Application: *antioxidant protection; protein stabilization; thiols; fruity wines*

Dosage: *2-20 g/hL*

Packaging: *1 kg*

EnartisTan CIT

A blend of gallic and condensed tannins extracted from lemon wood. The low temperatures used during the extraction process of the condensed tannin preserve aromatic precursors in the wood that enhances the fruit and floral notes of the resulting wines. These characters are especially evident when paired with high ß-glycosidase activity yeast (EnartisFerm TOP ESSENCE, AROMA WHITE, VINTAGE WHITE, ES181 and Q CITRUS).

Application: *enhancement of floral and fruit aroma*

Dosage: *2-15 g/hL*

Packaging: *1 kg*

RED VINIFICATION

EnartisTan COLOR

Blend of tannins and inactivated yeast. When added at the crusher, EnartisTan COLOR provides immediate antioxidant protection to anthocyanin and aromatic molecules. The grape seed tannins in the blend ensure the condensation of the anthocyanin fraction to form stable color pigments responsible for vibrant and young color. The addition of EnartisTan COLOR stimulates yeast to produce thiols thus enhancing spicy and black fruit aromas.

Application: *antioxidant protection; long-term color stabilization; enhancement of thiols*

Dosage: *50-200 g/ton*

Packaging: *1 kg*

EnartisTan FERMCOLOR

EnartisTan FERMCOLOR is a blend of alcohol extracted condensed and hydrolyzable tannins. It combines a high antioxidant efficacy with excellent organoleptic quality. Used immediately on crushed grapes, it protects anthocyanins from oxidation and contributes to their stabilization. For its intense soft taste, it is recommended in the production of red wines intended for ageing and quality wines with a delicate structure.

Application: *antioxidant protection; color stabilization; reds intended for ageing*

Dosage: *200-400 g/ton*

Packaging: *1 kg*

EnartisTan FP

EnartisTan FP is a mixture of condensed and ellagic tannins. When added to red grapes, it acts in synergy with natural grape tannins to protect anthocyanins from oxidation while favoring the formation of stable color compounds. The ellagic tannin fraction ensures a good reaction with must proteins and helps the removal of oxidative enzymes (laccase). It is recommended for additions at the crusher or during cold soak for a more complete anti-oxidant effect with SO_2.

Application: *"sacrificial" tannin; anti-oxidant protection; color stabilization*

Dosage: *150-400 g/ton*

Packaging: *15 kg*

EnartisTan RF

A blend of condensed tannins, many extracted from the wood of red fruit trees. These proanthocyanidinic tannins enrich wine with aromatic precursors that are responsible for notes of berries and red fruit. During primary fermentation, these precursors can be liberated by yeast strains (EnartisFerm RED FRUIT, ES488 and ES454) with an intense ß-glycosidase activity. As a result of their liberation, the wine is enriched with fruit forward aromas that integrate the varietal aromas and those produced during fermentation.

Application: *wines with increased fruit aromas; color stabilization; red and rosé wines*

Dosage: *100-200 g/ton*

Packaging: *1 kg*

EnartisTan ROUGE

Micro granulated blend of gallic, ellagic and condensed tannins. When added at grape reception, during cold soak or in the first stage of maceration, it protects color and aromatic compounds from oxidation thus increasing wine color and aroma potential. Additionally, EnartisTan ROUGE reinforces the structure of the wine and imparts balance. Recommended in case of moldy grapes.

Application: *"sacrificial" tannin; anti-oxidant protection; color stabilization*

Dosage: *100-400 g/ton*

Packaging: *1 kg - 15 kg*

We love to use the Enartis fining tannin range in combination with SURLÌ VELVET to find the perfect harmony in our wines prior to bottling. Their expert advice and attention to customer satisfaction is exemplary. We regard the Enartis South Africa team as part of the family here at Kaapzicht.
Kayleigh Hattingh, Assistant Winemaker at Kaapzicht Wines Estate - South Africa

EnartisTan V

EnartisTan V (Vinification) is a highly reactive, condensed tannin specifically designed for the color stabilization of red wines during fermentation. It is extracted with water from non-fermented white grape seeds that contain a high concentration of low molecular weight catechins. It quickly reacts and condenses with free anthocyanins thus leading to long-lasting color stability.

Application: *long-term color stability; thermovinification; phenolic unripe grapes*

Dosage: *100-300 g/ton*

Packaging: *1 kg*

EnartisTan XC

EnartisTan XC is a tannin rich in monocatechins developed to increase color stability in young red and rosé wines. It is extremely effective in creating co-pigments with free anthocyanins in the must. The color complexes formed this way are more resistant to oxidation, more soluble in must/wine and available for condensation reactions with grape tannins.

Application: *color stabilization through co-pigmentation; young to medium aged red wines; rosé*

Dosage: *200-400 g/ton on red grapes; 2-15 g/hL in rosé juice*

Packaging: *1 kg - 15 kg*

TECHNICAL TANNINS

EnartisTan ANTIBOTRYTIS

Composed of highly reactive tannins that limit oxidation and the activity of oxidative enzymes. In case of grapes affected by *Botrytis cinerea*, EnartisTan ANTIBOTRYTIS reduces the action of the oxidase (laccase) produced by the parasitic fungus. In case of cold-soak, EnartisTan ANTIBOTRYTIS prevents loss of quality due to the oxidation of anthocyanins, the molecules responsible for the color of red grapes, and aromatic compounds. In the treatment of healthy grapes, EnartisTan ANTIBOTRYTIS has an antioxidant effect that is synergistic with SO_2.

Application: *moldy grapes; antioxidant protection of aromatic and color compounds*

Dosage: *50-200 g/ton on grapes; 3-20 g/hL in juice; 2-10 g/hL in wine*

Packaging: *1 kg - 10 kg*

PRODUCT	DOSAGE	REDUCTION OF OXIDASIC ENZYME ACTIVITY
SO_2	50 ppm	25%
	75 ppm	62%
Antibotrytis	20 g/hL	60%

EnartisTan BLANC

Micro-granulated gallic tannin with high antioxidant activity. It can be added to the wine to enhance SO_2 antioxidant and antimicrobial activity. Sensory neutral and very effective even at low doses, EnartisTan BLANC does not affect wine aroma. In white wines, it prevents the reductive characters caused by exposure to ultraviolet (light-struck defect).

Application: *antioxidant protection; prevention of light-struck*

Dosage: *4-10 g/hL*

Packaging: *1 kg - 12.5 kg*

EnartisTan E

Condensed tannin mainly consisting of monocatechins obtained by purification from an unfermented white grape seed extract. Very effective for the stabilization of coloring matter, its use is recommended in the early stages of the alcoholic fermentation and during the micro-oxygenation phase that precedes the malolactic fermentation.

Application: *color stabilization; micro-oxygenation; enhance body and structure*

Dosage: *50-200 g/ton during maceration; 3-15 g/hL during micro-oxygenation*

Packaging: *1 kg*

EnartisTan MICROFRUIT

EnartisTan MICROFRUIT is a formulation of condensed and hydrolyzable tannins specifically developed to be used in conjunction with the micro-oxygenation of red wines. EnartisTan MICROFRUIT, along with the synergistic action of oxygen, contributes to color stabilization, enhances aromas of fresh red fruit, increases the softness and sweetness of wine, and reduces bitterness and vegetal characters. It is particularly suitable during micro-oxygenation, but it can be added for the same reasons post-fermentation up until one month prior to bottling, any time wine comes in contact with oxygen (racking, filtration, refrigeration...).

Application: *micro-oxygenation of red and rosé wines*

Dosage: *5-20 g/hL*

Packaging: *1 kg*

EnartisTan SLI

EnartisTan SLI is produced from untoasted American oak with a unique process that avoids the use of high temperature. It displays an extraordinary capability of scavenging oxygen and radicals, chelating metals and slightly reducing wine redox potential. For its characteristics, EnartisTan SLI can be used in synergy or as an alternative to SO_2 to protect wine from oxidation and to improve its shelf life.

Application: *antioxidant protection; improve the shelf life of wine; treat reduction.*

Dosage: *0.5-2 g/hL as antioxidant; 2-15 g/hL to improve the sensory*

Packaging: *0.5 kg*

OAK TANNINS

EnartisTan CŒUR DE CHÊNE

A blend of ellagic tannins extracted from the same oak used for barrels, seasoned at length in open air, and then toasted. EnartisTan CŒUR DE CHÊNE can be used to prolong the life span of barrels. It contributes hints of vanilla and spice to wine and produces a soft and well-balanced tannin structure.

Application: *finishing; extend the life of barrels*

Dosage: *3-10 g/hL*

Packaging: *0.5 kg*

EnartisTan DC

Tannin obtained from French oak with extended seasoning and medium-heavy toast. EnartisTan DC enhances sensory characteristics such as chocolate and spice aromas, structure and softness found in barrel-aged wines. EnartisTan DC also helps integrate tannin and aromatic components of used barrels.

Application: *finishing; extend the life of barrels*

Dosage: *0.5-15 g/hL*

Packaging: *0.5 kg*

EnartisTan ÉLEVAGE

EnartisTan ÉLEVAGE is extracted from lightly toasted French oak. It is very effective in treating and preventing the formation of reductive aroma. For this reason, it is well-suited for the treatment of wines on lees. It can also be used to increase structure and aromatic complexity, imparting elegant vanilla, caramel and licorice notes.

Application: *increase structure; prevent and treat reductive characters*

Dosage: *2-15 g/hL*

Packaging: *1 kg*

EnartisTan NAPA

Tannin extracted from toasted American oak. When added during white and red wine maturation, EnartisTan NAPA enhances aromas of caramel, coconut, coffee and cocoa, and increases wine structure and sweetness. EnartisTan NAPA also has a good antioxidant effect and can be added to used barrels to reintegrate their original content of tannin and improve their impact on color stability. In some cases, it can reduce wine bitterness and astringency.

Application: *finishing; increase aroma complexity and structure*

Dosage: *3-15 g/hL*

Packaging: *0.5 kg - 1 kg*

EnartisTan RICH

EnartisTan RICH is a mixture of condensed and oak tannins. In red wines, it protects against oxidation, helps stabilize color and contributes to sensory quality by enriching the bouquet with pleasant aromatic notes of oak and increasing structure. In white wines, it improves sensory characteristics and contributes to protein stabilization and clarification.

Application: *enhance structure of light wines; color stabilization*

Dosage: *5-20 g/hL*

Packaging: *1 kg*

EnartisTan SUPEROAK

EnartisTan SUPEROAK is a tannin specifically designed for addition during maturation. Its balanced blend of oak and condensed tannins makes it well-suited to improve color stabilization of red wines and can be used during micro-oxygenation. The sensory profile is characterized by distinct sensations of volume and softness as well as light aromas of toasted oak. EnartisTan SUPEROAK is effective in releasing aromas of wines that have been aged in barrels and to freshen light red and white wines.

Application: *stabilize color; increase volume and complexity*

Dosage: *5-20 g/hL*

Packaging: *1 kg*

EnartisTan TOF

Ellagic tannins extracted from medium/heavy-toasted French oak. Enhances butterscotch and toffee aromas, improves structure and length.

Application: *finishing; extend the life of barrels*

Dosage: *1-15 g/hL*

Packaging: *0.5 kg*

EnartisTan VNL

Extracted from medium-toasted French oak, EnartisTan VNL increases vanilla, custard and coconut aromas and improves wine structure and sweetness. Very good antioxidant activity.

Application: *finishing; extend the life of barrels*

Dosage: *1-15 g/hL*

Packaging: *0.5 kg*

EnartisTan MEL

NEW

Liquid and easy-to-use preparation of ellagic tannin extracted from toasted American and French oak. EnartisTan MEL is designed to be used during wine maturation to prevent reduction and protect wine from oxidation. In barrel-aged wines, it helps to enhance oak profile (caramel, coconut, coffee and cocoa).

Application: *wine maturation; finishing; increase aroma complexity and structure*

Dosage: *1-30 mL/hL*

Packaging: *1 kg*

GRAPE TANNINS

EnartisTan UVA

A proanthocyanidinic extract obtained from mature white grape seeds. Its addition to must or wine immediately after primary fermentation facilitates an earlier formation of long-term stable pigments. In white wines, its ability to eliminate unstable proteins can reduce the quantity of bentonite necessary to achieve stability. Moreover, its addition enhances fruit aromas and improves structure, mouthfeel and complexity of white, red and rosé wines.

Application: *color stabilization; increase structure and fruit notes*

Dosage: *3-10 g/hL*

Packaging: *0.5 kg - 1 kg*

EnartisTan FF

Blend of tannins extracted from lemon wood and white grape skins. EnartisTan FF has excellent antioxidant capacity. To be used during ageing or pre-bottling of white and rosé wines to freshen aroma, reduce overripe fruit notes, impart softness and protect from oxidation.

Application: *freshen wine aroma; increase antioxidant protection*

Dosage: *0.5-10 g/hL*

Packaging: *1 kg*

EnartisTan FT

A blend of condensed tannins, mainly extracted from fresh, physiologically ripe, white grape seeds. These proanthocyanidinic tannins interact with anthocyanins (the molecules responsible for color in red wines), binding and protecting them from oxidation. The use of EnartisTan FT during primary fermentation, or immediately thereafter, allows for better development and retention of color over time. When used in both red and white wine, it helps eliminate herbaceousness, enhance fruit characters and freshen aromas.

Application: *color stabilization in red and rosé wines; increase structure and fruit notes*

Dosage: *100-200 g/ton during maceration; 3-10 g/hL in wine*

Packaging: *1 kg*

EnartisTan TFT

Blend of tannins extracted from wood of red fruit trees and fresh white grape skins. To be used during ageing or pre-bottling of red and rosé wines to improve aromatic freshness, fruit aroma, structure, softness and antioxidant protection.

Application: *freshen wine aromas; increase antioxidant protection*

Dosage: *0.5-20 g/hL*

Packaging: *1 kg*

UNICO LINE

The Unico tannins are an exclusive line of tannins that were developed solely by Enartis and are completely unique in the market. Although the Unico tannins are quite different from each other, they all have tremendous impacts on wine sensory profiles. The unique production process, proprietary to Enartis, makes it possible to obtain tannins with enhanced characteristics beyond those of typical enological tannins: intense and distinct aromas, high content of tannin, high content of polysaccharides making them soft and sweet on the palate. Due to their intrinsic intensity, the addition rates are lower compared to normal enological tannins.

EnartisTan UNICO #2

Condensed tannin extracted from the wood of red fruit trees. EnartisTan UNICO #2 will significantly increase wine's fresh red fruit character enhancing notes of cherry, blackcurrant, plum and berries in general. It also results in wines with softness, structure and sweetness and reduces the sensation of harshness. It has been proven effective on red, rosé and white wines.

Application: *finishing; enhance wine fruity aroma*

Dosage: *1-15 g/hL*

Packaging: *250 g*

EnartisTan UNICO #3

EnartisTan UNICO #3 is a blend of condensed and hydrolyzable tannins. As a result of the unique production process and the distinctive origin of its components, UNICO #3 is able to freshen wine aroma by enhancing citrus and floral notes. UNICO #3 is particularly suitable for treating wines with slight oxidized and overripe aromas.

Application: *increase aromatic freshness.*

Dosage: *1-10 g/hL*

Packaging: *250 g*

I believe in the concept of continuous improvement and thanks to Enartis vast range of finishing tannins. We always manage to improve our wines from great to excellent.
James Ochse, Winemaker at Stellenbosch Hills - South Africa

enartis

	COLOR STABILIZATION	ANTIOXIDANT EFFECT	INCREASE OF AROMATIC CLEANLINESS	PROTEIN REMOVAL	STRUCTURE	ASTRIGENCY	SOFTNESS	AROMA	AROMA DESCRIPTION
FERMENTATION TANNINS									
Arom	♦♦	♦♦♦♦♦	♦♦	♦♦	♦♦	♦♦	♦♦	♦♦♦♦	*Pineapple, passion fruit, grapefruit*
CIT	♦♦♦	♦♦♦♦	♦♦	♦♦♦	♦♦	♦♦	♦♦	♦♦♦♦♦	*Citrus, white flower*
Color	♦♦♦♦	♦♦♦♦	♦♦	♦♦♦♦	♦♦	♦♦	♦♦♦	♦♦♦♦	*Blackcurrant, spices*
Fermcolor	♦♦♦♦	♦♦♦♦	♦♦♦	♦♦♦♦	♦♦♦♦	♦♦	♦♦♦	♦♦♦♦	*Wood, cherry*
FP	♦♦♦	♦♦♦	♦♦♦	♦♦♦♦	♦♦♦	♦♦♦	♦♦	♦♦	*Wood, spices*
RF	♦♦♦	♦♦	♦♦	♦♦♦♦	♦♦♦	♦♦	♦♦♦	♦♦♦♦♦	*Strawberry, plum, cherry*
Rouge	♦♦♦	♦♦♦♦	♦♦♦	♦♦♦♦	♦♦♦	♦♦♦	♦♦	♦♦	*Wood, spices*
V	♦♦♦♦♦	♦♦	♦♦	♦♦♦	♦♦♦♦♦	♦♦♦♦	♦♦	♦♦♦	*Grapes, stonefruit*
XC	♦♦♦♦	♦♦	♦♦	♦♦♦♦	♦♦	♦♦♦	♦♦♦	♦	*Wood*
TECHNICAL TANNINS									
Antibotrytis	♦	♦♦♦♦♦	♦♦	♦♦	♦♦	♦♦	♦	♦	*Elderflower, wood*
Blanc	♦	♦♦♦♦♦	♦	♦	♦♦	♦♦	♦	♦	*Elderflower*
E	♦♦♦♦♦	♦♦	♦♦	♦♦♦	♦♦♦♦♦	♦♦♦♦	♦♦	♦♦♦	*Stonefruit, grape*
Microfruit	♦♦♦♦♦	♦♦♦	♦♦♦	♦♦♦	♦♦♦	♦♦	♦♦♦	♦♦♦♦	*Red fruit, grapes, wood*
SLI	♦♦	♦♦♦♦♦	♦♦♦♦	♦♦♦	♦♦	♦	♦♦♦♦	♦♦♦♦	*Wood, coconut, vanilla*
OAK TANNINS									
Cœur de Chêne	♦♦	♦♦	♦♦	♦	♦♦	♦♦	♦♦♦	♦♦♦♦	*Vanilla, caramel, spices*
DC	♦♦	♦♦♦	♦♦	♦	♦♦♦	♦	♦♦♦♦	♦♦♦♦♦	*Cocoa, toasted hazelnut, vanilla*
Élevage	♦♦	♦♦♦	♦♦♦	♦♦♦♦	♦♦♦	♦♦♦	♦♦	♦♦♦	*Caramel, licorice, vanilla*
Mel	♦♦	♦♦♦	♦♦	♦	♦♦♦	♦	♦♦♦♦	♦♦♦♦♦	*Caramel, coconut, coffee, cocoa*
Napa	♦♦	♦♦♦	♦♦	♦	♦♦♦	♦	♦♦♦♦	♦♦♦♦♦	*Coconut, caramel, coffee, cocoa*
Rich	♦♦♦	♦♦	♦♦♦	♦♦	♦♦	♦♦	♦	♦♦	*Toasted wood, coffee, spices*
Superoak	♦♦♦	♦♦♦	♦♦♦	♦♦♦♦	♦♦	♦	♦♦	♦♦	*Vanilla, caramel, hay*
TOF	♦♦	♦♦♦	♦♦♦	♦	♦♦♦♦	♦♦	♦♦♦	♦♦♦♦	*Coffee, caramel, toast*
VNL	♦♦	♦♦♦	♦♦♦	♦	♦♦♦♦	♦♦	♦♦♦	♦♦♦♦	*Vanilla, coconut, cream*
GRAPE TANNINS									
Uva	♦♦♦♦	♦♦♦	♦♦	♦♦♦♦	♦♦♦	♦♦♦♦	♦♦	♦♦♦♦♦	*White fruit*
FF	♦	♦♦♦	♦♦	♦♦♦	♦♦	♦	♦♦♦♦	♦♦♦♦	*Lemon, citrus, mint, fresh fruit*
FT	♦♦♦♦	♦♦♦♦	♦♦♦	♦♦♦♦	♦♦♦	♦♦♦	♦♦	♦♦♦	*Red fruit, spices*
TFT	♦♦	♦♦	♦♦	♦♦♦	♦♦	♦	♦♦♦♦	♦♦♦♦	*Strawberry, plum, cherry, berries*
UNICO TANNINS									
Unico #2	♦♦♦	♦♦♦	♦♦	♦♦	♦♦♦♦	♦	♦♦♦♦	♦♦♦♦♦♦♦	*Red fruit, wild berries, cherry*
Unico #3	♦	♦♦♦♦	♦♦♦♦♦	♦♦	♦♦	♦	♦♦♦♦	♦♦♦♦♦♦♦	*Flower, lemon, mint*

KNOW MORE ABOUT POLYPHENOLS IN WINEMAKING

DIFFERENT CATEGORIES OF POLYPHENOLS

Grape polyphenols:

- Non-flavonoids: The major non-flavonoid phenolic compounds in grapes are hydroxycinnamates. They are the preferred substrate for polyphenol oxidase and usually the first compounds involved in the oxidation of grape juice.
- Flavanoids: One of the major classes of phenolic compounds in grapes. They are localized in skins and seeds. Flavonoids include three main groups: tannins, flavonols and anthocyanins.
  - The tannin group contains complex combinations of catechins (also Flavan-3-ols) found in grape seeds and skins, correctly described as condensed tannins.
  - Anthocyanins are mostly found in grape skins and are the main source of color pigments in red wine.
  - Flavonols: found in grape skins, they are known as co-factors for the color-enhancing phenomenon known as co-pigmentation.

Hydrolyzable tannins: Derived from wood, they are oligomeric forms of gallic acid and can be specified as gallotannins or ellagitannins whether they are constituted of gallic acid or ellagic acid components.

A LITTLE BIT ABOUT COLOR IN WINE...

The initial color of red wine is mainly due to anthocyanins, extracted from grapes during the winemaking process. In their cationic form, anthocyanins are highly reactive with any nucleophile. In the presence of SO_2 and H_2O, this reaction can lead to color loss. Stabilization of wine pigments can occur via co-pigmentation, condensation or cycloaddition.

Co-pigmentation is the enhancement of color due to formation of complexes between anthocyanins and cofactors such as flavonols, hydroxycinnamates and/or colloids via a weak electrostatic bond. The desirable feature of a co-factor is its planarity, which allows the stacking of anthocyanins, thus keeping them stable and soluble. Co-pigmentation has hyperchromic and bathochromic effects, which initially lead to higher intensity and darker colored wines. These molecules, important in young red wines, are considered "semi-stable" pigments.

Condensation leads to more stable pigments. They can be formed via direct bonds between anthocyanins and tannins or in oxidative environments via acetaldehyde bridges.

Cycloaddition involves yeast metabolites and can lead to the most stable form of pigments. It consists of a cycloaddition between flavylium ions and compounds with polymerized double bonds.

COLOR STABILIZATION IN RED WINES

Enartis continually develops color stabilization strategies and technology to achieve stability during maceration. Color stability has to be managed as soon as possible, starting in the vineyard. Most red grape varieties have more anthocyanins than tannins, which can lead to color stability issues.

WINEMAKING STAGE	REACTIONS	ENARTIS PRODUCTS
HARVEST	Prevent oxidation of color/phenolic compounds with antioxidant protection.	100-150 g/ton of AST
COLD SOAK	"Sacrificial" tannins reinforce SO_2 antioxidant effect and eliminate proteins that would react with grape polyphenols, thus protecting grape tannins.	150-200 g/ton EnartisTan FP, EnartisTan ROUGE or EnartisTan FERMCOLOR
	Maceration enzymes improve grape skin tannin extraction, favoring anthocyanin/tannin reactions and stabilizing color pigments. The proteasic activity decreases protein capacity to precipitate grape tannins.	30 g/ton of EnartisZym COLOR PLUS
YEAST INOCULATION	At the first stage of alcoholic fermentation, anthocyanins are extracted much faster than tannins. To encourage the stabilization of anthocyanins via co-pigmentation and condensation, increase the concentration of grape tannin and use mannoproteins.	Co-pigmentation: 150 g/ton of EnartisTan XC
		Condensation: 200 g/ton of EnartisTan COLOR or EnartisTan V
AFTER AF, BEFORE MLF	At this stage, short macro-oxygenation encourages the formation of stable color compounds produced by condensation between free anthocyanins and tannins through acetaldehyde bridges.	10 g/hL EnartisTan E

WHAT DOES A SACRIFICIAL TANNIN DO?

When grapes are crushed, proteins are released, bound to tannins and precipitated. The first tannins released in wine and lost by precipitating with proteins are skin tannins, the most interesting tannins for future wine structure and mouthfeel. "Sacrificial" tannins are added to crushed grapes in order to bind with grape proteins and precipitate instead of freshly extracted skin tannins.

WHY IS CO-PIGMENTATION IMPORTANT?

Co-pigmentation protects pigments from oxidation during the early stages of winemaking and limits color loss. Furthermore, it improves anthocyanins solubilization in hydroalcoholic environment.

CAN I USE TANNINS IN WHITE MUSTS AND WINES?

In white musts, the addition of tannin prevents the formation of off-odors, improves clarification and antioxidant protection, inhibits laccase produced by Botrytis. Tannins can be used in white wines to improve their structure, softness and antioxidant protection.

Inspiring innovation.

POLYSACCHARIDES

Every day, more is known about the contribution made by polysaccharides to the stability and quality of wine. Many winemakers have adopted techniques such as pre-fermentation cold maceration, the use of macerating enzymes and sur lie ageing, to enhance the content of polysaccharides and help make wines with better sensory characteristics and stability. Unfortunately, factors such as time constraints, lack of tank space or off-aromas in the lees can make these practices impossible. For those who cannot make use of the polysaccharides naturally contained in their own lees and grapes, Enartis offers EnartisPro and Surlì, polysaccharides preparations for fermentation and wine maturation.

POLYSACCHARIDES FOR THE FERMENTATION STAGE

EnartisPro UNO

Fermentation adjuvant containing yeast hulls rich in readily-soluble mannoproteins. When added at inoculation, the mannoproteins quickly bond with anthocyanins and aromatic molecules protecting them from oxidation and precipitation. The addition of EnartisPro UNO produces wines that are more stable, with young, intense and fresh color, greater aromatic persistence, and larger volume and softness in the mouth.

Application: *red, white and rosé juice; improve wine overall quality and stability*

Dosage: *10-40 g/hL*

Packaging: *1 kg*

EnartisPro UNO is a vital component of building a wine and keeping it fresh. By adding EnartisPro UNO, it helps to build the mouthfeel, keep the color young and vibrant. We have also found that EnartisPro UNO helps to keep the cultivar expression much longer.
Pieter-Niel Rossouw, Head Winemaker at Darling Cellars - South Africa

EnartisPro BLANCO

Fermentation adjuvant made of inactivated yeast rich in readily soluble mannoproteins and sulfur amino acids with antioxidant activity. When added at inoculation, mannoproteins quickly bond with anthocyanins and aromatic molecules protecting them from oxidation and precipitation. The addition of EnartisPro BLANCO produces wines that are more stable and with young, intense and fresh color. The addition of sulfur amino acids stimulates the production of thiols by specific yeast strains such as EnartisFerm AROMA WHITE, ES181 and ES488.

Application: *enhance volume; increase fruity and spicy aroma; improve wine overall stability*

Dosage: *10-30 g/hL*

Packaging: *1 kg*

EnartisPro XP

It is a blend of PVI-PVP and inactivated yeast rich in immediately available mannoproteins. Due to its high capability in binding metals, it reduces the activity of oxidases (tyrosinase and laccase) by blocking copper. Consequently, wine is richer in aromatic compounds, presents a fresher color and is more resistant to oxidation and ageing. EnartisPro XP is recommended for the protection of aromas and aromatic precursors of non-thiolic varieties allowing for the full expression of the varietal characteristics.

Application: *enhance aroma; antioxidant protection; extension of wine shelf life*

Dosage: *30-50 g/hL*

Packaging: *1 kg*

EnartisPro R

A pure inactivated yeast. When used during the fermentation of white and red grapes, it contributes large quantities of mannoproteins that help improve the sensation of volume. In the case of red wines, it also softens astringency and improves color stability.

Application: *enhance volume; soften astringency; improve color stability*

Dosage: *20-40 g/hL*

Packaging: *1 kg - 10 kg*

EnartisPro FT has been a revelation in ensuring wines that are aromatic with a full mouthfeel. In conjunction with Q CITRUS, EnartisPro FT allows for the assured production of high quality aromatic white wines. A combination that is extremely effective on Sauvignon Blanc, Chenin Blanc and Colombard.
Rianco Van Rooyen – Senior Winemaker at Robertson Winery - South Africa

EnartisPro FT

EnartisPro FT (Free Thiols) is a blend of PVI-PVP and inactivated yeast rich in immediately available mannoproteins and sulfur-containing amino acids. Because of its high capacity for removing metals, it reduces the activity of oxidases (tyrosinase and laccase) by blocking copper. Consequently, wine is richer in aromatic compounds, presents a fresher color and is more resistant to oxidation and ageing. It is recommended in the vinification of thiolic varieties which protects the varietal aroma and promotes the synthesis of new thiols

Application: *enhance thiols; antioxidant protection; extension of wine shelf life.*

Dosage: *30-50 g/hL*

Packaging: *1 kg*

POLYSACCHARIDES FOR THE MATURATION STAGE

SURLÌ NATURAL

Selected inactivated yeast to be used as a substitute for natural fine lees. In just 6 weeks of treatment, SURLÌ NATURAL releases high amounts of polysaccharides that, in addition to improving the colloid stability, increase wine aromatic persistence, softness and sensation of volume.

Application: *sur lie ageing; improve overall wine quality and stability*

Doses: *20-50 g/hL*

Packaging: *2.5 kg*

SURLÌ VELVET

Yeast mannoproteins complex designed to increase aromatic intensity and improve stabilization in wine. SURLÌ VELVET increases the colloidal structure and enhances sensory characteristics including aromatic complexity, volume, and reduced astringency.

Application: *improve overall wine quality and stability prior to bottling*

Dosage: *0.5-10 g/hL*

Packaging: *0.5 kg*

HOW TO CHOOSE THE CORRECT SURLÌ

See page 50.

WHAT IS PVI-PVP?

PVI-PVP is an adsorbent co-polymer (polyvinylimidazole and polyvinylpyrrolidone) capable of removing heavy metals in wine such as copper (Cu), iron (Fe) and aluminum (Al). Also, PVI-PVP has the ability to bind with phenolic compounds, the substrates of oxidative reactions. Wines treated with PVI-PVP are fresher, more aromatic, more balanced, have a lower oxidation potential and improved shelf life.

		Composition	Main effect	Antiox protection	Aroma enhancement	Mouthfeel improvement	Softness improvement	Anti-ageing effect
Fermentation	**EnartisPro BLANCO**	*Inactivated yeast*	*Enhance thiol production* *Softness and mouthfeel*	♠♠♠	♠♠♠	♠♠♠	♠♠♠	♠♠
	EnartisPro FT	*Inactivated yeast* *PVI-PVP*	*Enhance thiol production* *Softness and mouthfeel* *Anti-ageing*	♠♠♠♠	♠♠♠	♠♠	♠♠♠	♠♠♠
	EnartisPro R	*Inactivated yeast*	*Softness*	♠	♠	♠♠	♠♠	♠
	EnartisPro UNO	*Yeast cell walls*	*Softness and mouthfeel*	♠	♠	♠♠♠	♠♠♠	♠
	EnartisPro XP	*Inactivated yeast* *PVI-PVP*	*Softness and mouthfeel* *Anti-ageing*	♠♠♠♠	♠♠	♠♠	♠♠♠	♠♠♠
Maturation	**SURLÌ NATURAL**	*Inactivated yeast*	*Mouthfeel and antioxidant protection*	♠♠	♠	♠♠♠	♠♠♠	♠♠
	SURLÌ VELVET	*Mannoproteins*	*Improve overall stability* *Softness and mouthfeel*	♠	♠	♠♠♠♠	♠♠♠♠	

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MALOLACTIC FERMENTATION

Malolactic fermentation is often considered the simple process of converting malic acid into lactic acid by bacteria of the species *Oenococcus oeni*. In fact, using the right strain, malolactic fermentation represents the last opportunity to reduce herbaceous notes, enhance fruit aroma, increase aromatic complexity and improve the balance and structure of wine. Enartis offers a range of bacteria and nutrients suitable for ensuring successful fermentation even in the most difficult conditions.

EnartisML SILVER

Selected strain of *Oenococcus oeni*, EnartisML SILVER assures the progress of malolactic fermentation under very difficult conditions such as high alcohol and polyphenol content, low pH. It enhances the aromatic fruitiness and complexity and respects the color intensity of red wines. Alcohol tolerance > 15%; pH tolerance > 3.1.

Application: *sequential inoculation; co-inoculation; very difficult conditions; increase fruitiness*

Packaging: *package designed for 25 hL*

NUTRIFERM ML

NUTRIFERM ML is a nutrient specific for malolactic bacteria. Increasing nutrients in wine stimulates the growth of bacteria at inoculation and improves cell division. NUTRIFERM ML provides polysaccharides, amino acids, co-factors and vitamins. The cellulose contained in the preparation acts as a support for bacteria cells and absorbs compounds that may inhibit cell growth. The combined effect of NUTRIFERM ML's components ensures the domination of the inoculated strain over natural flora and dramatically reduces the length of malolactic fermentation. It's particularly recommended to promote malolactic fermentation in difficult wines.

Application: *nutrition for malolactic bacteria*

Dosage: *20-30 g/hL*

Packaging: *1 kg*

NUTRIFERM OSMOBACTI

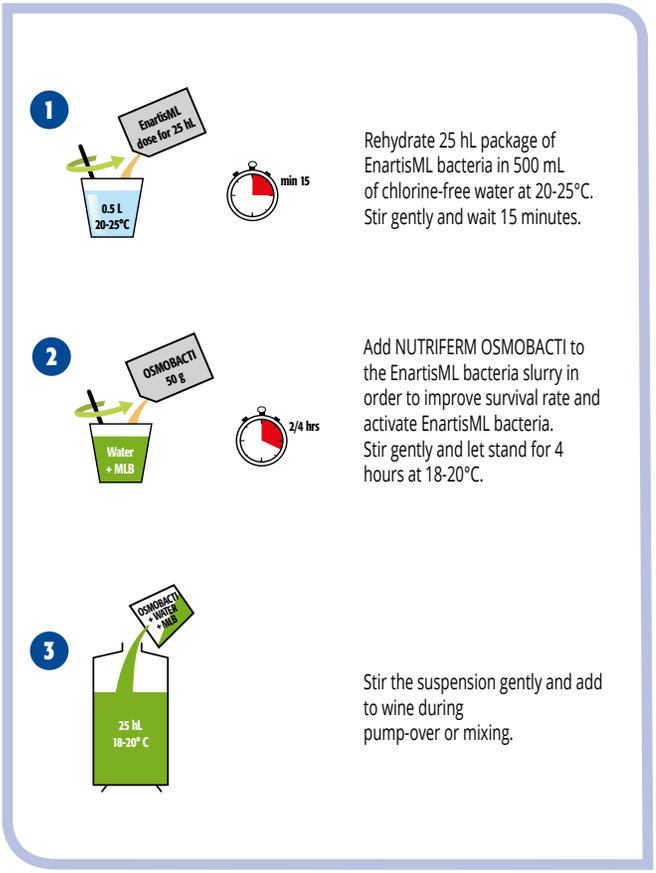
Nutrient and regulator of osmotic pressure, NUTRIFERM OSMOBACTI helps selected malolactic bacteria survive in difficult wine conditions. When used at the end of the rehydration phase and prior to inoculation, Osmobacti increases the rate of surviving cells thus allowing a more rapid start and faster conclusion of malolactic fermentation.

Application: *nutrition for selected malolactic bacteria*

Dosage: *50 g for each 25 hL dose of bacteria*

Packaging: *100 g*

PROTOCOL FOR ML BACTERIA PREPARATION AND INOCULATION – 25 hL



1. Rehydrate 25 hL package of EnartisML bacteria in 500 mL of chlorine-free water at 20-25°C. Stir gently and wait 15 minutes.
2. Add NUTRIFERM OSMOBACTI to the EnartisML bacteria slurry in order to improve survival rate and activate EnartisML bacteria. Stir gently and let stand for 4 hours at 18-20°C.
3. Stir the suspension gently and add to wine during pump-over or mixing.

KNOW MORE ABOUT ML BACTERIA

WHAT ARE THE PRINCIPAL FACTORS INFLUENCING THE DEVELOPMENT OF MALOLACTIC BACTERIA?
pH, temperature, alcohol and SO_2 (Free and Total) have a negative synergistic effect, making the completion of MLF difficult when combined. Additionally, vineyard sprays, initial malic acid content, yeast strain used for alcoholic fermentation and wine polyphenol content can be stress factors. Problems can arise when pH is low (<3.4), alcohol is high (>14.5%), wine temperature is low (<18°C) or high (>30°C), total SO_2 is high (>30 mg/L) and/or free SO_2 is high (>10 mg/L).

HOW TO CHOOSE WHICH ML BACTERIA STRAIN TO USE
Each strain of bacteria performs best within specific environmental parameters. It is very important to know wine characteristics prior to inoculating with *Oenococcus oeni*.

DOES THE YEAST STRAIN USED FOR ALCOHOLIC FERMENTATION AFFECT MLF?
Yes. Some yeast strains can inhibit malolactic bacteria development. Additionally, yeast strains differ in nutrient demand, SO_2 production and rate of autolysis which has an effect on the bacteria.

WHAT ARE THE RISKS OF A SPONTANEOUS MLF?
Uncontrolled, spontaneous MLF can result in masked aromas and production of off-characters such as yogurt, rancid, sweat, burnt matches or even rotten fruit. Another undesirable consequence of spontaneous growth is the production of biogenic amines (associated with off-aromas and regulated by some countries). Inoculating with selected *Oenococcus oeni* ensures a rapid onset of MLF and better control over the production of aromas and wine mouthfeel.

WHAT NUTRIENTS DO ML BACTERIA NEED?
As with any microorganisms, *Oenococcus oeni* need specific nutrients and growth factors to develop healthy cells and conduct and complete the malolactic conversion. Bacteria require the presence of several amino acids, peptides, vitamins and minerals. NUTRIFERM ML is a nutrient designed to meet *Oenococcus oeni* needs.

WHAT ABOUT OXYGEN AND LAB?
Molecular oxygen stimulates the growth of some malolactic bacteria, behaving as a growth factor just as in the case of yeast. However, if too much oxygen is applied, acetic acid may be produced.

HOW TO MONITOR MLF?
The most common way to monitor MLF is by tracking malic acid degradation. MLF is considered complete when malic acid is below 30 mg/100 mL.

WHAT ABOUT THE PRODUCTION OF DIACETYL?
Produced by malolactic bacteria, this compound has a nice, characteristic buttery note at low concentrations and can become buttered popcorn and rancid taint at high concentration (> 4 mg/L).
Diacetyl is formed from pyruvate, which comes from acid and sugar catabolism.
The entire winemaking process impacts the production of diacetyl: a slower MLF speed (with low inoculation rate and/or low temperature) and slightly oxidative environment will increase diacetyl production, while yeast lees contact will break down diacetyl in an irreversible way, thus reducing its content in wine.

CAN I SAVE SOME OF THE BACTERIA TO USE LATER?
No. Once the packet of bacteria is open, it must be used immediately. Exposure to oxygen and excess moisture can be detrimental to the survival of the bacteria.

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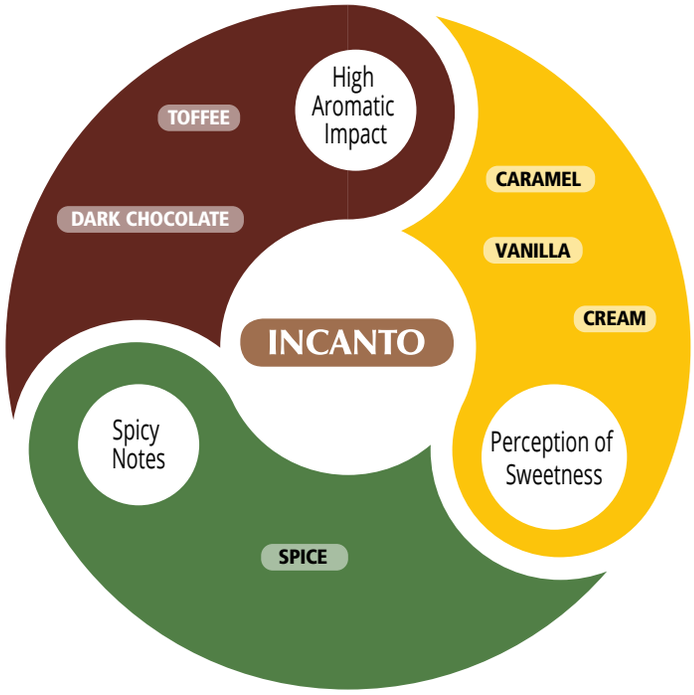
OAK ALTERNATIVES

If properly dosed, the use of oak alternatives improves wine aroma and taste in a way that makes it pleasing to the international and “new” consumers market.
Enartis offers a diverse portfolio of oak chips, ministaves and soluble alternatives to meet all wine needs and expectations. With INCANTO OAK ALTERNATIVES, winemakers have ultimate control over their oak program and can create a unique signature for their brand or label.

Produced from selected wood of French and American oak, Incanto woods are toasted using a unique and original process that employs a progressive heating scheme which results in a deep and homogenous toast. The Incanto alternatives are available as

INCANTO CHIPS
Size: 2-4 mm
Dosage: 1-4 g/L white wines; 1-6 g/L red wines
Contact time: minimum of 4 weeks
Packaging: 10 kg

MINISTAVES
Size: 25 cm x 2.7-5 cm x 0.9 cm
Dosage: 1-5 g/hL of ministaves
Contact time: minimum of 3 months, optimal at 4 months
Packaging: 10 kg



INCANTO CREAM

Composition: *French oak, medium-toasted.*

Aroma: *vanilla, coconut, butter, cappuccino, licorice.*

Taste: *increases smoothness, volume and sweetness without imparting excessive tannins.*

Available form: *chips*

INCANTO VANILLA

Composition: *American oak, medium-toasted.*

Aroma: *vanilla, coconut, Bourbon, honey, tropical fruit, hazelnut, toasted almond, butter.*

Taste: *increases smoothness, volume and freshness without imparting excessive tannins.*

Available form: *chips*

INCANTO CARAMEL

Composition: *French oak, medium-toasted.*

Aroma: *caramel, cappuccino, toasted sugar, butter, almond, toasted hazelnut, vanilla, light spice.*

Taste: *increases smoothness and sweetness.*

Available form: *chips*

INCANTO SPICE

Composition: *French and American oak, various toast levels.*

Aroma: *very complex and intense spice aroma.*

Taste: *increases smoothness and structure.*

Available form: *chips*

INCANTO TOFFEE

Composition: *French oak, medium-plus toast.*

Aroma: *café macchiato, toasted bread, toasted almond, hazelnut, vanilla, apricot.*

Taste: *very smooth, sweet and complex.*

Available form: *chips - ministaves*

INCANTO DARK CHOCOLATE

Composition: *French oak, medium plus toast.*

Aroma: *dark chocolate, cocoa, black coffee, toasted almond, toasted hazelnut, licorice.*

Taste: *increases volume, structure and tannins.*

Available form: *chips - ministaves*

INCANTO NC: THE ALTERNATIVES TO OAK ALTERNATIVES

Why Incanto NC?

The Incanto NC products are completely soluble formulations containing just the active molecules that make oak powder application during fermentation of interest:

- *Tannins for antioxidant protection, color stabilization and enhancement of the structure.*
- *Polysaccharides, that increase volume sensations, soften wine tannins, stabilize color and indirectly protect aromas from oxidation.*
- *Aromatic substances, derived from wood and toasting, that bring aromatic complexity to the final wine.*

Application of Incanto NC:

- *increase aromatic complexity*
- *highlight fruit and floral notes*
- *prevent reduction during fermentation*
- *minimize herbaceous notes in underripe grapes*
- *improve color stabilization*
- *increase volume and structure*

Why use the Incanto NC range?

Incanto NC products can offer the efficacy of oak powder while offering some advantages:

- *precise dosages*
- *consistent quality*
- *no burnt or green wood notes*
- *no solids that can damage the mechanical parts of harvest machinery or render cleaning difficult*
- *no antimicrobial contamination*
- *ease of use for the winery staff*
- *zero loss of color by solids absorption*
- *low dosage*

Incanto NC products only contain the active molecules that can be extracted from wood, dosages are 10 times smaller than the usual oak powder ones. This makes the job of winery staff easier and reduces wastage.

INCANTO NC WHITE
White Fruit

INCANTO NC CHERRY
Red Fruit

INCANTO NC DARK CHOCOLATE
Cocoa

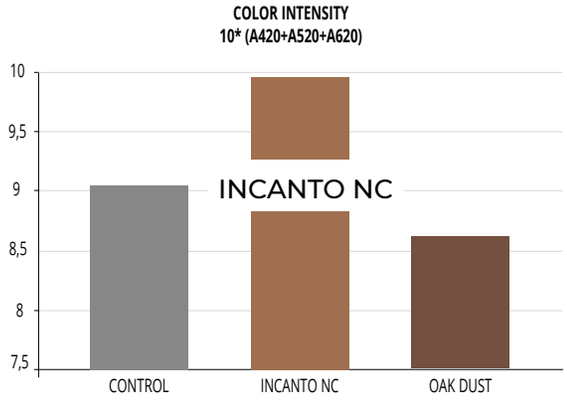
INCANTO NC WHITE

INCANTO NC WHITE is composed of oak and acacia tannins and yeast derivative. It can be used during wine fermentation to mimic the effect of untoasted oak powder or chips. INCANTO NC WHITE protects juice from oxidation and prevents the appearance of reductive odors. Additionally, it provides light notes of flower and vanilla, increases the flavor of fresh fruit and enhances softness and volume.

Application: *untoasted oak; increase fruit aroma; reduce green notes; increase volume and structure*

Dosage: *5-30 g/hL for white must; 10-50 g/hL for rosé and red must*

Packaging: *2.5 kg - 10 kg*



Incanto NC during fermentation improves color intensity and stability.

INCANTO NC CHERRY

Soluble mixture of toasted oak tannin, cherry tree wood tannin, yeast derivative rich in polysaccharide and antioxidant sulfur peptides. INCANTO NC CHERRY promotes color stabilization, prevents oxidation, enhances fresh red fruit notes and increases wine volume, structure and length.

Application: *fruity and spicy aromas; color stability; antioxidant; complexity; increase volume and structure; freshen overripe fruit*

Dosage: *5-15 g/hL for rosé must; 10-50 g/hL for red must*

Packaging: *2.5 kg - 10 kg*

INCANTO NC DARK CHOCOLATE

Soluble mixture of tannin extracted from heavy-toasted oak and yeast derivative rich in polysaccharides that mimics the effect of French, heavy-toast oak powder. It enhances toasted oak aromas and aromatic complexity while masking the herbaceous notes from unripe grapes. It increases volume, structure and balance and favors color stability.

Application: *heavy-toasted oak; reduce herbaceous notes; color stability; complexity; volume and structure*

Dosage: *20-50 g/hL*

Packaging: *2.5 kg*

KNOW MORE ABOUT OAK AGEING

WHAT DOES OAK BARREL AGEING DO TO MY WINE?
There are two main reactions that happen during oak ageing: the extraction of oak compounds and oxygen diffusion. During oak ageing, wine aroma complexity increases, color stability is enhanced, astringency is reduced, and overall structure becomes softer.

WHY THERE IS SO MUCH VARIATION IN OAK AROMAS?
There are many causes of variation and many of them interact to form a wide array of potential aroma profiles.

- Source of the oak: oak species, geographic origin, growing conditions and age can strongly affect wood structure and composition.
- Staves position on a trunk has been shown to influence its aroma composition.
- Staves seasoning and drying: Kiln drying or air drying, time, humidity...
- Cooperage processes add a considerable layer of variability.

WHAT IS THE EFFECT OF TOASTING?
Toasting oak during barrel processing modifies the structure and chemical properties of wood. Increasing temperature and length of toasting will:

- Reduce oak lactone content that contributes to "fresh oak" and coconut aromas.
- Increase "vanilla", "caramel-like" and "roasted coffee" aromas associated with vanillin, furfural, 4-methylfurfural and maltol. At heavy toast levels these compounds decrease and are replaced by "spicy" (eugenol, isoeugenol, 4-methylguaiacol) and "smoky" characters (4-methylguaiacol, guaiacol, 2-methylphenol).

WHY USE BARREL ALTERNATIVES?

- Cost is the most common reason of using barrel alternatives. Using barrel alternatives reduces 'oak' investment (at least 10 times lower), cellar work, storage space and microbiological risks.
- Timing can be reduced. Contact time: 4-6 months for the Enartis ministaves and 4 weeks for Enartis INCANTO CHIPS.
- Consistent and qualitative product for enological expectations and requirements.

HOW TO FIND THE RIGHT OAK ALTERNATIVE?
Define the targeted wine profile, the time available for ageing and the budget. Enartis offers trial kits containing small bags of oak chips to soak in wine for 3 weeks to run bench trials and chip extracts to help find the right product or blend for you.

WHAT ABOUT STORAGE AND REUSE OF OAK ALTERNATIVES?
Oak alternatives should be treated with care and stored in a clean, dry warehouse in its original packaging. Reuse is not recommended: the extraction and result will be different and risk microbial contamination.

Oak Chip Trials

A WIDE RANGE OF OAK ALTERNATIVES
The extraction of oak compounds (oak aromas, polyphenols, polysaccharides,...) as well as the sensory impact on wine depends on many variables including the physiochemical characteristics of wine (pH, alcohol, titratable acidity, volatile acidity and SO_2), wine buffer capacity, storage temperature, contact time, etc.
When deciding which oak chips to use, we always recommend setting up trials. This way, winemakers can base their oak derivatives decision on accurate data and tasting.

I have been using the INCANTO NC range on all red wine fermentation tanks since 2009. Sometimes with oak chips and other times with tannin. INCANTO is, for me, a perfect balance between a tannin and an oak powder. I believe it contributes greatly to mouthfeel, colour intensity and stabilityr.
Alicia Rechner, Winemaker - Backsberg Estate Cellars - Paarl, South Africa

Inspiring innovation.

FINING AGENTS

Fining agents can be used for many purposes in winemaking including clarification, filterability improvement, prevention of haze and sediment formation, organoleptic profile and wine color improvement, and removal of undesirable elements from wine.

VEGAN FRIENDLY FINING AGENT

Enartis has developed a line of fining agents free from animal proteins, suitable for vegetarian and vegan wines.

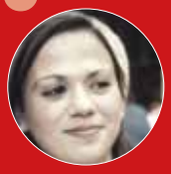
PLANTIS AF

A pure, allergen-free pea protein. PLANTIS AF allows juice and wine clarification while producing a small volume of lees. It reduces wine sensitiveness to oxidation by removing iron, catechins and short chain-length polyphenols. Recommended for flotation.

Application: *allergen-free; vegan; prevent and treat oxidation and pinking; reduce bitterness*

Dosage: *10-30 g/hL*

Packaging: *20 kg*



PLANTIS AF exceeded my expectations! It had an amazing effect on our wine's overall appearance and palette. The colour of the white wine improved and amazing fining effect on impurities. I will defiantly recommend this product to other winemakers in the industry. At Boland Cellar we are more than happy with Enartis's service and business ethics - it is excellent.

Monique de Villiers, Winemaker at Boland Kelder - South Africa

PLANTIS AF-Q

Preparation made of pea protein and activated chitosan. It assures an efficient clarification while forming small, compact lees, especially when used in flotation. At the same time, it improves juice and wine resistance to oxidation by removing pro-oxidant metals and low molecular weight polyphenols.

Application: *allergen-free; vegan; flotation; prevent and treat oxidation and pinking*

Dosage: *5-30 g/hL*

Packaging: *1 kg - 10 kg*

PLANTIS PQ

NEW

PLANTIS PQ is an allergen free and vegan friendly fining agent made of potato protein and chitosan. It is effective in improving wine clarification, filterability, aromatic cleanliness and in removing oxidized and oxidable compounds. In red wine, it reduces the perception of astringency and dryness while respecting balance and structure.

Application: *wine clarification; treatment of wine oxidized or sensitive to oxidation*

Dosage: *4-10 g/hL*

Packaging: *1 kg*

CLARIL ZR

NEW

- Vegan fining agent made from plant protein, chitosan and bentonite.
- CLARIL ZR is designed for the clarification of red wines meant to be tartrate stabilized with colloid addition of ZENITH. It removes unstable color compounds, improves wine clarification and filterability, reduces sulfur off-flavors and makes wines with longer shelf-life.

Application: *clarification of red wine intended to be tartrate stabilized with ZENITH*

Dosage: *20-40 g/hL*

Packaging: *2.5 kg - 10 kg*

CLARIL ZW

NEW

- Vegan fining agent made from plant protein, chitosan and sodium activated bentonite.
- CLARIL ZW is designed for the clarification of white and rosé wines that are meant to be tartrate stabilized with colloid addition (ZENITH and CMC). It is effective in improving protein stability and eliminating unstable colloids that can affect wine clarification and filterability.

Application: *clarification of white and rosé wine intended to be tartrate stabilized with ZENITH or CMC.*

Dosage: *20-80 g/hL*

Packaging: *2.5 kg - 10 kg*

We wanted to say thanks for the great service and friendly staff. We are very happy with all your products from yeast to stabilization. You have a great team indeed! Looking forward to many years of business to come!

Nicholas Husselman, Winemaker at Koelenhof - South Africa

PROTOMIX AF

Complex containing bentonite, PVPP, pea protein and cellulose. PROTOMIX AF is designed to clarify musts while simultaneously removing oxidizing and oxidizable polyphenolic substances along with proteins responsible for wine instability. It can also be used during alcoholic fermentation to detoxify must and enhance the metabolic activity of yeast.

Application: *allergen-free; vegan; juice and wine clarification; prevent and treat oxidation*

Dosage: *50-100 g/hL in juice and during fermentation*
30-100 g/hL in wine

Packaging: *10 kg*

GELATIN

EnartisGreen GELATINA

Pure hot soluble gelatin, certified organic in accordance with European Regulation [Reg. (EC) N° 834/2007 and Reg. (EC) N° 889/2008]. It has a great cleaning capacity while respecting wine structure. Recommended for high-quality wine and juice clarification.

Application: *clarification*

Dosage: *2-15 g/hL*

Packaging: *1 kg*

BLENDS CONTAINING ANIMAL PROTEINS

CLARIL SP

CLARIL SP is a complex clarifying agent consisting of bentonite, PVPP, potassium caseinate and silica. It is recommended for the prevention and correction of the oxidative phenomena associated with phenolic components of must and wine. Wines treated with CLARIL SP have more intense, elegant aromas and longer shelf life. CLARIL SP can also be used to increase clarity and reduce bitterness.

Application: *clarification; prevent and treat oxidation and pinking; prolong wine shelf life*

Dosage: *50-150 g/hL in juice; 30-80 g/hL in wine*

Packaging: *10 kg*

If you want to be a winner, you surround yourself with winners and like-minded people. Make winning a part of your life. Implement it and do not settle for ordinary. Be extraordinary - like the Enartis products. One of the very reasons I used these products this year and will continue to in the future.
Braam Gericke, Winemaker at Wildekrans - South Africa

PROTOMIX G

Fining agent for musts, PROTOMIX G clarifies and at the same time reduces the content of proteins and phenols responsible for wine chemical-physical and sensory instability. Made of bentonite, casein and cellulose, PROTOMIX G is suitable for use even during alcoholic fermentation when, besides improving clarification, it detoxifies and provides physical support to the yeast.

Application: *clarification and stabilization of must*

Dosage: *50-150 g/hL*

Packaging: *15 kg*

NEOCLAR AF has had an incredible impact on the quality of my press juices. It gives me the ability to have a higher fraction of A grade juices and therefor maximize profits on our white wines.
Albertus Louw, Cellar Master at Perdeberg Group - South Africa

NEOCLAR AF

A blend of bentonite, gelatin and activated carbon, it can be used to treat white, rosé and red wines as well as juice. NEOCLAR AF ensures fast and thorough clarification with a minimal volume of lees. The combination of several organic clarifiers improves the organoleptic features of wine, while the bentonite ensures proper protein stability. It gives red wines remarkable stability without affecting color. Particularly effective in reducing herbaceous characters, it also improves filterability.

Application: *clarification; pressed juice; elimination of off-flavors and herbaceous note*

Dosage: *100-150 g/hL in juice; 40-100 g/hL in wine*

Packaging: *25 kg*

INORGANIC FINING AGENTS

PLUXCOMPACT

A bentonite obtained by a special procedure. Its activation rate is designed to obtain a bentonite that combines excellent fining and protein removal properties with a limited volume of lees. In red wine, it is recommended to eliminate unstable color compounds and, together with a high Bloom gelatin for fining before cross-flow filtration.

Application: *protein stabilization; removal of unstable color; clarification; prevent "light-struck" defect*

Dosage: *10-200 g/hL*

Packaging: *20 kg*

SIL FLOC

A stable pure silicon dioxide in aqueous solution. SIL FLOC contains homogeneous, negatively-charged particles of silicon dioxide. The ultra-fine size offers a large contact surface and consequently acts as a counter-fining agent with protein fining agents. Solution pH 9.0-9.5.

Application: *clarification*

Dosage: *25-100 mL/hL*

Packaging: *25 kg*

CORRECTIVE FINING AGENTS

FENOL FREE

This activated carbon is extremely effective in the correction of wines which present evident defects caused by *Brettanomyces/ Dekkera*. Minimal additions are proven to significantly reduce volatile phenols, resulting in an overall improved wine aroma without affecting color. Also effective in removing compounds related to smoke taint.

Application: *treatment for wines contaminated with Brettanomyces or smoke taint; deodorizing*

Dosage: *20-40 g/hL*

Packaging: *10 kg*

REVELAROM

Granulated fining mixture containing copper, to be used for correcting and preventing appearance of sulfides or reductive characters. When used to treat sulfides, it immediately eliminates off aromas and flavors produced by mercaptans and H_2S thus allowing fruit elements to emerge. REVELAROM allows the removal of the chelates formed between copper and sulfur compounds, thus preventing the reappearance of reductive notes coming from the hydrolysis of these complexes.

Application: *prevent and treat reductive characters*

Dosage: *5-20 g/hL*

Packaging: *1 kg*

STABYL MET

Copolymer of vinylimidazole and vinylpyrrolidone (PVI-PVP), silica. It prevents oxidation, browning, pinking and formation of haze by removing pro-oxidant metals like iron and copper, and hydroxycinnamic acids and catechins, the main substrate of oxidation.

Application: *remove heavy metals; prolong wine shelf life; prevent oxidation*

Dosage: *30-50 g/hL*

Packaging: *2.5 kg*

CLARIL HM

This fining agent benefits from the synergistic actions of activated chitosan and polyvinylimidazole/polyvinylpyrrolidone (PVI-PVP) to reduce the concentration of iron, copper, hydroxycinnamic acids and catechins, which are key players in the process of oxidation. Therefore, treatment with CLARIL HM allows the production of wines with a longer shelf life, more intense and persistent aroma and fresher color.

Application: *prolong wine shelf life; prevent oxidation*

Dosage: *30-50 g/hL*

Packaging: *2.5 kg*

	ALLERGEN FREE	ALLOWED FOR ORGANIC WINE (REGULATION (EU) 2018/1584)	VEGAN FRIENDLY	KOSHER FOR PASSOVER CERTIFIED
Claril HM	✓		✓	
Claril SP	milk		milk	
Claril ZR	✓	✓	✓	
Claril ZW	✓	✓	✓	
Fenol Free	✓	✓	✓	✓
EnartisGreen Gelatina	✓	CERTIFIED	animal	
Neoclar AF	✓	✓	animal	
Plantis AF	✓	✓	✓	
Plantis AF-Q	✓	✓	✓	
Plantis PQ	✓	✓	✓	
Pluxcompact	✓	✓	✓	
Protomix AF	✓		✓	
Protomix G	milk	✓	milk	
Revelarom	✓	✓	✓	
Sil Floc	✓	✓	✓	
Stabyl Met	✓		✓	

Inspiring innovation.

STABILIZING AGENTS

In today's wine market, it is crucial for wines to be visually appealing to consumers: any haze or precipitate is unacceptable and can damage brand reputation. The appropriate use of stabilizing agents ensures the production of wines that maintain their sensory characteristics up to the time of their consumption.

REFRIGERATION AGENTS

ENOCRISTAL Ca

ENOCRISTAL Ca is a micronized calcium tartrate selected for wine calcium stabilization. It triggers the formation of calcium tartrate crystals and promotes calcium stabilization process.

Applications: *wine calcium tartrate stabilization*

Dosage: *50 g/hL*

Packaging: *25 kg*

ENOCRISTAL SUPERATTIVO

Rapid crystallizer for cold stabilization of tartrates, ENOCRISTAL SUPERATTIVO is a balanced mixture containing neutral and acid potassium tartrates and filtering aids, which accelerates potassium bitartrate crystals formation and precipitation in wines during cold treatment, without affecting wine pH.

Application: *accelerate and improve cold stabilization*

Dosage: *30-40 g/hL*

Packaging: *15 kg*

GUM ARABIC

CITROGUM

CITROGUM® is a clear, almost colorless Gum Arabic preparation with a low calcium content. CITROGUM is recommended for the treatment of wines ready for bottling. It integrates the colloidal content of wine, improving its balance, organoleptic features and stability, mainly tartaric. It enhances aroma, reduces bitterness and astringency, and increases softness and body. CITROGUM's low membrane blocking capacity (it's the most filterable gum in the market!), purity and microbial stability ensure that it can be added with confidence at any stage during preparation for bottling. The sulfur dioxide in the preparation gives the product a long shelf life and enables direct addition to wine even after microfiltration without any risk of microbial contamination.

Application: *tartrate stabilization; reduce astringency; soften mouthfeel*

Dosage: *50-200 mL/hL*

Packaging: *10 kg - 20 kg*

TARTRATE STABILIZING AGENTS

AMT PLUS

Pure metatartaric acid produced by Enartis from food grade L-tartaric acid. When added to wine, AMT PLUS Quality prevents the growth of potassium bitartrate and calcium tartrate crystals, making the wine stable against tartrate precipitation. Its high esterification rate (from 38 to 41) allows a long-lasting protecting effect. This means that cold stabilization processes can be reduced when refrigeration capacity is not available or not cost effective.

Application: *tartrate stabilization*

Dosage: *10 g/hL*

Packaging: *1 kg*

EnartisStab CELLOGUM LV20

Aqueous solution containing 20% low viscosity sodium carboxymethyl cellulose (CMC). To be used in a finished wine to inhibit the formation and growth of potassium bitartrate crystals which could precipitate after bottling. EnartisStab CELLOGUM LV20 has a long-lasting effect and can completely eliminate the use of physical stabilization treatments such as cold stabilization and electrodialysis. This significantly reduces energy costs and processing times. Its low viscosity means, EnartisStab CELLOGUM LV20 has a low impact on wine filterability and this makes it the ideal solution to be used when CMC is added before microfiltration.

Application: *tartrate stabilization*

Dosage: *25-50 mL/hL*

Packaging: *20 kg - 1000 kg*

Since 2012, I have used CELLOGUM LV20 as one of my preferred tartrate stabilising additives on all my white and rose wines. Using CELLOGUM LV20 in the cellar makes my life easy, just add the required dosage to the tank and agitate. It is a very cost-effective product saving me time and money, with the benefit of no blocking of filters during final filtration (0.45um) at bottling. What I love about CELLOGUM LV20 is that I can use it on very young wines, early in the vintage for early market release, due to its higher value of tartrate loading. Where I usual y had to tartrate stabilise wine with costly physical stabilisation treatments such as cold stabilisation and/or electrodialysis I can now Use CELLOGUM LV20. It is a great product to use and I will recommend it to any winemaker bottling white and/or rose wines.

Anton Swarts, Senior Winemaker at Spier Wine Farm, Stellenbosch - South Africa

ZENITH UNO

Solution of A-5D K/SD potassium polyaspartate (KPA) and sulfur dioxide. ZENITH® UNO is an effective, rapid and easy-to-use tool for potassium bitartrate stabilization in wine. It is able to assure a long-lasting stability also in wine with a high level of tartaric instability. For this reason, ZENITH UNO can easily replace cold stabilization and other physical treatments. Moreover, it does not impact wine sensory quality and filterability. The liquid form allows for simple and fast use.

Application: *tartrate stability*

Dosage: *100 mL/hL*

Packaging: *5 kg - 20 kg - 1000 kg*

We have been using ZENITH COLOR for a year now and have done away with the traditional cold stabilization on the red wines. It is cost and time effective.

Jean du Plessis, Winemaker at Roodezandt Cellar, Robertson - South Africa

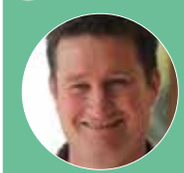
ZENITH COLOR

Solution of A-5D K/SD potassium polyaspartate (KPA), Gum Arabic Verek and sulfur dioxide. ZENITH® COLOR is an effective, rapid and easy-to-use tool for potassium bitartrate and color stabilization of red and rosé wines. It assures no changes in quality or characteristics of wine with full color and tartaric stabilization in a single addition. ZENITH COLOR does not significantly modify wine filterability and can be added before microfiltration.

Application: *tartrate stability; color stability*

Dosage: *200 mL/hL*

Packaging: *5 kg - 20 kg - 1000 kg*



ZENITH COLOR fits in with our vision of sustainability at Perdeberg. It allows me quick and cost effective stabilization of my red wines without compromising on quality. It also gives us quicker route to market.
Albertus Louw, Cellar Master at Perdeberg Group - South Africa

Traditionally we have matured our red wine in barrel for 18-24 months at a constant temp, of 15°C. This way of maturing our red wines in barrel ensured that the wines were protein and tartrate stable without any further interventions, However, things have changed and Eskom power has become a very expensive luxury. So from end April every year we switch off our Eskom electricity, and this means no more maturation at a constant 15°C. The temperature fluctuates and the wines are no longer tartrate stable after 18 months in barrel. So fortunately there is ZENITH COLOR. I use it on all my red wines and I don't have to worry about unsightly colour-tartrate deposits in my wine".
Andre Van Rensburg, Winemaker at Vergelegen Wine Estate - South Africa

MICROBIAL STABILIZATION

ANTIFLOR

Product containing allyl isothiocyanate (mustard essence), supported by food-grade paraffin. It prevents the growth of "film" forming yeast on the surface of not fully topped tanks and barrels.

Application: *prevent surface "film" yeast spoilage*

Packaging: *1 box containing 45 tablets for tanks larger than 50 hL*

Starting from a no-SO_2 trial, using EnartisStab MICRO M has now become a part of my winemaking protocol on all of my red wines. It not only helps me to control spoilage organisms proactively, but also helps to reduce my SO_2 addition with a better protection than SO_2 on its own. **Matthieu Finot, Winemaker at King Family Vineyards - Virginia, USA**

EnartisStab MICRO M

EnartisStab MICRO M is a special preparation of activated chitosan designed for the treatment of turbid wines and juices, where the content of solids can limit the antimicrobial effect of the pure chitosan. EnartisStab MICRO M is effective in reducing a large number of spoilage yeast and bacteria that contaminate must and wine. It can also be used as a non-allergenic alternative to lysozyme for the control of malolactic bacteria.

Application: *reduce unwanted microorganisms; must and cloudy wines; non-allergenic; alternative to lysozyme*

Dosage: *10-40 g/hL*

Packaging: *1 kg*

MULTI-PURPOSE STABILIZING AGENTS

CITROSTAB rH

Pre-bottling coadjunct with a balanced formulation made of ascorbic acid, citric acid, potassium metabisulfite and tannin. It is recommended to protect bottled wine from undergoing alteration caused by oxidation: pinking, iron haze, premature and atypical ageing. Each component in the blend reacts in synergy with the others in a calibrated way to block any oxidation that could occur due to oxygen absorption during bottling. CITROSTAB rH can be used also during bulk wine storage protecting the wine every time it undergoes an operation that causes oxygen absorption.

Application: *bottling; prevent oxidation; prevent pinking; stabilize redox potential; wine shelf life improvement*

Dosage: *10-50 g/hL*

Packaging: *1 kg*

EnartisStab SLI

Special blend of yeast derivative, PVPP and untoasted oak tannin, EnartisStab SLI prevents the degradation and oxidation of wine aromas during storage. It is recommended for the protection of wines that have already been clarified, filtered and eventually stabilized and that by consequence, are very sensitive to oxidation. EnartisStab SLI will protect wine from oxidation by providing solids capable of consuming accumulated oxygen while lowering the redox potential.

Application: *antioxidant protection; prevention of pinking; removal of catechins; decrease redox potential*

Dosage: *20-40 g/hL*

Packaging: *2.5 kg*

SORBOSOL K

Preparation containing potassium sorbate, potassium metabisulfite and L-ascorbic acid. It can be used at the pre-bottling stage or during bulk wine storage to prevent oxidation and to control the growth of yeast that may cause the fermentation of wine containing residual sugar.

Application: *antimicrobial protection; antioxidant protection; pre-bottling*

Dosage: *20-40 g/hL*

Packaging: *1 kg*

KNOW MORE ABOUT ZENITH

WHAT IS POTASSIUM POLYSPARTATE?

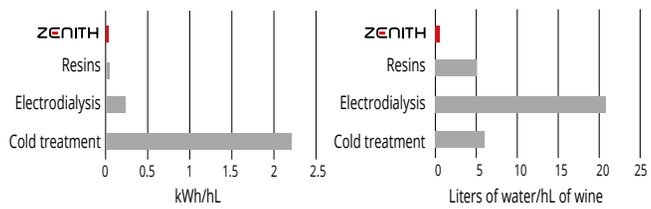
Potassium polyaspartate (KPA) is a polyamino acid produced from L-aspartic acid, an amino acid present in grapes. Enartis has used its expertise in stabilization products to create a revolutionary range of products that harnesses the synergy and power of potassium polyaspartate and colloids for both tartaric and color stabilization.

WHY USE ZENITH?

The revolution in colloid stabilization for all wines and all levels of instability!

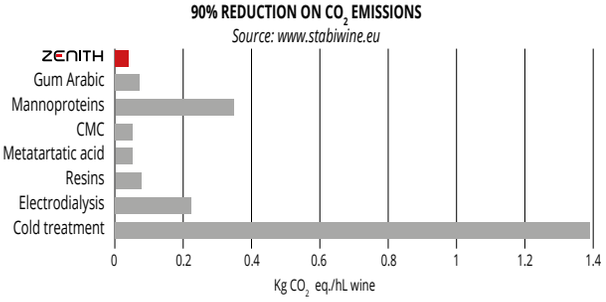
Suitable for all wineries currently using cold stabilization for their wines that want to reduce production costs and increase their sustainability standards, while simultaneously achieving ultimate stability. Enartis, the market leader in stabilization products, provides a cutting-edge, cost-effective and eco-friendly product range allowing you to switch off your cooling system and dramatically reduce production costs and gas emissions, while maintaining the organoleptic aspects of your wine and ensuring the best color and tartaric stabilization over time and under temperature stress.

UP TO 80% SAVINGS IN ENERGY AND WATER CONSUMPTION



90% REDUCTION ON CO_2 EMISSIONS

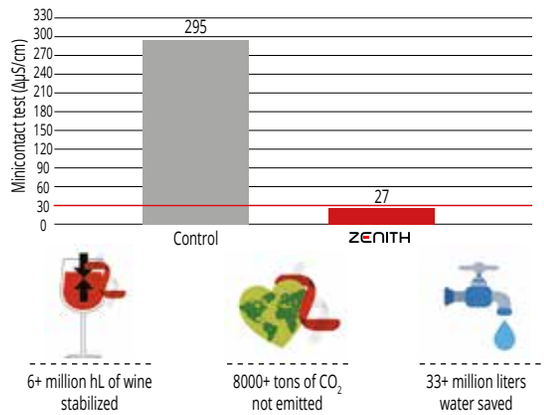
Source: www.stabiwine.eu



ZENITH IS

- INNOVATION
  An ambitious challenge and six years of passionate research in collaboration with public and private European institutions, universities and major players in the winemaking industry to develop a cutting-edge product.
- PERFORMANCE
  The most effective tartaric and color stabilizer overtime, under all conditions and temperature stress. Maximum filterability up to 0.45µm.
- QUALITY
  Respects organoleptic aspects of wine.
- COST-EFFECTIVENESS
  Easy-to-use, eliminates wine loss during stabilization and dramatically cuts energy and water consumption while reducing labor and ancillary costs. Up to 80% saving in energy and water consumption.
- SUSTAINABILITY
  An eco-friendly product that guarantees 90% reduction of CO_2 emissions for greater environmental sustainability. Zenith loves the planet!

THE BEST STABILIZATION PERFORMANCE UP TO 300 ΔµS OVER TIME AND UNDER TEMPERATURE STRESS



KNOW MORE ABOUT CHITOSAN

WHAT IS CHITOSAN AND HOW DOES IT WORK?

Chitosan is a fining agent with an antimicrobial effect made by the de-acetylation of chitin, a polysaccharide extracted from *Aspergillus niger*.

Chitosan (positive charge) works by the mechanism of attracting wine microbes (negative charge). Chitosan then alters the microbe's cell membrane permeability which causes the cell to die and flocculate.

WHAT MAKES ENARTIS CHITOSAN DIFFERENT?

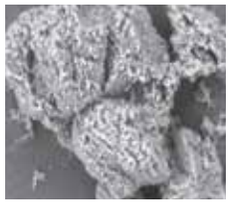
Enartis chitosan is activated with a unique process that allows it to increase its positive charge and to expand its surface. The activation process enhances the efficacy of chitosan by speeding up and enlarging its antimicrobial effect.

Enartis chitosan products - EnartisStab Micro and EnartisStab Micro M - effects against a broad ranger of microbes like *Brettanomyces, Acetobacter, Pediococcus, Lactobacillus, Oenococcus* and *Zygosaccharomyces*.

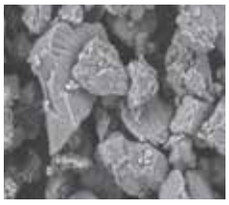
These products can prevent the spoilage of contaminated wines, and have side activities which improve clarity and filterability, and remove some of the unwanted aromas caused by microbial activity.

Contact an Enartis Representative to find out more about EnartisStab Micro M, and how this product can be applied for your specific needs.

ACTIVATED CHITOSAN HAS A WIDER SURFACE FOR CAPTURING MICROORGANISM



Enartis activated chitosan



Standard chitosan

APPLICATION OF ENARTISSTAB MICRO AND ENARTISSTAB MICRO M

WIDE SPECTRUM ANTIMICROBIAL AT ANY TIME

EnartisStab MICRO & EnartisStab MICRO M are used:

- To control a wide spectrum of microbes: *Acetobacter, Lactobacillus, Pediococcus, Oenococcus, Brettanomyces, Zygosaccharomyces* and some other non-*Saccharomyces* yeast (Figure 1)
- As a treatment to remove/reduce high populations of microbes. Dosage: 10- 20 g/hL followed by racking
- As a preventive measure to eliminate small populations before they become spoilage. Dosage: 3-4 g/hL
- As an alternative to SO_2 for microbial control

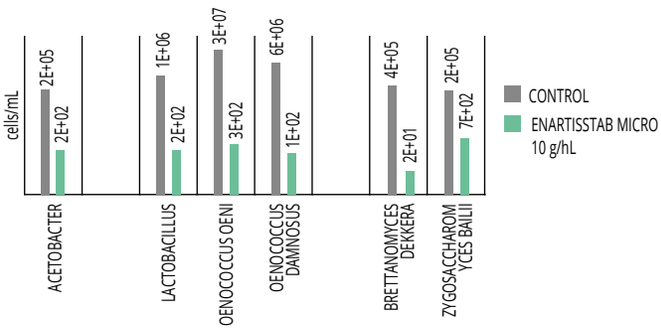


Figure 1: EnartisStab MICRO can reduce populations of the main spoilage microorganisms present in wines.

PREVENT VA PRODUCTION DURING COLD SOAK AND GRAPE TRANSPORT

EnartisStab MICRO M on grapes, during crushing, in the juice pan, or in must reduces wild non-*Saccharomyces* yeast and bacteria populations, thus limiting VA production during the first stage of the winemaking process (Figure 2). Dosage: 20 g/hL

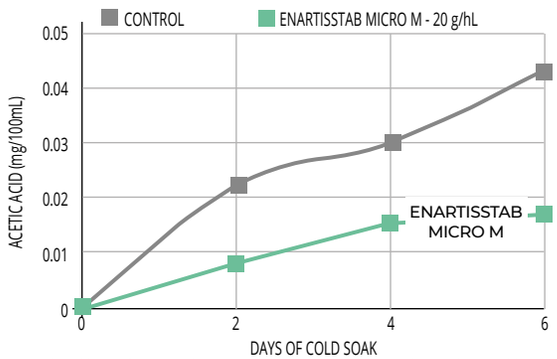


Figure 2: The addition of EnartisStab MICRO M on grapes controls VA production during cold soaking.

REDUCE VOLATILE PHENOLS

After fining with EnartisStab MICRO and EnartisStab MICRO M, wines appear cleaner, fresher and often fruitier. EnartisStab MICRO can reduce volatile phenols (Figure 3), treat "reduction" issues and remove other off-flavors. Dosage: 2-15 g/hL

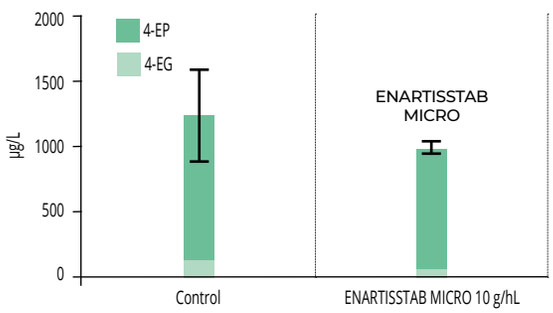


Figure 3: EnartisStab MICRO and EnartisStab MICRO M can reduce volatile phenols (4-EP/4-EG) concentration in wine - results from 15 wines.

CONTROL MLF
ALLERGEN-FREE ALTERNATIVE TO LYSOZYME

EnartisStab MICRO and EnartisStab MICRO M can eliminate *Oenoccocus* and prevent, delay or stop MLF (Figure 4). Alternatives to lysozyme, these products have some additional advantages: no impact on protein stability, no interference with colloid stability and no significant impact on color (Figure 5). Dosage: 10 g/hL to prevent MLF; 20 g/hL to stop MLF

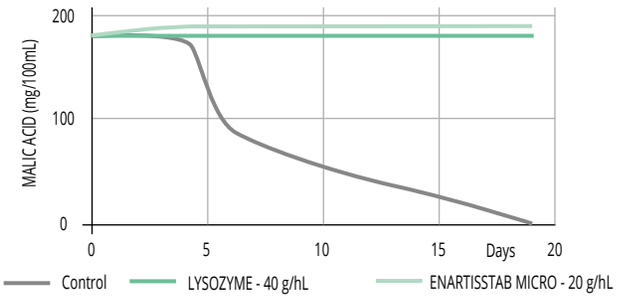


Figure 4: EnartisStab MICRO and EnartisStab MICRO M are efficient at controlling malolactic fermentation.

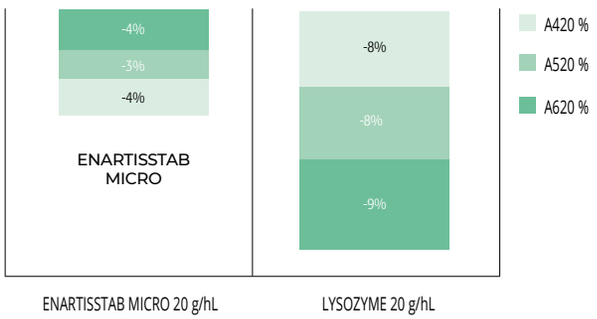


Figure 5: EnartisStab MICRO has no significant impact on color.

LIMIT STUCK FERMENTATIONS
PROMOTE CLEAN AND COMPLETE FERMENTATIONS

EnartisStab MICRO M:

- Improves fermentation kinetics and ensures completion by removing spoilage microbes that inhibit yeast (Figure 6). Dosage: 10 g/hL
- Improves the start native fermentations by reducing microbial competition. Dosage: 5 g/hL
- Does not impact fermentation kinetics of *Saccharomyces*

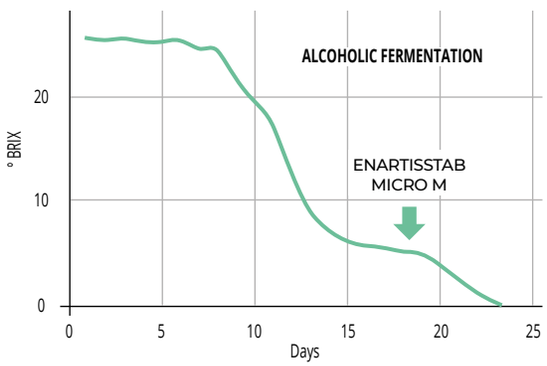


Figure 6: The addition of EnartisStab MICRO M to a sluggish fermentation helps complete fermentation.

Inspiring innovation.

SULFITING AGENTS

Enartis is proud to offer the highest purity potassium metabisulfite on the market: WINY.
Potassium metabisulfite (KMBS) is one of the most widely used additives in winemaking. When used in winemaking, WINY can scavenge oxygen radicals responsible for oxidation, bind with oxidation byproducts such as acetaldehyde, inhibit oxidasic enzymes thus preventing browning, and reduce spoilage by inhibiting the growth of many microorganisms detrimental to wine.

AST

Contains potassium metabisulfite, ascorbic acid and hydrolyzable tannin in carefully balanced amounts to maximize antioxidant and antimicrobial action. When used on grapes, AST provides the antibacterial and antioxidizing protection delivered by sulfur dioxide, while limiting macerating action. It is suitable for the treatment of grapes intended for sparkling wine base, white grapes rich in phenolic substances and for grapes that have been machine harvested. When used in the treatment of must derived from grapes rich in aromatic precursors, it assists in the production of wines with intense varietal aromas. AST is very effective in preventing atypical ageing off-flavors.

Application: *anti-oxidant protection of grapes and juices; aromatic grapes; must for base wine for sparkling wines; prevention of atypical ageing*

Dosage: *100-200 g/ton of grapes; 15-20 g/hL in juice; 10 g/hL of AST provide approx. 28 ppm SO_2 and 30 ppm ascorbic acid*

Packaging: *1 kg*

Wonderful product with regards to getting some good protection out in the vineyards, the tractor drivers throw it onto the trailers as soon as the machine offloads. Juice keeps its green colour for very long period due to good protection against oxygen. What I have noticed is how well the ascorbic acid first binds the oxygen then after that the sulphur binds. I gather info from my analyses once the juice arrives in the cellar. I use a drum filter (oxidative) to filter my lees and even then the juice is still green with minimal browning.
Philip Viljoen, Winemaker at Bon Courage Cellar, Robertson - South Africa

EFFERGRAN/EFFERGRAN DOSE 5

Effervescent, granulated potassium metabisulfite designed to be added directly to wine and grapes. When added to wine, it rapidly dissolves on the surface of the liquid, ensuring that its antioxidant effect is maintained where it is needed. Subsequently, it ensures homogenous and rapid distribution of the released SO_2 without requiring pump-overs in tank volumes of up to 50,000 liters. When added to the bottom of picking bins, it ensures a rapid release of SO_2, minimizing oxidation during transport from vineyard to winery.

Application: *sulfiting wines, grapes and juices; homogeneous release of SO_2.*

Dosage: *250 g packet of EFFERGRAN (100 g of SO_2) for bins; of 8-10 tons or 50 hL of wine; each bag of EFFERGRAN DOSE 5 releases 5 grams of SO_2*

Packaging: *EFFERGRAN: 250 g; EFFERGRAN DOSE 5: box of 25 packets*

WINY

The highest quality potassium metabisulfite in the market. Thanks to Enartis' production expertise, WINY is virtually odorless, does not form rocks and has a concentration of metabisulfite superior to 99%.

Application: *sulfiting grapes, juices and wines*

Dosage: *1 g of WINY develops approx. 0.56 g of SO_2*

Packaging: *1 kg - 25 kg*

SOLFOSOL M

Aqueous solution of potassium bisulfite. Sulfiting agent that enables sulfur dioxide to easily and safely be added during all winemaking processes, from harvest to bottling. SO_2 concentration: 150 g/L (15% w/v).

Application: *sulfiting grapes, juices and wines*

Dosage: *10 mL/hL of SOLFOSOL M add approx. 15 ppm of SO_2*

Packaging: *20 kg*

NEOSOLFOSOL C

Aqueous solution of ammonium bisulfite. It enables both sulfur dioxide and ammonia nitrogen to easily and safely be added to must. SO_2 concentration: 630 g/L (63% w/v). NH_4 concentration of 177 g/L (17.7% w/v).

Application: *sulfiting grapes and juices*

Dosage: *6-20 mL/hL in must or 60-200 mL/ton of grape; 10 mL/hL of NEOSOLFOSOL C add approx. 63 ppm of SO_2 and 18 ppm of YAN*

Packaging: *20 kg - 1300 kg*

CRAFTING WINE NATURALLY

Sometimes Mother Nature provides grapes that are, shall we say, challenging in terms of producing the kind of wine you want to deliver to the eager wine lover. Other times the market may ask for something completely unexpected and you are then faced with a market demand that was not exactly planned for.

So, what can you do? Well, tannins and polysaccharides are strategic tools that can allow for wine polishing with increased wine quality.

Perfecting Mouthfeel

Common opinion is that adding a tannin means increasing wine astringency. Nothing could be more wrong. Tannin additions can help to balance the taste of wine by minimizing alcoholic sensation or increasing the perception of structure and volume. Similarly, this can be done with polysaccharides.

Perfecting Aroma

Depending on their origin, tannins can heighten specific wine aroma features such as fruit, oak and spice notes. A tannin extracted from grape skin, for example, can be used to enhance the fruitiness in a wine with an overwhelming oaky character. At the opposite end of the spectrum, an oak tannin can perfect the under-oaked character of a wine that must be bottled before the ideal maturation period in barrel is completed.

Correcting or Preventing Defects

Tannins and polysaccharides can prevent and treat defects that diminish overall wine quality. For this application, they are often more effective and more respectful of wine quality and less labor intensive than traditional, corrective tools.

How to choose EnartisTannins

When deciding which EnartisTan to use and at what dosage, it is important to understand the organoleptic and technical characteristics of each tannin and perform preliminary tasting trials. A simple and rapid method consists of dissolving 1 g of EnartisTan in a solution made with 87 mL water and 13 mL 95% alcohol.

This solution can be used for rapid sensory tests: 1 mL of this solution in 100 mL of wine is equivalent to 10 g/hL of EnartisTan.

! Tannin solution prepared as above can be used for four months when stored below 25°C.

How to choose Surlì Products

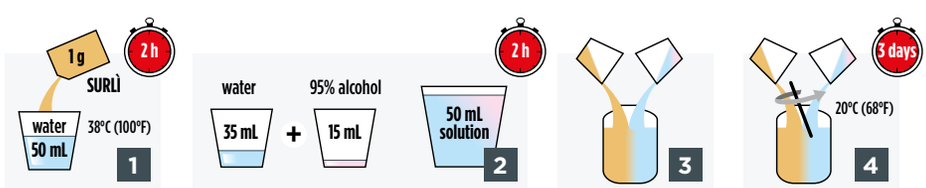
To determine which Surlì to use and the appropriate dosage, we recommend doing the following lab bench trial:

1. Rehydrate 1 gram of Surlì in 50 mL of water at 38°C for 2 hours.

2. Meanwhile, prepare a 50 mL solution with 15 mL 95% alcohol and 35 mL water.

3. After 2 hours, add the 50 mL alcohol solution to the suspension and let cool at room temperature with periodic mixing.

4. The final solution must be kept at a temperature of at least 20°C and mixed two or three times daily for at least three days.



The solution is now ready to add directly to wine being treated, knowing that 1 mL in 100 mL of wine corresponds to a dose of 10 grams of Surlì per 100 L.

! Surlì Velvet can be simply dissolved in a 15% alcohol solution and be used immediately.

enartis

LEGEND

- Early maturation
- Anytime from early maturation to bottling

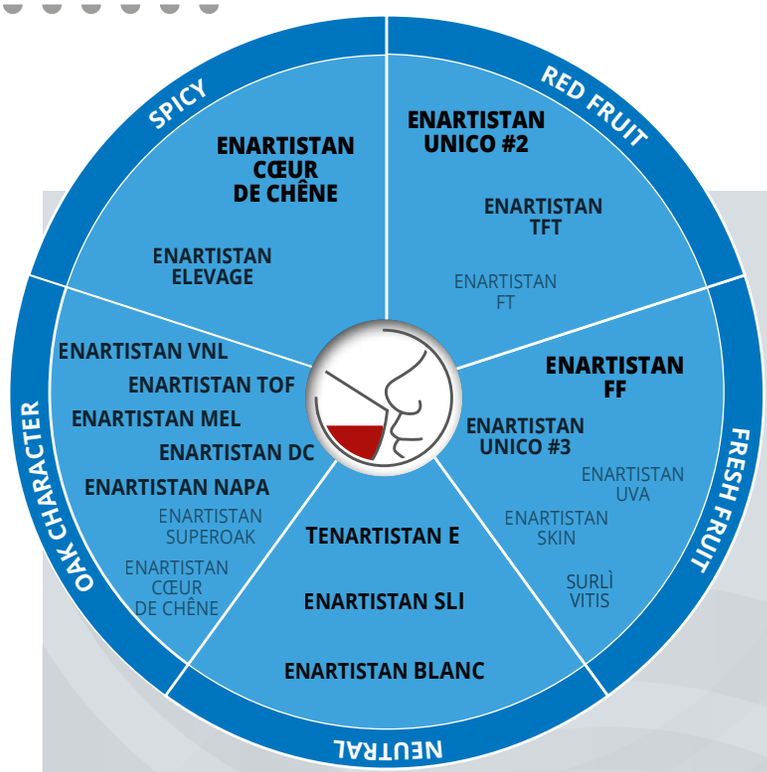
- Perfecting aroma
- Perfecting mouthfeel
- Correcting or preventing defects

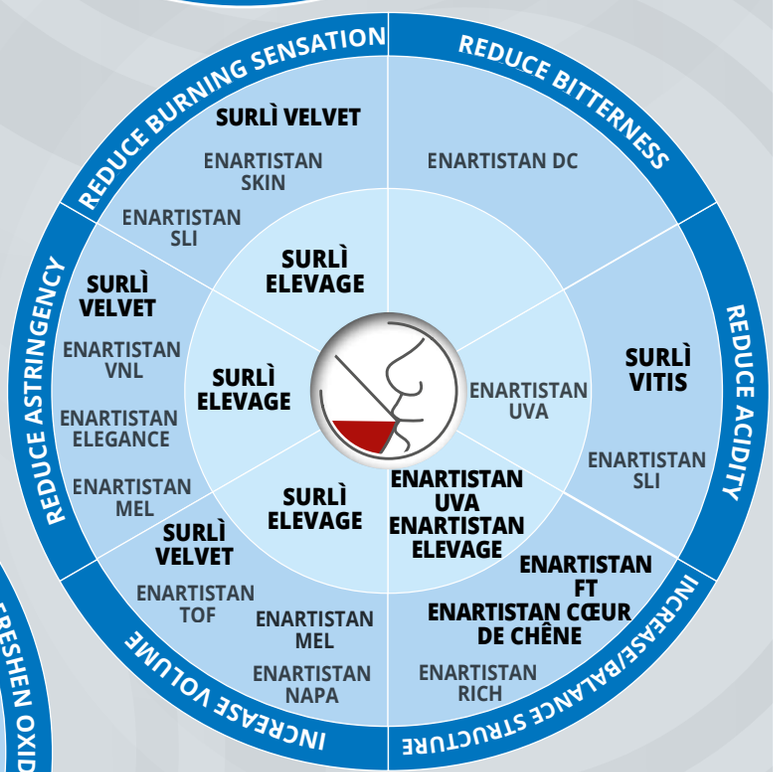
++++ INTENSE/EFFECTIVE

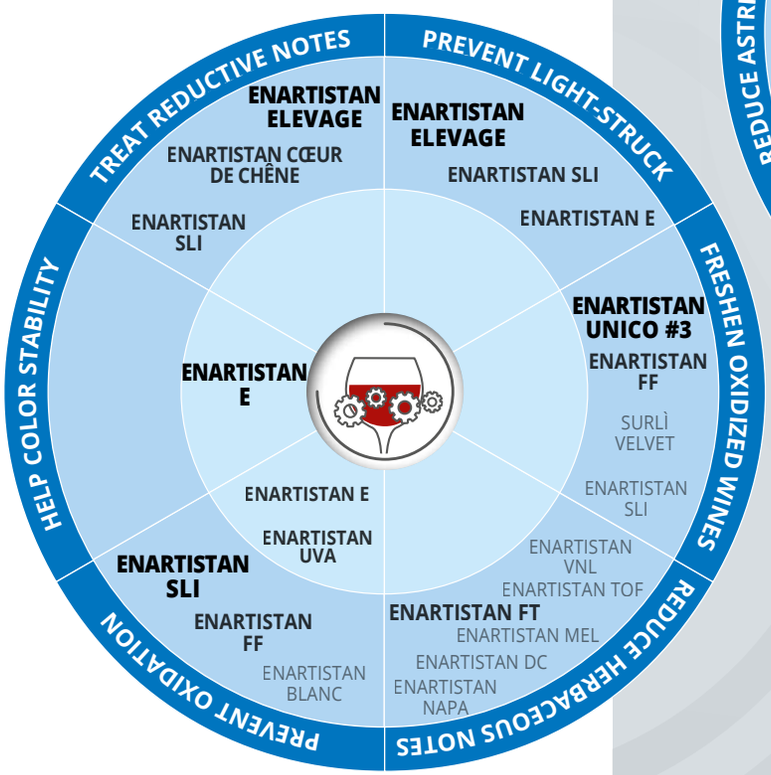
+++ INTENSE/EFFECTIVE

++ INTENSE/EFFECTIVE

+ INTENSE/EFFECTIVE







CRAFTING WINES NATURALLY

NOTES

CONTACT DETAILS

GENERAL MANAGER
Lida Malandra
Tel 082 656 3685
lida.malandra@enartis.co.za

SALES MANAGER
Jaco Cockrell
Tel 083 321 9752
jaco@enartis.co.za

SALES REPRESENTATIVE
Antoinette van Zyl
Tel 082 926 1613
antoinette@enartis.co.za

SALES REPRESENTATIVE
Gemma Grobbelaar
Tel 084 646 0037
gemma.grobbelaar@enartis.co.za

STABILISATION LABORATORY
Pati-Joh Abrahams
laboratory@enartis.co.za

OFFICE/ORDERS
Leaticia Martin
Tel 021 870 1181
sales@enartis.co.za

ENARTIS SOUTH AFRICA (PTY) LTD
25 Zandwyk park, Old Paarl Road, Paarl, 7646 | Phone: +27 21 870 1181 | sales@enartis.co.za

www.enartis.com

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