

LAMOTHE-ABIET



2024

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Table of Contents

- 03 - Non-Saccharomyces Yeast
- 06 - Fermenting Yeasts
- 10 - Enzymes
- 13 - Nutrients
- 18 - ML Bacteria
- 20 - Tannins
- 26 - Fining Agents
- 31 - Microbial Stability
- 33 - Colloidal Stability
- 35 - Mouthfeel Improvement
- 37 - Oak For Enology



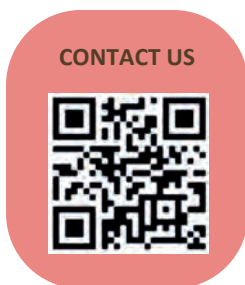
With over 140 years of experience and exchange with laboratories, wineries and negociants, Lamothe-Abiet provides appropriate and innovative enological solutions. This great heritage nourishes our inspiration to envision the future, favoring an approach that is natural and sustainable.

Five generations of devoted men and women have shaped Lamothe-Abiet's values. It is in our DNA to innovate and to seek excellence. With a desire to create and to transmit, we are strongly client oriented to offer the best enological solutions.

At Lamothe-Abiet, quality, safety and the environment are deeply ingrained in our work. Faithful to our objective to constantly improve, we have committed our quality systems to the FSSC22000 health security certification. This GFSI certification allows us to meet the demands of supermarket distribution, including the IFS and BRC standards.

LAMOthe-ABIET BY BUCHER VASLIN NORTH AMERICA

Bucher Vaslin North America offers free technical resources online at www.bvnorthamerica.com/webinars, where we highlight some of the most important topics in the wine industry. We have a team dedicated to your success. Contact us for any queries





Non-*Saccharomyces* Yeasts

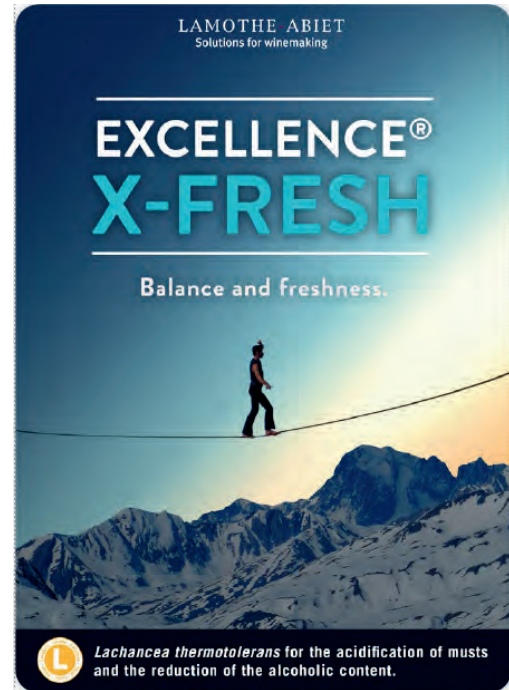
Previously overlooked for limited fermentation capabilities, Non-*Saccharomyces* yeasts have become key players in modern winemaking. Their applications extend from bio-protection, protecting against spoilage microorganisms, to naturally acidifying must. These yeasts contribute to the enhancement of wines, offering a contemporary and innovative dimension to winemaking practices. Their integration signifies a shift towards a dynamic fermentation approach, allowing winemakers to leverage their unique attributes for distinct organoleptic qualities and ongoing refinement in the industry.

Bio-Acidification

EXCELLENCE X-FRESH

EXCELLENCE® X-FRESH is a pure *Lachancea Thermotolerans* yeast, isolated from Australia. It gives winemakers the opportunity to lower pH in wines lacking of acidity and freshness. This yeast, considered as bio-acidifier, has been selected for its natural acidifying properties, increasing freshness and reducing alcohol content in wines. EXCELLENCE® X-FRESH produces lactic acid from fermentable sugars, thus increasing acidity, decreasing pH and alcohol content. It is a great way to boost wine freshness and balance high brix, low acidity and over-ripe fruits.

Dosage: 10 - 20 g/hL
Packaging: 500 g



WHAT IS LACHANCEA THERMOTOLERANS?

Lachancea Thermotolerans, formerly known as *Kluyveromyces thermotolerans*, is widely distributed in nature, including on grapes. It addresses global warming challenges by metabolizing sugars to produce lactic acid, resulting in naturally lower pH and alcohol content in wines.

HOW DOES LACHANCEA THERMOTOLERANS FERMENT?

It is a moderate fermenter, typically reaching 7-9% alcohol. To ensure complete fermentation, it must be coupled with a *Saccharomyces Cerevisiae* strain.

APPLICATIONS OF EXCELLENCE® X-FRESH

Winemakers can use EXCELLENCE® X-FRESH in combination with *Saccharomyces Cerevisiae* to naturally reduce must sugar content, increase acid content, and lower pH. Co-fermentation offers a simpler procedure with lighter physiochemical impact, while sequential fermentation yields a stronger impact on pH reduction and requires more cellar attention.

HOW TO PREPARE EXCELLENCE® X-FRESH?

Rehydrate EXCELLENCE® X-FRESH in 20 times its weight of chlorine-free water at 40°C (104°F). We recommend using OENOSTIM® (inactivated yeast naturally rich in sterols, fatty acids, vitamins, and minerals), during the rehydration process to facilitate the implantation of the strain and stimulate its fermentative metabolism.

IS NUTRIENT ADDITION REQUIRED WHEN USING EXCELLENCE® X-FRESH?

Yes, during the exponential phase, EXCELLENCE® X-FRESH consumes ammoniacal nitrogen. Add ~20 g/hL of OPTIFERM® or DAP a day after inoculation to compensate for nutrient consumption and facilitate *S. Cerevisiae* fermentation.

IS EXCELLENCE® X-FRESH IMPACTED BY TEMPERATURE?

EXCELLENCE® X-FRESH will produce more lactic acid at higher temperature. We recommend to ferment around 75-80°F for best activity and lactic acid production. Under 55°F, the activity of EXCELLENCE® X-FRESH will be inhibited. It is best to make the addition of EXCELLENCE® X-FRESH post cold soak.

Bio-Protection

EXCELLENCE® B-NATURE®

EXCELLENCE® B-NATURE® is an organic anti-microbial solution for microbial control on grapes, serving as an alternative to SO₂. Its characteristics makes it perfectly suitable for bio-protection.

- Composition: 100% *Metschnikowia pulcherrima*. Non-fermenting yeast and does not interfere with *Saccharomyces cerevisiae* development.
- Bio-protection capabilities: Controls natural flora at harvest, inhibiting spoilage microbes like *Brettanomyces*, Lactic Acid Bacteria, and Acetic Acid Bacteria.
- Allow to reduce SO₂ dosage on grapes.
- Lowers the production of SO₂-combining molecules.
- Enhances the wine's aromatic complexity.

Dosage: 50 g/ton

Packaging: 500 g



WHAT IS BIO-PROTECTION?

Bio-protection utilizes living organisms to control microbial populations in ecological niches, limiting the growth of undesirable microorganisms. In winemaking, non-*Saccharomyces* yeasts are selected to colonize must without impeding desired fermentation microbes. This approach is frequently used, particularly in reducing SO₂, to maintain microbial control and prevent contamination and spoilage.

WHY USING EXCELLENCE® B-NATURE®?

EXCELLENCE® B-NATURE® can be used as alternative or complement to SO₂. It protects grapes from spoilage microbes and prevents VA, ethylacetate, volatile phenols production, prevents depletion of nutrients, thus improving *Saccharomyces* dominance, health and fermentation capacities.

HOW AND WHEN TO APPLY EXCELLENCE® B-NATURE ?

Bio-protection is recommended for grape transportation (over 30 minutes), juice transportation, delays between grape picking and processing, delays between processing and fermentation (e.g., cold soaking, maceration, stabilization), cold storage of grapes or juice, native fermentation, high pH conditions, and SO₂ reduction. Sprinkle EXCELLENCE® B-NATURE® on the top of grapes/juice at 50 g/ton:

- At picking for machine-harvested grapes, ensuring immediate protection during transportation.
- During tank filling to prevent microbial spoilage during cold soaking.
- Before yeast inoculation as juice warms to prevent VA and ethylacetate production.
- During juice lees maceration to avoid uncontrolled fermentation.
- In the press pan for sparkling wines, an SO₂ alternative for aromatic control and spoilage limitation.
- As an SO₂ alternative in high-pH grapes.

CAN I USE EXCELLENCE® B-NATURE® WITH SO₂?

Yes, EXCELLENCE® B-NATURE® can be used with SO₂, up to 60 ppm.

DOES EXCELLENCE® B-NATURE® HAVE AN IMPACT ON *SACCHAROMYCES* YEAST?

No. EXCELLENCE® B-NATURE® doesn't inhibit or compete with *Saccharomyces*. It promotes its development by reducing competition with other micro-organisms.

DOES EXCELLENCE® B-NATURE® NEED ANY ADDITION OF NITROGEN?

No. As EXCELLENCE® B-NATURE® doesn't consume yeast assimilable nitrogen, there are no need to change the yeast nutrition program.

Fermenting Yeasts

Lamothe-Abiet's oenological expertise revolves around rigorously selected yeasts developed at the Institute of Vine and Wine Sciences (ISVV) in Bordeaux. Our EXCELLENCE® yeasts, chosen through breeding techniques, ensure:

- High implantation
- Short lag phase
- Resistance to difficult conditions and stress (high alcohol, wide temperature range, turbidity)
- Low production of VA, H2S
- POF (-): no production of Phenolic Off-Flavors
- URE2 (-): aromatic optimization, no catabolic repression

WHAT IS YEAST BREEDING?

Yeast breeding is a non-GMO technique involving crossing strains with enological traits of interest. Parental strain selection considers physiological criteria and employs Quantitative Trait Loci (QTL) at the genetic level. This allows for the localization of genes related to complex traits like POF character, VA, and SO₂ production. The resulting strain combines the performances of two or more different strains.

A BIT MORE ABOUT THE POF CHARACTER

Saccharomyces Cerevisiae strains can be POF+ (producing vinyl phenols) or POF- (not producing vinyl phenols). This matters as certain yeasts such as *Brettanomyces* can convert vinyl phenols into ethyl-phenols, impacting wine quality.

CAN I FERMENT HIGH BRIX WITH LAMOTHE-ABIET YEASTS?

All EXCELLENCE® yeasts resist high alcohol levels (~15.5% alc. for whites, ~16.5% alc. for reds). In high Brix conditions, use OENOSTIM® as a yeast protector to limit stress and enhance fermentation completion.

WHAT IS A BAYANUS STRAIN?

Saccharomyces Bayanus, once thought a distinct species, is now identified as *S. Cerevisiae*. The key difference is the activation of specific gene sites that make them more fructophilic.

WHICH YEAST SHOULD I USE TO RESTART A FERMENTATION WITH HIGH FRUCTOSE CONTENT?

L.A. BAYANUS is fructophilic and a vigorous fermenter, making it well-suited for restarting fermentation in high fructose conditions.

HOW DO I PREPARE YEAST FOR INOCULATION?

To ensure complete fermentation with clean aroma and maximum flavor development, follow this yeast preparation protocol using OENOSTIM®:

- Mix OENOSTIM® rehydration nutrient with yeast in chlorine-free water at 40°C.
- Sprinkle yeast over water, mix gently, let stand for 20 minutes.
- Add juice to drop temperature by 10°C/18°F, wait 20 minutes. Repeat until within 10°C/18°F of the tank.
- Add to tank, homogenize with a pump-over.

QUICK TIPS FOR NO MORE RESTART

- Add L.A. BAYANUS® down to 5°Brix for fermentation completion and avoid a full restart protocol.
- Rehydrate 40 g/hL of L.A. BAYANUS® with 40 g/hL of OENOSTIM®.
- Acclimate to wine temperature, repeat 2 times.
- Add to fermenting tank, mix gently.

IMPORTANT PARAMETERS TO CHOOSE A YEAST

Consider aromatic characteristics, POF(-) strain, alcohol, pH, and temperature tolerances, starting SO₂ levels, yeast strain production of SO₂, and YAN supplementation.

HOW TO STORE YEAST?

Store in the original hermetically sealed packaging in a cool, clean, dry place without odors. Use quickly after opening.

WHICH YEAST TO PREVENT STUCK FERMENTATION WHEN LATE HARVEST?

For late harvest with high Brix, high fructose, and lower YAN:

- Rehydrate with OENOSTIM® at 30 g/hL.
- For reds, use EXCELLENCE® XR. For whites, choose EXCELLENCE® TXL.
- Around 8 to 5 Brix, add L.A. BAYANUS at 40 g/hL, rehydrated with OENOSTIM® at 40 g/hL.
- Ensure proper nutrition with 40 g/hL of OPTIFLORE® O at the beginning and, if needed, OPTIFERM® at 1/3 depending on YAN.

Yeasts for Whites / Roses

EXCELLENCE® FTH

EXCELLENCE® FTH is specialised in expressing varietal aromas. It produces large amounts of volatile thiols (3MH, A3MH, 4MMP and BMT), giving a mineral, citrus fruit profile with intense notes of exotic fruits. Fermentary aromas give complexity to wines produced with this yeast. Low production of volatile acidity and H₂S ensure the precision of the aromas. EXCELLENCE® FTH is resistant to difficult fermentary conditions: high potential alcohol (>15% abv.), low turbidity (>50 NTU) , and low temperature (>12°C).

Dosage: 20 - 40 g/hL
Packaging: 500 g

EXCELLENCE® TXL

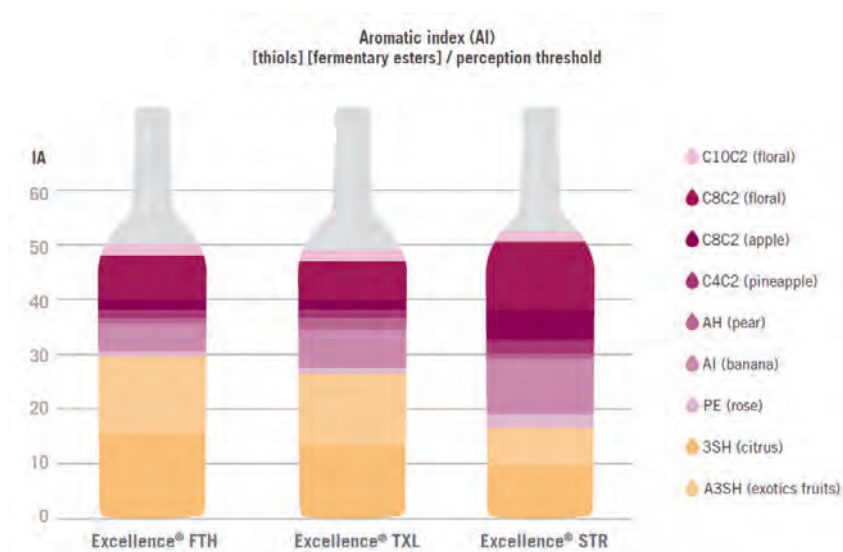
EXCELLENCE® TXL produces round wines with great aromatic finesse. It expresses varietal aromas such as thiolic compounds and also produce large amount of fermentary aromas, giving an intense, complex and clean aromatic profile to wine. Low production of volatile acidity and H₂S ensure the precision of the aromas. It implants quickly and is highly adaptable, capable of fermenting even in difficult conditions.

Dosage: 20 - 40 g/hL
Packaging: 500 g

EXCELLENCE® STR

EXCELLENCE® STR produces complex, fresh and fruity wines, even under difficult conditions: (Alcohol tolerance up to 15% abv., Low nitrogen requirement, Resistant to low temperatures, up to 12°C, Adapted to low turbidities, up to 50 NTU). It has excellent fermentation kinetics, allowing it to complete the fermentation quickly, whilst producing low amounts of volatile acidity and H₂S. EXCELLENCE® STR produces high amounts of fermentary esters as well as terpenes and nor-isoprenoids.

Dosage: 20 - 40 g/hL
Packaging: 500 g



EXCELLENCE® CHD

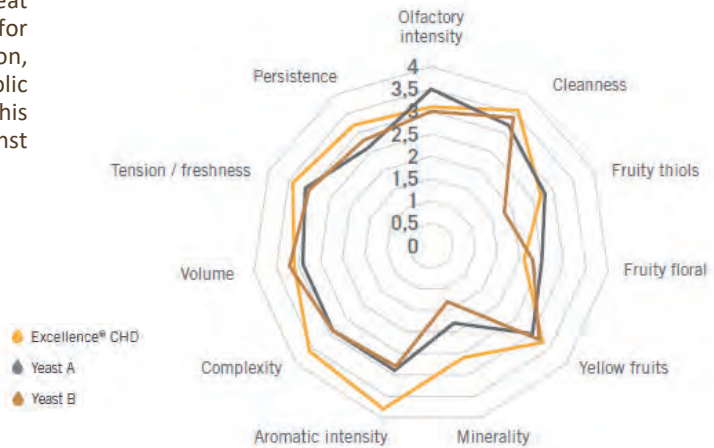
NEW

EXCELLENCE® CHD was selected in Burgundy, for Chardonnay fermentation. It produces complex wines combining varietal aromas and aromatic intensity with a great volume and minerality in mouth. The wines are well balanced and reflect the typicality of the terroir. EXCELLENCE® CHD releases a great amount of polysaccharides, making it highly interesting for lees ageing. With a short lag phase and fast implantation, EXCELLENCE® CHD secures a quick start of alcoholic fermentation and resists up to 15% alcohol content. This strain has low nitrogen requirements and is resistant against Killer factor.

Dosage: 20 - 40 g/hL
Packaging: 500 g

Beaune, Chardonnay

Levures A et B : Yeasts recognised on the market for their results on Chardonnay

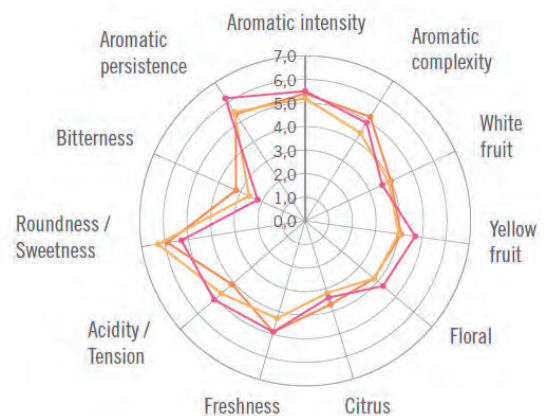
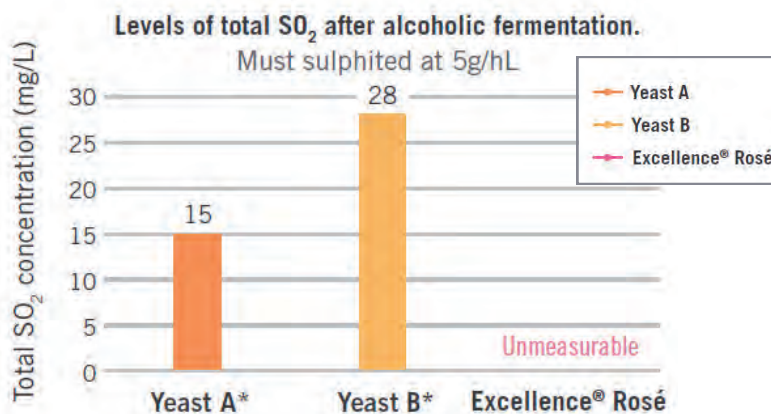


EXCELLENCE® ROSE

NEW

EXCELLENCE® ROSE is a yeast selected for its high capacity to consume SO₂ and its low production of undesirable compounds during alcoholic fermentation (acetaldehydes and sulphur compounds). Its ability to reveal fermentation esters combined with its negative SO₂ balance, allows the yeast to reveal rich and intense aromatic profile. Wines fermented with EXCELLENCE® ROSE therefore have total SO₂ levels close to 0. The low production of compounds combining SO₂ (acetaldehydes) offers the winemaker the opportunity to reduce sulphite doses while improving its efficiency. EXCELLENCE® ROSE produces mainly fermentation esters which, combined with the absence of aromatic masks, give the yeast the ability to reveal intense notes of yellow fruit and flowers. In addition, Excellence® Rosé allows wines to express freshness and liveliness by preserving L-malic acid.

Dosage: 20 - 40 g/hL
Packaging: 500 g



Trial characteristics: Grenache rosé - 2022 • Alc : 13.5 % vol. • TA : 2,25 g H₂SO₄/L • pH : 3.56

Yeasts for Reds

EXCELLENCE® XR

EXCELLENCE® XR is Lamothe-Abiet flagship yeast!

EXCELLENCE® XR produces powerful wines with elevated tannin structure that respect the typicality of the grapes and the terroir. It releases a large amount of polysaccharides which give a highly appreciated contribution to the volume on the palate. With low volatile acidity production, even with high potential alcohols, it produces clean wines.

It has excellent fermentation capacities, making it the go-to strain for difficult conditions. EXCELLENCE® XR enables a quick start to the malolactic fermentation, due to its low production of inhibitory compounds (medium chain fatty acids, SO₂). This makes it a very popular strain for the production of top quality red wines, with structure and balance.

Dosage: 200 g/ton
Packaging: 500 g, 10 kg

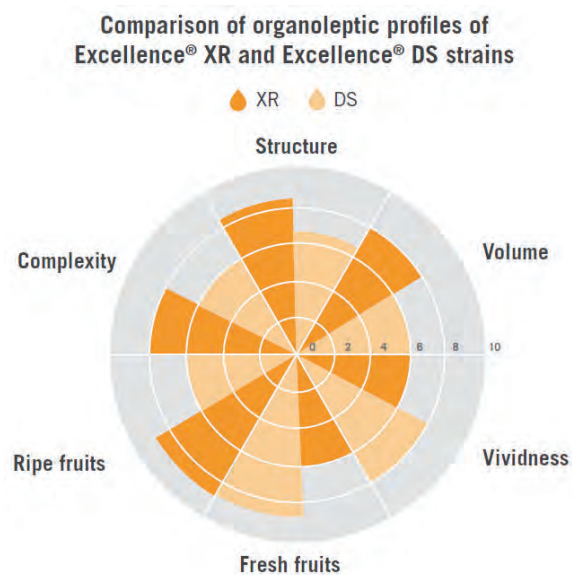
EXCELLENCE® DS

EXCELLENCE® DS produces soft, round, full bodied red wines with fresh fruit and spicy notes. It is resistant to alcohol up to 16% abv., implants quickly and produces low amounts of volatile acidity.

It is highly compatible with malolactic bacteria, due to its low production of SO₂ and (inhibitory medium chain fatty acids. It is therefore well suited to co-inoculation.

EXCELLENCE® DS increases the notes of fresh fruit, boosts freshness on the nose, gives silky tannin structure, increases the color stability by releasing polysaccharides, and accentuates the length and volume on the palate.

Dosage: 200 g/ton
Packaging: 500 g



L.A BAYANUS

The speed at which it implants and starts the fermentation, as well as its ability to consume fructose and its resistance to high alcohol contents (up to 17% alc.) make L.A. BAYANUS a specialised yeast for restarting stuck fermentations, even under difficult conditions. L.A. Bayanus also consumes VA and SO₂ during the fermentation.

QUICK TIPS FOR NO MORE RESTART: Add 30 g/hL L.A BAYANUS® between 8 and 5°Brix for fermentation completion and avoid a full restart protocol.

Dosage: 20 - 40 g/hL
Packaging: 500 g, 10 kg

Enzymes

Enzymes are biological catalysts of reactions and naturally present in all living systems. Highly specific, they act on one or a limited number of substrates to facilitate and accelerate reactions.

In order to offer optimum quality and performance, all our enzymes undergo a purification process to remove any potentially detrimental activities such as cinnamyl-esterase activity (a side activity that puts wine at risk of aromatic spoilage through the production of vinylphenols), anthocyanase (side activity that causes color loss) and oxidase (side activity that promotes oxidation of polyphenols and aromatic compounds).

WHY USE ENOLOGICAL ENZYMES?

Commercial enzymes are used to amplify and improve spontaneous phenomena happening during winemaking processes. They play crucial roles in press yield, clarification, flotation, filterability, aroma extraction, polyphenol extraction, mouthfeel improvement, protein stability, and color stabilization.

SOURCE OF ENZYMES:

Enological enzymes are produced by various fungi species, excluding lysozyme, which is extracted from egg whites.

FACTORS INFLUENCING ENZYMATIC ACTIVITY:

- **Temperature:** Enzymes are denatured above 60°C and mostly inactivated below 5°C.
- **pH:** Enological enzymes are active between pH 2.8 and 5.0.
- **Sugar Content:** Some enzymes, like glycosidases, can be inhibited by glucose, recommending their use when sugar content is < 50 g/L.

WHY IT IS IMPORTANT TO USE PURIFIED ENZYMES?

Some enzymatic activities can lead to the production of vinylphenols, off-flavors, or loss of color.

Cinnamoyl Esterase (CE) is produced by some species and strains of *Aspergillus*. CE can convert hydroxy-cinnamoyl esters in juice to hydroxycinnamoyl acid that Phenolic Off Flavor positive POF(+) yeast strains will metabolize into vinyl phenols, giving off aromas of paint, leather, and vinyl. It is important to use enzymes that are purified and use Phenolic Off Flavor negative POF(-) yeast strains.

SO2 DEACTIVATION:

Enzymes can be inhibited by SO₂ at very high concentrations (around 500 ppm). It's advisable to add enzymes after SO₂ dispersal or vice versa,

INTERACTIONS TO AVOID:

Bentonite and tannins negatively impact enzyme activity by binding with proteins. Allow at least 6 hours for enzyme depectinization before bentonite addition in juice clarification. In red musts, add fermentation tannin first, then enzyme with the initial tank mixing.

HOW TO APPLY ENZYMES IN WHITE GRAPES BEFORE PRESSING?

Enzymes can be diluted and sprayed evenly on grape clusters or applied during loading into the press. Layer grapes and enzyme application, ensuring at least one hour of contact time before pressing.

HOW DO ENZYMES INCREASE PRESS YIELDS OR LOWER THE PRESS PRESSURE REQUIREMENT?

By using enzymes such as OENOZYM® CRUSH on whole cluster grapes the enzymes can begin breaking down the pectins allowing for increased yields at lower pressures, and/or higher total yields. Pressing enzymes increases the total free-run volume before needing to make a press cut and increases the total pressing volume.

CAN I USE SETTLING ENZYMES ON WINES?

OENOZYM® CLEAR can be used on wine to enhance settling and lees compaction. It requires a higher dosage and longer contact time than for juice.

IS THERE ANY ENZYMES FOR AROMATIC OPTIMIZATION?

Enzymes can be used for aromatic improvement in winemaking.

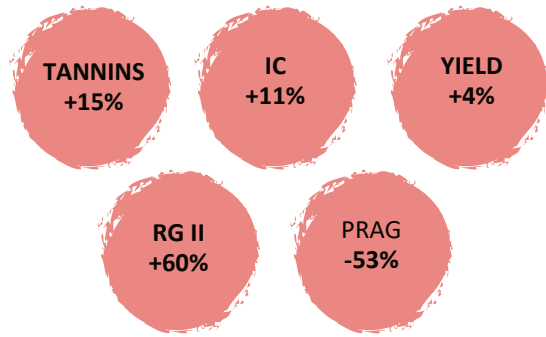
- OENOZYM CRUSH play a crucial role in enhancing aroma extraction, contributing to aromatic expression, and optimizing aromatic profile of the wine.
- OENOZYM THIOLS and OENOZYM FW focus on expressing aromatic precursors present in wines, thus enhancing the overall freshness and aromatic expression of the wine.

OENOZYM® CRUSH

OENOZYM® CRUSH is an enzymatic preparation formulated for red and white grapes. It is highly concentrated and purified of Cinnomoyl Esterase and Anthocyanase activities. OENOZYM® CRUSH improves the maceration and extraction of compounds present in the grape skins such as anthocyanins, tannins, polysaccharides and aromatic precursors. Used directly on grapes for white and red grapes, OENOZYM® CRUSH greatly increases the yield of free run juice or wine and contributes to the clarification.

Dosage: 20 - 40 ml/ton
Packaging: 1 L

RG II: Rhamnogalacturonane II; IC: Color Intensity;
PRAG: Polysaccharides Rich in Arabinose and Galactose

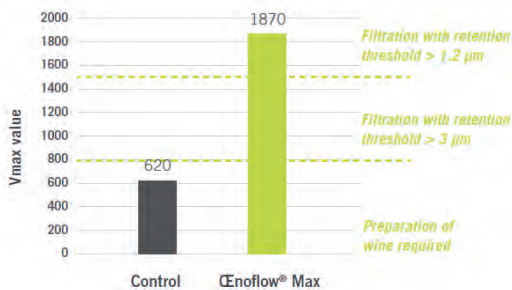


OENOZYM® CLEAR

OENOZYM® CLEAR, a purified enzymatic preparation, accelerates juice and wine clarification by depectinizing. Its unique formulation ensures effectiveness at low (min 5°C) and high (max 68°C) temperatures. Suitable for static settling, flotation, and enhancing wine filtration, OENOZYM® CLEAR also provides a good compaction effect, increasing juice and wine yield.

Dosage: 2 - 5 ml/hL
Packaging: 1 L

Measure of Maximum Filterable Volume (Vmax)



OENOFLOW® MAX



OENOFLOW® MAX, a mixed formulation of pectolytic enzymes from *Aspergillus niger* and β -glucanase from *Trichoderma harzanium*, provides a broad spectrum of enzymatic activities. This enhances total hydrolysis of suspended polysaccharides, significantly improving wine filterability and reducing filtration clogging issues. The β -glucanase activity of OENOFLOW® MAX is especially beneficial for enhancing wine filterability, particularly in cases impacted by Botrytis.

Dosage: 5 - 10 ml/hL
Packaging: 1 L

VINOTASTE® PRO

VINOTASTE® PRO is a purified enzymatic formulation combining pectinase and β -glucanase activities. It accelerates wine clarification after alcoholic fermentation, reducing time and improving finished wine yield. Additionally, it enhances wine roundness and complexity during aging by releasing peptides and yeast polysaccharides. With β -glucanase activity, VINOTASTE® PRO also enhances wine filterability, particularly useful in challenging harvest conditions like Botrytis.

Dosage: 6 - 10 g/hL
Packaging: 250 g



OENOZYM® THIOLS

OENOZYM® THIOLS, a purified pectolytic enzyme preparation rich in β -lyase and β -glycosidase, enhances the aromatic expression and freshness of wines. By liberating aromatic precursors of thiols, terpenes, and nor-isoprenoids, it enhances freshness, complexity, and prolongs aroma lifespan.

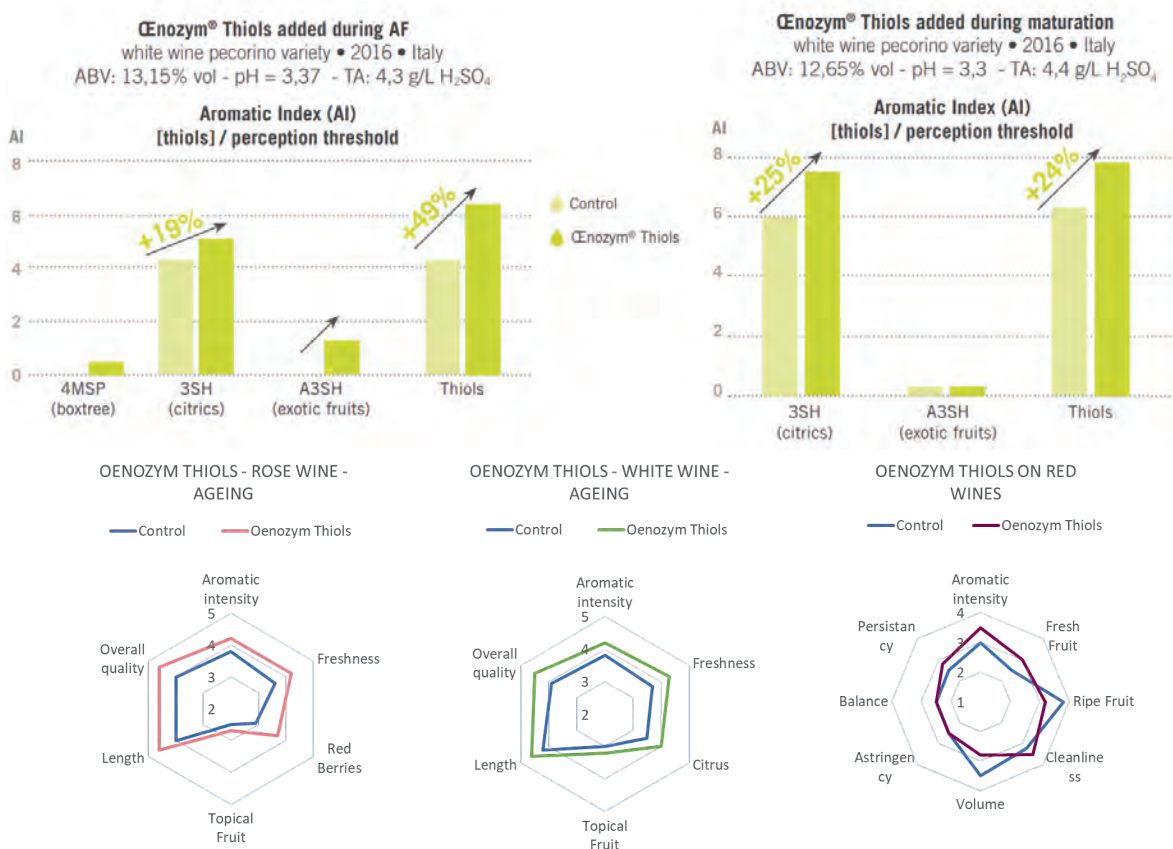
Thiols, often overlooked in red wines, evoke black currant, fresh berries, and floral notes, contributing to a complex, fresh, and enduring aromatic profile. In whites and rosés, they enhance aromas like boxwood, tropical fruits, and citrus.

OENOZYM® THIOLS enables winemakers to capture the essence of grapes, preserving vibrancy and freshness.

- Used during alcoholic fermentation, it boosts the liberation of aroma precursors like 4MMP (boxwood) and 3MH (citrus fruit), indirectly increasing A-3MH (tropical fruits) production by yeast.
- Applied during aging or pre-bottling, it releases yet unexpressed thiolic precursors (4MMP, 3MH), intensifying aromatic qualities and ensuring consistent freshness—particularly beneficial for wines bottled over extended periods.

Dosage: 4 - 6 ml/hL

Packaging: 250 mL, 1L



OENOZYM® FW

OENOZYM® FW is a pectolytic enzyme preparation rich in β -glycosidase activity, designed for the clarification and liberation of varietal aromatic precursors like terpenes and norisoprenoids. This formulation enhances wine clarity and increases the aromatic potential by releasing varietal aromas. Particularly effective on Muscat, Gewurztraminer, Riesling, and similar varieties, it is crucial to halt enzymatic activity pre-bottling with 5 g/hL of bentonite powder.

Dosage: 4 - 6 g/hL

Packaging: 100 g

Nutrients

Understanding the nutritional requirements of yeast is fundamental to accomplish successful fermentations and prevent stuck fermentations. Managing nutrient requirements allows for regular and complete fermentations, as well as minimizing sulfur compound production, such as H₂S, and enhancing sensory qualities.

WHAT NITROGEN FORMS ARE NATURALLY PRESENT IN GRAPES?

Grapes contribute nitrogen in the form of proteins, peptides, alpha amino acids, and ammonium ions. Yeast Assimilable Nitrogen (YAN) in grapes comprises about 25-33% mineral nitrogen and 67-75% organic nitrogen.

WHAT ARE YEAST NUTRITIONAL NEEDS?

Yeast requires Assimilable Nitrogen (YAN), vitamins, mineral salts, sterols, and long-chain unsaturated fatty acids for successful fermentation. These compounds influence yeast metabolism, fermentation kinetics, and wine organoleptic profiles.

- Vitamins have a role in cell growth, fermentation activity, and nitrogen metabolism.
- Minerals impact yeast fermentative metabolism.
- Sterols and unsaturated fatty acids help yeast survive and resist stress.
- Yeast assimilable nitrogen (YAN) is composed of amino acids (organic nitrogen) and ammonium ions (inorganic nitrogen). Yeast use nitrogen for growth, structural protein synthesis, cell wall components, enzyme synthesis, and sugar transport.

WHY USE ORGANIC NITROGEN FOR YEAST NUTRITION?

Organic nitrogen has been shown to be 3-5 times more efficient when compared to equivalent nitrogen values of DAP (ammonium ions). When complex nutrient strategies include organic forms of nitrogen the kinetics are more controlled with less likelihood of heat spikes when compared to just straight DAP additions. Less stress on the yeast can help minimize off-aroma (volatile acidity, sulfurous off- notes) production during fermentation. Yeast can also use amino acids to synthesize esters and acetates.

WHY USE A YEAST REHYDRATION NUTRIENT?

Yeast rehydration is critical for fermentation success. Adding yeast derivatives like OENOSTIM® during rehydration improves yeast condition by providing vitamins, minerals, amino acids, lipids, and sterols. This enhances fermentation kinetics, especially in the second half.

WHICH FACTORS SHOULD BE CONSIDERED FOR YEAST NUTRITION?

- Temperature: An increase in temperature stimulates yeast growth and fermentation rate, thereby requiring increased levels of nitrogen.
- Turbidity: Juice clarification eliminates some nutrients, sterols and fatty acids essential for yeast survival.
- Fruit affected by mold requires more amino acids and vitamins than healthy fruit.
- Yeast strains: Each yeast strain has specific nutritional requirements.

WHEN IS A NUTRIENT ADDITION TOO LATE IN FERMENTATION?

Nutrient additions in the last phase (less than 8° Brix) may not be fully utilized by stressed yeast. Late additions risk increased residual YAN, which can be available for spoilage microorganisms during aging. For late sluggish fermentations, ACTIBIOL® is recommended.

HOW MUCH YAN IS NEEDED?

Generally, a minimum YAN of 150 mg/L is required to build sufficient yeast biomass for fermentation. The initial sugar content (°Brix) and initial YAN of juice are essential to determine the proper nutrition supplementation. The formula for a quick calculation is:

$$\text{YAN needed (mg/L)} = \text{°Brix} \times 10.$$

ARE NUTRIENTS NEEDED FOR HIGH INITIAL YAN LEVELS IN MUST?

Yes, high YAN in musts (>300 ppm) requires additional organic nutrients around 1/3 of fermentation to support the large yeast biomass, ensuring a healthy fermentation. OPTIFLORE® O is recommended for essential micronutrients.

WHAT IS THE DIFFERENCE BETWEEN INACTIVATED YEASTS, YEAST CELL WALLS, YEAST DERIVATIVES, AND YEAST PRODUCTS?

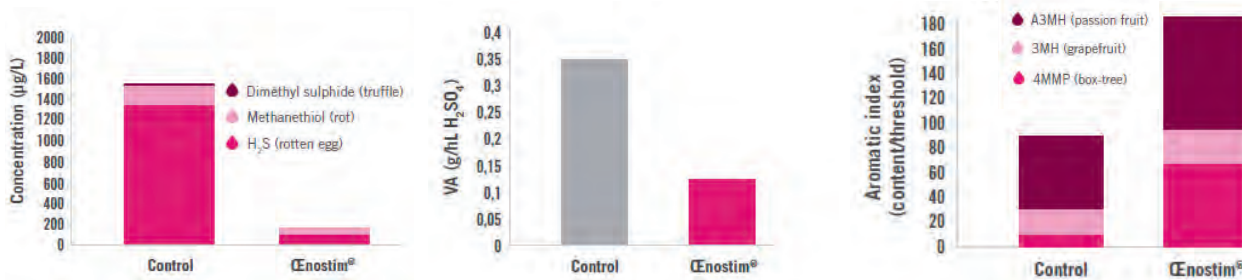
- Yeast-derived products encompass inactivated cells, cell walls, and cell interiors, each serving unique functions in winemaking.
- Inactivated yeasts are whole cells used in nutrition, detoxification, and products like AROMA PROTECT®.
- Yeast autolysates are intracellular contents used for various purposes.
- Yeast cell walls contain essential components and can be used for detoxification or to improve mouthfeel when extracted.

Essential Nutrients

OENOSTIM®

OENOSTIM® is a yeast protector composed of inactivated yeasts naturally rich in growth factors (vitamins, mineral elements) and survival factors (sterols, unsaturated fatty acids). Used during the yeast rehydration phase, it provides essential elements for yeast membrane, ensuring fluidity, alcohol tolerance, and efficient sugar and nutrient transport. By reinforcing yeast activity and metabolism, it mitigates fermentation risks, prevents off-flavor, and boosts aromatic production. OENOSTIM® ensures proper yeast implantation, shortens lag phase, enhances yeast resistance to challenging conditions and reduces contamination risk. Recommended for high potential alcohol, low turbidity juice, low fermentation temperature, difficult fermentation, and yeast restart culture.

Dosage: 20 - 40 g/hL
Packaging: 1 kg, 5 kg



OPTIFLORE® O

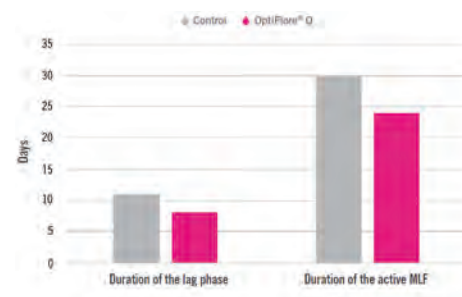
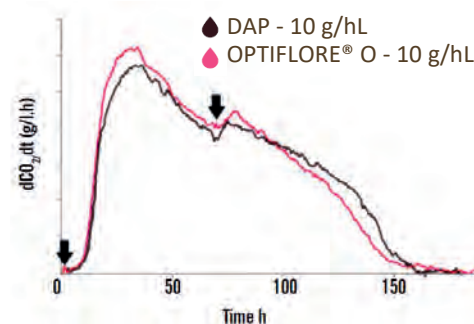
OPTIFLORE® O, rich in easily assimilated amino acids, vitamins, minerals, and oligoelements, is an organic nitrogen nutrient without DAP. Providing qualitative yeast nutrition, it reduces fermentation risks, off-flavor production, and enhances aromatic output. With high nutritive power, it serves as a DAP alternative.

Adding 10 g/hL of OPTIFLORE® O delivers 5 mg/L of nitrogen in amino form, equivalent to 15-20 mg/L of assimilable nitrogen. In fermentation yield, OPTIFLORE® O's organic nitrogen is 3-4 times more efficient than mineral nitrogen.

Benefits:

- Sustainable yeast nutrition
- No biomass overproduction
- Maintains cells in optimal physiological state
- Increases aromatic complexity
- Limits H₂S production
- Acts as a detoxifier to reduce stress and facilitate MLF

Dosage: 20 - 40 g/hL
Packaging: 1 kg, 5kg



Essential Nutrients

OPTIFERM®

OPTIFERM® is a combination of inactivated yeast enriched with sterols, unsaturated fatty acids, amino acids, vitamins (thiamine), and inorganic nitrogen (DAP). This blend provides essential nutrients for optimal alcoholic fermentation.

- Diammonium phosphate (DAP) serves as a readily assimilable mineral nitrogen source, promoting rapid yeast population growth at the fermentation's onset.
- Thiamine enhances yeast metabolism and facilitates the beginning of alcoholic fermentation.
- Inactivated yeasts in OPTIFERM® contribute survival factors such as unsaturated fatty acids and sterols, ensuring yeast viability.
- The cell wall fractions help detoxify the environment by absorbing short and medium-chain fatty acids, which can be toxic to yeast.

OPTIFERM® effectively addresses each phase of alcoholic fermentation, resulting in clean fermentations without any complications.

Dosage: 20 - 40 g/hL
Packaging: 1 kg, 20 kg

ACTIBIOL®

ACTIBIOL® is a wine detoxifier composed of inactivated yeast, yeast hulls, and purified cellulose.

ACTIBIOL® releases growth (vitamins, amino acids, peptides...) and survival factors (long chain fatty acids, sterols) into the must and helps to bind inhibitory compounds. ACTIBIOL® binds pesticide residues and inhibitory compounds such as medium chain fatty acids (CS, C10) that are produced by yeast when they are under stress. By blocking these compounds that are harmful to the yeast, the end of the alcoholic fermentation is secured. Actibiol® efficiently detoxifies the medium and provides nutrients to the yeasts used for restarting the AF.

Dosage: 20 - 40 g/hL
Packaging: 1 kg

LAMOTHE-ABIET YEAST NUTRIENTS

	Cellulose	Ammoniacal nitrogen	Organic nitrogen	Vitamins/ Minerals	Sterols	YAN increase for 20g/hL	Aromatic Impact	Detoxification
OENOSTIM				0	.	..
OPTIFLORE O			10
OPTIFERM			30		.
ACTIBIOL		0		..
OPTITHIOLS			.	.	.	0
OPTIESTERS			.	.	.	0
NATURSOFT			.	.	.	0		.
AROMA PROTECT				.	.	0

Aroma protection and booster

OPTITHIOLS®

OPTITHIOLS® enhances varietal thiol production in wines, including key compounds like 4MMP, A3MH, and 3MH, contributing notes of boxwood, cassis bud, passionfruit, and grapefruit.

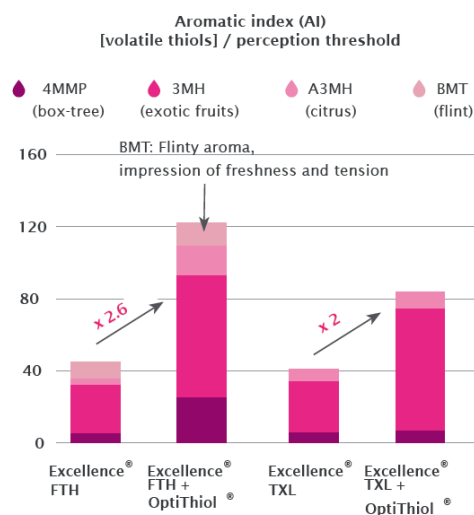
Its formulation of inactivated yeasts rich in reducing compounds (Cysteine, Glu-Cys, N-acetylcysteine, Homo-Cysteine and Glutathione) serves a dual purpose. It boosts aromatic thiol production and slows down oxidative phenomena.

OPTITHIOLS® enriches the must with Glutathione and its precursors, aiding yeast during alcoholic fermentation to synthesize aromatic thiols and accumulate GSH. This compound is then released through autolysis during lees aging, protecting the produced thiol aromas from oxidation.

This double role of antioxidant and aroma revelation helps to increase the wine's aromatic potential, leading to significantly greater quantities of thiols (4MMP, 3MH, A3MH).

Dosage: 20 - 40 g/hL

Packaging: 1 kg



OPTIESTERS®

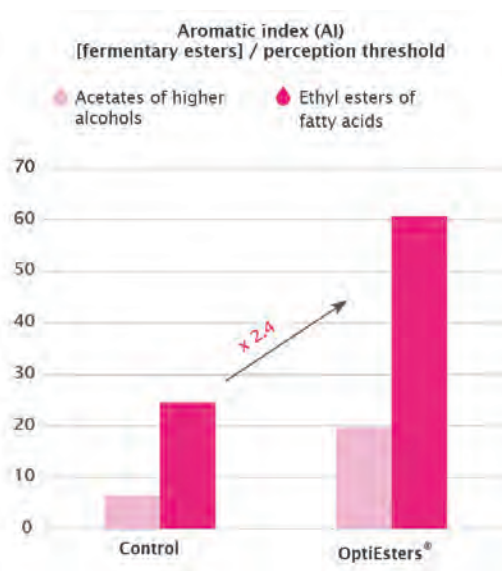
OPTIESTERS® enhances the aromatic profile of wines by shaping fruity and floral perceptions. Exclusively formed during alcoholic fermentation, ester production is influenced by factors like low temperature, low turbidity, and yeast variety. Yeast nutrition also plays an important role in defining the profile of the aromatic esters both in quality and quantity. Ester formation is closely linked to the yeast nitrogen and lipid metabolism, it can therefore be improved by adding yeast derivatives.

OPTIESTERS® is a yeast nutrient containing inactivated yeasts rich in amino acids and ergosterols. Its specific formulation ensures the availability of precursors for higher alcohol acetates and fatty acid ethyl esters, contributing to fermentary ester production. Ergosterols strengthen the yeast membrane, increasing resistance to challenging conditions, reducing stress during fermentation, and minimizing the risk of organoleptic spoilage.

Using OPTIESTERS® results in cleaner, fresher and more aromatic wines.

Dosage: 20 - 40 g/hL

Packaging: 1 kg



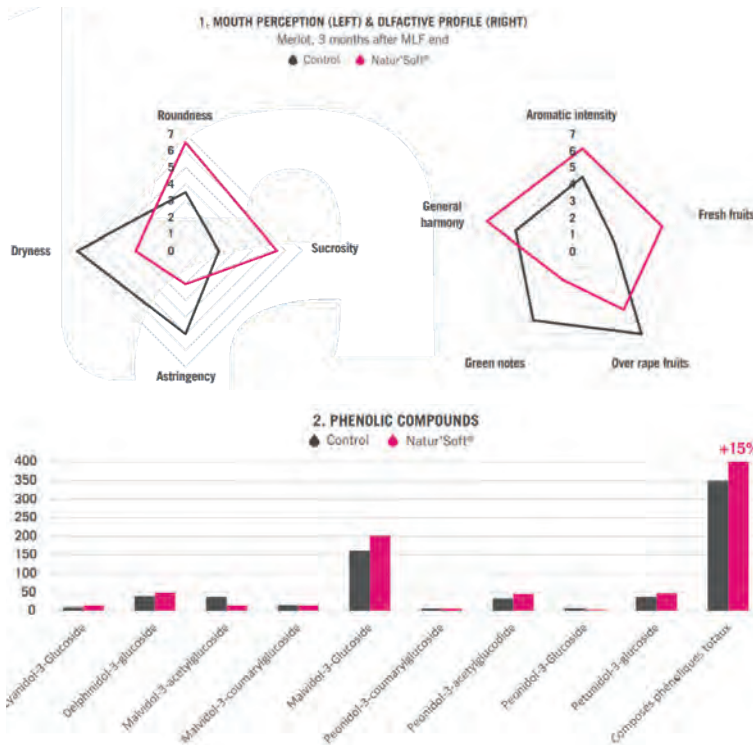
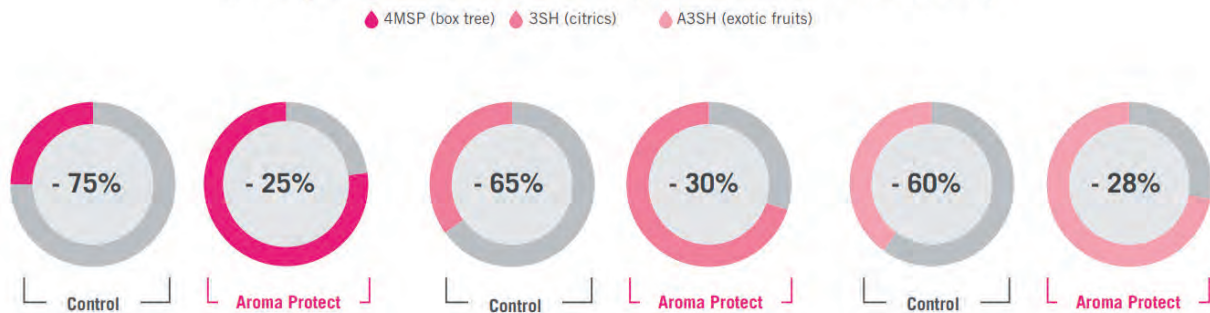
Aroma protection and mouthfeel

AROMA PROTECT®

AROMA PROTECT® is made from inactivated yeasts that are naturally rich in Glutathione, a sulfurous tripeptide with great reductive power. This specific formulation gives optimal protection of wines aromas. When used during ageing, AROMA PROTECT® gives immediate protection against the oxidative mechanisms, releasing Glutathione (GSH) into the wine, significantly slowing down oxidation phenomena and building up wine resistance. We often recommend to use AROMA PROTECT® during any transfer, movement or stirring to protect from oxidation and build wine resistance.

Dosage: 20 - 40 g/hL
Packaging: 1 kg, 5 kg

Percentage of decrease in thiols aromas of Sauvignon Blanc wine (6 months after end of AF)



NATURSOFT®

NATURSOFT® is a preparation of specific yeasts hulls, selected for their high content of polysaccharides. NATURSOFT® contains autolysed yeast that can combine with anthocyanins, helping to stabilize color in red and rose wines.

It also interacts with tannins, giving roundness and volume on the palate whilst attenuating green characters, and smoke notes.

NATURSOFT® increases wine complexity, reduces tannins perception, stabilizes color, and enhances fruity characters.

Thanks to its composition, NATURSOFT® can also be used as a fining agent on wine in order to clarify and bring roundness (similar to aging on lees phenomenon).

Dosage: 20 - 40 g/hL
Packaging: 1 kg, 5 kg

Malolactic Bacterias

Malolactic fermentation (MLF) is the conversion of malic acid into lactic acid by lactic acid bacteria (LAB), particularly *Oenococcus oeni*. This process enhances wine stability, reduces acidity, and contributes to greater aromatic complexity and color stabilization.

PARAMETERS IMPACTING THE SUCCESS OF MLF

The success of MLF is influenced by alcohol, pH, temperature, and SO₂ concentration. Synergistic effects of these factors, along with vineyard practices, malic acid content, yeast strains, and polyphenol content, can affect MLF completion. Problems may arise under specific conditions, such as low pH (<3.3), high alcohol (>14.5%), low or high temperatures (<65°F or >80°F), total SO₂ (>30 mg/L), free SO₂ (>10 mg/L), and molecular SO₂ (<0.3).

SPONTANEOUS VS SELECTED BACTERIA STRAINS, WHAT ARE THE RISKS ASSOCIATED?

While MLF can occur spontaneously, using selected strains like *Oenococcus oeni* helps control malic acid degradation speed, ensuring healthy wine production. Spontaneous MLF poses risks to wine quality and consumer health due to biogenic amine production. Selected strains prevent biogenic amine formation and off-flavors.

BIOGENIC AMINES OVERVIEWS

Biogenic amines are a group of compounds mostly formed by lactic acid bacteria via decarboxylation of amino acids. Their production is highly dependent on the bacteria strains and their enzymatic activities. Known as a human health threat and to cause allergic reactions, headaches, and digestion issues, biogenic amines can also be associated with off-aromas in wine such as rotten flesh, algae, and fish food. The main biogenic amines found in wine are putrescine, histamine, tyramine, and cadaverine.

PREVENT MLF WHEN NOT DESIRED.

Preventing MLF to happen and maintaining the wine microbiologically stable through time can be challenging, especially in high pH wines or low SO₂ wines such as base wines for sparkling production. In these conditions, the use of chitosan is highly recommended. 5-8 g/hL of KILLBRETT, can be used to reinforce or replace SO₂ antibacterial activity and reduce the number of viable bacteria in wines.

PREPARATION OF OENO1® AND BACTERIA XTREM

OENO1® and BACTERIA XTREM are freeze-dried bacteria for direct addition. They can be sprinkled directly into wine or rehydrated (20 times weight in mineral water).

CO-INOCULATION

Co-inoculation involves adding lactic acid bacteria shortly after yeast inoculation, offering advantages:

- Secure MLF by giving bacteria a favorable environment with lower alcohol concentration, better nutrient fermentations availability, less medium-chain fatty acids (bacteria inhibitors), warmer temperatures, and better acclimation.
- Limit the risk of microbial contamination and spoilage by eliminating the microbial vacuum.
- Reduce risks of oxidation.
- Lower acetaldehyde concentration, which results in less bound SO₂, more efficient sulfiting, and lower TSO₂ results.
- Produce fresh, fruity, clean, and less buttery wines with better balance and fuller body.
- Save time: blend, stabilize, and age wines earlier.
- Cost-effective: less analysis, less labor, less barrel.

Lamothe-Abiet recommends a specific yeast/bacteria couple for co-inoculation: EXCELLENCE® yeasts and OENO1®.

RESTART STUCK OR SLUGGISH MLF

The successful restart of a stuck ML fermentation depends upon three critical factors:

1. Diagnosis of the causes of arrest and the degree of fermentation completion.
2. Wine treatment - 24 hours before ML inoculation
 - Adjust pH and alcohol if necessary
 - Absorb toxins and add nutrients - 10 g/hL OPTIFLORE O
 - Remove spoilage microbes - 4 g/hL KILLBRETT.
 - Rack off lees 24 hours after treatment.
3. Proper ML bacteria addition
 - Add nutrients for ML bacteria with 10 g/hL OPTIFLORE O
 - Add to wine OENO1® and BACTERIA XTREM at 1 g/hL.
 - Maintain temperature at 65-75°F and stir regularly.

OENO®1

OENO®1 is a freeze-dried *Oenococcus Oeni*, used in direct inoculation for clean and complete MLF. OENO®1 enhances fresh and fruity aromas, reduces the perception of green characters.

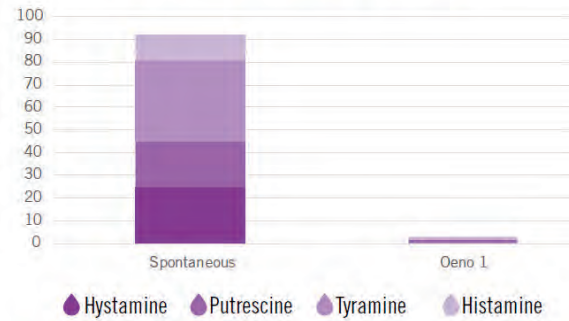
OENO®1 has been selected for its short lag phase, quick conversion of malic acid, strong resistance to difficult conditions, low/no production of VA, biogenic amines, and diacetyl and is free of cinnamyl esterase activity. It also consumes ethylacetate, thus improving the SO₂ efficiency in the later steps of winemaking. OENO®1 also does great when used in co- inoculation, especially with EXCELLENCE®XR to extreme conditions.

- Well adapted and resistant to extreme conditions.
- Produces fruity, fresh, and clean wine profile
- Low biogenic amines production
- Low diacetyl production
- Low VA, ethanal, and off-aromas production

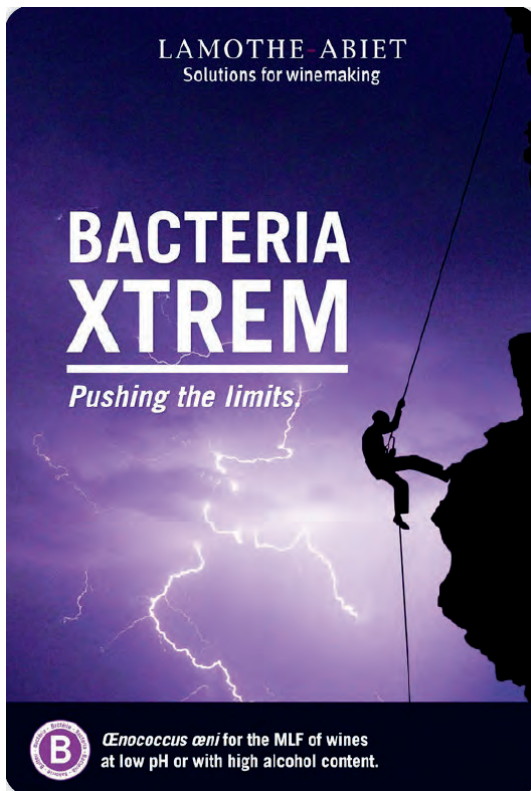
Dosage: 0.5 - 1 g/hL

Packaging: 2.5hL, 25hL, 100hL, 250hL

1. Production of biogenic amines (mg/L)



2. MLF kinetics



BACTERIA XTREM



BACTERIA XTREM is a freeze-dried *Oenococcus Oeni*, used in direct inoculation for difficult MLF. It ensures and safeguards the beginning of MLF, thus avoiding indigenous strains which could lead to organoleptic spoilages. It works great at very low pH (~3), resists to high alcohol content (up to 16%) and has a fast malic acid breakdown kinetics.

Its strength and ease of direct inoculation make it a secure choice in extreme conditions to complete MLF.

Dosage: 0.5 - 1 g/hL

Packaging: 25hL

Tannins

PHENOLIC CONTENT AND TANNINS IN WINEMAKING:

Tannins used in winemaking are mostly derived from grape, oak, gal-nuts, and exotic wood and have many applications depending on their origin and production method: antioxidant, anti-oxidasic, protein removal, color stabilization, redox potential regulation, reduce green characters perception and reductive notes, increase wine structure, and balance mouthfeel.

Lamothe-Abiet offers modern solutions that combine ease of use, quality, and effectiveness. The tannins of our range are created in our specialized production unit. The quality of the products and their effectiveness are guaranteed by rigorous selection of the raw materials, and by our knowledge and control of the production process. The specific granulated formulation of our instantly soluble tannins means that they can be added directly to grapes, musts, or wines without preparation.

COLOR IN WINE AND ANTHOCYANINS:

Each grape has a phenolic potential determining red wine color. Initial color is mainly due to anthocyanins from grape skins. Anthocyanins are easily extracted, early in the winemaking process and are unstable. Tannins play a role in color stabilization by interacting with Anthocyanins through co-pigmentation or condensation.

WHAT IS A "SACRIFICIAL" TANNINS?

When grapes are crushed, proteins are released and bind first with tannins to precipitate. "Sacrificial" tannins, added on grapes, react with proteins, preventing freshly extracted anthocyanins and skin tannins' precipitation.

HOW DO I USE TANNINS TO STABILIZE COLOR?

Color stabilizing tannins are usually added at the early stage of fermentation. These tannins, such as SOFTAN® VINIFICATION are high in catechins that polymerize anthocyanins during pigment extraction from the grapes. Polymerization prevents excessive precipitation of the color during ageing, thus maintaining more stable color over the life of a wine.

TANNIN STRATEGY WITH FLASH DÉTENTE:

Due to flash détente's ability to extract quickly and at early stages maximum compounds from the skin and pulp of grapes, it is advised to use tannins rich in catechin such as SOFTAN® VINIFICATION as soon as possible, in treated must.

TANNINS FOR MOLD-INFECTED HARVEST:

The best tannins to use for mold infected fruit are high reactivity tannins for inactivating oxidative enzymes (laccase and PPO), and for antioxidant protection of the must.

- For white grapes: TANNIN GALLIQUE A L'ALCOOL as soon as possible, at harvest, during destemming or juice collection. It may also be used post-fermentation if any laccase is detected in the wine.
- For red grapes: A broad spectrum fermentation tannin like PRO TANIN R® is perfect for addressing these multiple factors.

PROTEIN STABILITY WITH TANNINS:

Fermentation and ageing tannins enhance protein stability in white and rosé wines. Negatively charged tannins have an affinity for positively charged proteins, improving stability.

TREATING REDUCTION WITH TANNINS:

Tannins, particularly ellagitannins like TAN&SENSE® VOLUME, can reduce mercaptans, sulfur compounds causing negative odors, in wine through direct condensation reactions.

REDUCING GREEN CHARACTERS

Certain finishing tannins are more suitable for reducing 'green' qualities by promoting more fruit to show in a wine and masking with oak. SOFTAN SWEETNESS® is an excellent example of this kind of tannin.

CAN I REDUCE SO2 BY USING TANNINS DURING AGEING?

Absolutely. Tannins play a vital role as an effective antioxidant in wines, making them a great tool for lowering the need for SO2 as part of a comprehensive strategy.

HOW LATE BEFORE BOTTLING AND FILTRATION CAN I ADD FINISHING TANNINS?

Finishing tannins should be integrated prior to bottling filtration before the polishing crossflow or pad filtration. Lamothe-Abiet finishing tannins can be added up to 2 days pre-bottling

REFRESHING TIRED OR OXIDIZED WINE:

Specific ageing or finishing tannins like TAN&SENSE® FORTE and TAN&SENSE® VOLUME can refresh tired or oxidized wines by restoring aromatics and enhancing overall quality

Fermentation Tannins

TANNIN GALLIQUE A L'ALCOOL

Pure gallic tannin granulated extracted by alcohol, developed for white and rosé wines. Thanks to its antioxidant, antiseptic, and laccase activity inhibitive character, TANNIN GALLIQUE A L'ALCOOL protects the organoleptic and aromatic qualities of white and rosé wines. It can be used to reduce, complement or replace SO₂ use as antioxidant. TANNIN GALLIQUE A L'ALCOOL reacts strongly with proteins, thus improving protein stability, reducing the need for bentonite and accelerating the settling process. It also can remove reductive notes.

Dosage: 50 - 120 g/Ton

Packaging: 1 kg

PRO TANIN R®

PRO TANIN R® is a pro-anthocyanidin tannin, use as “sacrificial” tannin on grapes and must. Developed for the application on red grapes to scavenge oxygen radicals, inhibit oxidative enzymes such as laccase and PPO and eliminate reactive proteins, thus protecting grape polyphenols.

PRO TANIN R® is instantaneously soluble, simply sprinkle it on the top of the grapes at picking.

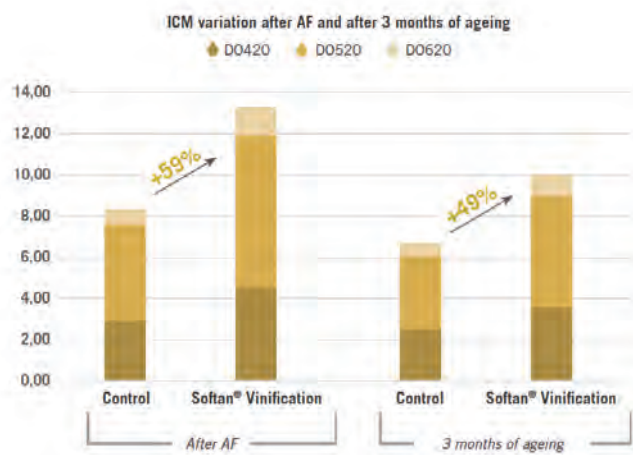
Dosage: 100-200 g/Ton

Packaging: 1 kg, 5 kg

PRO TANIN R® addition at harvest. Picture taken after MLF.



Control 100 g/ton PRO TANIN R® 200 g/ton PRO TANIN R®



SOFTAN® VINIFICATION

Tannins used to bind the color generally contains higher levels of catechin, a colorless flavan-3-ol which reacts very effectively with anthocyanins for long lasting color stabilization.

SOFTAN® VINIFICATION is a tannin developed for color stabilization, with high level of catechins that promote anthocyanin-tannin binding. It promotes color stabilization, prevents color loss during fermentation and brings roundness and length to wine.

- Strongly effective in color stabilization to bind quickly with anthocyanins
- Fills up mid-palate without bringing exogenous aromas.
- Increases wine complexity

Dosage: 100-200 g/Ton

Packaging: 1 kg, 5 kg.

Ageing/Finishing Tannins

TAN EXCELLENCE®

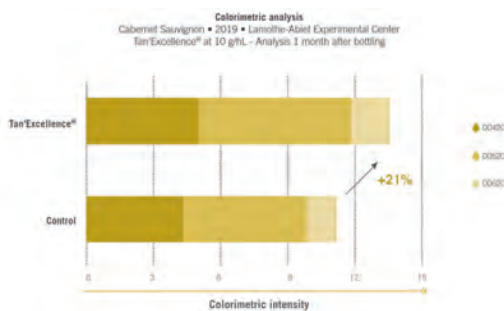
TAN EXCELLENCE® is a tailored combination of oak tannins, grape tannins, and proanthocyanidic tannins, specifically abundant in catechins. It is designed to enhance color stability throughout the aging process.

Key benefits:

- Promotes prolonged color stabilization
- Provides protection against oxidation
- Enhances overall wine structure balance

Dosage: 5 - 15 g/hL

Packaging: 1 kg



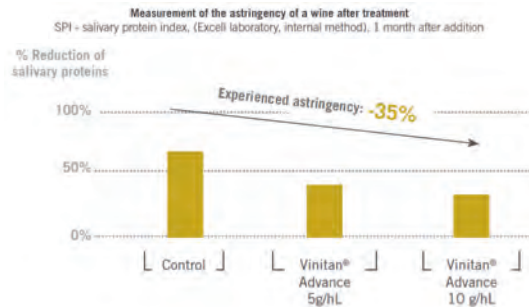
VINITAN ADVANCE®

VINITAN ADVANCE® is a pure grape tannin with low phenol content. It brings structure to wine while respecting its finesse and balance.

It helps stabilizing color during ageing and bottle ageing, especially on wines slightly lacking in structure. VINITAN ADVANCE® also brings freshness to wine by boosting its fruity characters.

Dosage: 5 - 15 g/hL

Packaging: 500 g



TAN & SENSE®

TAN&SENSE® tannins are high-quality oak tannins, extracted using a unique technology from our oak staves. They enhance wine stability, increase aromatic complexity without introducing astringency.

- TAN&SENSE® VOLUME enhances mid-palate, roundness, and length while acting as a robust redox potential buffer. This quality allows it to revive oxidized wines and purify reductive ones. We highly recommend to use it at 0.5-1 g/hL during any wine movement to prevent oxidation and replace/compensate SO₂ usage.
- TAN&SENSE® ORIGIN improves aromatic complexity, adding volume, length, and 'sweetness' to wines.
- TAN&SENSE® EXPRESSION refines the oak profile, balances structure, and harmonizes mouthfeel.
- TAN&SENSE® FORTE elevates wine aromatics, revitalizing 'tired' or over-ripe wines. It provides structure, direction, and length to the wines.

Dosage: 1-5 g/hL

Packaging: 250 g



The SOFTAN Range

The SOFTAN® range, utilizing an exclusive technology from Lamothe-Abiet, combines specific tannins with natural polysaccharides of plant origin. This technology leverages the natural interaction between tannins and polysaccharides that naturally occurs in wines. All these tannins are made **instantaneously and completely soluble for an ease of application.**

SOFTAN® SWEETNESS

Preparation made with tannins extracted from oak and proanthocyanidic tannins, bounded with plant polysaccharides, SOFTAN® SWEETNESS helps stabilize color and gives a light, delicate and soft tannic structure, bringing out the wine's own qualities, including the balance, roundness, and complex fruit notes.

- Prepare the wine for ageing
- Soften astringent tannins
- Add volume and finesse
- Clean and balance green characters

Dosage: 5 - 20 g/hL

Packaging: 1 kg

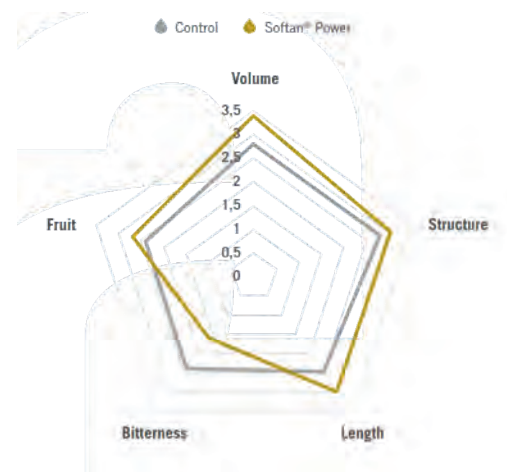
SOFTAN® POWER

Preparation made with proanthocyanidic tannins and ellagic tannins bounded with plant polysaccharides, SOFTAN® POWER has the effects of proanthocyanidic tannins without their astringency. It participates in color stability, improves the structure of red wines, protects wines from premature oxidation, and improves the fruitiness of the wine.

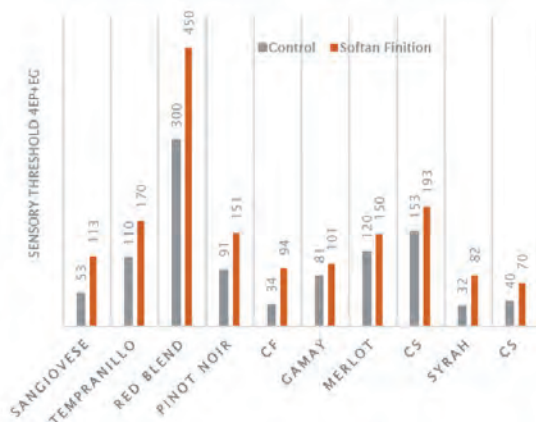
- Stabilize color at early stage of the process
- Great for MOX
- Structure wine while reducing astringency perception
- Add weight and reveal fruit characters

Dosage: 5 - 20 g/hL

Packaging: 1 kg



IMPACT OF SOFTAN® FINITION ON VOLATILE PHENOLS
SENSORY THRESHOLD
HIGH SENSORY THRESHOLD = LOWER PERCEPTION



SOFTAN® FINITION (FT)

Preparation made with tannins extracted from oak and plant polysaccharides, SOFTAN® FINITION stands out as a versatile tool in the winemaker's arsenal. This multitask tannin excels at enhancing aromatic complexity, eliminating off-aromas like volatile phenols, smoke notes, or green characters, and imparting roundness and length to wines.

- Cleanses off-aromas
- Increases aromatic threshold for volatile phenols (Brett taint) thus decreasing its perception.
- Diminishes the perception of smoky characters
- Reduces perception of green characters
- Contributes to roundness and complexity

Dosage: 5 - 15 g/hL

Packaging: 250 g

Lamothe-Abiet Ageing Tannins

LAMOTHE-ABIET TANNIN	COMPOSITION	KEY FEATURES	DOSAGE RATE
<u>SOFTAN® POWER</u>	Proanthocyanindic and ellagic tannins bounded to plant polysaccharides.	Structure / Color Stability / Ageing potential	5 - 20 g/hL
<u>SOFTAN® SWEETNESS</u>	Blend of toasted fresh oak tannins bounded to plant polysaccharides	Soft structure / Volume / Fruitiness	5 - 20 g/hL
<u>TAN'EXCELLENCE®</u>	Blend of grape, oak and catachic tannins	Complexity / Anti-oxidant / Color Stability / Structure	5 - 15 g/hL
<u>SOFTAN® FINITION (FT)</u>	Blend of oak tannins bounded to plant polysaccharides	Smoothness / Cleanliness / Complexity / Length	5 - 15 g/hL
<u>VINITAN ADVANCE®</u>	Pure grape tannin	Purity/ Freshness / Structure / Ageing potential	5 - 15 g/hL
<u>TAN & SENSE® VOLUME</u>	Pure lightly toasted french oak tannins	Volume / Redox potential buffer / Anti-oxidant / Cleanliness	1 - 5 g/hL
<u>TAN & SENSE® ORIGIN</u>	Pure lightly toasted french oak tannins	Sweetness / Aromatic / Delicacy / Roundness	1 - 5 g/hL
<u>TAN & SENSE® EXPRESSION</u>	Medium toast french oak tannins	Complexity / Aromatic / Length / Volume	1 - 5 g/hL
<u>TAN & SENSE® FORTE</u>	Pure highly toasted french oak tannins	Structure / Freshness / Length / Complexity	1 - 5 g/hL



Pre-bottling Trials

HOW TO SET UP BENCH TRIALS?

A bench trial is a small-scale test that simulates the effect of a treatment will have on a large volume of wine. Bench trials are essential to evaluate the efficacy of treatments, determine proper dose rate, and validate a treatment before going on large volume. **Contact us for your sample kit and help on setting up bench trials.**

ADDITIONS WITH 1% SOLUTION					
wine sample (mL)	50	100	125	375	750
rate (g/hL)					
5	0.3	0.5	0.6	1.9	3.8
7	0.4	0.7	0.9	2.6	5.3
15	0.8	1.5	1.9	5.6	11.3
20	1.0	2.0	2.5	7.5	15.0

ADDITIONS WITH 2% SOLUTION					
wine sample (mL)	50	100	125	375	750
rate (g/hL)					
25	0.6	1.3	1.6	4.7	9.4
30	0.8	1.5	1.9	5.6	11.3
40	1.0	2.0	2.5	7.5	15.0
50	1.3	2.5	3.1	9.4	18.8

Fining Agents

PURPOSES OF FINING

Fining agents serve various purposes in winemaking, such as clarification, filterability improvement, haze prevention, color adjustment, and undesirable element removal, crucial for all wine types.

HOW DOES FINING WORK

Fining involves adding a clarifying product to coagulate and form flakes, carrying away cloudy particles. Flocculation and sedimentation are crucial reactions, involving molecular interactions and the settling of formed flocculates.

INCORPORATING FINING AGENTS

Fining agents react quickly; thus, dispersion throughout the entire wine volume is essential. Systems like Venturi tubes during tank mixing aid complete dispersal.

WHEN AND HOW USING FLOCCULATION AIDS?

For whites, roses and low-tannin wines, some protein-based fining agents require negatively charged colloids (tannin, silica sol, bentonite) to ensure complete flocculation and precipitation.

HOW LONG SHOULD FINING AGENTS STAY IN WINE?

Gelatin, casein, pea protein, and egg albumin should not remain in wine for more than 10-15 days, while isinglass can last 3-4 weeks. Bentonite, silica sol, chitosan, and PVPP can remain longer.

TYPES OF FINING AGENTS:

- Protein Fining Agents
- Mineral Fining Agents
- Synthetic Fining Agents (PVPP, PVI-PVP)

VEGAN, ALLERGEN-FREE FINING AGENTS

Lamothe-Abiet offers vegan, allergen-free alternatives to albumin, casein, and potassium caseinate, using yeast derivatives and plant proteins. Plant-based fining agents from peas or potatoes serve as alternatives to PVPP, gelatin, or casein. Pea protein is versatile, respecting juice and wine qualities, offering clarifying power, and reducing astringency.

LAMOTHE ABIET'S SELECTION CRITERIA FOR PEA PROTEIN

Lamothe-Abiet selects high-quality pea protein based on criteria like protein percentage, efficiency in flocculation and sedimentation, appearance, smell, and taste impact. The GREENFINE® range contains the best pea proteins on the market, ensuring constant quality.

CLARIFICATION AND FILTERABILITY IMPROVEMENT

Solids removal, pre- and post-fermentation, using enzymes or fining agents like gelatin, casein, bentonite, and isinglass enhances clarity and filtration. Post-fermentation isinglass reduces turbidity and aids filtration.

SENSORY IMPROVEMENT

Protein-based fining agents (Casein, Pea Protein, Yeast Protein Extracts, ...) complex with polyphenols, improving wines with perceived astringency and bitterness. Nowadays, correcting wine sensory imperfection can also be done by using polysaccharides and tannins. The most commonly u

WINE STABILITY

Fining agents address haziness, sediment, and sensory defects post-bottling. The choice depends on the instability factor:

- Oxidative Stability: CASEIMIX® (Potassium Caseinate), POLYMIX® (PVPP, Casein), POLYMIX NATUR® (Yeast extracts, PVPP, bentonite), GREENFINE® MUST (Pea protein), GREENFINE® X-PRESS (Pea protein, PVPP, Bentonite and Chitin-glucan)
- Protein Stability => BENSOSOL POUVRE (Sodium bentonite) or BENTOSOL FT (Calcium, sodium activated bentonite for cross-flow filtration)
- Microbial Stability => KILLBRETT® (Chitosan)
- Color Stability => Egg Albumin or NATUR'FINE PRESTIGE® (Yeast extracts)

Vegan, Allergen-Free



GREENFINE® MUST

GREENFINE® MUST is a premium, pure pea protein (*Pisium sativum*) fining agent designed for musts and wine fining, ensuring rapid clarification and condensed lees. It efficiently reduces oxidation by eliminating oxidized and easily oxidable phenolic compounds as well as yellow tones in musts and wines.

A versatile alternative to casein and PVPP, GREENFINE® MUST effectively reduces bitterness, green notes, and certain mushroom-type faults.

- Rapid and Compact clarification
- Can be used for flotation
- Treat and prevent oxidation by removing easily oxidable and oxidized phenolic compounds
- Treat color by eliminating yellow shades
- Eliminate astringency without modifying the polyphenolic balance
- Reduce bitterness
- Clean aromas such as green notes, smoke, and mushroom-type aromas.

Dosage: 10 - 60 g/hL
Packaging: 1 kg, 15 kg

Sauvignon blanc
Free run juice

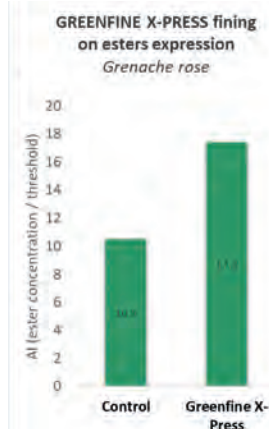
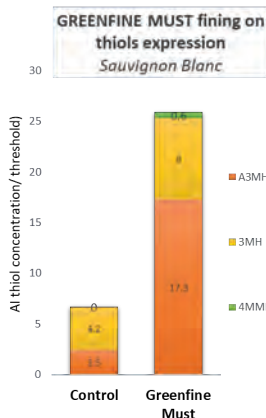


CONTROL GREENFINE MUST

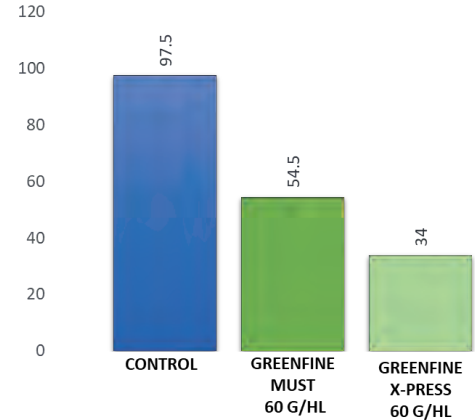
Grenache
Direct pressing



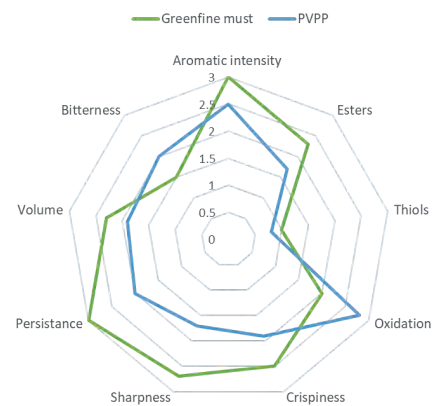
CONTROL GREENFINE MUST GREENFINE X-PRESS



Fining on rose must
Turbidity before AF, Grenache



Comparative tasting on rose wines



GREENFINE® XPRESS

GREENFINE® XPRESS is a blend of pea protein, PVPP, calcium bentonite and chitin-glucon.

It enables preventive and curative treatment of oxidation and off-flavors such as green characters, smoke, and moldy aromas. It ensures rapid clarification with and compact lees.

- Accelerate settling, good lees compaction, and can be used for flotation
- Treat browning, oxidation, and removes 'yellow' color.
- Prevent oxidation by removing easily oxidable phenolic compounds
- Stabilize must and wine from premature oxidation
- Reduce bitterness
- Remove off-flavours (moldy/green notes)

Dosage: 10 - 60 g/hL
Packaging: 1 kg

GREENFINE® NATURE



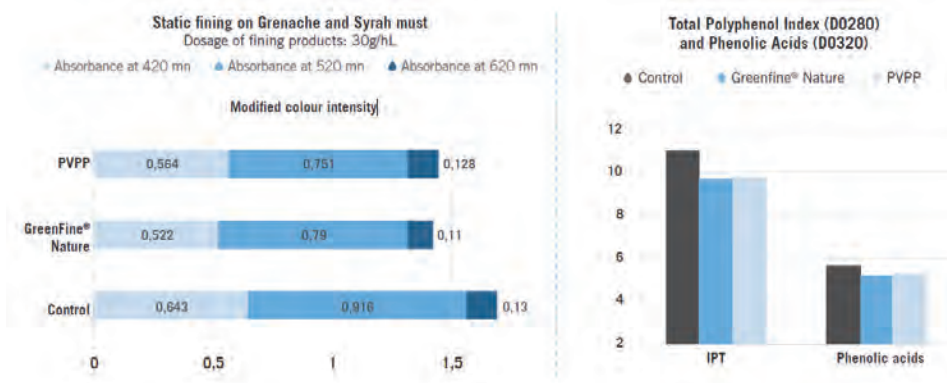
GREENFINE® NATURE is a blend of pea protein, and yeast derivatives.

Next generation fining agent, made from 100% natural products, allergen-free and authorised for organic and vegan winemaking. It is a good alternative to PVPP.

It improves the organoleptic characteristics of musts and wines (white, rosé and red) by decreasing bitterness whilst adding volume. GREENFINE® NATURE provides excellent results for removing oxidized color and revealing fruity notes.

Dosage: 10 - 60 g/hL

Packaging: 1 kg



POLYMIX® NATUR

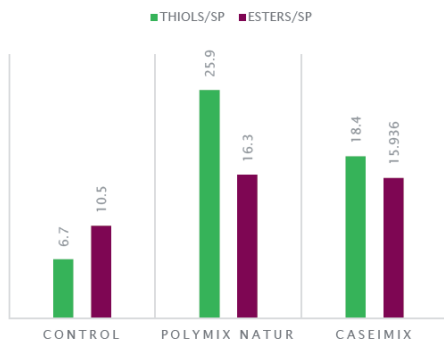
POLYMIX® NATUR is a preparation of PVPP, yeast extracts and bentonite, developed to prevent and treat oxidation, as an alternative to casein.

- Improves clarification
- Color adjustment
- Shelf life wine stability: removes easily oxidable phenolic compounds, precursors of oxidation
- Clean-up aromas (removes volatile phenols)
- Reduce bitterness and smooth harsh tannins

Dosage: 10 - 60 g/hL

Packaging: 1 kg, 5 kg

IMPACT OF JUICE FINING ON SB AROMAS



NATUR'FINE® PRESTIGE

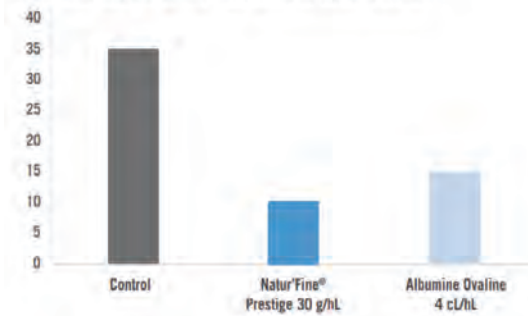
Specific yeast hulls and purified pectolytic enzyme for clarification of high quality wines. NATUR'FINE PRESTIGE® takes its understanding from lees fining; It is a natural, vegan, and allergen free fining agent, alternative to egg albumine.

- Promotes clean clarification with good compaction
- Improves color stability
- Polishes wine tannins
- Removes off-aromas (vegetal characters, smoke- related compounds,...)

Dosage: 10 - 60 g/hL

Packaging: 1 kg

Color Stability – red wine from Gers. Measure Δ NTU after cold test. If Δ NTU < 20 wine is color stable.



Animal Protein Based

CASEIMIX®

CASEIMIX®, an instantaneously soluble potassium caseinate fining agent, serves as a preventive and curative measure against oxidation in musts and wines. It effectively removes phenolic compounds, particularly oxidized and easily oxidizable polyphenols, as well as undesirable off-aromas. With its high purification and protein content, CASEIMIX ensures high efficiency, allowing winemakers to use a lower dosage than soluble casein resulting in a gentler impact on the wine with reduced lees production.

- High purification and protein content : high efficiency
- Instantaneously soluble for an easy application
- Used in both juice and wine
- Treats oxidized phenolics and bitter compounds
- Improves clarification

Dosage: 10 - 60 g/hL

Packaging: 1 kg

COLLE DE POISSON L.A.

COLLE DE POISSON L.A. is a highly pure isinglass fining agent (no hydrolysis process), specifically designed for the clarification and enhancement of white and rosé wines.

The purity and the protein structure of this isinglass provides exceptional shine and finesse to white and rosé wines. It is a very effective fining agent and also gentle on wine characteristics.

The application of COLLE DE POISSON L.A. results in the formation of lightweight and voluminous lees. For better compaction and optimized results, it is advisable to wait a minimum delay of 2 to 3 weeks before racking off lees.

- Easy to dissolve in water during the addition;
- Very effective in removing harsh tannins or bitterness, and in clarifying the wines;
- Respectful of the wine's quality

Dosage: 1 - 5 g/hL

Packaging: 100 g, 250 g

Bentonites

BENTOSOL® POWDRE

Natural sodium bentonite, selected among the purest natural bentonites, specifically for its strong deproteinizing ability, compacting properties (small amount of lees) and the preservation of wines' aromas (little loss of aromas).

- High capacity to remove protein and stabilize wines
- Can be used during clarification, fermentation, ageing.
- Good lees compaction to limit wine loss

Dosage: 10 - 200 g/hL

Packaging: 1 kg, 25 kg

BENTOSOL® FT

Purified calcium-sodium bentonite, graded and poor in crystalline silica, specifically developed for protein stability and crossflow filtration usage. Its purity and the defined particle size avoids both filter blockage and residual micro-particles post filtration to prevent damage to cross-flow filters pumps and membranes. It is now possible to clarify and stabilize wine in a single step. BENTOSOL® FT enables wineries to reduce bentonite consumption, eliminate settling time after bentonite fining, and reduce wine waste and lees volumes. Additionally by reducing the turn around time for fining and filtration, wineries can even increase their total production capacity.

Dosage: 10 - 200 g/hL

Packaging: 15 kg

Finning Finder

IS MY RED WINE BALANCED?

YES

Refining

Medium to high tannin content:

POLYMIX NATUR': 30 - 80g/hL
GREENFINE X-PRESS: 30 - 80g/hL

Low tannin content:

GREENFINE MUST: 10 - 80g/hL
NATURFINE PRESTIGE: 20 - 40g/hL



NO

Unbalanced due to aggressivity

Medium to high tannin content:

GREENFINE X-PRESS: 30 - 80g/hL
CASEIMIX: 15 - 80g/hL
POLYMIX: 30 - 80g/hL

Low tannin content:

GREENFINE MUST: 10 - 80g/hL
NATURFINE PRESTIGE: 20 - 40g/hL
POLYMIX NATUR': 30 - 80g/hL

IS MY WHITE OR ROSE WINE BALANCED?

YES

Refining

Medium to high tannin content:

COLLE DE POISSON: 0.5 - 1.5g/hL
NATURFINE PRESTIGE: 10 - 30g/hL
GREENFINE MUST: 10 - 30g/hL

Brightness

COLLE DE POISSON: 1 - 3g/hL

Protein stability

BENTSOL POUVRE
BENTOSOL FT



NO

Oxidation

CASEIMIX: 15 - 80g/hL
GREENFINE MUST: 10 - 80g/hL
POLYMIX NATUR': 30 - 80g/hL
POLYMIX: 30 - 80g/hL

Bitterness, astringency

POLYMIX NATUR': 30 - 80g/hL
GREENFINE X-PRESS: 30 - 80g/hL

Color

GREENFINE X-PRESS: 30 - 80g/hL
GREENFINE MUST: 10 - 80g/hL
CASEIMIX: 30 - 80g/hL

Microbial Stability

Ensuring microbial stability is fundamental for preserving wine quality and avoiding economic losses from spoilage. Key points of microbial management during ageing:

- Good cellar practices and sanitation
- Manage fermentation stages
- Fining and racking off heavy lees
- SO₂ management
- Use of proper anti-microbial agent

WHAT IS CHITOSAN?

Chitosan is a polysaccharide with a powerful and wide spectrum anti-microbial. It eliminates and prevents the contamination of *Brettanomyces*, Lactic Acid Bacteria, Acetic Acid Bacteria, and some non-*Saccharomyces* yeasts.

HOW DOES CHITOSAN WORK?

Chitosan, positively charged at wine pH, reacts with microbial cell walls via charge interaction. It, then, blocks the cell's receptors, thus interrupting its metabolism, and resulting in the perforation of the cytoplasmic membrane and cell death. Finally, chitosan acts as a fining agent and settles cells.

OPTIMAL TIME TO USE CHITOSAN

Chitosan is typically applied during or after fermentation, acting as a preventive or corrective measure against microbial contamination.

DOES KILLBRETT IMPACT THE SENSORY CHARACTERISTICS OF WINE?

Chitosan is known for its minimal impact on wine sensory properties. It preserves the wine's flavor, aroma, and color.

HOW DOES CHITOSAN COMPARE TO OTHER MICROBIAL CONTROL METHODS?

Chitosan offers a natural and eco-friendly alternative to chemical interventions for microbial control. Furthermore, Chitosan has a wide anti-microbial spectrum, with high efficacy and minimal impact on wine quality.

CAN CHITOSAN BE USED IN CONJUNCTION WITH OTHER ANTI-MICROBIAL AGENTS?

Yes, chitosan can complement other microbial control strategies, providing a comprehensive approach to maintaining microbial stability in wine.

ANTIMICROBIAL AGENTS	Pros (+)	Cons (+)
<u>SO₂</u>	Wide anti-microbial spectrum Can be used at any stage of winemaking	Not effective at pH>3.6 Allergenic Hardness on wine mouthfeel organoleptic profile
<u>LYSOZYME</u>	Effective on Lactic Acid Bacteria Can be used at any stage of winemaking	Not effective on yeasts and Acetic Acid Bacteria Allergenic (egg protein) Requires bentonite fining for whites and roses Cost of use
<u>CHITOSAN</u>	Wide antimicrobial spectrum Can be used at any stage of winemaking Effective at low dosage Vegan and allergen free	Not effective on <i>Saccharomyces Cerevisae</i> Cost of use
<u>DMDC</u>	Effective on all types of yeast	Low effect on Bacteria Pre-bottling application Requires special skills and equipment Cost of use
<u>SORBATE</u>	Effective on all types of yeast	No effect on bacteria Risks of geranium taint if ML bacteria present

COEFF2 & COEFF5

Blend of potassium metabisulfite and potassium bicarbonate, self-dissolving and self-mixing tablets.

- Self-mixing in barrels or small tanks - reducing time and labor needed for stirring
- Easy, fast, and safe to use
- No need of special permit, safety training, or respirator
- Accurate dosage of SO₂

Dosage:

COEFF2 releases 2 g of SO₂ ~ 9 mg/L in a barrel. 1 case = 48 tablets

COEFF5 releases 5 g of SO₂ ~ 22 mg/L in a barrel. 1 case = 42 tablets



KILLBRETT®

KILLBRETT® is a pure chitosan fining agent of 100% fungal origin, vegan, and allergen-free. Effective at low doses ranging from 2 g/hL for preventive use to 8 g/hL for curative treatment, KILLBRETT® acts as a broad-spectrum antimicrobial against *Brettanomyces*, Lactic Acid Bacteria, and Acetic Acid Bacteria.

- Preventative Use: Add 2-4 g/hL of KILLBRETT® during transfers or rackings to prevent spoilage microbe development. The antimicrobial effect persists for approximately 4 months in wine contact. No additional racking is necessary with KILLBRETT® at preventive and low doses.
- Curative Treatment: After racking the wine off lees, add 6-8 g/hL of KILLBRETT®. Wait a settling period of one week, rack the wine back into sanitized barrels or tanks.

Dosage: 2 -4 g/hL for preventive | 6- 8 g/hL for curative treatment

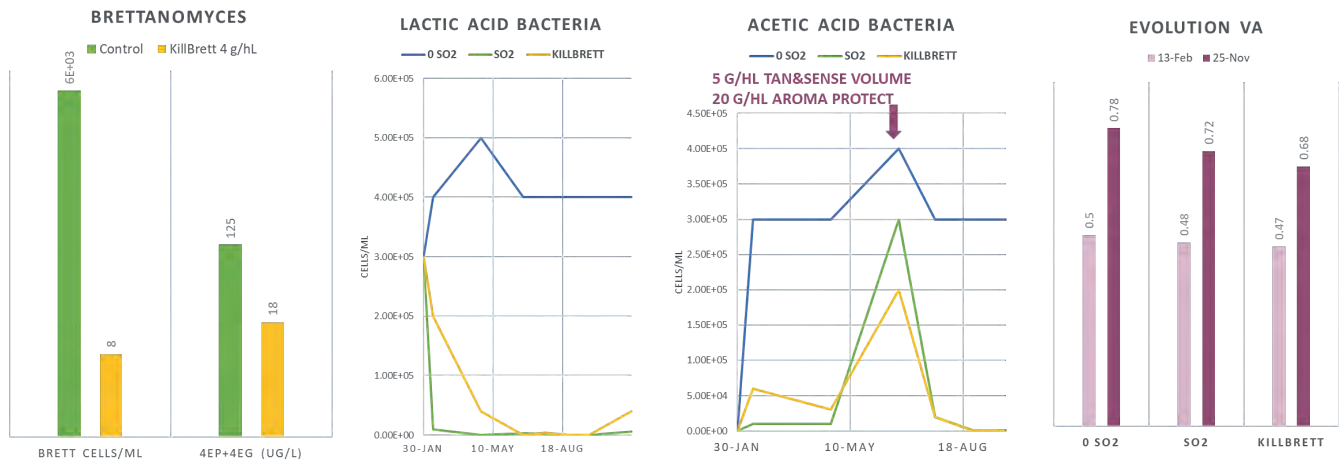
Packaging: 100 g, 500 g



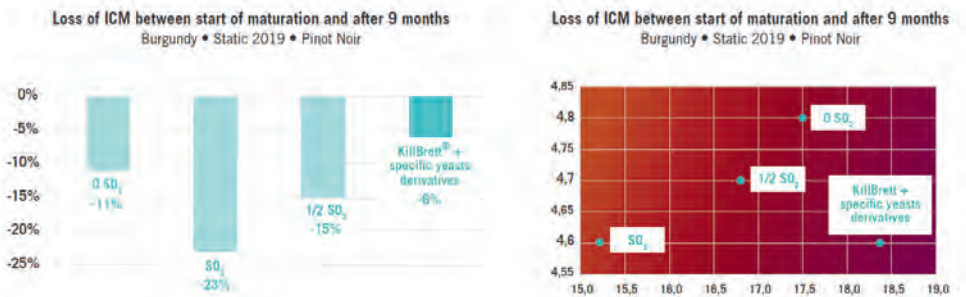
Results of winery trials on Pinot Noir - Burgundy. Average on 2 wineries.

Comparison of ageing: 0 SO₂, 30 mg/L FSO₂ adjusted during ageing, 0 SO₂+ 4 g/hL KILLBRETT® .

Analysis of microbial evolution (*Brettanomyces*, Lactic Acid Bacteria, Acetic Acid Bacteria) and VA production in wines, during ageing in barrels. Analysis of color evolution during ageing in barrel.



4 g/hL, KILLBRETT® eliminates *Brettanomyces* and reduces volatile phenol production. It also effectively controls Lactic Acid Bacteria, Acetic Acid Bacteria, and VA production, rivaling or surpassing the efficacy of 30 mg/L of FSO₂.



4g/hL of KILLBRETT® maintains higher color intensity, preserves red/yellow ratio, and minimizes loss and oxidation.

Colloidal Stability

WHAT IS COLLOIDAL STABILITY IN WINES, AND WHY IS IT IMPORTANT?

Colloidal stability refers to a wine's ability to maintain clarity and prevent haze formation. It is crucial for aesthetic appeal and shelf stability.

THE MOST COMMON COLLOIDAL INSTABILITIES

The three primary colloidal instabilities are Protein (Heat), Tartrate (Cold), and Color. Additionally, there are less common issues like quercetin instability, phenolic instabilities, and premature aging. Addressing these instabilities is crucial to avoid hazes, precipitates, and other flaws that can impact wine quality.

STABILITY OF BLENDED WINES

Blending stable wines individually does not guarantee stability when blended together. The new matrix created after blending may exhibit different chemical-physical characteristics, requiring a reassessment of stability and initiation of the stabilization process.

TARTRATES STABILITY

Crystals in a bottle, often perceived as a fault, are typically tartrate crystals formed when tartaric acid complexifies with potassium or calcium, precipitating due to cold temperatures.

PREVENTING POTASSIUM BITARTRATE CRYSTALS:

Methods to prevent potassium bitartrate crystals include subtractive techniques (cold treatment) and inhibitive techniques using protector colloids. Inhibitors like carboxymethylcellulose (VINOPROTECT®) and mannoprotein (STABK®) offer a faster, less expensive, and energy-friendly process without altering wine quality.

CHOOSING BETWEEN VINOPROTECT® AND STABK®

CMC, unlike mannoproteins, are reactive with wine proteins due to their high negative charge, causing haziness or sediment if used in a wine with unstable proteins. CMC can also cause color precipitation. For those reasons, VINOPROTECT® is suitable for heat-stable whites and rosés but not recommended for red wines.

STABK® allows cold stabilization for whites and rosés that are not fully heat-stabilized and can be used in color-stable red and rosé wines.

MORE INFO ABOUT CMC

CMC is a long-chain cellulose gum with carboxymethyl groups. CMC functions as an inhibitor of potassium tartrate crystal growth by eliminating nucleation sites, restricting further crystal growth.

Calcium Instability

VINOPROTECT® and STABK® are effective for tartrate stabilization but won't correct calcium instability. Wines treated with these products should have calcium levels below 60 mg/L to avoid calcium tartrate occurrence.

COLORING MATTER INSTABILITY

Part of the coloring matter in red and rosé wines may precipitate, causing a decrease in color and deposits. Stabilizing color before bottling is necessary to prevent colloidal instability and potential tartaric precipitation.

Treatment with fining agents like NATUR'FINE PRESTIGE® or pre-bottling stabilizers like STABK® addresses unstable wine color.

DOES THE STABILIZING AGENTS IMPACT FILTRABILITY?

Both VINOPROTECT® and STABK® are fully filtrable products. You can confidently incorporate them into wine up to 2 days before the final filtration/bottling process without any filtration concerns.

WHEN IS THE IDEAL TIME TO ADD VINOPROTECT® and STABK®?

Both VINOPROTECT® and STABK® can be added last minute, allowing for incorporation up to 2 days before the final filtration and bottling.

PROTEIN STABILITY

Protein haze in white or rosé wines results from heat exposure, leading to flocculation with proteins that are not heat-stable.

Early treatments utilizing tannins can improve protein stability, but bentonite remains the most effective tool. Different types of bentonites (sodium vs. calcium) have varying effects, and preliminary fining trials are crucial to determine the optimal bentonite for the cellar.

PROPER PREPARATION OF BENTONITE

If bentonite is not properly prepared and swelled, it may clump or not be fully expanded, reducing the surface area available and the effectiveness of the bentonite-protein binding.

Tartrate & Color Stability

STABK®

Mirroring the mechanisms of lees ageing, STABK® is a natural and long-lasting solution for tartaric and color stabilization of any type of wines (red, rosé, white, and sparkling wines).

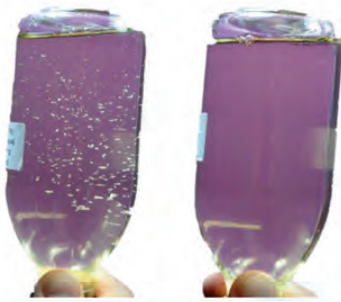
- Composition: STABK® is a liquid solution of specific mannoproteins (MP40) extracted from *Saccharomyces Cerevisiae* cell walls. These mannoproteins exhibit a high capacity to inhibit potassium bitartrate salts formation, while preserving the wine's organoleptic properties.
- Application: Ensuring stability without introducing instabilities, STABK® is suitable for Red, Rosé, White, and Sparkling wines. For still wines, it is recommended 24-72 hours before final filtration and for sparkling wines, it is applied at tirage.
- Wine Requirements: Filtrable

Dosage: 50-150 ml/hL.

Packaging: 5L, 20L.



Sauvignon/Semillon: 25% instability



Untreated control

STABK® 100 ml/hL

Merlot: 9% instability



Untreated control

- Presence of tartaric crystals

STABK® 100 ml/hL

- Presence of tartaric crystals



VINOPROTECT®

VINOPROTECT® acts as a colloid protector, efficiently inhibiting potassium tartrate crystal nucleation, blocking microcrystal development, and preventing subsequent precipitation. It is highly filtrable.

- Composition: VINOPROTECT® is a high-efficiency, low-viscosity CMC (carboxymethylcellulose) solution at 50 g/L. Meticulously selected for its effectiveness, neutral-tasting, and user-friendly. The product's efficiency and viscosity depend on its degree of substitution (DS) and degree of polymerization (DP).
- Application: VINOPROTECT® is suitable for White, Rose and Sparkling wines. For still wines, it is recommended 24-72 hours before final filtration, and for sparkling wines, it is applied at tirage.
- Wine Requirements: Protein Stable, Filtrable, Turbidity < 5 NTU.

Dosage: 100-300 ml/hL.

Packaging: 5L, 20L.

Mouthfeel Improvement

Winemakers are commonly using polysaccharides and mannoproteins into their winemaking, aging, and stabilization processes. Natural polysaccharide levels in wine can reach up to 1 g/L, playing a pivotal role in enhancing viscosity and overall stability. Polysaccharides significantly contribute to the mouthfeel of wine by contributing to volume and roundness. They play a crucial role in reducing astringency through a coating mechanism. Understanding the role of polysaccharides is key to optimizing both the technical and sensory aspects of winemaking.

The primary sources of polysaccharides in winemaking are microbial, originating from yeast, and plant-based, from grape skins and other plants such as gum arabic.

SUBLI'SENSE®

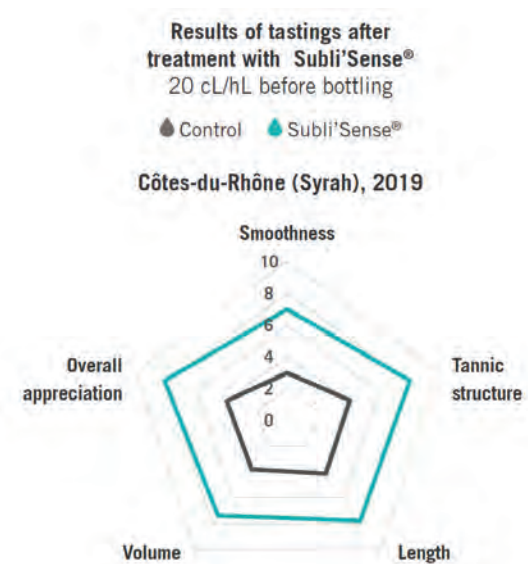
SUBLI'SENSE®, is a unique solution of gum arabic and *Saccharomyces Cerevisiae* yeast mannoproteins. It has been developed to enhance wines organoleptic qualities, adding smoothness, volume and roundness to wines.

It is a stabilizing agent that participates to the colloid stability of the wine against the precipitation of coloring matters. As a pre-bottling agent, it is completely filtrable and can be added up to 2 days pre-bottling.

- Enhances colloid stability
- Amplifies roundness, smoothness and volume
- Mitigates astringency, bitterness and aggressivity perception
- Fills mid-palate

Dosage: 50 - 150 ml/hL

Packaging: 5 L, 20 L



EXCELGOM®

EXCELGOM® is a pure powdered Arabic gum sourced from Acacia Seyal tree, renowned for enhancing colloidal structure and ensuring wine limpidity.

Meticulously selected from premium gums and obtained through an exclusive process developed by our research laboratory, it dissolves instantly in water or wine. Free from SO₂, this pre-bottling stabilizing agent, completely filtrable, can be added up to 2 days pre-bottling.

- Contributes to wine's colloid structure, preventing the precipitation of coloring matters
- Preserves the limpidity of the wine
- Improves organoleptic qualities by enhancing volume, roundness and length.

Dosage: 50 - 150 ml/hL

Packaging: 5 L, 20 L

MANNO'SENSE®

MANNO'SENSE® is a formulation of yeast mannoproteins rich in sapid peptides (HSP12), crucial for sucrosity perception. Released during yeast autolysis, mannoproteins play a key role in the roundness and sweetness perception in dry wines. HSP12 peptide, discovered through extensive research, is a key contributor to the sweet taste in dry wines. Extracted from specific *Saccharomyces Cerevisiae* yeast cell walls mannoprotein, HSP12 is correlated with sweetness perception.

In liquid form, MANNO'SENSE® is instantly usable, respecting wine freshness and fruitiness. This natural solution improves organoleptic qualities, increasing roundness, sweetness, and wine stability. It contributes to colloid stability, preserves limpidity, reduces tannin dryness, adds balance and freshness, and enhances the length of aromas and tartaric stability.

Dosage: 50 - 100 ml/hL

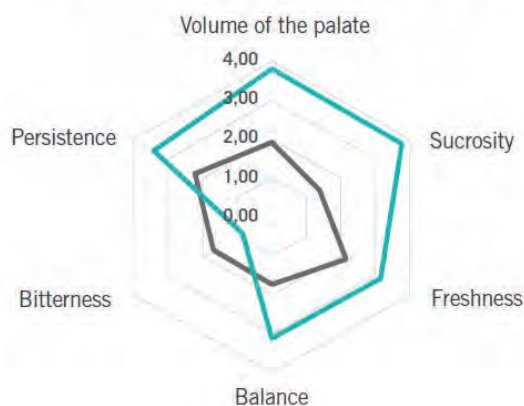
Packaging: 1 L, 5 L



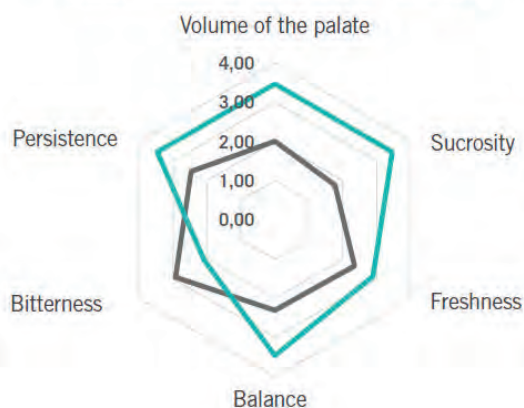
TASTING RESULTS OF WINES AFTER TREATMENT WITH MANNO'SENSE® AT 10 CL/HL BEFORE BOTTLING

● Control ● Manno'Sense®

White wine from Gers (Colombard), 2018



Médoc (Cabernet Sauvignon, Merlot), 2019



Oak for Enology

Balancing tradition and winemaking innovation, Cœnobois offers you a tailor-made approach, using woods that are precise and specific to your winemaking objectives

WHY USE OAK FOR ENOLOGY?

The use of oenological oak can address a variety of issues, such as adding volume, reducing vegetal character or enhancing aromatic complexity. Depending on the intended ageing period, a suitable oak format should be used. This is linked to a specific mechanism for extracting and integrating oak potential into the wine.

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. With granulars or chips, the oak potential is extracted within a few days, followed by an integration phase lasting about 2 months. For thicker oak (staves, blocks...), extraction and integration is slower, with a contact times of 3 - 10 months, going up to 18 months for new barrels.

WHY IS THERE VARIATION IN OAK AROMAS?

There are many causes of variation and many of them interact to form a wide array of 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, 4-methylphenol).

WHAT FACTORS INFLUENCE THE RATE OF EXTRACTION FROM OAK?

Extraction rates are influenced by factors such as toast level, size of the oak alternative, and the wine's alcohol content.

- Granulars: extraction phase ~ 2 - 4 days; integration phase ~ 2 months
- Chips: extraction phase 10 - 12 days; integration ~ 2 months
- Blocks (18mm): extraction and integration ~ 3-4 months
- Staves (18mm): extraction and integration ~ 6-12 months

HOW CAN WINEMAKERS ADJUST CONTACT TIME WITH OAK FOR ENOLOGY?

Contact time is adjustable by monitoring sensory changes during regular tastings. Winemakers can fine-tune the oak influence by deciding when to remove or extend contact based on desired flavor intensity.

HOW TO FIND THE RIGHT OAK?

Define the targeted wine profile, the time available for ageing and the budget. Lamothe-Abiet offers trial kits to run bench trials and understand what the right product or blend for you is.

HOW DOES MICROOXYGENATION INTERACT WITH OAK?

When microoxygenation is used alongside oak alternatives, it synergistically enhances the maturation process and leads to quicker integration of oak characteristics. It can help soften and integrate tannins from oak alternatives, thereby improving the wine's texture and mouthfeel. Additionally, in some cases, microoxygenation can enhance the wine's aroma complexity.

Granulars

OENOFRESH GRANULAR

The Œnobois® granular format ensures rapid extraction of wood compounds during soaking in alcoholic fermentation.

Granulars OENOFRESH are fresh woods concentrated in ellagitannins, designed to add tannic concentration to the wine without affecting the aromas. For red wines, OEnofresh helps to stabilise color, while for white and rose wines, its anti-oxidant effect protects wine from fast ageing. Granulars OENOFRESH fit perfectly with fresh or mature wines that lack tannic concentration. This wood can be used on white, rosé or red wines as part of a SO2 reduction process.

Origin of the wood: French oak naturally matured in oak yards over a period of 24 months.

Dosage: 1 - 4 g/L for white, rosé and red wines.

Contact Time: 3 - 5 days during fermentation, 1 - 2 months during ageing.

Packaging: 12 kg



Chips

Œnoblend® is a unique and original range of chips created by blending oaks of different origins and different toasts. Developed by a team of aromaticians and enologists, this range makes use of the sensorial pyramid, as described by experts in the field of perfumery and aroma creation. Their profiles are a perfect illustration of the alliance of aromatic precision with modern styles.

OENOBLEND® CHIC

Blend of medium to highly toasted French and American woods designed to bring aromatic complexity with notes of black fruit and fresh spices. This blend also brings plenty of aromatic persistence to the finish.

The OENOBLEND® CHIC chips are perfect for wines that lack complexity, freshness and length. It is a blend of woods that brings aromatic finesse while respecting the fruit.

Dosage: 1 - 5 g/L for white, rosé and red wines.

Contact time: 7 - 10 days during fermentation.

1-3 months during ageing.

Packaging: 12 kg

OENOBLEND® FUN

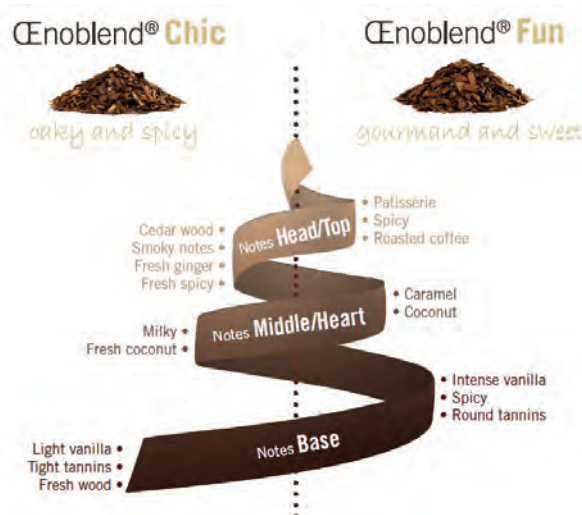
Blend of moderately toasted French and American woods, designed to deliver a rich palate and a nose with notes of vanilla and crème brûlée. The OENOBLEND® FUN chips work perfectly with wines that lack maturity, sweetness and length. This blend is interesting for raising the overall level on the palate.

Dosage: 1 - 5 g/L for white, rosé and red wines.

Contact time: 7 - 10 days during fermentation.

1-3 months during ageing.

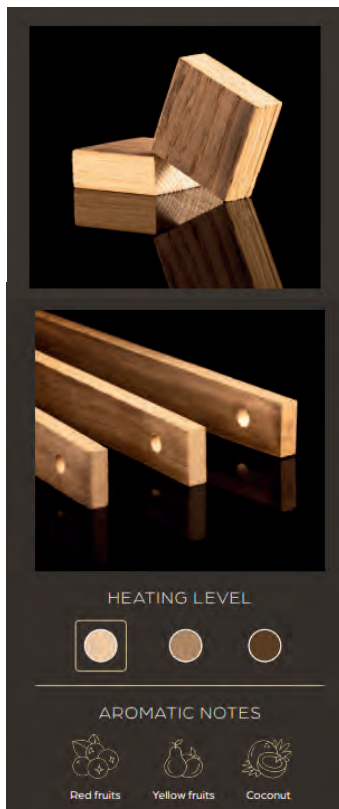
Packaging: 12 kg



Staves & Blocks - 18 mm

Œnobois® offers a range of thick French oak staves (18 mm), designed for long ageing wines. Blocks are based on our thick staves for slightly shorter maturation periods. Their unique format ensure the gradual and stable extraction of wood components while respecting the terroir character of the wines produced. Our specific «double toasting» process gives us the ability to produce highly complex, varied and repeatable profiles.

ORIGIN



Staves & Blocks ORIGIN are slightly toasted, which amplifies the volume on the palate without adding toasted notes. The main goal is to enhance the character of your great terroir wines.

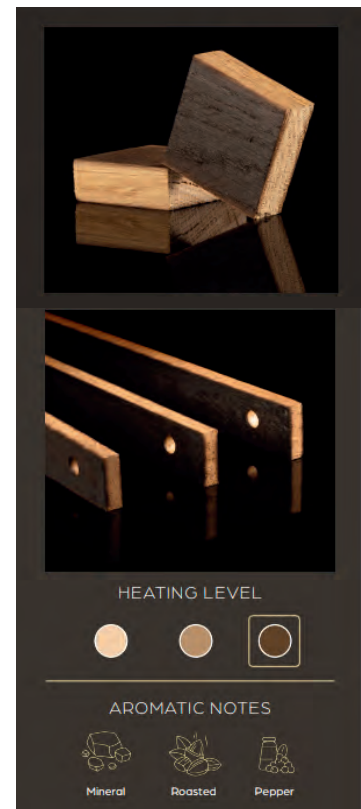
Staves & Blocks ORIGIN are perfect for fresh wines that need more volume on the palate. These œnological woods can be used on white, rosé and red wines.

EXPRESSION



Staves & Blocks EXPRESSION medium toasted add sweetness and aromatic persistence to your wine. The main objective is to bring notes of vanilla, caramel and crème brûlée as well as sweetness and volume on the palate. Staves & Blocks EXPRESSION fit perfectly fresh wines, where the vanilla notes help to mature the fruit. These œnological woods harmonise the mouthfeel balance of wines lacking sweetness and volume. Use on white, rosé and red wines.

ABSOLUTE



The highly toasted Staves & Blocks ABSOLUTE bring great complexity and aromatic freshness to your wine. The main objective is to add toasty, spicy notes, as well as tension and length on the palate.

Staves & Blocks ABSOLUTE fit perfectly with ripe and over-ripe wines, refreshing the fruit. These œnological woods harmonise the balance on the palate of wines lacking freshness. Use on white, rosé and red wines

LAMOTHE-ABIET

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