OENOFRANCE

From one winemaker to another.

presented by

KIRKS SOLUTIONS

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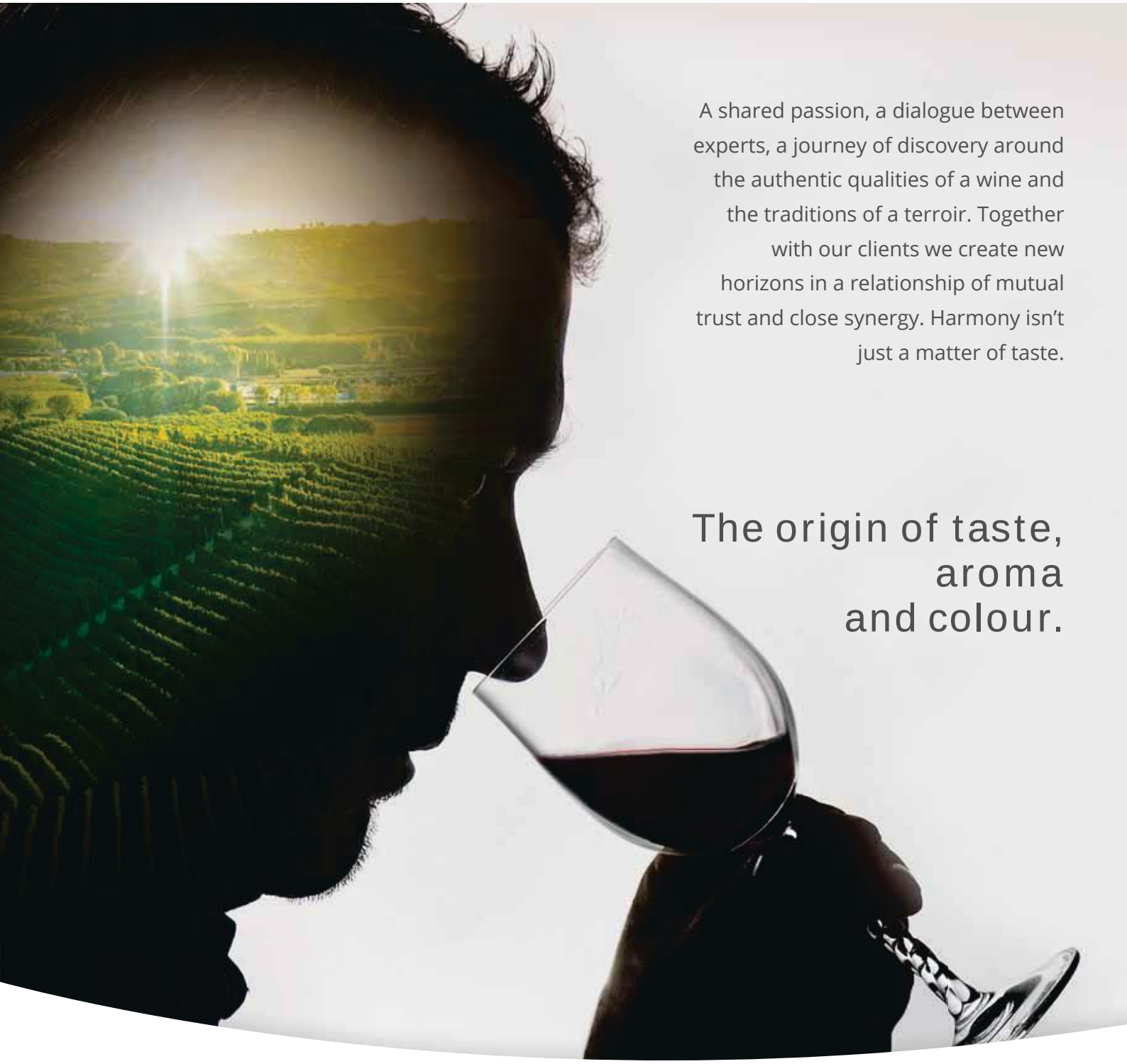
CATALOG

2026 - 2027



A shared passion, a dialogue between experts, a journey of discovery around the authentic qualities of a wine and the traditions of a terroir. Together with our clients we create new horizons in a relationship of mutual trust and close synergy. Harmony isn't just a matter of taste.

The origin of taste, aroma and colour.

From one oenologist to another.

Visionary for almost 80 years, the OENOFRANCE® team is made up of people with complementary, diversified profiles who are able to answer any questions related to oenology, and to develop a specific reflection for each vintage.

Throughout the wine creation process, OENOFRANCE® assure tailor-made technical services from one oenologist to another.

"From one oenologist to another" sums up our spirit and focuses on the importance of the relationship of trust that connects us to our clients, encompassing a mindful, shared dialogue.

OENOFRANCE® combines respect for the environment and the authenticity of the terroir with a passion for wine: a relationship based on (re)discovering the origins of taste, aroma and colour.

80 Ans

Since 1923

OENOFRANCE

OENOFRANCE®, THE GENESIS

1943 • OENOFRANCE® was founded thanks to the vision of two men, Mr Dardant and Mr Tournel.

1970 1980 • Launch in France of the first active dry yeast (ADY), selected by INRA-Colmar and specifically designed for the production of aromatic white wines.
Premières préparations pectolytiques pour l'œnologie.

1981 • Production of the first enzymatic hydrolyzed gelatins, with proteins of controlled molecular weight.

1986 • Initial research into yeast products (hulls, partial autolysates, proteins, mannoproteins, etc).

1988 • Forerunners in the selection of enzymatic activities in oenology.

1989 1990 • Launch of the first agglomerating yeast, CIVC selection, in the form of an ADY.

2007 • Forerunner in launching a range of NON-ALLERGENIC products.

2009 • Birth of PHYLIA® EPL, Protein Yeast Extract, the first fining agent of natural origin.

2010 • ISO 22000 Certification.

2012 • Creation of the BIO range.

2015 • Launch of the DIWINE® project: patented concept, world exclusive. 10 years of research.

2017 2022 • Research on the precipitation of quercetin in wines.

2019 • Launch of the KYLMÄ® range Next-generation liquid solutions for total, long-lasting tartrate stabilisation.

2020 • Launch of SELECTYS® THIOL yeast from the SELECTYS® programme after 3 years of genetic identification studies.

2021 • Birth of OENOTERRIS®: a new programme of reasoned agro-oenology, from grapevine to wine.

2022 • Renewal of the ISO 22000 certification version 2018.

2023 • Launch of PHYLIA® ICONE, mannoproteins from *Saccharomyces Cerevisiae* and SPECTRA® THIOL, a specific enzyme to release thiol precursors.

2024 • Launch of SELECTYS® THIOL ROUGE, a strain selected to bring out the fresh, fruity aromas of red wines.

2025 • Launch of CLIMAX® PRIME, a yeast autolysate to ensure vitamin bioavailability in musts.

• Launch of SELECTYS® LA PERLA: a yeast with good fermentation capacity.

QUALITY

A key element of our development strategy

Certification renewed in 2022. A guarantee of consistently high performance.

Guaranteeing product traceability and compliance (HACCP)

Researching and developing environmentally sustainable products.

Some of our products can be added directly to must or wine without the need for prior rehydration: they are DROP&GO!

These products were first tested in our experimental centre in Montagnac (Occitanie, FRANCE), then tested in the cellar. Some can be obtained in a specific way which allows them to be used as the DROP&GO protocol mention it, while for others it is simply their composition that allows this facilitated use.

SUMMARY

OENOFRANCE® brings together 11 agencies or laboratories that pool their know-how in order to improve current techniques with the support of oenological research.

This technical know-how combined with integrated oenology enables us to think of products in terms of "less is more" — products of higher quality used in minimal doses. The result is less environmental impact overall.

Today, our Research and Development department is working to offer winemakers top-performing tools of tomorrow to help them get the best out of their grapes, while also providing them with technical support.

80 Ans

Since 1923

OENOFRANCE

Key

In accordance with current European regulations — UE Usable in organic

Can be added to must or wine without rehydration — DROP & GO

Integrated **AGRO-OENOLOGY**

Climate change is altering grape maturity and impacting the composition of musts and the **aromatic expression of wines**.

At the same time, **market expectations are shifting** towards fresher, clearer and more precise wines.

Faced with these challenges, we have a strong conviction that **wine is built as early as in the vine plant**.

Integrated agro-oenology consists of **anticipating oenological goals** through agronomic choices.

The decisions made in the vineyard are **vineyard are the first oenological action in the winemaking process**.

This approach allows for better control of the balance of the grapes, secures technical choices and gives consistency to cellar practices.

OENOTERRIS® embodies this vision through **integrated agro-oenological programmes**, deployed within **OENOFRANCE®** by combining vineyard solutions, cellar solutions and decision-making tools to produce wines that meet market expectations.

Aroma

AROMATIC INTENSITY OF ALL WINES

Drinkability

HARMONY AND BALANCE OF RED WINES IN THE MOUTH

Freshness

LONGEVITY AND AROMATIC FRESHNESS OF WHITE AND ROSÉ WINES

Access the full programmes
by scanning the QR code

oenoterris

A range of foliar biostimulants for grapevines.
By strengthening the vine's physiological processes, OENOTERRIS®
biostimulants help safeguard grape quality—even under contrasting climatic
conditions—and enable better anticipation and control of must composition and balance.

OENOFRANCE combines its field and scientific expertise with WQS's technological know-how to provide connected decision-support tools, from vineyard ripeness monitoring through to oxygen management during ageing.

YEASTS

Thiol

A NEW YEAST STRAIN SELECTED BY OENOFRANCE®,

EXPRESSES THIOLS IN YOUR WHITE AND ROSÉ WINES

SELECTYS® THIOL is a strain of *Saccharomyces cerevisiae* isolated in Italy and selected by the R&D department through an innovative genetic identification programme. The purpose of this program was to verify that this strain does indeed carry the nucleotide sequence (+ 38 bases) on the IRC7 gene coding for the production of the protein linked to thiol expression (ß-lyase activity).

EXPÉRIENCE Sauvignon

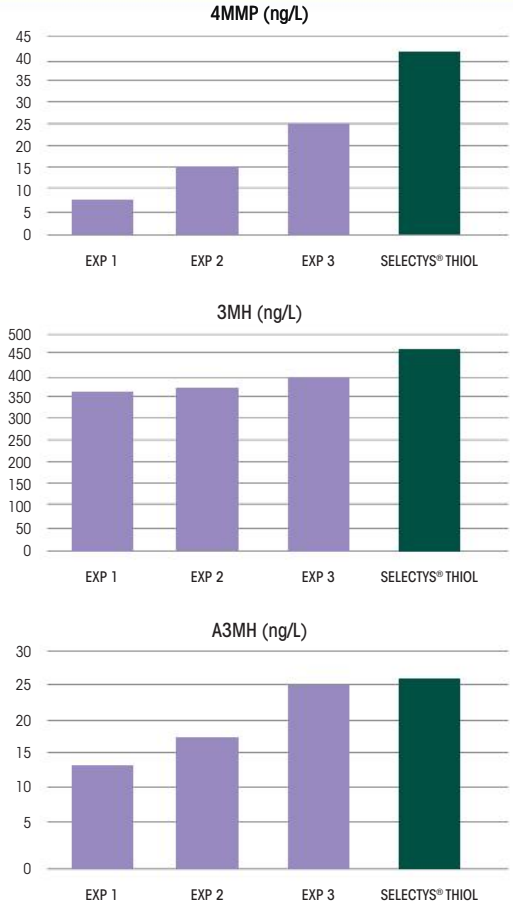
Campus Montagnac

CAVE EXPERIMENTALE

Thanks to 3 years of trials to validate this strain in the wine-growing areas most reputed for their production of wines with thiol character, and thanks to the R&D department, we were able to verify its ability to bring out the aromatic notes of:

- **4-Mercapto-4-methylpentan-2-one (4MMP): boxwood, broom, blackcurrant buds, tomato leaf**
- **3-Mercapto-1-hexanol (3MH): passion fruit, pineapple, grapefruit**
- **3-Mercaptohexyl acetate (3MHA): exotic fruits, guava, citrus zest**

Results on SAUVIGNON BLANC

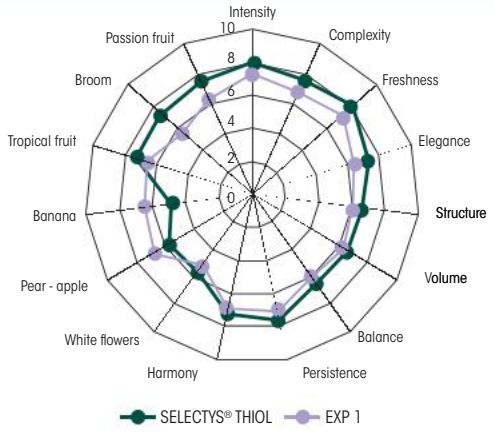


SELECTYS® THIOL

Innovative selection method based on genetics!
Fermentation security
Volume and taste balance
Intense, elegant thiol aromas (4MMP / 3MH / 3MHA)

PACKAGING: 500 g and 10 kg
APPLICATION RATE: 20 g/hL

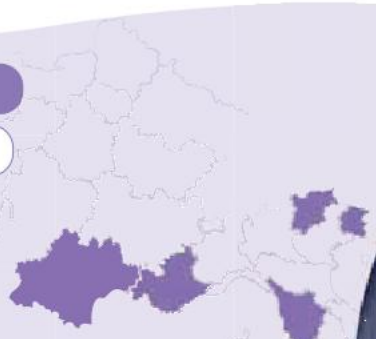
Aromatic profile Selectys® Thiol
Sensory analysis - Sauvignon Blanc Tasting



3 YEARS OF RESEARCH

20 PARTNER WINERIES IN FRANCE AND ITALY

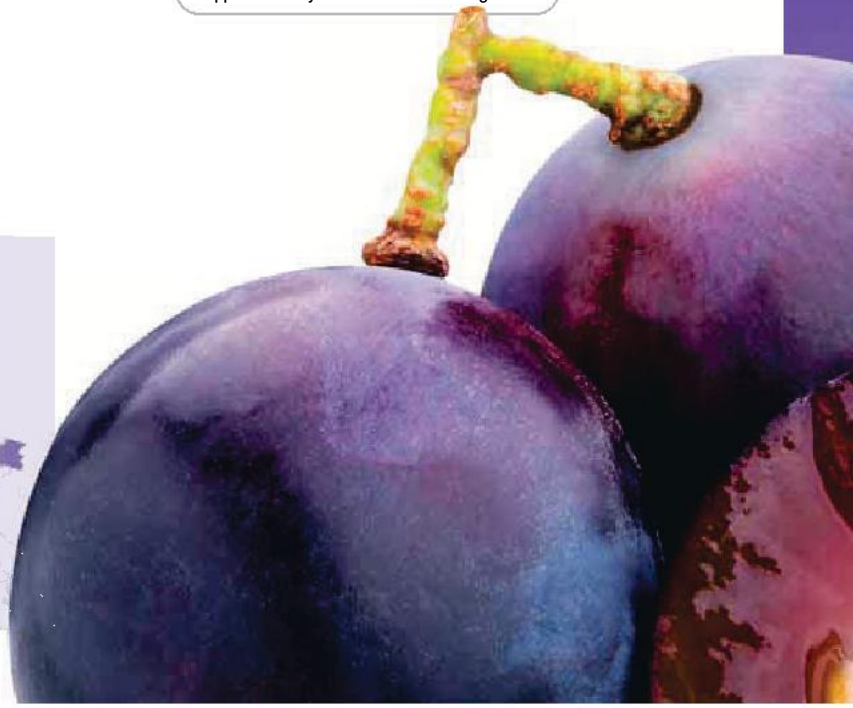
1 IRC7 GENE



SELECTYS® THIOL low SO_2 production

As part of a general trend aimed at decreasing sulfites in wines, this new yeast adapts perfectly to these new requirements and desired profiles. SELECTYS® THIOL causes low SO_2 production.

AF temperature recommended for thiol expression	16°C - 18°C
H_2S production	low
SO_2 production	**low**
Volatile acidity production	low < 0.25 g/L (a 12 % vol.)
Glycerol production	Average 5.7 g/L (a 12 % vol.)
Alcohol-forming power	> 14.5 % vol.
Phenotype	killer K1
Copper sensitivity	High



OENOFRANCE® originals

SELECTYS® is OENOFRANCE®'s research and innovation programme for selection, knowledge and storage of yeast strains. The principal aim of SELECTYS® is to improve knowledge and selection of specific regional strains through institutional and private partnerships.Every yeast has its own characteristics and expresses them under certain conditions. SELECTYS® is working to understand these phenomena...

SELECTYS® LA PERLA

SELECTYS® LA PERLA is a *Saccharomyces cerevisiae* strain isolated from a New World Chardonnay vineyard. SELECTYS® LA PERLA was chosen for:

its **fermentation capacity**;

its propensity to reveal lemony aromas in white grape varieties, promoting a fresh, fruity profile while retaining **the elegance and roundness** required for this profile of white wine.

PACKAGING: 500 g
APPLICATION RATE: Yeasting of white musts: 20 g/hL

SELECTYS® LA PERSANE

SELECTYS® LA PERSANE is an original yeast made from the crossing of *Saccharomyces cerevisiae* galactose - and *Saccharomyces uvarum.* Designed and selected by Sofralab, La Persane is a very interesting yeast with regards to its aromatic nuances. During fermentation, SELECTYS® LA PERSANE produces a large quantity of phenyl aromatic compounds (2-phenylethanol, ethylphenylacetate, 2-phenylethylacetate), which respectively develops notes of rose, honey, and various flowers. Given its intense floral aromatic quality, La Persane is very adopted to winemaking of vine varieties rich in aromatic precursors (Gewurztraminer, Riesling, Muscat, Pinot gris etc.). This yeast is very interesting for developing aromatic complexity for white vine varieties and the aromatic potential of varietal character including Chardonnay, Melon de Bourgogne, Marsanne, etc.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

SELECTYS® LA FRUITÉE

SELECTYS® LA FRUITÉE is a *Saccharomyces cerevisiae* yeast selected for making aromatic white and rosé wines. SELECTYS® LA FRUITÉE is particularly known for its capacity for producing fermentative esters with yellow and white flesh fruit and flower aromas. Wines made with SELECTYS® LA FRUITÉE are recommended for making wines derived from neutral or aromatic vine varieties.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

SELECTYS® L'ÉCLATANTE

SELECTYS® L ÉCLATANTE is a *Saccharomyces cerevisiae* yeast selected for the production of very intense, aromatic white and rosé wines, with aromas that are stable over time. The aromatic profile of wines vinified with SELECTYS® L ÉCLATANTE is complex, combining both varietal aromas and fermentation aromas. It provides optimum expression of varietal aromas (thiols and terpenes), thanks to its pool of enzymatic activities. SELECTYS® L ÉCLATANTE also develops fruity and floral aromas during alcoholic fermentation and is thus suitable for a wide variety of neutral or aromatic grape varieties. It is the phenolic maturity of the grapes that will direct the wine s aromatic profile either towards fresher, more vegetal aromas or towards more exotic, riper aromas.

PACKAGING: 500 g and 10 kg
APPLICATION RATE: 20 g/hL

SELECTYS® LA CROQUANTE

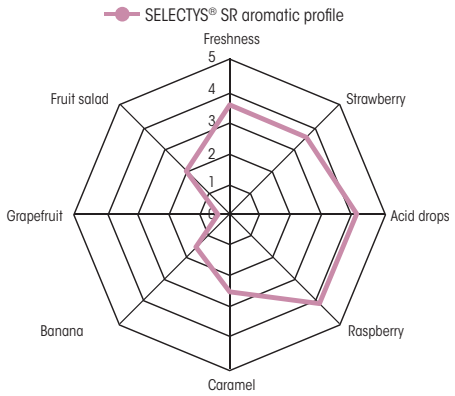
SELECTYS® LA CROQUANTE (*Saccharomyces cerevisiae*) is a yeast selected for its ability to enhance the aromatic freshness and liveliness of white and rosé wines. It is especially recommended in order to limit the alcoholic character of certain southern wines and to enhance the liveliness of wines with a high pH. The aromatic profile is intense and fresh, tending towards sweet citrus notes (lemon, grapefruit).

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

SELECTYS® SR

SELECTYS® SR is a *Saccharomyces cerevisiae* yeast selected for the production of rosé wines with a profile of voluptuous, tangy red berries. It is suitable for various direct-press rosé or bled rosé processes, and is very resistant to the tricky conditions (low temperatures, clarified musts) found in this type of vinification.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL



LEVURE CLASSIC BY

LEVURE CLASSIC BY is a *Saccharomyces Cerevisiae galactose* yeast (new name for bayanus). With its high resistance to alcohol and very good fermentation performances, this product ensures the complete carrying out of alcoholic fermentation while avoiding all deviations. LEVURE CLASSIC BY is a very versatile yeast and can be used for making all types of wine.

PACKAGING: 500 g and 10 kg
APPLICATION RATE: 20 g/hL

LEVURE CLASSIC CE

LEVURE CLASSIC CE is a strain of *Saccharomyces Cerevisiae* selected by the SOFRALAB® Group for its good fermentation performance and its respect for the varietal characteristics of grape varieties.

PACKAGING: 500 g and 10 kg
APPLICATION RATE: 20 g/hL

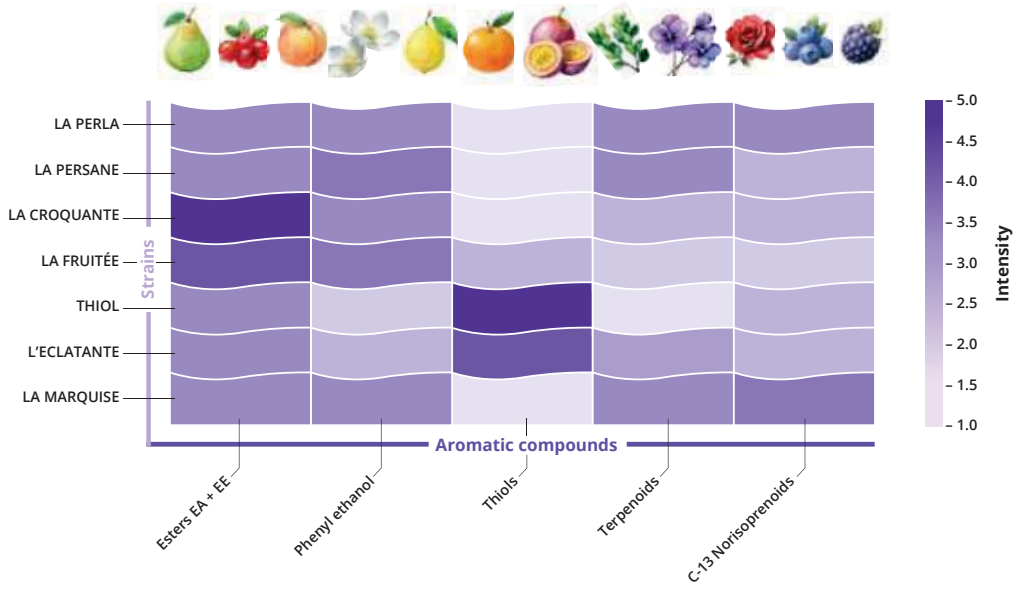
LEVURE CLASSIC K

LEVURE CLASSIC K is a strain of *Saccharomyces Cerevisiae galactose*. LEVURE CLASSIC K has a killer factor that enables excellent implantation whatever the indigenous population present. LEVURE CLASSIC K has very good resistance to alcohol, enabling it to carry out alcoholic fermentation even under difficult conditions.

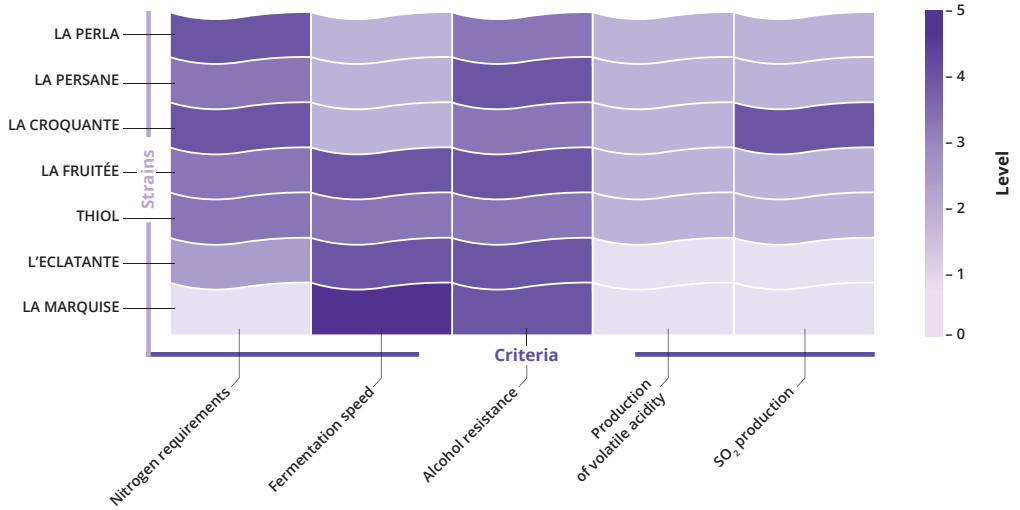
PACKAGING: 500 g and 10 kg
APPLICATION RATE: 20 g/hL

OENOFRANCE® originals

Aromatic profiles of yeast strains for white and rosé wines from the SELECTYS® range.



Fermentation profiles of yeast strains for white and rosé wines from the SELECTYS® range.



Thiol Rouge

A NEW APPROACH TO THIOLS IN RED WINES

STRAIN SELECTED TO ENHANCE FRESH, FRUITY AROMAS IN RED WINES

The impact of thiols on the aromatic profile is more complex to explain in red wines than in white or rosé wines. It is not just a matter of the aromatic contribution of 4-MMP, 3-MH or A3MH with their typical notes of boxwood, citrus or exotic fruit.

Recent studies have shown that it is **the interaction of these thiol molecules with each other or with other families of molecules** such as furans (furaneol: ripe strawberry, candied fruit), terpenes (β-damascenone: rose, red fruit) or esters that contributes to the overall aroma of wines. **Aromatic compounds act as vectors or carriers of aromas, amplifying or modifying the aromatic profiles of wines**. These mechanisms contribute to the aromatic complexity and fruity expression of red wines.

SELECTYS® THIOL ROUGE

SELECTYS® THIOL ROUGE is a *Saccharomyces* cerevisiae strain belonging to the SOFRALAB GROUP's internal collection® and identified by the Innovation, Research & Development department through a programme enabling a strain to be selected on the basis of its genetic profile and aromatic impact.

PACKAGING: 500 g
APPLICATION RATE: Yeasting red must: 20 g/hL

SELECTYS® THIOL ROUGE was chosen because it:

- carries the nucleotide sequence (+ 38 bases) in the *IRC7* **gene** coding for the synthesis of the protein linked to the revelation of thiols (β-lyase activity),
- produces aromatic compounds which act as aroma vectors that amplify the **fruity, fresh aromatic profile of red wines**.

SELECTYS® THIOL ROUGE favours the expression of fresh fruitiness with notes of black berries.

Ideal for making red wines with fresh, intense black berry aromas

Ensures safe fermentation with regular kinetics

Suitable for fermenting all varieties with 'thiol' potential

OENOFRANCE® originals

Aromatic profile SELECTYS® THIOL ROUGE
Wines with a fresh, fruity 'black fruit' profile.

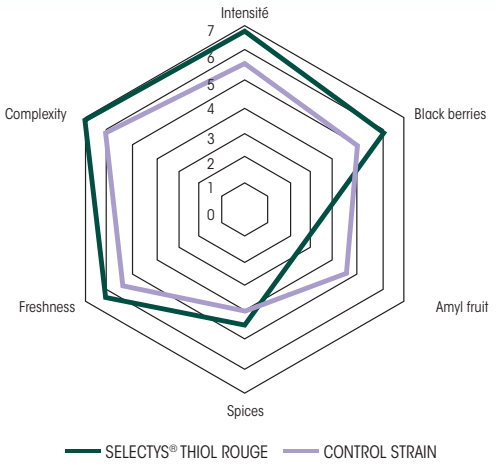


Figure n°1 : Sensory analysis of the wines. Results obtained by a tasting panel made up of 8 oenologists.

AROMA PRODUCTION

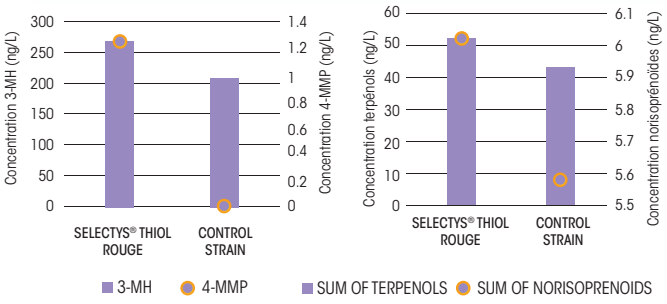


Figure n°2 : Concentrations of thiols (A), terpenes and norisoprenoids (B) measured after alcoholic fermentation in Syrah wines made with SELECTYS® THIOL ROUGE or a control strain with 2 short alleles of the IRC7 gene. Dose used = 20 g/hL.

Low H_2S producer

The nutritional requirements of SELECTYS® THIOL ROUGE are low to medium depending on the matrix. However, adequate amino acid nutrition at the start of fermentation is recommended, in order to enhance the desired aromatic profile.

Fermentation kinetics	Fast
Recommended FA temperaure for thiols	22 25°C
Production of H_2S	**Low**
Resitance to ethanol	>14.5% vol. <17% vol.
Production of glycerol	Medium to high
Production of SO_2	Low to medium
Production of volatile acidity	Low to medium
Nitrogen requirements	Low to medium

SELECTYS® LA DÉLICIEUSE

SELECTYS® LA DÉLICIEUSE is a *Saccharomyces cerevisiae* yeast recommended for the production of aromatic red wines with a fresh, fruity profile and an average tannic structure. With very good fermentation capacity, it can be used for both traditional and technological vinification, and is suitable for many grape varieties, such as Merlot, Cabernet Sauvignon, Syrah, Pinot Noir, Mourvèdre, etc.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

SELECTYS® LA RAFFINÉE

SELECTYS® LA RAFFINÉE is a *Saccharomyces cerevisiae* yeast selected for its potential for making fruity and complex, for maturing or not, red wine. SELECTYS® LA RAFFINÉE reduces vegetal notes of rich in methoxypyrazine vine varieties. It is thus particularly recommended Merlot, Cabernet Franc, and Cabernet Sauvignon vine varieties, and more generally for grapes harvested with low to average grape maturity.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

SELECTYS® L'AUTHENTIQUE

SELECTYS® L AUTHENTIQUE is a natural yeast selected in Burgundy (*Saccharomyces cerevisiae*) in the exceptional terroir of Côte de Nuits, in collaboration with the Laboratoire Burgundia Oenologie. In addition to its good fermentation performance, with a tolerance to high levels of alcohol (15% Vol.), SELECTYS® L AUTHENTIQUE is a remarkable yeast thanks to its organoleptic properties, which contribute to the production of red wines of great quality. SELECTYS® L AUTHENTIQUE shows fine aromatic complexity, developing silky, plump tannins. We recommend SELECTYS® L AUTHENTIQUE for the production of red terroir wines with personality and ageing potential.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

SELECTYS® ITALICA CR1

The SELECTYS® ITALICA CR1 strain was isolated in Italy in 2008 from red grapes harvested in the best vineyards of Valpolicella and meant for the production of Amarone wine. SELECTYS® ITALICA CR1 is a highly vigorous *Saccharomyces cerevisiae* strain that ensures quick starts and complete fermentation, even under extremely difficult conditions like stuck or slow fermentation.

PACKAGING: 500 g
APPLICATION RATE: 20 g/hL

A strain selected for red wines with high potential alcohol levels

Some history

The SELECTYS® ITALICA CR1 strain was isolated in Italy in 2008 from raisined red grapes meant for the production of Amarone wine in Italy.

General characteristics

Highly osmotolerant (> 300 g/L of sugars) even when inoculated at very low temperatures <10°C.
Works under stressful conditions
Highly cryotolerant
Strong propensity to dominate spontaneous flora, especially in the early stages of fermentation
Medium to low production of acetic acid, SO_2 and acetaldehyde.

Fermentation characteristics

Recommended fermentation temperature: 8° to 30°C
Glycerol production: high
Resistance to alcohol: > 18% vol.

High glycerol production and release of parietal polysaccharides since the final stages of fermentation, ensuring a positive contribution to roundness in the mouth.

REPRISE DE FERMENTATION

Extremely resistant to alcohol. Thanks to its high affinity for fructose, **SELECTYS® ITALICA CR1 is also recommended to resume alcoholic fermentation**. An OENOFRANCE® fermentation restart protocol is available upon request.

OENOFRANCE® originals

SELECTYS® LA MARQUISE

DROP & GO

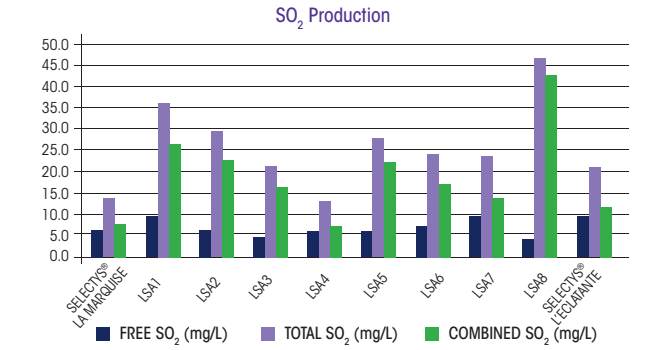
SELECTYS® LA MARQUISE is *S. cerevisiae galactose* yeast selected for its great qualities for the production of still wines. It has a very good implementation capacity as well as fermentation speed, thus ensuring the smooth progress of the AF even in the case of heavy contamination (high pH, deficient health conditions, etc.). It is resistant to high alcohol content (15.5%) and to difficult conditions (low temperature, over-clarified must, etc.), and can be used to obtain great wines, both red and white. SELECTYS® LA MARQUISE allows for the elaboration of elegant wines that respect the characteristics of the grape.

PACKAGING: 500 g and 10 kg
APPLICATION RATE: 20 g/hL

Allergen Free · Vegan · UE Usable in organic · NOP Usable in organic

Good fermentation kinetics and low production of SO_2

Comparative study SELECTYS® LA MARQUISE with a selection of eight other strains



Low SO_2

Winemaking protocols for the production of wines with controlled sulphites available

OENOVEGAN® MICRO FA

BIOCONTROL PRODUCT FOR MUST MICROORGANISMS BASED ON *ASPERGILLUS NIGER* CHITOSAN

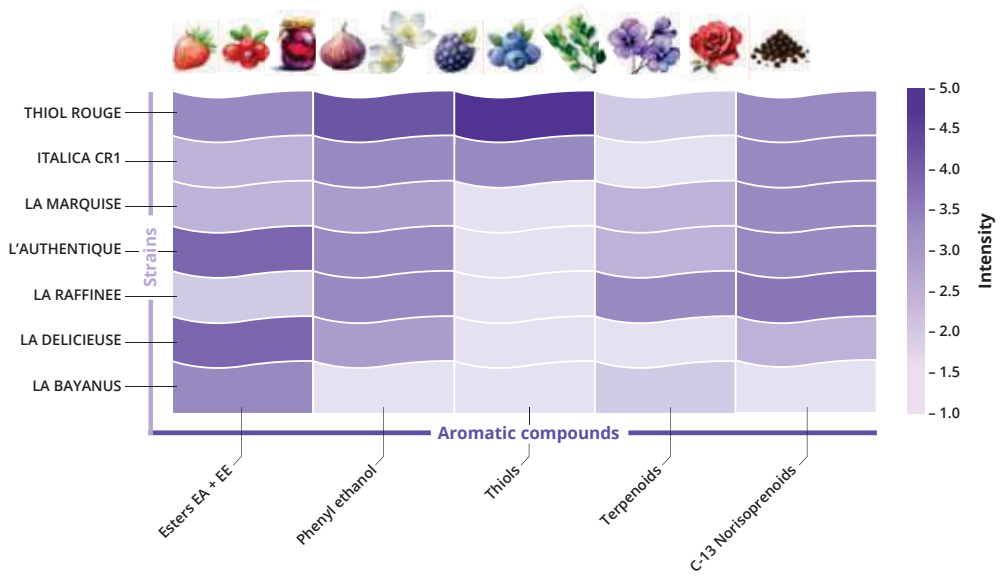
OENOVEGAN® MICRO FA is a 100% natural biocontrol product developed to slow down the growth and reduce the population of spoilage microorganisms naturally present on grapes. It is an effective alternative to SO_2 due to its antifungal properties. OENOVEGAN® MICRO FA enables you to control of the microbiological diversity of musts thanks to the synergy between two active ingredients: activated chitosan and yeast hulls.

- Chitosan is a polymer of the glycosaminoglycan family, derived from the chitin contained in the cell walls of microorganisms such as ***Aspergillus niger***. Its "activated" form has a high degree of deacetylation and gives it more reactivity: positively charged in an acidic environment (pH < 5.5), its molecule reacts by means of electrostatic reactions between the numerous amine functions at its surface and the negatively charged compounds are found in the walls of spoilage microorganisms, causing dysfunction in their membrane and resulting in their death.
- Yeast hulls have detoxifying properties and eliminate certain undesirable molecules (unsaturated fatty acids, pesticides, etc.) contained in the must.

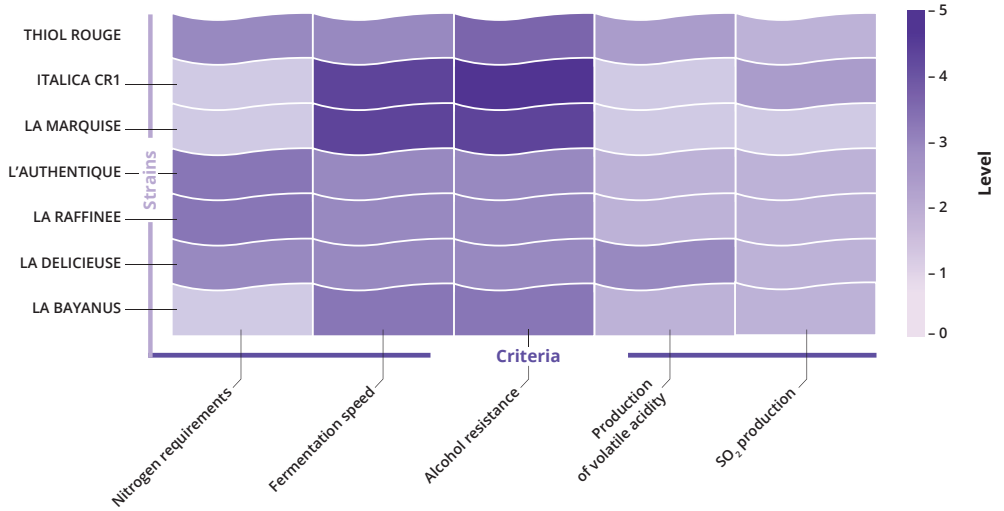
An alternative to using SO_2 · **100% natural** · **Granules for rapid rehydration**

See product details on page 69

Aromatic profiles of yeast strains for red wines from the SELECTYS® range.



Fermentation profiles of yeast strains for red wines from the SELECTYS® range.



OENOFRANCE® originals

SELECTYS® product range

NAME	RECOMMENDED FOR	AROMATIC EXPRESSION	PACKAGING	AF KINETICS	OPTIMUM T
SELECTYS® Thiol *S. cerevisiae*	Elaboration of aromatic white and rosé wines on an intense and complex thiol profiles (4MMP, 3MH, A3MH)	Thiol	500 g and 10 kg	Regular and complete	16 to 18°C
SELECTYS® Thiol Rouge *S. cerevisiae*	Producing red wines with fresh,fruity aromas	Aromatic complexity and fruity expression	500 g	Fast	22 to 25°C
SELECTYS® Italica CR1 *S. cerevisiae*	Formulation of red wines with high alcoholic potential	Respect of the grape variety	500 g	Fast and complete even in difficult conditions	8° to 30°C
SELECTYS® La Persane *S.cerevisiae galactose - x S. uvarum*	Used for making white and rosé wines with elegant, fruity and floral nuances	Production of fermentation aromas	500 g	Fast	12 to 20°C
SELECTYS® La Fruitée *S. cerevisiae*	Used for making aromatic white and rosé wines with white and yellow flesh fresh fruits profile	Production of fermentation aromas	500 g	Very fast	10 to 16°C
SELECTYS® L'Eclatante *S. cerevisiae galactose*	Production of white and rosé wines with high aromatic intensity with a complex profile combining fermentation and varietal aromas (thiols and terpenes)	Production of fermentation aromas - expression of varietal aromas	500 g and 10 kg	Fast	10 to 16°C
SELECTYS® La Marquise *S. cerevisiae galactose -*	Used for making fine and elegant sparkling or still wine under difficult conditions	Aromatic finesse - in due respect with the typicality of the vine varieties	500 g and 10 kg	Fast	10 to 30°C
SELECTYS® La Perla *S. cerevisiae*	Good fermentation capacity. Produces white wines with citrus and fresh fruit aromas	Enhances aromatic intensity, elegance and roundness	500 g	Fast	14 to 18°C
SELECTYS® La Croquante *S. cerevisiae*	Production of southern white and rosé wines or wines with high pH, to enhance liveliness and aromatic freshness	Production of fermentation aromas	500 g	Fast	8 to 15°C
SELECTYS® SR *S. cerevisiae*	Production of rosé wines with a voluptuous profile of tangy red berries	Production of fermentation aromas - expression of varietal aromas	500 g	Fast	14 to 20°C
SELECTYS® L'Authentique *S. cerevisiae*	Used for making red wines to be aged to be used for maturing, with a full-bodied and silky structure	Reveals varietal aromas	500 g	Average	18 to 30°C
SELECTYS® La Raffinée *S. cerevisiae*	Used for making complex and fruity red wines with reduced vegetal notes	Production of fermentation aromas - reveals vegetal notes	500 g	Average	15 to 28°C
SELECTYS® La Délicieuse *S. cerevisiae*	Production of aromatic red wines with a fresh and fruity profile and average tannic structure	Production of fermentation aromas - expression of varietal aromas	500 g	Fast	18 to 32°C
NEVEA Non-saccharomyces *Lachancea thermotolerans*	Produces fresher white and rosé wines and has a unique ability to produce a high level of lactic acid immediately upon seeding	Freshness	500 g	N.A.	14 to 28°C

Recommended for making white wine

Recommended for making rosé wine

Recommended for making red wine

Recommended for making sparkling wine

Fermentation kinetics: Slow - Normal - Fast
Nitrogen requirement: Low - Medium - Heavy
Production of SO_2: Absence - Very low - Low - Medium
Production of volatile acidity: Low - Medium - High
ND: data not available

N.B. The various parameters were measured on the basis of an identical synthetic must. This is an artificial nutritional medium based on agar, simulating an easily fermentable grape must (required nutrients, adjusted pH, etc)

SELECTYS® product range

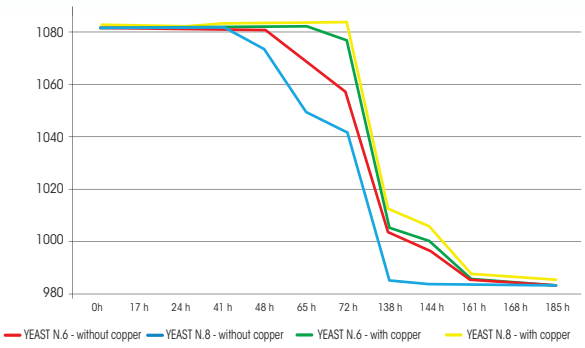
NITROGEN REQUIRMENTS	RESISTENCE TO ALCOHOL	PRODUCTION OF SO_2	PRODUCTION OF VOLATILE ACIDITY	SENSITIVITY TO Cu	RECOMMENDED TURBIDITY	BREAKDOWN OF MALIC ACID	PRODUCTION OF H_2S	KILLER FACTOR	NAME
Moderate	15%	Low	Weak	Highly sensitive	100-150 NTU	N.A.	Weak	Killer K1	**SELECTYS® Thiol** *S. cerevisiae*
Low to moderate	>14.5% vol < 17% vol	Average to low	Average to low	N.A.	N.A.	N.A.	Weak	N.A.	**SELECTYS® Thiol Rouge** *S. cerevisiae*
Low	> 18%	Average	Very weak	N.A.	No red strain	Medium to high	Very weak	N.A.	**SELECTYS® Italica CR1** *S. cerevisiae*
Moderate	14%	Average to low	Low	Sensitive	80-100 NTU	Average	Low	Sensitive	**SELECTYS® La Persane** *S.cerevisiae galactose - x S. uvarum*
Average to high	15%	Average to low	Average	Sensitive	80-100 NTU	Heavy	Low	Killer	**SELECTYS® La Fruitée** *S. cerevisiae*
Low	16.50%	Low	Low	Highly sensitive	80-100 NTU	Average	Low	Killer	**SELECTYS® L'Eclatante** *S. cerevisiae galactose*
Low	15.50%	Low	Low	Sensitive	N.A.	Average	N.A.	Killer	**SELECTYS® La Marquise** *S. cerevisiae galactose -*
Low to moderate	< 14.5% vol	Average	Average to low	N.A.	N.A.	N.A.	Weak	N.A.	**SELECTYS® La Perla** *S. cerevisiae*
Average	17%	Average to heavy	Low Average	Highly sensitive	80-120 NTU	Average	N.A.	Neutral	**SELECTYS® La Croquante** *S. cerevisiae*
High	16%	Average to low	Average to low	Highly sensitive	50-80 NTU	Average	Low	Killer	**SELECTYS® SR** *S. cerevisiae*
Average	15%	Low	Low	Sensitive	N.A.	N.A.	Low	Neutral	**SELECTYS® L'Authentique** *S. cerevisiae*
High	16%	Average to low	Low	Moderately sensitive	N.A.	Heavy	N.A.	Sensitive	**SELECTYS® La Raffinée** *S. cerevisiae*
Average	15%	Low	Average	Not very sensitive	N.A.	N.A.	Low	Sensitive	**SELECTYS® La Délicieuse** *S. cerevisiae*
High	< 10% vol	Average	Average	N.A.	N.A.	N.A.	N.A.	N.A.	**NEVEA** Non-*saccharomyces Lachancea thermotolerans*

COPPER

Copper: a new parameter to monitor? What is its impact on alcoholic fermentation?

Copper concentration in wines, like that of heavy metals in general, is a topical issue for regulatory bodies. This is because some of these metals have an impact on human health. Since the concentration of copper in finished wines is hardly ever above the legal limits (1mg/L in finished wines), it is not judged to be a problem.
However in 2015, OENOFRANCE®'s R&D team, backed up by its network of laboratories, revealed that, in an analysis of 400 musts, over 70% of them had copper concentrations exceeding 0.5 mg/L. The problem is that the presence of such concentrations of copper has a significant effect on vinification, since it has been shown that copper has more or less toxic effects on yeasts (Ruzic 2000, Cavalieri et al, 2000). All the yeasts used in oenology can have different sensitivities. Such toxicity phenomena can subsequently cause various degrees of fermentation problems, even leading to stuck alcoholic fermentation.

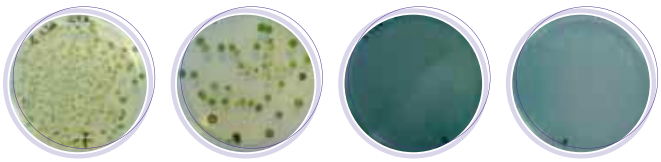
Monitoring of alcoholic fermentation in a Sauvignon must containing 1 mg/L of copper



Impact of a moderate 'natural' copper concentration (1 mg/L) on fermentation of a yeasted Sauvignon must, with a so-called sensitive yeast N°8 and a so-called resistant must N°6.

Following these trials, OENOFRANCE® decided to assess sensitivity to copper in its strain library. Thanks to a specific culture medium, containing increasing concentrations of $CuSO_4$,5(H_2O): dish A (50 µmol/L), dish B (75 µmol/L), dish C (100 µmol/L). 10 strains of commercial yeasts were tested in this way.

Sensivity to copper with Selectys® SR



At 50 µmol/L less yeast growth is observed than in the control dish. Above this concentration, the yeast does not grow.

This study was used to classify OENOFRANCE®'s latest selections as follows.

YEAST STRAINS	SENSITIVITY TO COPPER
Selectys® L Authentique	Sensitive
Selectys® La Marquise	Sensitive
Selectys® La Fruitée	Sensitive
Selectys® La Délicieuse	Not very sensitive
Selectys® La Raffinée	Moderately sensitive
Selectys® La Persane	Sensitive
Selectys® SR	Highly sensitive
Selectys® Thiol	Highly sensitive
Selectys® La Croquante	Highly sensitive
Selectys® L Eclatante	Highly sensitive

Unfortunately, measurement of copper in must is still hardly ever carried out. Depending on the selected strain and its sensitivity, OENOFRANCE® suggests carrying out an analysis of your must in order to get full benefit from the microorganism's performance. If it is shown that there is presence of copper, fining treatment of musts is possible using OENOFRANCE®'s DIWINE® range. This new range offers a wide range of possibilities according to the vinification pathway used by the winemaker.

Find the DIWINE® range on page 37

DROP&GO

MAKE YOUR LIFE EASIER WITH DROP & GO

Drop&GO refers to our selection of oenological products that can be added directly to the must or wine without the need for any prior operation, to make them easier to use, save time and reduce the resources needed to prepare these products: THEY ARE DROP&GO!

After being tested in our experimentation centre, these products were tested in the field. Some of them follow specific production procedures that allow this protocol to be used, while for others, it's simply their composition that allows this method of addition to be used.

Discover all our DROP&GO products

FOR MUST

DROP&GO CERTIFIED PRODUCT	OENOLOGICAL GOALS
Clarification and settling	
OENOVEGAN® F	Plant-based glue for the flotation and static clarification of must.
FORMULE 1-CF	PVPP optimized for easy dispersion when treating phenomena connected with must oxidation.
Alcoholic fermentation	
YEASTIE®	*Saccharomyces cerevisiae* selected for its ability to bypass rehydration without performance loss.
SELECTYS® La Fruitée	*S. cerevisiae* selected for aromatic white and rosé wines with fresh fermentation profiles.
SELECTYS® La Marquise	*S. cerevisiae* galactose for the production of still wines under difficult conditions.
SELECTYS® Italica CR1	*S. cerevisiae* selected for producing red wines with high alcohol content, and for restarting fermentation.
VIVACTIV® PREMIER	Organic nutrient formulated with thiamine and yeast autolysates for high-quality AF management.

FOR WINE

DROP&GO CERTIFIED PRODUCT	OENOLOGICAL GOALS
Tartaric stabilization	
KYLMÄ® INTENSE	Potassium polyaspartate and polysaccharide solution for tartaric stabilization, stabilization of coloring matter, and additional roundness and volume.
KYLMÄ® PURE	Concentrated potassium polyaspartate solution (20%) for instant tartaric stabilization.
KYLMÄ® SR	Potassium polyaspartate solution for tartaric stabilization of white and rosé wines. Adds freshness, sucrosity and roundness.

NUTRIMENTS

What should be done in the event of sluggish AF?

Vivactiv® Contrôle

The DETOXIFICATION tool and nutrition

Sluggish, or even stuck, AF is often tricky to deal with during vinification, since it occurs at random and depends on numerous parameters. However, although it may have many causes, they all lead to a reduction in the viability of yeasts. This decline in the viable population is generally due to altered membrane permeability in the cell (poor synthesis of sterols, adsorption of toxic fatty acids, etc). The process leads to slower sugar consumption, and may halt fermentation.

Allergen Free · Vegan · UE Usable in organic · NOP Usable in organic

What are the **causes** of fermentation problems?

Although sluggish alcoholic fermentation depends on a wide range of parameters, it may be caused by:

THE MUST

- Presence of pesticide residues
- SO_2 added in excessive quantities
- Presence of undesirable microorganisms (indigenous or contaminating yeasts, bacteria, etc), especially in warm years with full maturity, or areas with high pH that can cause strong competition with *Saccharomyces cerevisiae*
- Copper concentration > 0.5 mg/L: Copper is a well-known antifungal that, depending on the sensitivity of the strain, can cause prolonged periods of latency or a difficult final phase of alcoholic fermentation
- A nutrient deficiency: a deficiency in assimilable nitrogen, in vitamins and/or amino acids weakens the yeast population during growth
- Sugar concentrations can inhibit yeast growth by creating very high osmotic pressure

MANAGEMENT OF THE VINIFICATION PROCESS

- Poor rehydration: it is essential at this stage to respect the instructions provided regarding time and temperature. In the event of harvests with high alcoholic potential, it is strongly recommended to use a preparatory nutrient such as VIVACTIV® PREMIER at 20 g/hL
- Unreliable control of temperatures during AF: if the temperature is too high (over 35 °C), it can lead to the death of the yeasts, while if it is too low (under10 °C), it slows down their activity. In addition, temperature shock during AF considerably affects viability
- Excess ethanol: ethanol is the principal inhibitor of yeast, and in harvests with a very high potential alcohol content (over 16% vol), its concentration (above 14°) speeds up yeast mortality in the final stage of fermentation

- A lack of oxygen: it plays a vital role in the production of sterols. Sterols are one of the mainstays of yeast cells' membrane resistance. It may be necessary to carry out aeration at densities of around 1030-1020 in the event of a risk of sluggish fermentation
- (6 - 8 mg of O_2/L)
- Medium-chain (octa- and decanoic) fatty acids are inhibitors of AF. They are produced by yeast metabolism and especially when the yeast is under stress due to other conditions (nutrient deficiency, high ethanol concentration, lack of oxygen)
- A deficiency of fine must deposits: these solid particles enrich the medium with unsaturated fatty acids and sterols, which increases the resistance of yeast to ethanol. They also act as a physical support for the release of carbon dioxide

What are the early **stigns** of fermentation problems?

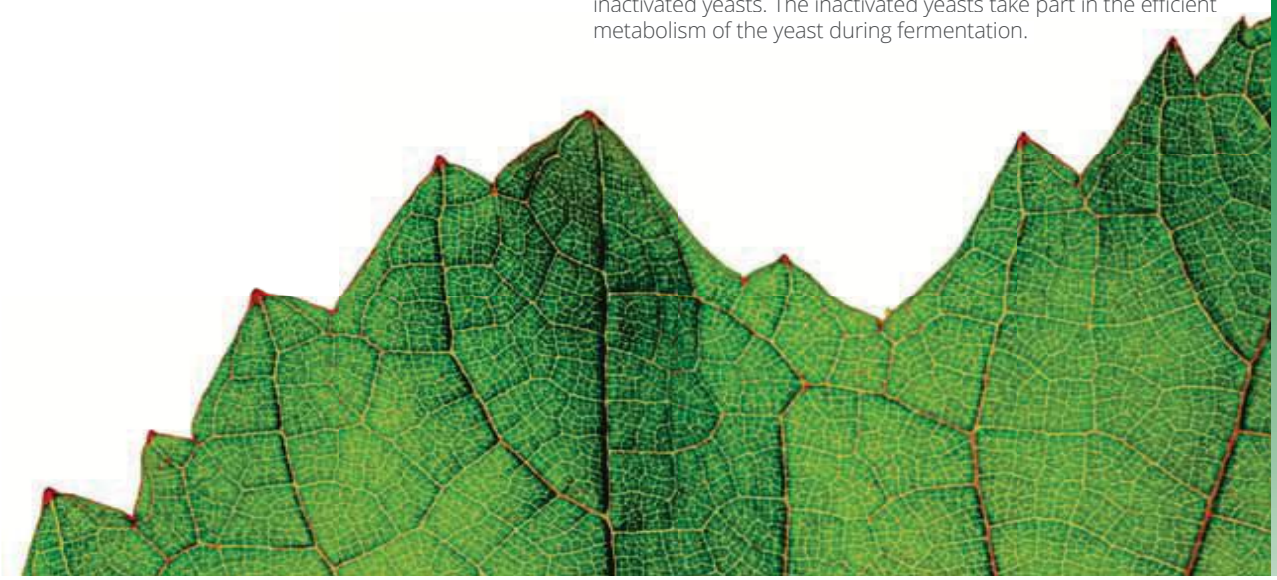
- Slower sugar consumption, leading to a slower fall in density, which can be seen from the shape of the AF curve.
- Production of H_2S (reduction odour) this is connected, among other things, to a nutrient deficiency: nitrogen, oxygen, pantothenic acid, vitamins
- Production of volatile acidity

What should be done in these cases?

Fermentation should be restarted as quickly as possible, in collaboration with an oenology consultant by:

- Measuring the alcohol content, residual sugars, volatile acidity and malic acid, in order to ensure that there is no contamination. Where necessary, light sulfiting at 1 - 2 g/hL often restarts fermentation, because it enables the growth of undesirable microorganisms to be controlled
- Checking AF temperatures and restoring optimum fermentation temperatures at 18°C - 20°C for white and rosé, and 25°C - 28°C for red
- Adding, as soon as the symptoms appear, VIVACTIV® CONTRÔLE nutrient at 20 - 40 g/hL or OENOVEGAN® MICRO FA at a dose of 15 to 20 g/hL depending on the microbiological risk.

VIVACTIV® CONTRÔLE is a complex nutrient aimed at facilitating the final stage of alcoholic fermentation (AF) in the event of sluggish or stuck fermentation. It is solely made up of inactivated yeast derivatives and yeast hulls.
This complex nutrient ensures both the detoxification of the medium, thanks to the yeast cell envelopes (hulls) and the reactivation of alcoholic fermentation, thanks to its composition, especially rich in amino acids, vitamins and trace elements from inactivated yeasts. The inactivated yeasts take part in the efficient metabolism of the yeast during fermentation.



Must nutrition

CLIMAX PRIME

THE REVOLUTIONARY APPROACH TO VITAMIN INTEGRATION IN MUSTS

Yeast autolysate to ensure the bioavailability of vitamins in the musts

Climate change and bioavailability

Vitamins are essential compounds in yeast metabolism where they are involved in several key reactions. The most recent studies have made it possible to know more precisely the major role they play within yeast and the latter's preferential needs. More broadly, OENOFRANCE® has been able to observe their impact on the winemaking process and in particular alcoholic fermentation.

Global warming is changing the composition of musts and the bioavailability of vitamins observed is increasingly reduced. **Given their importance, it is necessary to readjust the must using carefully identified vitamins**.

Climate change: the response to changing must composition

CLIMAX® PRIME is a yeast autolysate rich in vitamins of oenological interest.

- CLIMAX® PRIME provides the must with vitamins and amino acids from yeast autolysates in a form that is directly available to yeasts. It thus promotes optimal alcoholic fermentation.
- CLIMAX® PRIME facilitates the implementation of *Saccharomyces cerevisiae* and accelerates fermentation.
- CLIMAX® PRIME prevents nitrogen deficiencies that could lead to the production of undesirable sulfur compounds such as H_2S.
- CLIMAX® PRIME is particularly recommended for bioprotection after the use of non-*Saccharomyces* yeast. Indeed, it provides the must with vitamins and amino acids partially consumed by non-*Saccharomyces*.

100% organic nutrient, rich in vitamins and amino acids essential to yeast.

Ensures yeast growth and smooth fermentation.

Completes the availability of the must's vitamin pool.

Targets a current problem and responds to a future challenge.

Tool for your sustainable agro-oenology programs.

Must nutrition

THE VITAMIN DIVERSITY OF GRAPE MUST

The comparison of Chardonnay musts from Burgundy and Champagne showed that **the geographical region of origin has a significant influence on the vitamin composition of the musts**. Of the 19 vitamers* analysed, 9 are more concentrated, mainly in Burgundy musts and in particular for vitamin B6. These results are illustrated on the heatmap opposite (Figure 1).

This diversity of forms and concentration, illustrated here with the regional factor, highlights **the need to supplement the must with vitamins**.

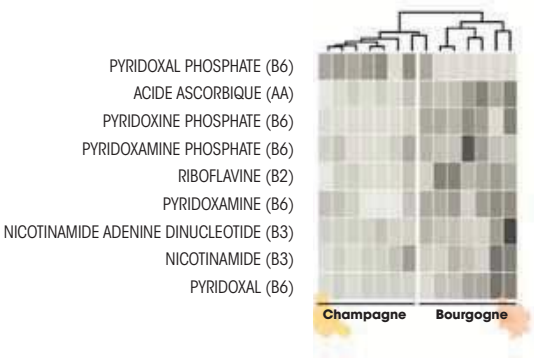


Figure n°1 : Heatmap of the concentrations of vitamers* of Chardonnay musts from Burgundy and Champagne. A darker block indicates a higher concentration, a lighter block a lower concentration.

*A vitamer is a chemical form of a specific vitamin.

THE VITAMIN REQUIREMENTS OF YEAST

Vitamins play a key role during fermentation. The absence of some of them in the must leads to a **lengthening of the exponential growth phase, a decrease in the kinetics of multiplication** and can lead to an **overall slowing down of the AF** (Figure 2).
The formulation of **CLIMAX® PRIME** has been designed to compensate for this imbalance and ensure the smooth running of fermentation.

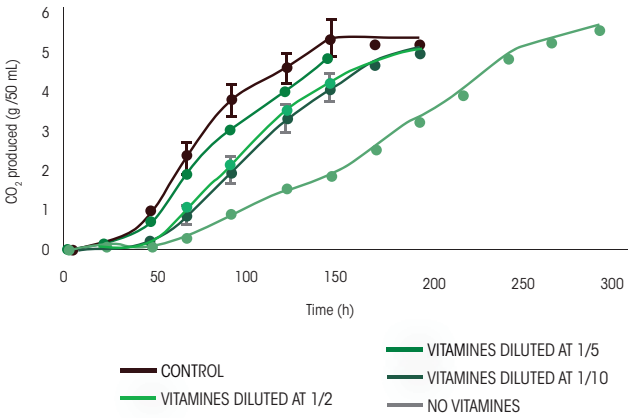
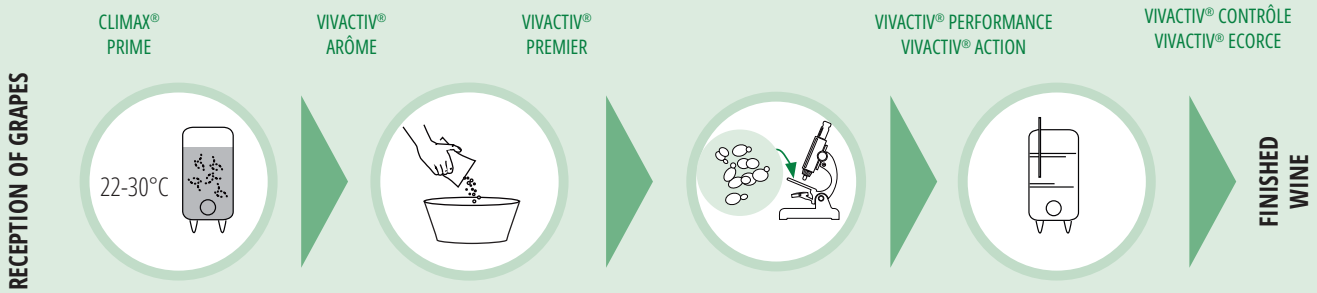


Figure n°2 : Monitoring of the fermentation kinetics of a strain of *Saccharomyces cerevisiae* yeast selected and inoculated at 20 g/hL in the presence or absence of a more or less diluted vitamin pool. Results subject to statistical analysis (Kruskal-Wallis; $p<0.05$).

Active nutrition

Use of nutrients when producing wine



Addition to must
20-40 g/hL
Yeast addition

VIVACTIV® PREMIER is usually added at the start of AF, but in the event of difficult conditions, it can be supplied during yeast preparation

VIVACTIV® PERFORMANCE is usually added half way through AF, but in the event of a major nitrogen deficiency it can be supplied at the beginning of AF

Vitamin nutrition of musts

CLIMAX® PRIME

CLIMAX® PRIME is a yeast autolysate rich in vitamins of oenological interest. CLIMAX® PRIME provides the must with vitamins and amino acids from yeast autolysates in a form that is directly available to yeasts. It thus promotes optimal alcoholic fermentation. Facilitates the implementation of *Saccharomyces cerevisiae* and accelerates fermentation.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: 20 to 40 g/hL. In case of high temperatures (>35°C), use the maximum dose.

Expression of aromas

VIVACTIV® ARÔME

VIVACTIV® ARÔME is a nutrient made up of yeast derivatives which provides yeasts with amino acid-rich nutrition, ideal for the production of fermentation aromas and the expression of varietal aromas during alcoholic fermentation. VIVACTIV® ARÔME s composition also enables alcoholic fermentation to take place in good conditions, making it possible to produce clean, quality wines.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: 20 to 40 g/hL

Protection and growth

VIVACTIV® PREMIER

VIVACTIV® PREMIER is a nutrient formulated based on thiamine and autolysates of yeasts rich in vitamins, amino acids and survival factors. Yeasts are capable of optimising their metabolism (multiplication, growth, protection against inhibitors) while ensuring alcoholic fermentation without any deviations, even under difficult conditions.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: 20 to 40 g/hL

Active nutrition

Nitrogen nutrition

VIVACTIV® PERFORMANCE

VIVACTIV® PERFORMANCE is a complex nutrient made up of thiamine, DAP and yeast derivatives. This product formulation, rich in nitrogen, amino acids and vitamins enables to effectively initiate AF while guaranteeing very good quality organoleptic qualities.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: 20 to 40 g/hL

VIVACTIV®

VIVACTIV® is a nutrient rich in organic and inorganic nitrogen. Its complex and balanced composition provides all the elements necessary for the development and activity of yeasts. VIVACTIV® is recommended for all types of environments, from the moment they are deficient in nutrients and amino acids. In this regard, VIVACTIV® makes it possible to obtain pure and clear wines.

PACKAGING: 1 kg and 5 kg
APPLICATION RATE: Beginning of fermentation: 10 to 20 g/hL
Restart of fermentation: 10 g/hL to be renewed at the second doubling of volume

VIVACTIV® ACTION

VIVACTIV® ACTION is a complex nutrient made up of thiamine, diammonium phosphate, and yeast hulls. It is permitted for the control of alcoholic fermentation in the production of organic wines.

PACKAGING: 1 kg
APPLICATION RATE: 20 to 40 g/hL

VIVACTIV® 100

VIVACTIV® 100 is a nutrient for fermentation rich in diammonic phosphate. This complete activator also contains thiamine (growth factor at the time of cell multiplication) but also cellulose which facilitates the release of CO_2, thus improving the fermentability of the must.

PACKAGING: 1 kg, 5 kg and 25 kg
APPLICATION RATE: 20 to 60 g/hL

Controlling the final stages of AF

VIVACTIV® CONTRÔLE

VIVACTIV® CONTRÔLE is a nutrient formulated based on thiamine and autolysates of yeasts and yeast cell walls. Based on its nutritive and detoxifying action, it provides fast and quality end of fermentations. It is recommended for using during AF to prevent sluggish AF and fermentation stops.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: 20 to 40 g/hL

VIVACTIV® ECORCE

VIVACTIV® ECORCE is a nutrient solely composed of yeast hulls. The hulls are produced by the plasmolysis of a specific strain of *Saccharomyces cerevisiae*. Thanks to its high adsorption properties, VIVACTIV® ECORCE eliminates the various inhibitors of alcoholic fermentation, detoxifies must and promotes yeast growth.

PACKAGING: 500 g
APPLICATION RATE: see technical data sheet

Bacterial preparation

VIVACTIV® MALO

VIVACTIV® MALO is a nutrient made up of yeast derivatives and support elements. It provides the necessary amino acids for carrying out malolactic fermentation to selected lactic bacteria.

PACKAGING: 1 kg and 5 kg
APPLICATION RATE: 20 to 30 g/hL

Active nutrition

Composition of OENOFRANCE® nutrients

PRODUCT	AVAILABLE NUTRIENTS (sum of nitrogen and assimilable amino acids) FOR 20 g/hL	MINERAL NITROGEN CONTRIBUTION	EXOGENOUS THIAMINE INTAKE	AUTOLYSATE	LSI	SURVIVAL FACTORS
CLIMAX® PRIME	●●●	Ø	Ø	●●●●	Ø	Ø
VIVACTIV® PREMIER	●●	Ø	✓	●●●	Ø	●●●
VIVACTIV® ARÔME	●●●●	Ø	Ø	●●●	●	✓
VIVACTIV®	●●	DAP	✓	Ø	✓	Ø
VIVACTIV® PERFORMANCE	●●	DAP	Ø	Ø	✓	✓
VIVACTIV® CONTRÔLE	●	Ø	Ø	✓	Ø	✓
VIVACTIV® ACTION	●●	DAP	Ø	Ø	Ø	✓
VIVACTIV® 100	●●●	DAP	✓	Ø	✓	Ø

Choose the right nutrient for the right goal:

	GOALS			MATRIX	
PRODUCT	CONTROL OF AF	REVELATION OF THIOLS	ESTER PRODUCTION	HARVEST UNDER STRESS (high temperature, sanitary conditions, etc.)	LIPID DEFICIENCY (highly clarified must)
VIVACTIV® PREMIER	●●●●	●	●	●●●●	●●●●●
CLIMAX® PRIME	●●●●	●●	●●●	●●●●●	●●●●
VIVACTIV® ARÔME	●●●	●●●●	●●●●	●●	●●

LES ESSENTIELS

	CATEGORY	for an addition of 20 g/hL			NITROGEN	THIAMINE	SURVIVAL FACTOR
		AVAILABLE ORGANIC N	AVAILABLE MINERAL N	TOTAL AVAILABLE N			
UE Usable in organic THIAMINE	Growth factor for yeasts					●●●	
SULFATE D'AMMONIUM	Mineral nitrogen - growth factor for yeasts		42 mg/L	42 mg/L	●●●		
UE Usable in organic PHOSPHATE DIAMMONIQUE	Mineral nitrogen - growth factor for yeasts		42 mg/L	42 mg/L	●●●		
NUTRIMENT S	Fermentation activator		40 mg/L	40 mg/L	●●●	●	
UE Usable in organic NUTRIMENT P	Fermentation activator		42 mg/L	42 mg/L	●●●	●	

HOW TO OPTIMISE AND MANAGE MATURING ON LEES?

Phylia® LF

For over 30 years, OENOFRANCE® has been working on yeast products and their use in wines. Working with Professor Michel Feuillat of the Université de Bourgogne, OENOFRANCE® developed the first partial autolysate of yeast. Prof. Feuillat demonstrated the positive effect that maturation on lees has on colloidal stability as well as on the organoleptic content of Burgundies. Thanks to the extensive knowledge acquired since then, OENOFRANCE® has continued to develop 100% yeast-derived products to meet the various challenges faced by winemakers.

The specific yeast product range currently includes 5 products:

PHYLIA® CYS
PHYLIA® AR
PHYLIA® LF
PHYLIA® EPL
PHYLIA® EXEL

Allergen Free · Vegan · UE Usable in organic · NOP Usable in organic

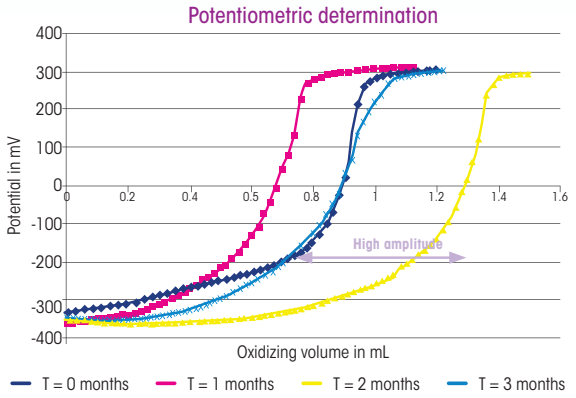
Maturing can quickly become a problem when wine lees are not qualitative (lack of grape maturity, deficient sanitary conditions, reducing tendency, etc.). Without lees, maturing is not possible. With this result, OENOFRANCE® developed an alternative to natural wine lees: PHYLIA® LF.

PHYLIA® LF was formulated to have similar properties to natural wine lees:

- Capacity to buffer redox potential of wines (limit oxidations and/or wine reduction during maturing)
- Capacity to limit oxidability of wines during maturing
- Capacity to release parietal polysaccarides in wines which will play a role in coating tannins
- Capacity to eliminate reduction notes on wines
- Ability to reduce ochratoxin A content

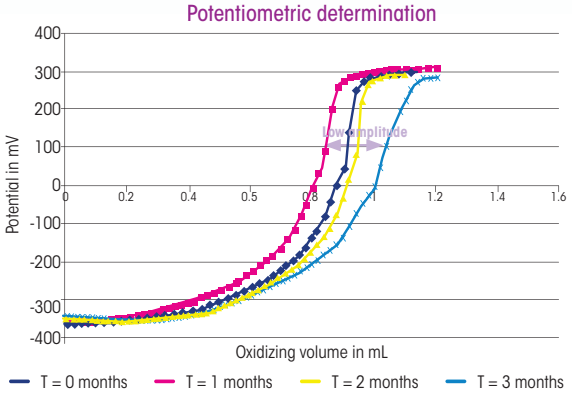
Impact on **redox** potential of wines

Red control wine (natural line)



We note a significant range on the oxidantion reduction curves based on a 3-month follow-up.

Trial red wine with 25 g/hL of PHYLIA® LF



We note a low range on the oxidation reduction curves based on a 3-month follow-up

- Trials carried out to monitor redox potential on a control red wine (on natural lees) in comparison with a trial red wine (elimination of natural lees and replacement by 25 g/hL of PHYLIA® LF) showed the ability of the product to buffer the redox potential of wines. Monitoring was carried out for 3 months.
- The buffer capacity of PHYLIA® LF is higher than natural lees which enables the wine maker to secure the maturing on lees while limiting heavy oxidation or heavy reductions.

PHYLIA® product range

Impact on **oxidisability** of wines

In order to measure the ability of the product to limit the oxidisability of wines and redox potential, a 3 month trial was carried out on the propensity to oxidation of a control red wine aged on natural lees in comparison with a trial red wine whose lees were removed and replaced by 25 g/hL of PHYLIA® LF.

Determination method of oxidation susceptibility:
This corresponds to the percent change of yellow colour:

$$\% = \frac{D2 - D1}{D2} \times 100$$

D1: measurement of DO_{420} 12 hours after adding a defined quantity of water.
D2: measurement of DO_{420} 12 hours after adding a defined quantity of hydrogen peroxide.

Qualitative measurement: if the value is positive, the wine is oxidisable, if it's negative, the wine is resistant to oxidation.

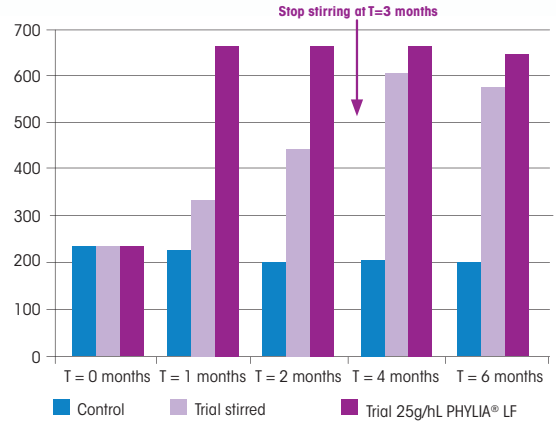
	T=0	T=30 days	T=60 days	T=90 days
Control	- 3.8	+ 3.3	+ 4.7	+ 7.1
25 g/hL PHYLIA® LF	- 0.9	- 25.4	- 15.9	- 19.0

This table shows oxidation susceptibility found on two modalities T=0, T=1 month, T=2 months and T=3 months.

- It can be noted that PHYLIA® LF significantly improves the capacity of wine to resist against oxidation. In effect, the beginning sensitivity to oxidation can be seen at the end of 1 month (positive value) on the control red wine while the red wine treated with PHYLIA® LF, resists over 3 months (negative value). PHYLIA® LF is thus more effective than natural lees for preventing the risk of oxidation of wine. This is therefore a very interesting tool when dealing with vine varieties which are sensitive to oxidation, such as Grenache.

Impact of PHYLIA® LF **during maturation**

Dosage polysaccharides

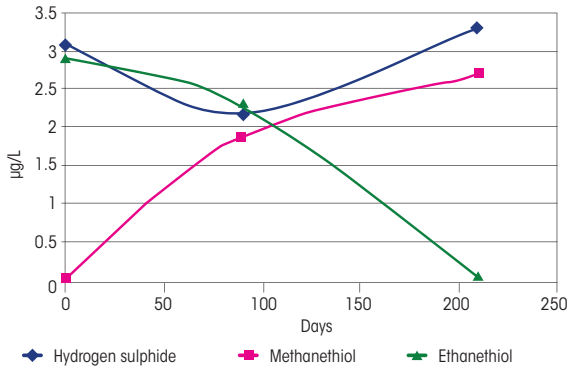


Concerning the ability of PHYLIA® LF to release polysaccharides, we monitored the release of polysaccharides into the medium for six months, using three methods: (1) on natural lees without stirring (bâtonnage), (2) on natural lees with stirring (carried out for the first three months of the trial), and (3) replacing natural lees with 25 g/hL of PHYLIA® LF with stirring.

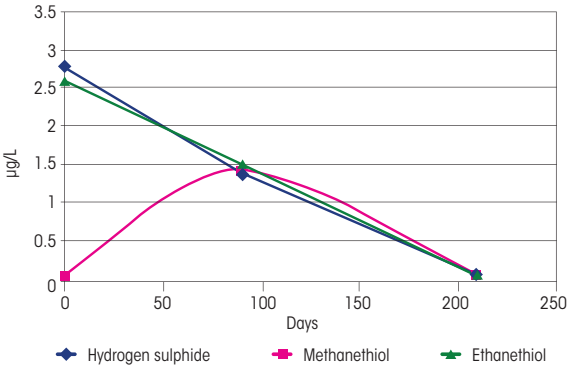
- Firstly, we note the interest of stirring natural rlees on the release, in the medium, of parietal polysaccharides. As such, we note that the control red wine with no stirring has a constant polysaccharide level, 200 mg/L, while this same red wine in the presence of natural lees with stirring has a steady increase of polysaccharide concentration during the entire stirring process (from 200 mg/L the level increases to 600 mg/L between the beginning of the trial and the end of stirring). The polysaccharide concentration level of this wine stops to increase when stirring stops (a 600 mg/L level is maintained after 4 months).
- Secondly, we can note that the input of PHYLIA® LF combined with stirring provides a very fast release of polysaccharides contained in the product. In effect, at the end of 1 month, the red wine treated with PHYLIA® LF has a polysaccharide level equivalent to maturing on natural lees + stirring 3 months.
- PHYLIA® LF thus enables obtaining the effect of maturing on lees much more quickly. This is a very interesting characteristic for wine-makers wishing to decrease the ageing time of their wines.
- Finally, concerning the capacity of the product to eliminate the reduced notes on wines, we have set up a comparative trial on red wine from a very reduced Poulsard vine variety. To do so, we measured light sulphur compounds (H_2S, CH_3SH and CH_3CH_2SH) for approximately 200 days on a control red wine matured on natural lees compared to this same red wine from which we have removed the lees and added 25 g/hL of PHYLIA® LF.

PHYLIA® product range

Evolution of light sulphur compounds on the CONTROL tank



Evolution of light sulphur compounds on the racked tank and treated with 25 g/hL of PHYLIA® LF



- On the control wine, we note that a high concentration of hydrogen sulphide remains and tends to increase after 200 days. At the same time, we can note that the concentration of methanethiol continues to increase over time. These two compounds are very much over their perception thresholds (1 µg/L) and generate an established and persistant reducer character on wine.
- On the contrary, wine treated with PHYLIA® LF shows a steady reduction of the 3 molecules measured. These molecules disappear completely after 200 days. This contributes to obtaining fruity wine swith no olfactory defects.
- These trials show that PHYLIA® LF can completely replace the natural lees of a wine. In addition, we note that of all the properties analyzed, PHYLIA® LF performs better than natural lees. This product thus constitutes a very interesting solution when wine makers are faced with deviant lees on their wine.

PHYLIA® LF

PHYLIA® LF is a preparation made of yeast hulls rich in mannoproteins and polysaccharides. PHYLIA® LF regulates the reduction and oxidation steps the wine undergoes during the maturing process. The wine is thus protected from reducing derivatives (at the origin of the mercaptan content) or oxidative (possibly leading to ethanal). Above and beyond natural and protected maturing, PHYLIA® LF is a qualitative tool for correcting reduction or oxidation.

PACKAGING: 500 g
APPLICATION RATE: 10 to 30 g/hL

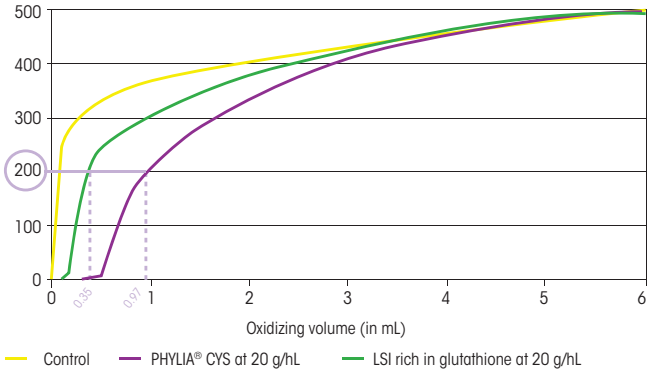
PHYLIA® CYS

Cellulose-free

PHYLIA® CYS is an association of specific inactive yeasts (rich in amino acids in small reducing peptides) and selected microcrystallin cellulose. Due to its high antioxidant capacity, when added before the start of alcoholic fermentation, PHYLIA® CYS effectively protects aromas against oxidation. PHYLIA® CYS likewise prevents the premature ageing of white and rosé wines. Their aromatic evolution is slower and the freshness is preserved.

PACKAGING: 1 kg
APPLICATION RATE: 15 to 30 g/hL

Measurement of redox potential (in mV)



PHYLIA® product range

PHYLIA® EXEL

PHYLIA® EXEL is the result of a partial autolysis procedure enabling obtaining polysaccharides (mannoproteins) and proteins. PHYLIA® EXEL interacts strongly with the wine matrix thus reducing the harshness of tannins and decreasing the acidity for white and rosé wines. Used at the finishing stage of wine, PHYLIA® EXEL quickly develops volume and fatty mouthfeel (less than 1 week compared to maturing on lees several months). PHYLIA® EXEL likewise contributes to gaining complexity, freshness and fruity aromatic expression in the wine.

PACKAGING: 500 g
APPLICATION RATE: 5 to 30 g/hL

PHYLIA® AR

PHYLIA® AR is a yeast product rich in amino acids and reducing peptides. Used early on at the beginning of vinification, PHYLIA® AR is a highly effective tool for preserving aromatic compounds and the colour of white and rosé wines. PHYLIA® AR strengthens the natural resistance of musts to oxidation.

PACKAGING: 10 kg
APPLICATION RATE: 25 to 35 g/hL

PHYLIA® ICÔNE

PHYLIA® ICÔNE is a preparation composed of pure mannoproteins from *S. Cerevisiae* cell walls. PHYLIA® ICÔNE is a soluble product, which allows it to be used in wines just before the bottling stage. PHYLIA® ICÔNE contributes to the stabilisation of:

- Protein clouding
- Tartaric precipitation
- The colour

Thanks to its composition, PHYLIA® ICÔNE also enables you to:

- Add volume, fat and roundness in the mouth
- Reduce the astringency and hardness of the tannins, adding smoothness
- Reduce the perception of acidity, creating a velvety feel

PACKAGING: 250 g
APPLICATION RATE: 0.5 to 5 g/hL

PHYLIA® EPL

100% Natural Origin
UNIQUE AND ORIGINAL

PHYLIA® EPL is the fruit of many years of research focused on fining musts and wine using exclusively yeast based proteins. PHYLIA® EPL is based on an innovative industrial process which enables the extraction, concentration and storage of these indigenous yeast proteins. PHYLIA® EPL is used for fining musts as well as white, red ands rosé wines. PHYLIA® EPL eliminates tannins which cause bitterness thus creating a fining and maturing procedure duly respectful of wines. Following a research programme carried out in collaboration with the University of Padua, it has been confirmed that PHYLIA® EPL also has a binding effect on the Quercetin Aglycone (ask for the specific OENOFRANCE® protocol). Lastly, and due to its origin, PHYLIA® EPL is an Allergen Free fining product, and is thus not concerned with the labeling of its allergens.

PACKAGING: 500 g
APPLICATION RATE: on white and rosé wines: 0.5 to 5 g/hL
on red whines: 5 to 30 g/hL

PHYLIA® EPL: some history

- 2008-2012 • OENOFRANCE® is the only company to have contributed to the development of yeast protein extracts and to their authorization by the OIV (RESOLUTION OIV-OENO 452-2012)
- 2009-2012 • Thesis on "**The potential of yeast proteins to replace allergenic fining agents**" in collaboration with the University of Geisenheim, Germany.
- 2012 • Launch of PHYLIA® EPL: the World's 1st Yeast Protein Extract
- 2017-2022 • Research on quercetin precipitation in wines
- 2022 • Publication of a scientific paper with the University of Padua on "the use of PHYLIA® EPL for must clarification and its application for the removal of Quercetin Aglycone".

PRE-BOTTLING: THE ULTIMATE TOUCH

MANNOPROTEINS AS THE FINAL TOOL

Origin and benefits of mannoproteins

Yeast is not merely an agent of alcoholic fermentation. Several processes are used in winemaking to break it down to a greater or lesser extent and make the best possible use of **the many compounds of interest that it contains.** The yeast derivatives thus obtained vary in composition, making it possible to adapt their use to the needs of the wine at different stages in its production. The polysaccharides contained in its cell walls are macromolecules which, due to their strong reactivity with other wine compounds (aromatic compounds, polyphenols), contribute to **sensations of roundness and volume**. This is because they limit the reactivity of polyphenols with salivary proteins, thus **reducing the perception of astringency** (Figure 1).

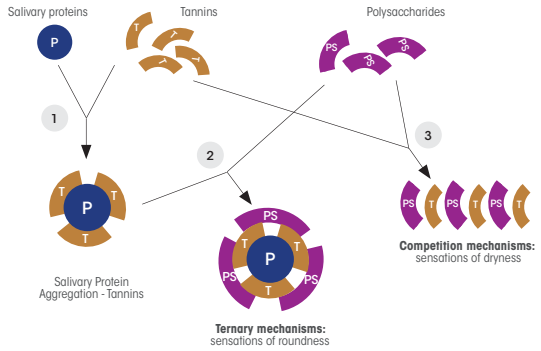


Figure n°1: Possible mechanisms of action of polysaccharides on taste properties: (2) Ternary mechanisms and (3) Competition mechanisms involved in the inhibition of the aggregation of tannins and salivary proteins by polysaccharides.

Mannoproteins, a fraction of these polysaccharides that make up 25 to 50% of the composition of the cell walls of *Saccharomyces cerevisiae*, are known to **contribute to tartrate, protein and colloidal stabilization, activate the growth of lactic acid bacteria and enhance the organoleptic characteristics of wines** (aromas, taste properties, perception of effervescence, etc.).

Yeast derivatives are also **rich in reducing components that enhance the intensity of aromas and protect them against oxidation**, thus guaranteeing their longevity.

The value of selecting mannoproteins

Mannoproteins are made up of a mannose polysaccharide framework (70-90%), a protein framework (10-20%), and 10% glucose.
This **extremely diverse composition and molecular organization** explains their **multiple properties** and the various applications they can have. This also means that **the choice of yeast strains used is key** to the quantity and nature of the mannoproteins released.

PHYLIA® product range

Phylia® Icône

A pre-bottling tool ideal for **rounding out wines and unlocking their full potential**.
PHYLIA® ICÔNE reveals the elegance of wines of every colour.

Protein, tartrate and colloidal stability

100% natural

Optimum organoleptic profile

A preparation of purified mannoproteins from *S. cerevisiae*

TO PUT THE ULTIMATE TOUCH TO WINES BEFORE BOTTLING

PACKAGING: 250 g

DOSAGE: 0.5 to 5 g/hL

Consult our oenologists to obtain a personalized protocol

Effects of PHYLIA® ICÔNE

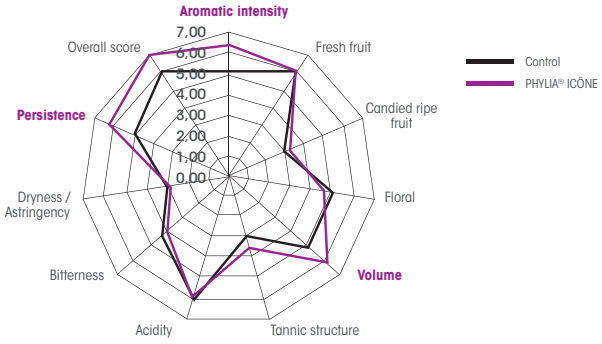
MANNOPROTEINS

- **Provides** volume and roundness in the mouth.
- **Reduces** the astringency and hardness of tannins.
- **Decreases** perception of acidity.
- **Helps to** stabilize protein cloudiness and tartrate and colour precipitation.

The yeast strain from which the mannoproteins underlying the formulation of PHYLIA® ICÔNE are derived was specially selected to guarantee these properties.

Oenological properties

SENSORY ANALYSIS - TASTING OF A VIOGNIER



PHYLIA® ICÔNE helps to enhance the persistence and aromatic intensity of wines as well as their freshness.

Application on wines

Time of application: to be added to the wine just before bottling

Dosage: 0.5 to 5 g/hL

Preparation: rehydrate the product in 10 times its weight in water then thoroughly mix before adding to the tank during pumpover.

OENOVEGAN® SBS

What is it?

It is a specific formulation for technological ageing. It helps protect against oxidative drift, preserving and enhancing the aromatic content, while improving the organoleptic characteristics of treated wines.

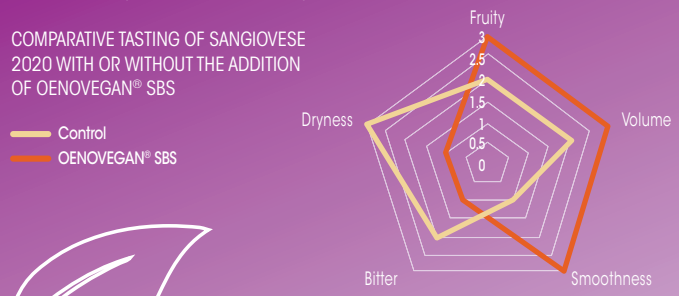
Yeast derivatives rich in reducing substances + **Plant polysaccharides**

CONTRIBUTE TO INCREASING VOLUME

Oenological properties during ageing

- Protection of aromas and colour
- Softening of tannins: reduces astringency while providing volume and structure
- Management of redox balance
- Reduced SO_2 during the production phase
- Reduced vegetal character
- Saves time and improves quality thanks to the use of the dynamic infusion system

COMPARATIVE TASTING OF SANGIOVESE 2020 WITH OR WITHOUT THE ADDITION OF OENOVEGAN® SBS



Effects of OENOVEGAN® SBS

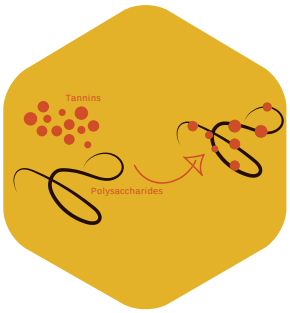
PLANT POLYSACCHARIDES + YEAST POLYSACCHARIDES

- **VOLUME**
- **INTEGRATION OF WOOD**
- **STRUCTURE**

REDUCING ELEMENTS

- **FRUITY**
- **OXIDATIVE PROTECTION**
- **REDUCED DRYNESS**

Plant and yeast polysaccharide fractions react with tannins. They soften the structures, allow for greater integration of wood and increase the sensations of volume.



Application

The association of polysaccharides derived from yeast and vegetables makes it possible to optimize the integration of oak alternatives in static or dynamic ageing.
Recommended for the production of white or red wines aged in wood (Casks, Barrels, Barriques) and/or through oak alternatives with or without micro-oxygenation.

White and Rosé wines

Application phase: Post-AF
Dosage: 10-20 g/hL supplied in 1-2 additions
Oxidative protection: 20 g/hL
Homogenize: every 7 days
Racking: after 1-2 months

Red Wines

Application phase: Post-MLF
Dosage: 20-30 g/hL supplied in 1-2 additions
Volume effect: 20 g/hL
Oxidative protection: 30 g/hL
Homogenize: every 7 days
Racking: after 1-3 months

OENOVEGAN® SBS

Synergy with OENO2

The macro- and micro-oxygenation of $OENO_2$ promotes the organoleptic balance and stability of the wine over time. $OENO_2$ enables precise adaptation to the wine's needs by diffusing the required quantity of oxygen at each moment of its development.

By equipping yourself with the system, you will be able to:

- Activate the biomass and ensure regular alcoholic fermentation
- Prevent reduction phenomena
- Stabilise colour and soften tannins while erasing grassy notes
- Optimise the aromatic expression and control ageing on lees

A RESPONSE TO THE OXYGEN REQUIREMENTS OF EACH WINE

Synergy with OENO2, the dynamic infuser and OENOQUERCUS®

Optimum integration of wood by associating plant polysaccharides and yeast derivatives

In its historic quest to improve the balance and complexity of wines, OENOFRANCE® became interested in the synergy between yeast derivatives and wood alternatives. Years of research have led to the development and refinement of OENOVEGAN® SBS, a **product that optimises the integration of wood compounds in wines**.

FAST COMPLEXATION OF WOOD TANNINS

MINIMISES THE RISK OF OXIDATION DURING MICROOXYGENATION PHASES

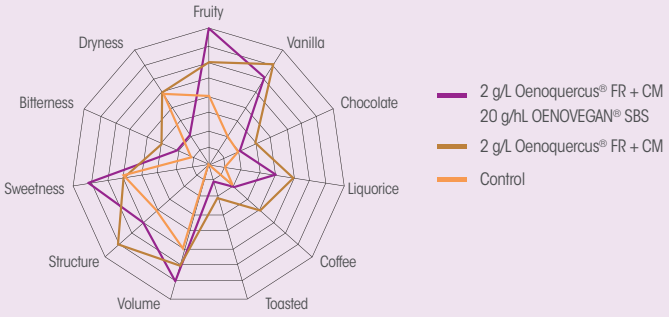


Figure 3. Aromatic profile of a red wine made from Sangiovese grapes (Italy, 2020) and aged with wood chips, with and without the addition of OENOVEGAN® SBS.

OENOVEGAN® SBS, A UNIQUE TOOL FOR THE TECHNOLOGICAL AGEING OF WINES

OENOVEGAN® SBS is incorporated directly into the volume of wine to be treated, by using the injector located in the dynamic infuser.

DIWINE®

NEW GENERATION OF WINEMAKING AUXILIARIES

This is a range of four enological products formulated on the basis of research carried out by OENOFRANCE® from 2003 to 2007 on the interest of using a complex that chelates heavy metals in musts and wines. A patent application has been taken out on this innovative method, which was also adopted by the OIV and the EU in 2015. OENOFRANCE® is the only company in the market to offer this type of specialty to winemakers today.

The products in the DIWINE® range are not just ordinary fining agents. They form part of a new generation of vinification aids with multiple properties.

This is because they are the only agents that act at five different levels of vinification: protection against oxidation, optimization of aroma production, improvement of yeast metabolism, removal of heavy metals and enhancement of the organoleptic profile.

To meet the particular requirements of its customers in vineyards and wineries, OENOFRANCE® has developed four formulations for four specific applications:

DIWINE® 2+/3+ to reduce heavy metal content in wines

DIWINE® THIOL to optimize expression of thiols

DIWINE® ARÔME to enhance aromatic intensity and volume in the mouth

DIWINE® SR to preserve the organoleptic characteristics of rosé wines

www.oenofrance.com

BREVETÉ

French patent for the use of DIWINE® range in musts and wines

Birth of the DIWINE® PROJECT

- 2003 • 1st laboratory tests
- 2004 • Presentation of the project to the OIV by OENOFRANCE®
- 2005-2006 • Industrial testing
- 2007 • Patent filed
- 2014 • Adoption of the oenological practice by the OIV
- 2015 • Adoption of the oenological practice by the European Union
- 2018 • New DIWINE® for fining

One of the principal properties of PVP/PVI is chelation of metals thanks to the specific three-dimensional structure of the polymer (Figure 1) which, at OENOFRANCE®'s Innovation, Research and Development department, enabled us to develop a first-generation solution to combat heavy metals and their effects on white and rosé wines.

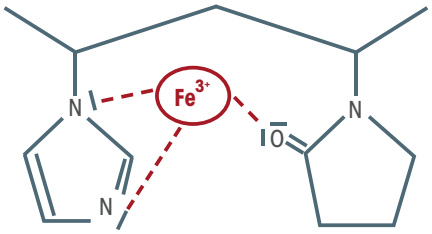


Figure 1 : Structure of PVP/PVI enabling chelation of heavy metals

Catalysts for biochemical oxidation of musts as cofactors of oxidising enzymes (polyphenol oxidase).

- Catalysts for chemical oxidation of wines.
- Toxic effect on microorganisms (yeasts and bacteria) leading to increased latency time, difficult termination of alcoholic fermentation, and in certain extreme cases, no initiation of alcoholic or malolactic fermentation.
- Destructive effect of aromatic compounds, direct in the case of volatile thiol compounds, indirect in the case of other varietal compounds (precipitation of precursors during oxidative casse).

DIWINE® product range

DIWINE® Thiol

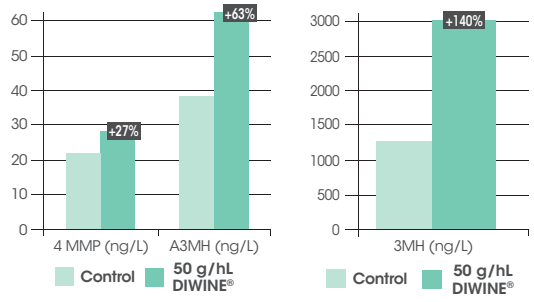
Optimises the revelation of thiol aromas in wines

Allergen Free · Vegan

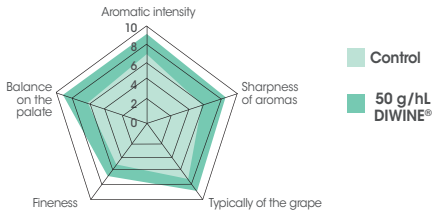
DIWINE® THIOL optimises the revelation of thiols and maintains the aromatic freshness of wines by acting at two levels:

- Removal of heavy metals, particularly copper, responsible for fixing the S-H groups of thiol (4MMP, 3MH, A3MH) resulting in a loss of aromas and typical features of wines.
- Long-term protection of aromas and polyphenols against oxidations.

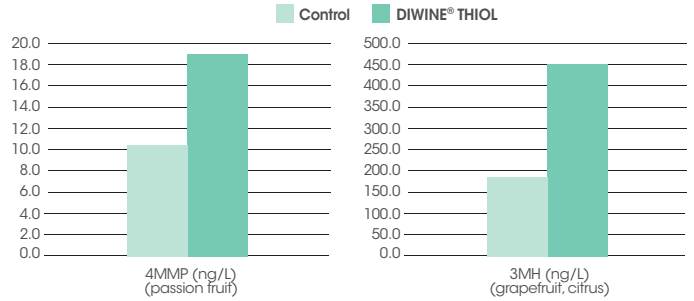
Impact of adding DIWINE® THIOL on must of Sauvignon Blanc. Thiols analyses performed on the wine after bottling



Sensory analysis. Impact of DIWINE® THIOL



Effect of adding DIWINE® THIOL to a Sauvignon from Languedoc Roussillon 2016 must Analyses of thiols



DIWINE® THIOL increases the concentration of 4MMP, A3MH and 3MH respectively by 27%, 63% and 140% in Sauvignon Blanc and it significantly improves the organoleptic profile of Colombard.

Application: on musts from aromatic varieties rich in thiol precursors
Packaging: 1 kg and 5 kg **Application rate:** 30 to 70 g/hL

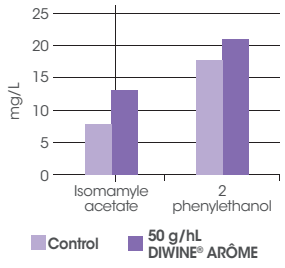
DIWINE® product range

DIWINE® Arôme

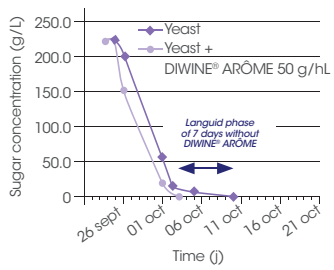
Increases the aromatic intensity and volume in the mouth

The constituents of **DIWINE® ARÔME** act synergistically to optimise the generation of aromas by the yeast and to prevent the risk of oxidation of the aromas and polyphenols.
DIWINE® ARÔME also improves balance on the palate, with more sharpness and volume through a release of polysaccharides and mannoproteins.

Impact of adding DIWINE® ARÔME on a must of Viognier Analyses of aromas performed on wine

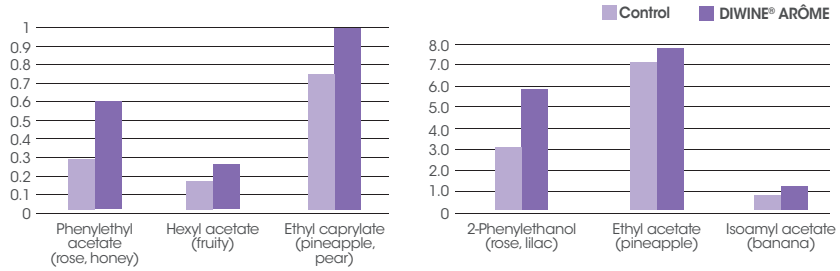


Impact of DIWINE® ARÔME on the course of the alcoholic fermentation of a Viognier must



DIWINE® ARÔME improves the course of alcoholic fermentation and allows obtaining higher concentrations of isoamyle acetate and 2-phenylethanol with notes of banana and rose

Effect of adding DIWINE® ARÔME to a Vermentino from Languedoc Roussillon 2016 must



Application: on musts meant for wines with aromatic or varietal fermentation profile
Packaging: 1 kg and 5 kg **Application rate:** 30 to 70 g/hL

DIWINE® product range

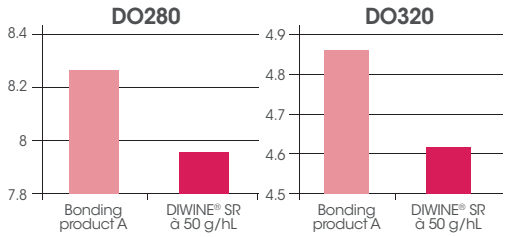
DIWINE® SR

Preserves the organoleptic qualities of rosé wines

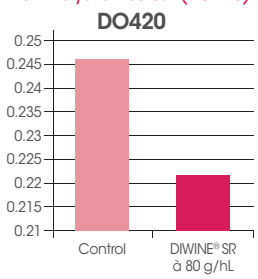
Innovation Oenofrance · Allergen Free · Vegan

DIWINE® SR extends the life of rosé wines.
DIWINE® SR prevents oxidation phenomena very damaging to rosé wines and thus preserves the freshness of aromas and colour desired by the winemaker.
Moreover, **DIWINE® SR** contributes to the stabilisation of rosé wines from a protein perspective.

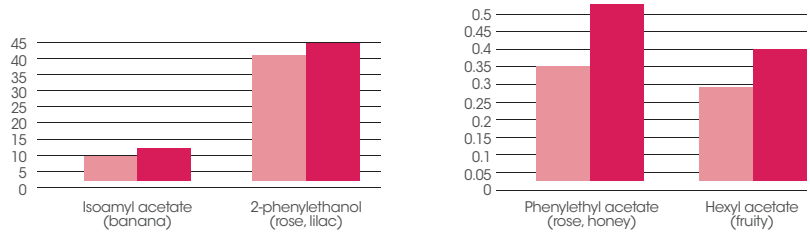
Impact of adding DIWINE® SR on a rosé must (Syrah - Grenache) on the total polyphenols (D0280) and the oxidisable polyphenols (DO320)



Impact of adding DIWINE® SR rosé musts (Syrah - Grenache) on the yellow colour (DO420)



Effect of adding DIWINE® SR to a Gamay from Val de Loire 2016 rosé must



DIWINE® SR decreases the concentration of polyphenols with a risk of oxidation and reduces the yellow colour of rosé wines

Application: on musts meant for aromatic rosé wines
Packaging : 1 kg **Application rate:** 20 to 100 g/hL

DIWINE® product range

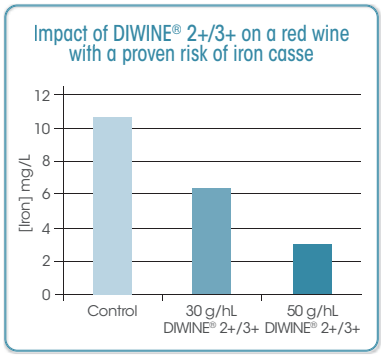
DIWINE® 2+/3+

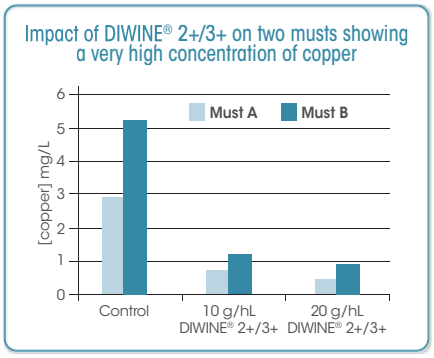
Decreases the concentration of heavy metals in musts and wines

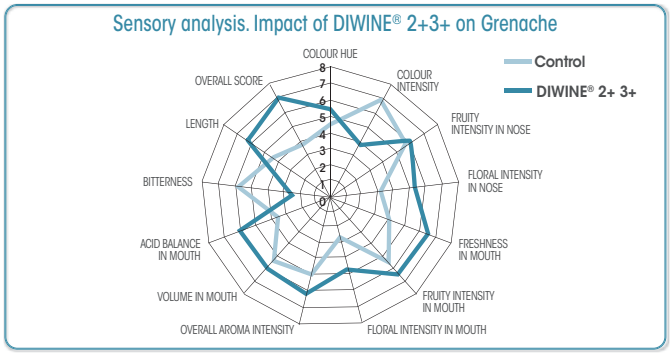
DIWINE® 2+/3+ fixes and causes the precipitation of heavy metals with decreasing affinity starting from copper going up to zinc.

$Cu^{2+} > Au^{2+} = Ag^{+} = Hg^{2+} > Fe^{3+} > Al^{3+} > Ni^{2+} > Co^{2+} > Zn^{2+}$

Its action prevents casse in bottles and can easily replace the copper and iron removal treatment with potassium ferrocyanide in white wines or iron in red wines using calcium phytate.







DIWINE® 2+/3+ significantly reduces the concentrations of iron and copper allowing the wines to comply with marketing constraints

Application: on musts and wines
Packaging: 1 kg and 5 kg **Application rate:** 5 to 50 g/hL

FINING PRODUCTS FOR MUSTS

OENOVEGAN® EPL

100% NATURAL, SMOOTH, SILKY FINING
An alternative to animal glues

Based on the experience acquired with yeast protein extracts since the end of the 2000s in collaboration with different European universities (the University of Dijon in France and Geisenheim University in Germany), OENOFRANCE®'s development and application department of has devised a new solution for the fining of musts and wines. OENOVEGAN® EPL is a synergistic combination of pea protein and yeast protein extracts that enables optimised fining.

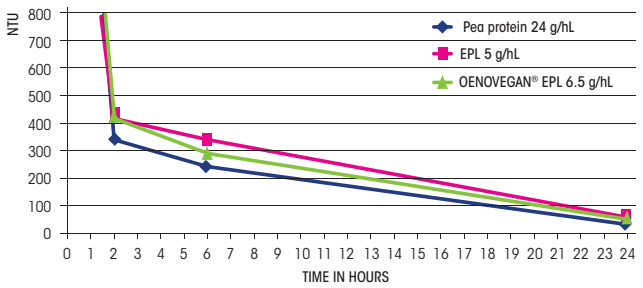
- **Good clarification, flotation or static**
- **Decreases oxidised polyphenols**
- **Can be used in musts and wines**
- **Lower doses**

INNOVATION OENOFRANCE · Allergen Free · Vegan · UE Usable in organic · NOP Usable in organic

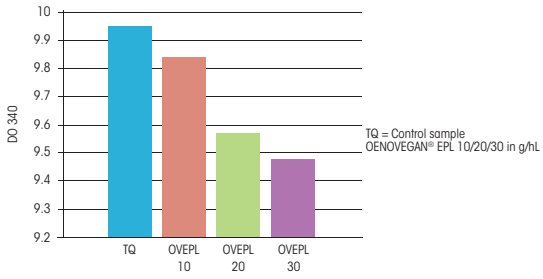
PROGRAMMES oenoterris RAISONNÉS

IMPORTANT **Once opened, use OENOVEGAN® EPL within 48 hours.**

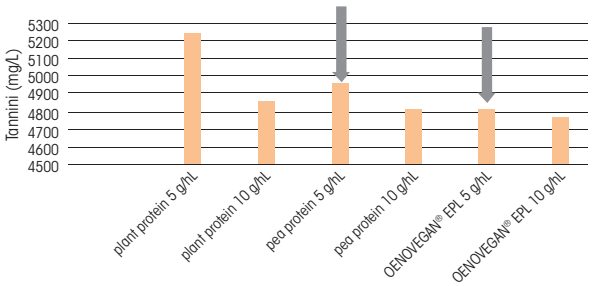
Evolution of turbidity - Grenache Rosé



Sensitivity to oxidation



Red wine fining: Sangiovese



- At equivalent doses, OENOVEGAN® EPL is more effective than pure plant protein.
- Highly effective on tannins compared to other alternatives to animal glues.
- Less grassy notes and more volume in the mouth.

OENOVEGAN® EPL

Static settling

SAUVIGNON BLANC VAL DE LOIRE 2020	Δ TOTAL POLYPHENOLS	Δ OXIDIZED POLYPHENOLS	TURBIDITY
Before treatment			839
Pea protein Liquid 30 cL/hL + PVPP 20 g/hL	1 %	0 %	27.5
OENOVEGAN® EPL 7.5 g/hL	9 %	17 %	28.1
Plant protein Powder 20 g/hL + PVPP 20 g/hL	16 %	8 %	14.7

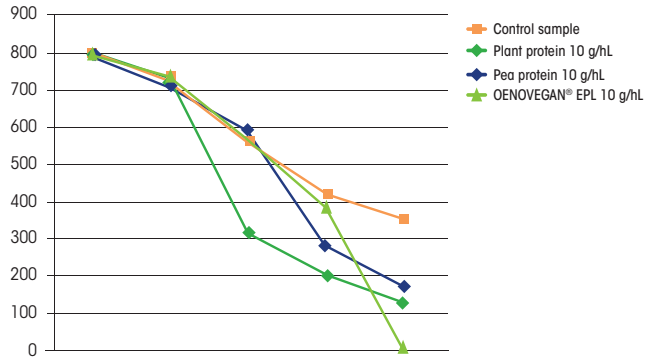
Results of static settling with a white Sauvignon control from the Loire Valley in 2020, treated in three different ways.
OENOVEGAN® EPL acts on the oxidised fraction of polyphenols: it reduces bitterness but retains part of the total polyphenols, thus avoiding mid-palate hollowness.

Impact of turbidity in static

Sample	Red wine 2020 Control sample	OENOVEGAN® EPL 10 g/hL	OENOVEGAN® EPL 20 g/hL	OENOVEGAN® EPL 30 g/hL
NTU	28.6	8.87	6.59	5.53

Test performed on red wine, enabling the assessment of the turbidity's impact when treated with OENOVEGAN® EPL.
The medium's turbidity is vastly improved, especially with a 30 g/hL dose, as shown on the table.

Evolution of the turbidity (NTU) in flotation as time goes on Must of Italian Pinot Gris



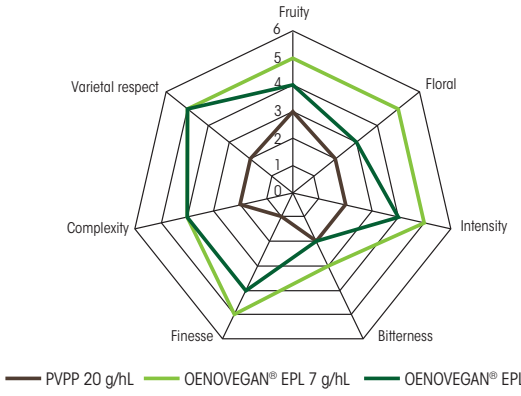
Settling speed

Broad spectrum of action

Fining while preserving the aroma profile

More effective than plant protein

SENSORY ANALYSIS
Significant impact with 7g/hL OENOVEGAN® EPL treatment on the perception of fruitiness and aromatic intensity



OENOVEGAN® EPL

Thanks to experience acquired in collaboration with various European universities (University of Dijon in France and University of Geisenheim in Germany) since the late 2000s on yeast protein extracts, OENOFRANCE® s development and applications department has developed a new solution for fining musts and wines. OENOVEGAN® EPL is a synergistic combination of a pea protein and yeast protein extracts for optimal fining.

PACKAGING: 1 kg

APPLICATION RATE: Static settling and flotation: 5 - 10 g/hL
Fining of wines: 5 to 30 g/hL depending on turbidity and oxidation levels encountered d oxydation rencontrés.
Maximum legal dose according to current European regulations: 60 g/hL

OENOVEGAN® EPL

PHYLIA® EPL

PHYLIA® EPL is the fruit of many years of research focused on fining musts and wine using exclusively yeast based proateins. PHYLIA® EPL is based on an innovative industrial process which enables the extraction, concentration and storage of these indigenous yeast proteins. PHYLIA® EPL is used for fining musts as well as white, red ands rosé wines. PHYLIA® EPL eliminates tannins which cause bitterness thus creating a fining and maturing procedure duly respectful of wines. Lastly, and due to its origin, PHYLIA® EPL is an Allergen Free fining product, and is thus not concerned with the labeling of its allergens.

PACKAGING: 500 g
APPLICATION RATE: White and rosé wines: 0.5 to 5 g/hL
Red wines: 5 to 30 g/hL

OENOVEGAN® PURE

OENOVEGAN® PURE is a pea protein obtained by a specific production process which optimises the fining properties of this vegetable protein. OENOVEGAN® PURE makes it possible to clarify the musts during a static or flotation process while preserving the varietal characteristics of the must. It is also used in wine fining.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: Static settling and flotation: 10 to 20 g/hL
Wine fining: 5 to 50 g/hL depending on the turbidity and oxidation levels encountered

PHYLIA® EPL, is:

- The leading yeast protein extract
- 100 % yeast proteins
- Non-allergenic
- 100 % soluble
- Used for the very respectful fining of wines
- Suitable for the removal of Quercetin Aglicone

FINING IN ITS MOST ORIGINAL FORM!

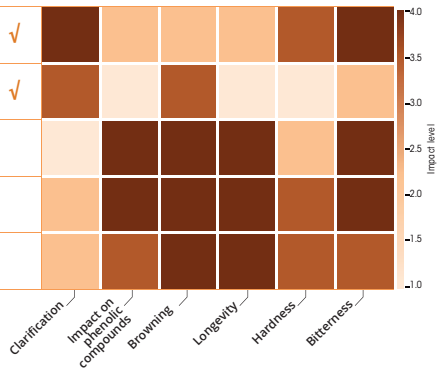
Mention at Sitevi 2009

Awarded prize at Intervitis 2010

The OENOFRANCE® decision support tool

CHOOSE THE FINING AID ADAPTED TO YOUR OBJECTIVE

PRODUCT	COMPOSITION	MATRIX		SETTLING		OBJECTIVES	STRONG POINT	DOSE OF USE
		Must	Wine	Static	Flottation			
OENOVEGAN® EPL	Yeast protein extracts and plant proteins	√	√	√	√		Correction of bitterness	Musts: 5 to 15 g/hL Wines: 2 to 10 g/hL
OENOVEGAN® PURE	Plant proteins	√	√	√	√		Management of oxidised polyphenols	Musts: 15 to 50 g/hL Wines: 10 to 20 g/hL
DIWINE® 2+/3+	PVP/PVI	√	√	√			Heavy metal chelation	20 to 50 g/hL depending on heavy metal content
DIWINE® THIOL	PVP/PVI and LSI rich in reducing elements	√	√	√			Freshness and longevity of wines	20 to 50 g/hL
DIWINE® SR	PVP/PVI and LSI rich in polysaccharides	√	√	√			Color stability and roundness in the mouth	20 to 50 g/hL



OENOCLAR

OENOCLAR is a preparation additive for musts and wine which associates gelatin, PVPP and fish fining agents. It is ideal for fining white and rosé musts derived from botrytized grapes, harvests done by machine, and musts from pruning or pressing rich in polyphenols. OENOCLAR is likewise very efficient by floating.

PACKAGING: 20 L
APPLICATION RATE: 5 to 20 cL/hL

OENOVEGAN® F

DROP & GO

OENOVEGAN® F has been developed for the static and flotation clarification of white and rosé musts. OENOVEGAN® F contains no animal protein substances, which enables it to be used in wines intended for vegan consumers. OENOVEGAN® F makes it possible to obtain high-quality flotation while preserving the varietal characteristics of the must. The plant proteins that are used in OENOVEGAN® F are obtained from proteins from legumes and chitin derivatives from *Aspergillus Niger*.

PACKAGING: 20 L
APPLICATION RATE: From 5 to 15 cL/hL depending on the quality of the must.
Maximum legal dose according to current European regulations: 60 cL/hL

Vegan · UE Usable in organic

CASEINE SOLUBLE

This product is made from caseine and protein and treats and prevents the oxidation of musts and white wines. Its action against yellowing and maderization is curative, but the action may also be preventive.

PACKAGING: 1 kg, 5 kg and 25 kg
APPLICATION RATE: 20 to 100 g/hL

UE Usable in organic · NOP Usable in organic

ALTOCASE

ALTOCASE is an alternative to caseine for treating and preventing oxidation. ALTOCASE contains no allergen compounds and can be used like caseine and has the same properties.

PACKAGING: 15 kg
APPLICATION RATE: 20 to 100 g/hL

Allergen Free

VINIFICATEUR N

VINIFICATEUR N is an all-round vinification adjuvant that prepares your wine future. It prevents the protein and the colour instabilities at the same time.

PACKAGING: 5 and 20 kg
APPLICATION RATE: According to the grape spoiled. « Champenoise » vinification :
«Cuvées»: 30-80 gr/100 L
«Tailles»: 50-120 gr/100 L
Other vinifications: White vinifications: 50-100 gr/100 L
Rosé vinifications: 30-80 gr/100 L
Red vinifications: 30-80 gr/100 L.

Allergen Free · Vegan · UE Usable in organic

SMART'APP FINING Decision-making tool for smart fining of must

Programmes Oenoterris Raisonnés

This is a new application of the Polyscan (WQS) tool, born of the synergy between the expertise of Vinventions and of the SOFRALAB® Group. Smart'App Fining applies the «best input» policy. It makes it possible to use and think through the fining of must with a view to preserving its characteristics, improving juice quality and optimising production costs.

Simple, accurate, instant measuring without calibration › **Choice of fining product adapted to your must and your goals** › **Reasoned addition = optimised cost**

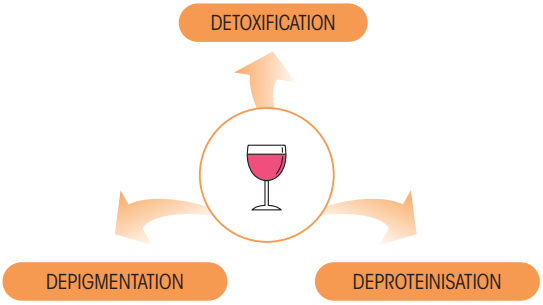
Thanks to the Phenox (total polyphenol content) and Easyox (easily oxidisable polyphenols) measurements, it is possible to classify and rank the must when it is finished pr essing. After collaborating during 3 vintages and classifying t he impact of our glues with these indices, we have defined business rules that enable us to suggest the mos t suitable glue according to the fining goals: clarification, colour impact and/or organoleptic impact.

The winemakers

How to manage oxidation of my rosé wines?
Vinificateur SR-3D

The VINIFICATEUR SR-3D provides:
- A clear stabilisation of colour,
- Refined taste on musts while conserving fermentation aromas,
- Obtaining desired colour of maceration juice in due respect taste qualities.

3-dimensional effect



Trials carried out on a rosé wine from Provence

Comparative trials VINIFICATEUR SR / SR-3D:

	CONTROL	SR 70 g/hL	SR 3D 70 g/hL
DO_{420}	0.220	0.194	0.159
DO_{520}	0.217	0.162	0.121
% decrease of DO_{420}		11.8	27.7
% decrease of DO_{520}		25.3	44.2
Colouring intensity	0.437	0.356	0.28

Trials carried out on rosé from Provence must

Comparative trials VINIFICATEUR SR / SR-3D:

	DO_{420}	DO_{520}	% decrease of DO_{420}	% decrease of DO_{520}	coloring intensity
Control	0.834	0.959			1.793
SR 60 g/hL	0.583	0.639	30.1	33.4	1.222
SR 3D 70 g/hL	0.452	0.44	45.8	54.1	0.892

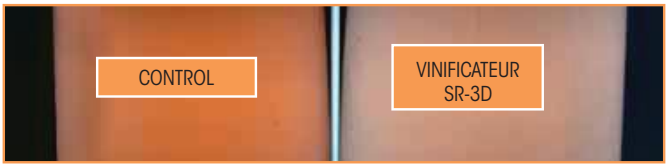
- VINIFICATEUR SR-3D has a greater impact on colour than vinificateur SR
- It is also as effective on wine as on musts
- Very positive feedback from users

Rosé centre 2007 trials

Impact on aromatic compounds (control/trial):

	CONTROL	TRIAL	AROMATIC DESCRIPTOR
Linalol (mg/L)	14	17	
3-Méthylbutan-1-ol (mg/L)	319	263	
2-Phényléthanol (mg/L)	0.1	0.1	
Acétate d'isoamyle (mg/L)	17.3	19.2	
Damascénone (ng/L)	2960	3031	
β-ionone (ng/L)	57	55	

Visual aspect of wines (control/trial):



A 60 g/hL treatment of VINIFICATEUR SR-3D has almost no effect on the aromatic compounds of the following families: TERPEN, SUPERIOR ALCOHOLS, ESTERS, NORISOPRENOIDES.

VINIFICATEUR SR-3D

VINIFICATEUR SR-3D is a specific winemaking device for rosé wines and is used for must depigmentation, deproteinisation and decontamination. It associates PVPP, several specific montmorillonites and detoxifying charcoal.

PACKAGING: 1 kg and 5 kg
APPLICATION RATE: 50 to 70 g/hL

Vegan

VINIFICATEUR SR

VINIFICATEUR SR is specifically formulated to maintain the color of rosé wines, while respecting their organoleptic qualities. It is also used as a prevention agent against the pinking of white and rosé wines. Pinking is an oxidative change in colour of white and rosé wines towards orangey-pink hues.

PACKAGING: 5 kg and 15 kg
APPLICATION RATE: 40 to 100 g/hL

Vegan

FORMULE 1-CF

DROP & GO

FORMULE 1-CF (Casein Free) prevents and treats the oxidation of casein free musts and wine. Made from PVPP and cellulose, using a unique coating and agglomeration techniques: granulation has a more even flow and is more homogeneous with fewer fine particles. The aggregates form more spaces and thus offer a larger physical adsorption surface area. This contributes to decreasing application rates. FORMULE 1-CF, in micro granules, can be used directly without any prior preparation.

PACKAGING: 1 kg and 5 kg
APPLICATION RATE: on must: 15 to 50 g/hL
on harvest: 30 to 70 g/hL

Allergen Free Vegan

Oenological properties

- **Removes** the polyphenols that cause yellowing
- **Selectively** adsorbs unstable proteins
- **Avoids** increased colouring intensity over time
- **Ensures** better colour stability over time
- **Preserves** organoleptic characteristics
- **Removes** harsh, bitter tastes

ENZYMES

HOW TO IMPROVE PRESSING YIELD AND THE QUALITY OF MY JUICES?

Lysis Intense

AND SKIN MACERATION ON SAUVIGNON BLANC

Allergen Free · Vegan

Skin maceration amplifies the extraction of aromatic compounds and aroma precursors, but also nitrogen compounds which promotes alcoholic fermentation or ensures the ageing of wine. This technique extracts neutral polysaccharides which have a direct impact on wine structure (increases sensation of volume). The usage of enzymes during skin maceration can be an important asset for extracting more positive compounds while limiting the extraction of negative compounds such as phenolic compounds, responsible for bitterness.

LYSIS® INTENSE, is adapted to this application and was formulated to respond to the constraints of skin maceration. These specific activities allow a controlled degradation of the skin's cellulose walls which weaken the grape berries, thus facilitating juice extraction.

Results:

Skin maceration must be carried out on a healthy harvest. Sauvignon Blanc at 12°C is treated with LYSIS® INTENSE at 2 g for a 100 kg harvest.

- The LYSIS® INTENSE action is translated by an increase in run off and press juices on the enzymed part compared to the control samples (**Figure n°1**), along with a decrease in marc weight after pressing (**Figure n°2**).
- The input of LYSIS® INTENSE enables obtaining a much more significant volume of must with an equivalent pressing compared to traditional skin maceration with no added enzymes.
- The chemical analysis of musts after pressing (**Table 1**) shows few differences, except optical density measures.
- The procedure with added enzymes does not have more phenolic compounds (DO_{280}) than control musts, which confirms the controlled extraction allowed by LYSIS® INTENSE. On the other hand, differences observed for DO_{320} and DO_{420}, the latter which provides information on the quinone content of musts, phenolic compound oxidation products and the former on the yellow shade of musts.

Yield after pressing

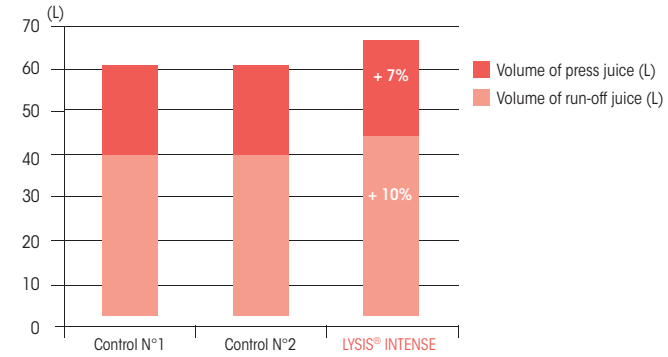


Figure n°1: Increase in yields of run-off and press juice from the enzymed procedure compared to controls.

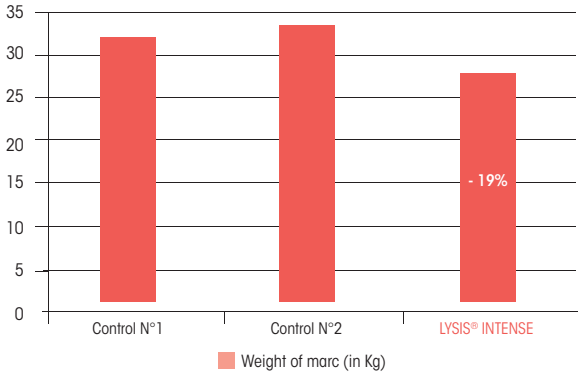


Figure n°2: Weight of marc obtained after pressing.

	CONTROL N°1	CONTROL N°2	LYSIS® INTENSE
TAV in % V/V	12	11.9	12
Total acidity in g/L H_2SO_4	4.1	4.1	4.2
Volatile acidity in g/L H_2SO_4	0.01	0.01	0.01
pH	3.35	3.35	3.35
Malic acid in g/L	4.1	4.1	3.9
Available nitrogen in mg/L	157	140	157
Sugars in g/L	202	200	202
DO_{280}	5.95	6.06	6.14
DO_{320}	4.99	4.92	4.24
DO_{420}	0.097	0.143	0.223

Table n°1: Chemical analyses of musts after pressing

Skin maceration

- The procedure with added enzymes shows a lower DO_{320} thus a lesser concentration of quinones. This is a positive point since quinines are free radical vectors involved in oxidative phenomena. This decrease may be the result of limiting must oxidation due to releasing more antioxidant nitrogen compounds, such as the naturally occurring glutathion found in grapes.
- The DO_{420} is higher in the procedure with added enzymes, which results in an increased release of flavanoid-type chemical compounds, responsible for the yellow colour of wines.

The pectinase enzyme activities of LYSIS® INTENSE play an important role in decreasing must viscosity and also on their clarification. Indeed, skin maceration increases the release of pectins in musts making them particularly viscous and charged with vegetal particles (substantial turbidity). Using LYSIS® INTENSE during skin maceration saves alot of time since the must obtained has been subjected to depectinisation during the maceration process followed by a clarification following pressing. (**Table n°2**).

	CONTROL N°1	CONTROL N°2	LYSIS® INTENSE
Turbidity (in NTU)	434	493	15

Table n°2: Turbidity of the supernatant in the tubes just after the end of maceration and before adding clarifying enzyme to the controls.

In case of traditional skin maceration, with no addition of enzymes, a clarification enzyme must be used after pressing in order to settle the musts obtained. In practice, this clarification is oftentimes difficult and requires larger doses of enzymes.
The three methods exhibit similar fermentation kinetics.
Chemical analysis of the wines obtained after alcoholic fermentation (**Table n°3**) shows that most measured parameters show no significant differences. This confirms observations carried out on must: the additional volume of juice obtained using the enzyme method has no detrimental impact on quality, quite the opposite.
The analysis of the concentration of volatile thiols of wine shows the interest of using LYSIS® INTENSE for facilitating the extraction of aromatic precursors (**Figure n°3**).
As such, wine derived from the procedure with added enzymes shows a concentration of 3-mercaptohexan-1-ol (3MH) 35% higher than the average of concentrations obtained from control wines. There is an increase of + 18 % for 3-mercaptohexan-1-ol acetate (A3MH). 3MH and A3MH provide exotic fruit, citrus or floral notes.
The overall result of wine derived from enzyme maceration is longer, more volume and less vegetal notes than the control wines.

	CONTROL N°1	CONTROL N°2	LYSIS® INTENSE
Alcohol strenght in % V/V	12.24	12.2	12.3
Total acidity in g/L H_2SO_4	4.8	4.8	4.9
Volatile acidity in g/L H_2SO_4	0.5	0.43	0.39
pH	3.37	3.33	3.34
Malic acid in g/L	3.2	3.3	3.2
Free SO_2 in mg/L	35	35	31
Total SO_2 in mg/L	141	124	128
DO_{280}	5.98	5.88	5.73
DO_{320}	1.95	1.9	1.93
DO_{420}	0.082	0.097	0.106

Table n°3: Chemical analyses of wine after alcoholic fermentation.

Dosage of volatile thiols

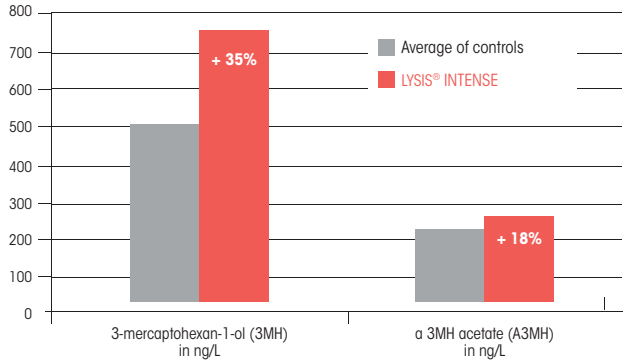


Figure n°3: Dosage of volatile thiols on finished wine - Perception threshold of volatile thiols: 60 ng/L for 3MH, 4 ng/L for A3MH.

CONCLUSION:

It would clearly appear that LYSIS® INTENSE is an interesting tool to be used for the skin maceration of white vine varieties, on a economic level (higher yield of juice) and on a technical level (limits the production of phenolic compounds, increases the releasing of aromatic compounds and compounds having an positive impact on wine).

SPECTRA® range

SPECTRA THIOL

SPECTRA® THIOL is a liquid enzyme preparation with a **high concentration of pectolytic activities** necessary to break down the pecto-cellulosic walls of the cells that make up the grape.
This "destructuring" will **facilitate the release of the group** of aromatic precursors contained in these cells.

The combined use of SPECTRA® THIOL with a thiol-releasing yeast with 2 long alleles in the IRC7 gene coding for β-lyase production, such as SELECTYS® THIOL, will increase the aromatic potential.

Defined on specific criteria, **SPECTRA® THIOL** has the capacity to work at **low temperatures** and participates in the destructuring of plant cell walls.

- Ability to work at **low temperatures**
- Complete the aromatic gain in **cold stabulation**

SPECTRA® THIOL makes it possible to:
- **Promote** the release of primary aroma precursors of the grape, such as thiols
- **Complete** the aromatic gain in cold stabulation
- **Optimise** the extraction phase during skin maceration
- **Facilitate** the clarification and natural sedimentation of must

Comparison of different enzyme preparations with Sauvignon, after cold stabulation and an optimised fermentation itinerary.

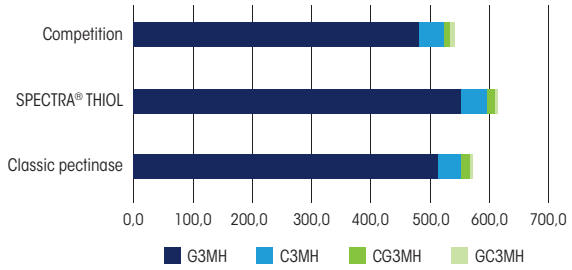


Figure n°1: Concentration of thiol precursors after stabulation at 4°C for 6 days

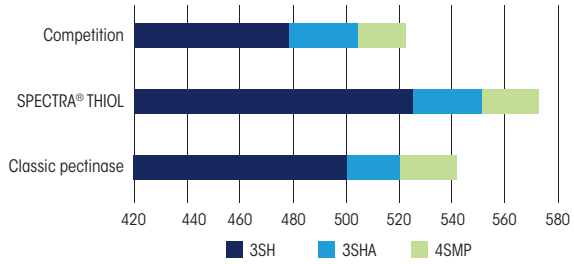


Figure n°2: Concentration of volatile thiols in finished wines
Fermentation with SELECTYS® THIOL at 20 g/hL

PACKAGING: 100 mL and 1 L
APPLICATION RATE: 2 to 4 mL/hL

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SPECTRA
QUERCETIN FREE

WHAT IS QUERCETIN?

Polyphenol Flavonoid → **Flavonol**

- Its main function is to protect plants from abiotic stress, such as oxidation hazards caused by sunlight (UV) and other environmental factors.
- In wine, quercetin is found in the solid parts of the grapes, particularly in the skin but also in the buds, shoots and leaves.

An innovation is born

SPECTRA® QF is a concentrated, micro-granulated enzyme preparation made from pectinase from ***Aspergillus niger***. Its properties enable it to release bound quercetin and cause its precipitation. SPECTRA® QF is naturally low in cinnamyl esterase, thus limiting the formation of ethylphenols.

The precipitation of quercetin in wines due to recurrent climatic stress is becoming an increasingly global problem. In the coming years, this precipitation could affect a large number of varieties.
To limit this precipitation in the bottle, upstream intervention is therefore essential on this complex of molecules.

SPECTRA® QF enables you to:
- **release** combined quercetin
- **stimulate** the precipitation of the aglycone form
- **facilitate** clarification and natural sedimentation
- **manage** residual free quercetin issues over time.

QUERCETIN FREE

Quercetin is a flavonol whose main function is to protect plants from abiotic stress. Due to recurrent climatic stresses, the precipitation of quercetin in wines is becoming an increasingly global problem. In the coming years, this precipitation could affect a large number of varieties. To limit this precipitation in the bottle, it is therefore essential to intervene upstream on this molecule complex. SPECTRA® QF is a concentrated, microgranulated enzyme preparation made from *Aspergillus Niger* pectinase. Its properties enable it to release bound quercetin, thus leading to the latter s precipitation.

PACKAGING: 100 g
APPLICATION RATE: 3 to 10 g/hl depending on bound quercetin content, contact time and temperature

INNOVATION OENOFRANCE · Allergen Free · Vegan · UE Usable in organic · NOP Usable in organic

Impact of SPECTRA® QF at 5 g/hL on the various forms of quercetin over time

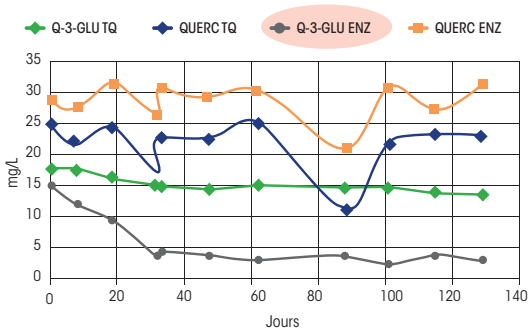


Figure n°1: Impact of SPECTRA® QF at 5 g/hL on the various forms of quercetin over time.

There is a high risk that, as the climate and viticultural practices evolve, every variety might be affected by this quercetin-related issue in the future. That is why OENOFRANCE® has developed SPECTRA® QUERCETIN FREE to respond to this growing future problem.

LYSIS® range

Aromatic intensity

LYSIS® ESSENTIA

LYSIS® ESSENTIA reveals aromatic fractions naturally found in musts. These musts, made up of terpenes combined with glucosides, rendering them sensory-wise inactive. Secondary enzyme activities associated with pectolytic activities promote the break down of pectins, thus the release of aromas.

PACKAGING: 100 g
APPLICATION RATE: 2 to 4 g/hL

LYSIS® INTENSE

LYSIS® INTENSE is a special pectinase preparation, with secondary protease and cellulase activity. Used in skin maceration, it optimises the extraction of aromatic precursors and the expression of aromas. It also improves clarification and facilitates pressing.

PACKAGING: 100 g
APPLICATION RATE: 2 to 4 g/100 kg

Clarification

LYSIS® ACTIV 60

LYSIS® ACTIV 60 is a liquid enzymatic preparation for the clarification and settling of musts with solid matter derived from thermo-treatment or difficult to clarify vine varieties.

PACKAGING: 1 L and 10 L
APPLICATION RATE: 2 to 5 mL/hL

LYSIS® ALLEGRO

LYSIS® ALLEGRO is a microgranular enzyme preparation made up of pectinases and specific secondary activities. LYSIS® ALLEGRO is used for the clarification and settling of white and rosé musts. It is a very efficient and multi-faceted enzyme.

PACKAGING: 100 g
APPLICATION RATE: 1 to 4 g/hL

LYSIS® ELITE

Due to its secondary cellulose, hemicellulase and glucanase activities this liquid pectinase preparation, LYSIS® ELITE facilitates clarification and settling of difficult juices coming from thick-skinned grape varieties or from intense pressing.

PACKAGING: 100 mL and 1 L
APPLICATION RATE: 2 to 4 mL/hL

LYSIS® ULTRA

LYSIS® ULTRA is made up of very concentrated liquid enzymes in pectinase activity and in secondary cellulase and hemicellulase-type activities. This enzyme enables quickly lowering the viscosity and the turbidity of musts and works at low temperatures (<10°C) and at low pH levels (from 2.8). LYSIS® ULTRA can be used on difficult to clarify white musts, presenting a thick skin and low maturity. LYSIS® ULTRA is likewise recommended for flotation.

PACKAGING: 100 mL and 1 L
APPLICATION RATE: 0.3 to 1 mL/hL

LYSIS® range

LYSIS® UC

LYSIS® UC is very concentrated in pectinase activity and reacts quickly and improves lees settling. It is also used in flotation.

PACKAGING: 50 g, 100 g and 1 kg
APPLICATION RATE: 0.3 to 2 g/hL

LYSIS® IMPACT

LYSIS® IMPACT is a liquid preparation which improves the clarification and filterability of press wine and juices resulting from thermovinification. It is also used in flotation. This preparation has substantial secondary cellulase and galactanase activities.

PACKAGING: 120 mL and 1 L
APPLICATION RATE: 2 to 4 mL/hL

LYSIS® SPÉCIAL R

LYSIS® SPECIAL R is a liquid enzymatic preparation used for clarifying and settling rosé juices. Due to its broad range of adapted enzymatic activities, it optimises the settling of difficult to clarify rosé juices. LYSIS® SPECIAL R provides fast and quality clarification of musts at settling, an improved compacting of deposits in addition to facilitated filtration of rosé wines.

PACKAGING: 1 L
APPLICATION RATE: 3 to 4 mL/hL

LYSIS® GRENAT

Organic red wine winemaking. LYSIS® GRENAT is a pectolytic enzyme preparation in microgranular form. This enzyme develops the color and fruity aromas. LYSIS® GRENAT is used for red wine wine-making and is particularly suited to making **organic** wine.

PACKAGING: 100 g
APPLICATION RATE: 1 to 4 g/hL

LYSIS® MPC

Hot pre-fermentation maceration requires the use of pectinase, as the heat has denatured the grape enzymes. LYSIS® MPC facilitates the clarification of musts and wines treated by hot pre-fermentation maceration and improves the yield after pressing.

PACKAGING: 100 g and 1 kg
APPLICATION RATE: 2 to 4 g/hL

Extraction

LYSIS® FIRST

LYSIS® FIRST improves extraction and color stability. This is used for wines naturally rich in tannins since its secondary activities provide roundness while reducing astringency and harshness of tannins.

PACKAGING: 100 g
APPLICATION RATE: 2 to 5 g/100 kg

LYSIS® COULEUR

Pectinase activities are necessary to extract color, like the high level cellulase and hemicellulase activities. This is the case with LYSIS® COULEUR. These activities are completed by proteolytic activities which stabilize color.

PACKAGING: 100 g and 1 kg
APPLICATION RATE: 1.5 to 4 g/hL for rosé; 2 to 5 g/100 kg for red

LYSIS® range

Specific processes

LYSIS® ELEVAGE

LYSIS® ELEVAGE is active on polysaccharides, namely ß-glucanes contained in wine produced from botrytized grapes. It improves the filterability of these wines and likewise facilitates the glucane hydrolysis of yeast walls during ageing on lees.

PACKAGING: 100 g
APPLICATION RATE: 2 to 4 g/hL

LYSIS® FILTRAB

LYSIS® FILTRAB is a specific liquid enzymatic preparation for the clarification and filtration of musts and wines. This enzyme regenerates filtration membranes quickly with no risk of alteration.

PACKAGING: 1 L and 10 L
APPLICATION RATE: 3 to 5 mL/hL

LYSIS® FLASH D

LYSIS® FLASH D is a liquid enzymatic preparation with high pectolytic activity to be used for the depectinization of musts produced from Flash Release. These musts are reputed for being difficult to clarify and make low juice yield after pressing. LYSIS® FLASH D can significantly improve this yield.

PACKAGING: 20 L
APPLICATION RATE: 2 to 5 mL/hL

NAME	FUNCTION	FORM	DOSES	CONTACT TIME
AROMATIC INTENSITY				
LYSIS® ESSENTIA	Release of bound terpenes	P	2 to 4 g/hL	End of FA
LYSIS® INTENSE	Skin maceration, facilitates pressing	P	2 to 4 g/100 kg	12 to 18 hours
CLARIFICATION				
LYSIS® ACTIV 60	Standard clarification	L	2 to 5 mL/hL	4 to 8 hours
LYSIS® ALLEGRO	Clarification of white and rosé musts. Versatile and highly effective	P	1 to 4 g/hL	2 to 8 hours
LYSIS® ELITE	Clarification of difficult musts and flotation	L	2 to 4 mL/hL	6 to 12 hours
LYSIS® ULTRA	Highly concentrated preparation - Clarification of difficult musts and flotation	L	0.3 to 1 mL/hL	2 to 8 hours
LYSIS® UC	Highly concentrated preparation - Clarification and flotation of difficult musts	P	0.3 to 2 g/hL	4 to 8 hours
LYSIS® IMPACT	Clarification and improvement of filterability of press wines and of thermovinification juice - Flotation	L	2 to 4 mL/hL	1 to 2 hours on must - 2 to 3 days on wine
LYSIS® SPECIAL R	Clarification of rosé musts	L	3 to 4 mL/hL	Approx. 4 hours
LYSIS® GRENAT	Clarification of musts and organic red wines	P	1 to 4 g/hL	2 to 12 hours
LYSIS® MPC	Clarification of musts and wines from hot pre-fermentation maceration	P	2 to 4 g/hL	During FA
EXTRACTION				
LYSIS® FIRST	Extraction and stabilisation of colour of well-structured red wines and improvement of roundness	P	2 to 5 g/100 kg	During FA
LYSIS® COULEUR	Extraction and stabilisation of colour of red wines	P	1.5 to 4 g/hL for rosé; 2 to 5 g/100 kg for red	During FA
PROCESS SPÉCIFIQUES				
LYSIS® ELEVAGE	Optimisation of maturation on lees and improved filterability of wines from botrytised harvests	P	2 to 4 g/hL	3 to 7 days - 2 to 4 weeks with lees
LYSIS® FILTRAB	Improves filterability of musts and wines, cleaning of ultrafiltration membranes	L	3 to 5 mL/hL	1 to 2 weeks on wine
LYSIS® FLASH D	Improves clarification and filterability of musts and Flash détente and thermovinification wines	L	2 to 5 mL/hL	Min. 10 minutes

WHAT IS THE BEST WAY TO PREPARE FOR INOCULATION?

Precautions to be taken

Nowadays, carrying out malolactic fermentation efficiently and in the shortest possible time remains one of the major concerns of winemakers. Still considered by some winemakers to be a random process, triggering malolactic fermentation with selected lactic acid bacteria is the best way to control this stage. To be on the safe side, a certain number of parameters should be respected.

Whatever pathway is chosen, co-inoculation or sequential inoculation, lactic acid bacteria are sensitive microorganisms and the following parameters should be assessed.

Analytical parameters of the must or wine to be inoculated

- **Total SO_2:** this is the principal limiting factor of bacterial growth, and it is essential to respect concentration limits of total SO_2 before any inoculation.
- **pH:** bacteria can grow in a pH of 2.9-3.0, but the optimum level is around 3.7-3.8. Not all strains of lactic acid bacteria have the same tolerance to low pH and SO_2, so it is important to respect pH limits in order to promote bacterial growth.
- **Copper:** copper is a well-known anti-microbial. Copper content at the end of AF is not usually a problem. However, since copper is bound to the walls of dead yeast at the end of AF, its excess concentration in a must can hinder not only the AF process but also bacterial growth during co-inoculation.
- **Inoculation temperature:** bacteria are sensitive to low temperatures. MLF activity increases with temperature, with an optimum temperature of 20-22 °C. In the case of sequential inoculation for red wine vinification, inoculation immediately after AF makes it possible to benefit from the warm temperatures remaining from AF.
- **Alcohol content:** in the case of sequential inoculation, alcohol content has a major effect on the initiation of MLF. Just as for yeasts, not all bacterial strains have the same resistance.
- **The AF process:** yeast-bacteria interaction is very complex. The inhibitors produced by yeast can hinder bacterial growth in the final stage of alcoholic fermentation. This is even truer in the event of difficult alcoholic fermentation. After inoculation with bacteria, inhibitors destroy the bacteria or inhibit their growth, and the time required to reach a population sufficient to initiate malolactic fermentation is much greater.

Hypotheses to explain such difficulties with MLF are as follows:

Presence of toxic compounds in the wine

- C8, C10, C12 fatty acids produced by yeast when under stress
- **Sulfites** produced by yeast
- **Chitosan residues** from anti-*Brettanomyces* treatment, if the waiting time is not respected or if the tank is poorly racked.

Nutrient de ciency

- All the amino acids in the wine have been consumed by yeast under stress during AF, and the bacteria can no longer grow.

The rules for rehydration are:

- **Impact of chlorine:** lactic acid bacteria are very sensitive to the chlorine contained in tap water. In the case of directly inoculated bacteria, spring water or mineral water should be used for rehydration.
- **Respecting temperatures:** just as for yeast, instructions regarding temperatures for rehydration of bacteria are crucial for a successful initiation of malolactic activity and for the survival of bacteria.
- **Respecting rehydration time:** lactic acid bacteria should not be short of malic acid for too long a time, whether in rehydration or acclimatisation, otherwise their population will rapidly decline.

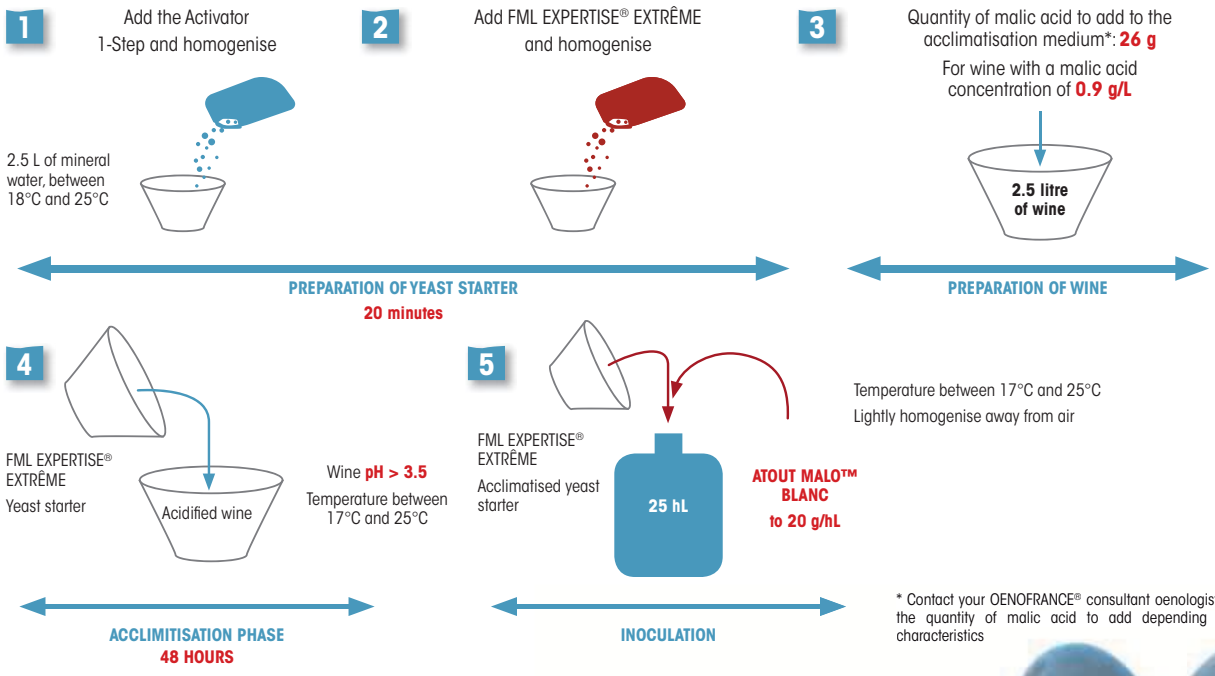
Preparation of the wine to be inoculated case of sequential MLF following sluggish AF

- Treatment with VIVACTIV® ECORCE at 40 g/hL and racking, before inoculating with bacteria.
- Do not use lees to inoculate the wine, because inhibitors are bound to the walls of dead yeast and, when released, could harm bacterial growth.
- If necessary, double the dose of bacteria.
- Carry out organic nitrogen (amino acids) tests to detect deficiencies (deficiency if < 65 ppm), and add organic nutrients, which are indispensable in the event of nutrient deficiency or a wine of poor malolactic fermentability.
- Be even more vigilant with regard to pH limits and free and total SO_2 limits.

Bacteria product range

Example of an EXTREME situation: **Red wine with a malic acid concentration under 1 g/hL**

When bacteria implement a metabolic pathway, it's always for a particular reason: production of constituent elements of the cell, energy production, detoxification, etc. When the malic acid level is very low, the benefit for the bacteria isn't great enough and malolactic fermentation has not started. To resolve the situation, a specific protocol needs to be implemented which involves a small starter culture with bacteria in a One Step form and add a quantity of this starter culture to initiate MLF.



* Contact your OENOFRANCE® consultant oenologist to determine the quantity of malic acid to add depending on the wine characteristics

Bacteria product range

BACTÉLIA® CRESCENDO

BACTÉLIA® CRESCENDO is an *Oenococcus ni* bacterium for direct inoculation. BACTÉLIA® CRESCENDO can be used in co-inoculation or in sequential inoculation, to carry out malolactic fermentations in both red and white wines. The bacterium adapts well to low pH conditions and high alcohol content. The addition of VIVACTIV® MALO makes it possible to obtain optimum results.

BACTÉLIA® TEMPO

BACTÉLIA® TEMPO is an *Oenococcus oeni* lactic acid bacteria selected to carry out malolactic fermentation of particularly acidic wines with a low pH. It guarantees good fermentation rates and ensures clean, fresh aromas. The use of a single selected strain of *Oenococcus oeni* guarantees rapid reduction of malic acid, avoiding the development of unpleasant odors.

BACTÉLIA® ALTA

Isolated in Piedmont, BACTÉLIA® ALTA is an *Oenococcus oeni* lactic acid bacteria selected to ensure rapid conversion of malic acid and to resist unfavourable conditions for great red wines (high alcohol and tannin concentrations). It ensures a fast, comprehensive process. BACTÉLIA® ALTA optimizes aromatic intensity, especially when inoculation is made after alcoholic fermentation.

NAME	DOSES	TYPE	ALCOHOL	pH	SO_2 T / SO_2 L	OPTIMUM TEMPERATURE RANGE *	END FA	CO-INOCULATION	SENSORY PROFILE	PRODUCTION OF DIACÉTYLE
Bactélia® CRESCENDO	25 hL	Direct inoculation	< 16%	> 3.2	< 50 mg/L / < 10 mg/L	17 to 25°C	●●●	●●●	Neutral, respect of varietal character	Low to medium
Bactélia® ALTA	25 hL 250 hL	Direct inoculation	< 17%	> 3.2	< 60 mg/L / < 10 mg/L	17 to 25°C	●●●	●●	Intense fruitiness	Low to medium
Bactélia® TEMPO	25 hL 250 hL	Direct inoculation	< 14%	> 3	< 60 mg/L / < 10 mg/L	18 to 22°C	●●●	●●	Clean-tasting wines, floral, fruity scents	Low to medium
FML EXPERTISE® S	2.5 hL / 25 hL / 250 hL	Direct inoculation	< 14.5%	> 3.3	< 50 mg/L / < 10 mg/L	> 18°C	●●●	●●●	Enhances dark fruit aromas	Low to medium
FML EXPERTISE® EXTRÊME	25 hL / 250 hL	One step	< 15.5%	> 3	< 60 mg/L / < 10 mg/L	> 14°C	●●●	●●●	Traditional white wines, structured spicy red wines	Medium to high

* A low temperature (see table) promotes the presence of selected bacteria in the wine. This is especially important with wines in unfavourable conditions. On the other hand, the metabolism of bacteria is boosted at higher temperatures. As a result, when beginning MLF, the temperature can be increased up to 26 °C for sequential inoculation or 30 °C for co-inoculation.

Bacteria product range

FML EXPERTISE® S

FML EXPERTISE® S is an *Oenococcus oeni* bacteria for direct inoculations derived from an IFV in Beaune selection programme carried out on red wines from different regions in France. It has been selected for its capability of producing fruity and spicy red wines and for its fermentation performances on average alcoholic strength wine.

FML EXPERTISE® EXTRÊME

FML EXPERTISE® EXTRÊME is a malolactic yeast inoculation kit containing *Oenococcus oeni* bacteria selected by IFV in Beaune, together with a specific activator. After a short acclimatisation phase, it can easily be inoculated into wine even in extreme conditions (low pH, high alcohol content), rapidly triggering malolactic fermentation. Due to its moderate diacetyl production, it is perfectly suited to traditional white wines. In red wines, it enhances the wine s fruitiness and structure.

HOW TO SUCCESSFULLY MAKE A MODERN RED WINE DERIVED FROM THERMOVINIFICATION?
The OENOTANNIN product range

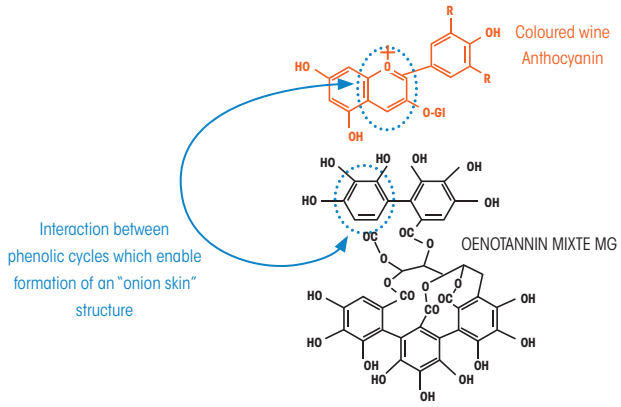
Chevallier-Appert
Created in 1812 by Nicolas APPERT, specialist in oenological tannins

Wines produced by thermovinification often have a pronounced colour that is unstable over time, sometimes with a slightly rustic tannic structure. Consequently, the questions of colour stabilisation and of improvement of the wine's structure need to be taken into account initially. Subsequently, solid matter present during vinification may bind tannins that are too reactive.
Action should be taken in two stages :

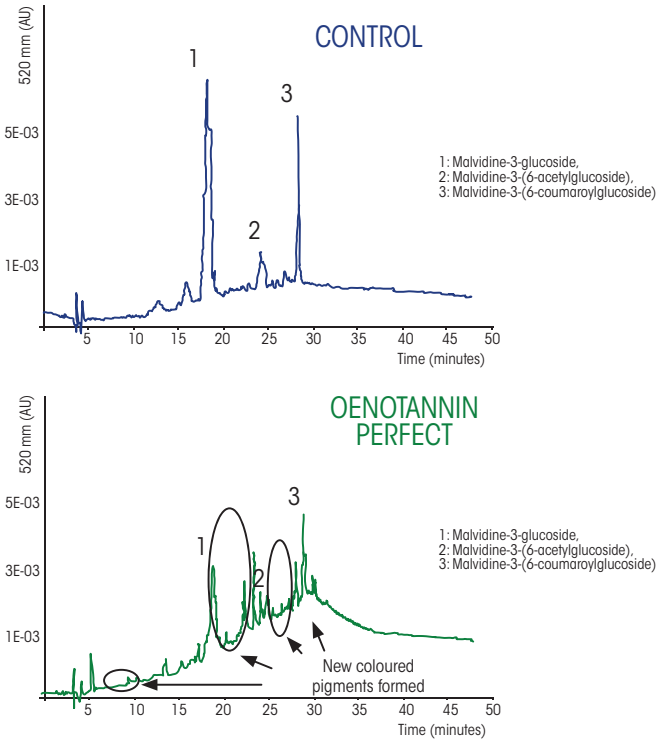
Stage 1
Since solid matter is present, it is not possible to directly use tannins that will permanently stabilise the colour without risking losing part of the tannins due to re-binding on solid matter. It is therefore necessary to use a tannin that has a significant ability to form weak co-pigmentation bonds (formation of a multilayer type complex between anthocyanins and tannin), that are sufficiently strong to preserve the colour. It is therefore advised to choose OENOTANNIN MIXTE MG, which has the additional benefit of being very economical.

Stage 2
At the end of devatting, when solid matter is separated from liquid matter, a so-called OENOTANIN PERFECT tannin is used to definitively stabilse colour. In effect, this tannin is derived from grape seeds and is characterised by its low molecular weight making it very reactive with regard to polyphenols of which anthocyanins. It is a preferred tannin for colour stabilization and also for initiating the polymerisation of wine tannins. We have shown in the chart below that using OENOTANIN PERFECT on an anthocyanin model solution produces new colouring pigments which correspond to anthocyanin-tannin covalent bonds. These bonds are definitive and provide a sustainable stabilization of the colour. OENOTANIN PERFECT also reacts with naturally occurring tannins in the wine to polymerise them and render them less reactive thus more supple from an organoleptic point of view.

Co-pigmentation principle and "onion skin" compound formation



HPLC analysis of an anthocyanin model solution (malvidine compound) 2 months after the addition of 10 g/hL of OENOTANNIN PERFECT



Reasoned addition of tannins

OENOTANNIN STABRED

OENOTANNIN STABRED is a blend of grape and chestnut seed tannins. The tannin readily reacts with polyphenols, and preserves and stabilises colour. OENOTANNIN STABRED can also be used to precipitate part of the unstable proteins.

PACKAGING: 500 g and 5 kg
APPLICATION RATE: 10 to 30 g/hL

OENOTANNIN MIXTE MG

This extract is purified with micro-granule chestnut tannins and is used during wine making. It is very reactive with proteins and has an antioxidant role. Added to the must and the wine prior to fining, OENOTANNIN MIXTE MG improves the fining process while avoiding the thinning of the wine.

PACKAGING: 1 kg and 12.5 kg
APPLICATION RATE: 10 to 50 g/hL

OENOTANNIN OENOGAL

5 or 10 g/hL of pure alcohol gall-nut tannin added before gelatin, this fining additive promotes devatting and helps eliminate excess proteins. OENOTANNIN OENOGAL also has anti-oxidant and anti-lassase properties are put to use when used on adverse harvests.

PACKAGING: 1 kg
APPLICATION RATE: 2 to 20 g/hL

OENOTANNIN PERFECT

OENOTANNIN PERFECT is a grape seed extract made up of tannins with a low degree of polymerization, which is very reactive to wine tannins. This responsiveness enables initiating polymerizations in wine and stabilizes color in the long term. Its strong anti-radical activity limits oxidation and protects color.

PACKAGING: 500 g
APPLICATION RATE: 5 to 20 g/hL

TANNIN range synergy with OENO2

The relationship between wine and oxygen is perhaps one of the most hotly debated issues in modern vinification. During the different phases of winemaking, the wine's need for oxygen varies. $OENO_2$ enables us to adapt precisely to the wine's needs by diffusing the quantity of oxygen that is necessary at each stage of the production process.

Being equipped with an $OENO_2$ system enables you to:

- Activate the biomass and ensure regular alcoholic fermentation.
- Prevent reduction phenomena.
- Stabilise the colour and soften the tannins by erasing grassy notes.
- Optimise the aromatic expression and control ageing on lees.

ENSURES COLOUR STABILITY

Reasoned addition of tannins

OENOTANNIN VB 105

OENOTANNIN VB 105 is an oak tannin which is used a wine maturing accessory. This product fosters slow oxidation while conserving tannins and other wine compounds. It likewise contrbutes to the stabilising of the wine colouring matter and structure.

PACKAGING: 500 g
APPLICATION RATE: 2 to 20 g/hL

OENOTANNIN VB TOUCH

This pure oak tannin is derived using an innovative production process and is used during wine making while providing volume to the wine while reinforcing its aromatic potential.

PACKAGING: 500 g
APPLICATION RATE: 2 to 20 g/hL

OENOTANNIN VELVET

OENOTANNIN VELVET is a grape seed extract which is made up of proanthocyanidines derived from an average degree of polymerization. When introduced during or at the end of the maturing process it reinforces the wine structure and its wine ageing potential. OENOTANNIN VELVET participates rapidly with the stabilizing of color.

PACKAGING: 500 g
APPLICATION RATE: 5 to 20 g/hL

OENOTANNIN FRAÎCHEUR

OENOTANNIN FRAÎCHEUR is a tannin complex specially formulated to enhance and maintain the aromatic freshness of white and rosé wines over time. The combination of gallotannins, ellagitannins and condensed tannins limits the oxidation of wines by consuming dissolved oxygen, and maintains freshness by lowering redox potential. OENOTANNIN FRAÎCHEUR can be used on all types of maturing wines or before bottling.

PACKAGING: 250 g
APPLICATION RATE: 1 to 5 g/hL

OENOTANNIN INITIAL

OENOTANNIN INITIAL is a grape seed tannin extract. During the winemaking process, it compensates tannin deficiency by bringing structure and remarkable volume. Used in the beginning of wine maturing, it removes herbaceous notes, green tannins and provides suppleness.

PACKAGING: 500 g
APPLICATION RATE: 5 to 20 g/hL

OENOTANNIN CÉLESTE

OENOTANNIN CÉLESTE is a tannin complex specially formulated to meet the needs of winemakers who wish to correct a lack of structure in white and rosé wines without causing bitterness and hardness. Its complex formulation enables it to act on the wine s organoleptic balance and thus readjust the structure of dilute wines or wines judged to be thin in the mouth. OENOTANNIN CÉLESTE acts rapidly and can have late corrective action.

PACKAGING: 500 g
APPLICATION RATE: 1 to 20 g/hL

Reasoned addition of tannins

		PRINCIPAL APPLICATIONS	SECONDARY APPLICATIONS	BOTANICAL ORIGIN	RECOMMENDED DOSAGE	TYPE OF WYNE
VINIFICATION	**OENOTANNIN OENOGAL**	Reduces oxidation	Rapid consumption of oxygen	Tara	2 to 20 g/hL	All wines
	OENOTANNIN MIXTE MG	Preserves wine s natural polyphenols	Precipitates proteins Protects from oxidation Rapid consumption of oxygen Avoids overfining and speeds up fining	Chestnut	10 to 50 g/hL	White, rosé and red
	OENOTANNIN STABRED	Preserves and stabilises colour	Limits sensitivity of wines to oxidation and partially precipitates unstable proteins	Grape and chestnut seeds	10 to 30 g/hL	Reds
VINIFICATION AND AGEING	**OENOTANNIN INITIAL**	Structures, softens and removes grassy notes	Preserves wine s natural polyphenols Balances the natural phenolic potential of the wine Structures and softens	Grape pips	5 to 40 g/hL	Reds
	OENOTANNIN PERFECT	Stabilises colour	Balances the natural phenolic potential of the wine Structures and softens Reduces oxidation Offsets tannin deficiency	Grape pips	5 to 20 g/hL	Rosés and reds
AGEING	**OENOTANNIN VB105**	Preserves wine s natural polyphenols	Enhances tannin potential Rapid consumption of oxygen	Oak	1 to 30 g/hL	Reds
	OENOTANNIN VB TOUCH	Provides volume and enhances aromatic potential	Harmony between structure and volume	Oak	2 to 20 g/hL	Whites, rosés and reds
	OENOTANNIN VELVET	Provides structure and volume	Balances the natural phenolic potential of the wine Stabilises colour Structures and softens	Grape pips	5 to 20 g/hL	Reds
	OENOTANNIN FRAÎCHEUR	Maintains and revives aromatic freshness over time	Structures and softens Reduces oxidation Revives freshness of prematurely mature wines	Exotic wood	1 to 5 g/hL	All wines
	OENOTANNIN CELESTE	Provides structure and readjusts wines	Does not provide bitterness	Exotic wood	1 to 20 g/hL	Whites and rosés

OENOFRANCE® has always been close to its customers and the specific problems they encounter. It is for this reason that OENOFRANCE® is the only oenological products company to market pure botanical origin tannins. OENOFRANCE® studied the chemical properties of different available tannins over several years. Based on this study, OENOFRANCE® demonstrated that each tannin taken individually (in terms of botanical origin) provides specific features particular to wine (resistance to oxidation, colour protection, wine structuring, reinforced redox potential, etc.).

OENOFRANCE® thus decided to develop a complete botanical origin tannin product range in order that each tannin responds in an optimal manner to different problems winemakers may encounter. There are many problems which can be resolved by using the right tannin at the right time. It is therefore important to understand the problem and the related constraints to choose the OENOFRANCE® tannin product range to solve the corresponding problem. The below tables provides the properties of every OENOFRANCE® product range tannin and their corresponding timing of usage.

NOQUERCUS

An **alternative** solution
to fresh wood chips!

INSTANT ACTION
The active ingredients of NOQUERCUS
are available immediately

PROTECTS
polyphenols against oxidation

STABILIZES
the colouring matter

PRESERVES
the wine's freshness

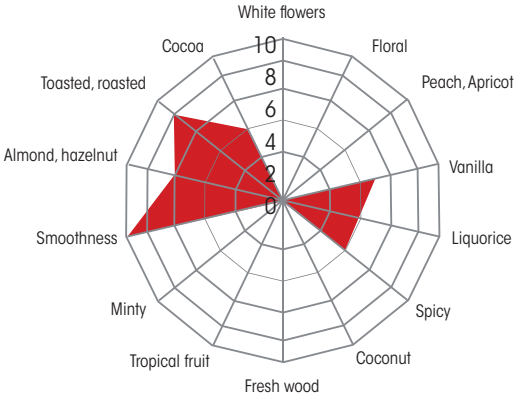
CONTRIBUTES
to the wine's sucrosity
and complexity

NOQUERCUS®

NOQUERCUS®

NOQUERCUS® is a blend designed to protect polyphenols from oxidation in grapes of low quality or to preserve their potential. It provides an alternative to the use of fresh wood.

PACKAGING: 500 g and 5 kg
APPLICATION RATE: 0.2 to 0.6 g/L



NOQUERCUS® DOUCEUR

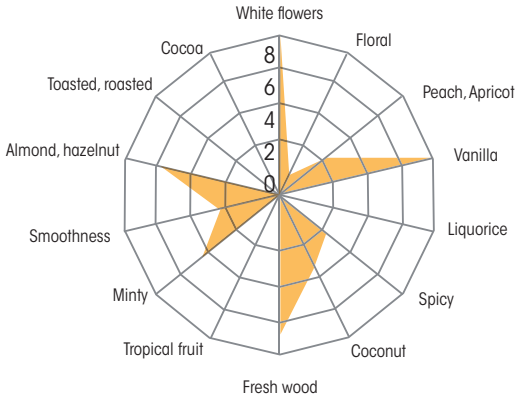
NOQUERCUS® DOUCEUR is a blend specifically developed to provide more volume and more roundness while enhancing the wine s sweetness, characterised by smoothness and voluptuous notes.

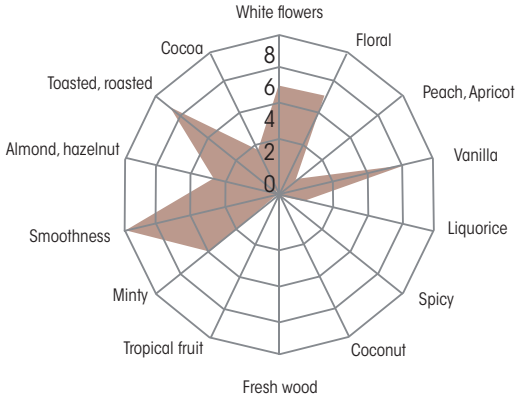
PACKAGING: 500 g and 5 kg
APPLICATION RATE: for red wine: 0.15 to 0.50 g/L
for white wine: 0.05 to 0.20 g/L

NOQUERCUS® BLANC

NOQUERCUS® BLANC reduces white wine s sensitivity to oxidation and enhances aromatic freshness. This blend provides an alternative to fresh wood used in fermentation.

PACKAGING: 500 g and 5 kg
APPLICATION RATE: 0.05 to 0.2 g/L





FINING PRODUCTS FOR WINES

WHAT YEAST PRODUCTS TO ACCOMPANY MY WINE FROM THE GRAPE TO THE BOTTLE?

Phylia® Epl

Background

Developed in collaboration with the Hochschule Geisenheim University (Germany) and the Lesaffre company, PHYLIA® EPL is the result of several years of research focused on fining musts and wines using yeast proteins.

Its properties

Above and beyond being used for clarification, PHYLIA® EPL is unique in enhancing the taste profile of wine.

This innovative yeast product:

- Removes drying tannins
- Reduces astringency
- Promotes the elimination of Quercetin Aglicone
- Reduces bitterness

PHYLIA® EPL, is an original and quality alternative to traditional protein fining agents which enables the refining of white, red and rosé wines.

Production process

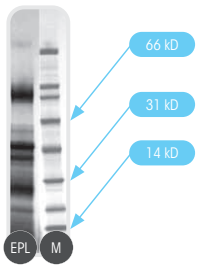
The production of PHYLIA® EPL lies in managing yeast treatment and purifying compounds obtained in view of retaining solely the sought after proteins.

Its characteristics

PHYLIA® EPL is a revolutionary yeast protein extract based on its origin and its production process:

- In effect, the constituent proteins of PHYLIA® EPL come exclusively from yeasts used in oenology (*Saccharomyces cerevisiae*). They can also be qualified as «native wine proteins».
- PHYLIA® EPL is based on an innovative industrial process which ensures the extraction, concentration and the conservation of proteins derived from yeast, selected for their heavy molecular weight protein richness.
- PHYLIA® EPL is a completely soluble yeast protein extract. As this fining product is «Allergen Free» it is not concerned by allergen labelling.
- Thanks to a research programme with the University of Padua, it has been confirmed that PHYLIA® EPL also has a bonding effect on Quercetin Aglicone (ask for the specific OENOFRANCE® protocol).

SDS-PAGE electrophoresis profile of PHYLIA® EPL with a size marker scale



PHYLIA® EPL is based on an industrial procedure enabling the conservation of native proteins derived from yeast. Only proteins with high molecular weight (>14 kDa) are able to ensure quality fining of wines.

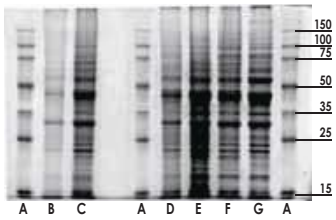
EPL: Yeast protein extract PHYLIA® EPL

M: size in kD Markers

LIVE YEAST

EXTRACTION AND PURIFICATION

SDS-PAGE electrophoresis of different protein fractions obtained from yeast (A: DNA ladders; B, C, D, E, F, G: different protein fractions)



INDUSTRIAL PRODUCTION

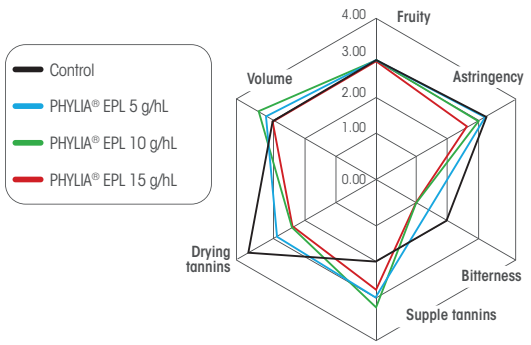
PHYLIA® EPL

Its applications

- PHYLIA® EPL is preferentially used for high quality premium to super premium white, rosé and red wines.
- Used on red wine, it removes excessive astringency, softens tannins and improves in-mouth volume.
- Used on white and rosé wines, PHYLIA® EPL eliminates tannins responsible for bitterness and participates in the overall improved taste profile.

Impact of PHYLIA® EPL on the taste profile of wines

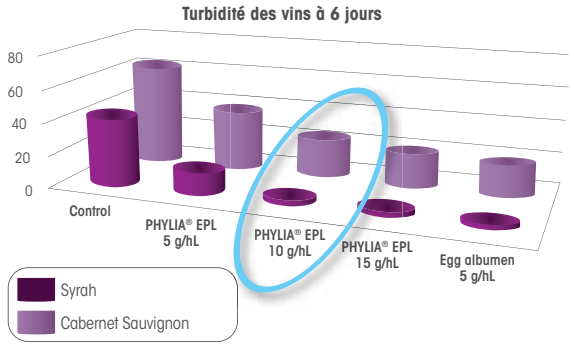
Trials on different doese on red Syrah wine.



To fully benefit from PHYLIA® EPL, it is recommended to carry out preliminary trial tests using different dosage levels. As such, the wine-maker can select, based on taste, the treatment dose level the most adapted to his/her wine.

Impact of PHYLIA® EPL on the clarification of wines

Trial on red wine at different doses and comparison to egg albumen



PHYLIA® EPL provides an optimal organoleptic impact using a dose of 10 g/hL, combined with a fining performance similar to egg albumen, which is the traditional fining agent for great red wines.

Its implementation

- Determine the optimum application rate of PHYLIA® EPL by setting up a preliminary test trial for wine: an under vacuum sample and the protocol for use available upon request.
- Disperse PHYLIA® EPL into 10 times its weight of water (cold).
- Incorporate into wine then homogenize well. Best if used with a fining connection such as Venturi.
- On white and rosé wines, it is possible to add an ellagic-chestnut type tannin beforehand to activate the fining process: that being for each dose of PHYLIA® EPL, a corresponding half dose of OENOTANNIN MIXTE. It is to be noted that silica gel is not effective on the fining process of PHYLIA® EPL.

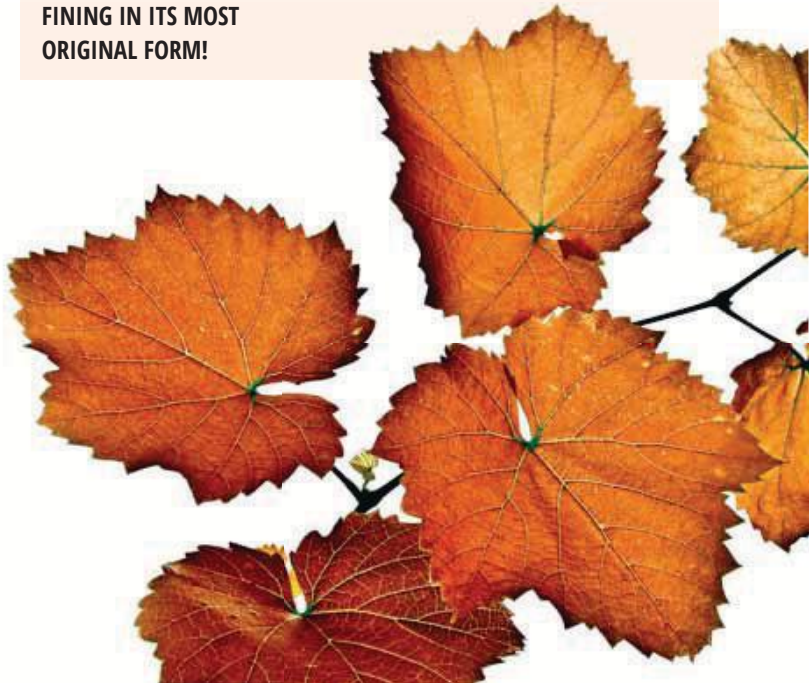
PHYLIA® EPL, is:

The leading yeast protein extract
100 % yeast proteins
Non-allergenic
100 % soluble
Effective against Quercetin Aglicone
Used for the very respectful fi ning of wines

Awarded prize at Intervitis 2010

Mention at Sitevi 2009

FINING IN ITS MOST ORIGINAL FORM!



PHYLIA® EPL

PHYLIA® EPL is the fruit of many years of research focused on fining musts and wine using exclusively yeast based proteins. PHYLIA® EPL is based on an innovative industrial process which enables the extraction, concentration and storage of these indigenous yeast proteins. PHYLIA® EPL is used for fining musts as well as white, red ands rosé wines. PHYLIA® EPL eliminates tannins which cause bitterness thus creating a fining and maturing procedure duly respectful of wines. Lastly, and due to its origin, PHYLIA® EPL is an Allergen Free fining product, and is thus not concerned with the labeling of its allergens.

PACKAGING: 500 g
APPLICATION RATE: 5 to 30 g/hL

IS 15

IS 15 is a cold soluble gelatin, with 80% of the proteins contained with a molecular weight of 15 000 daltons. It is very reactive to tannins with bitter and astringent properties. IS 15 is used for wines rich in this type of tannin.

PACKAGING: 1 kg
APPLICATION RATE: 6 to 12 g/hL

AFFIMENTO

AFFIMENTO has been formulated from specific gelatin for fining and clarifying red wine as with ADAGI O.

PACKAGING: 5 L
APPLICATION RATE: 5 to 15 cL/hL

COLLE DE POISSON OF

COLLE DE POISSON OF, is a specific clarifying agent for white wine and is made up of high molecular weight. This product provides unparalleled brilliance combined with very good organoleptic results.

PACKAGING: 10 L / 250 g
APPLICATION RATE: 1 L for 5 to 10 hL of white wine

COLLOGEL

COLLOGEL, made up of little hydrolyzed gelatin and fish collagen, is used for clarifying white and rosé wines. Its proteins are involved in forming insoluble complexes thus ensuring a rapid and efficient fining, with no risk over overfining while preserving the organoleptic properties of wine.

PACKAGING: 10 L
APPLICATION RATE: 3 to 10 cL/hL

OENOVEGAN® FINESSE

Product specifically formulated to reduce organoleptic alteration related to growth of spoilage micro-organisms. OENOVEGAN® FINESSE is the result of combining a natural plant copolymer (a constituent of *Aspergillus niger* cell walls) and legume proteins.

PACKAGING: 1 kg
APPLICATION RATE: 5 to 40 g/hL

OENOVEGAN® EPL

Thanks to experience acquired in collaboration with various European universities (University of Dijon in France and University of Geisenheim in Germany) since the late 2000s on yeast protein extracts, OENOFRANCE® s development and applications department has developed a new solution for fining musts and wines. OENOVEGAN® EPL is a synergistic combination of a pea protein and yeast protein extracts for optimal fining.

PACKAGING: 1 kg
APPLICATION RATE: Static settling and flotation: 5 - 10 g/hL
Fining of wines: 5 to 30 g/hL depending on turbidity and oxidation levels encountered d oxydation rencontrés.
Maximum legal dose according to current European regulations: 60 g/hL

Fining products for wines

SILICE 30

SILICE 30 is a fining additive made up of silica sol. Combined with gelatine or isinglass, it improves settling of fining lees, speeds up clarification, and avoids over-fining.

PACKAGING: 1 L, 5 L, 20 L and 1 000 L
APPLICATION RATE: 1 to 5 cL/hL

OENOVEGAN® PURE

OENOVEGAN® PURE ure is a plant protein obtained by a specific production process that optimises its fining properties. OENOVEGAN® PURE can be used to obtain clarification of musts using a static or flotation process, while preserving the varietal characteristics of the must. OENOVEGAN® PURE is also used for fining wines.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: Static settling and flotation: 10-20 g/hL
Fining of wines: 5-50 g/hL depending on turbidity and oxidation levels encountered. Maximum legal dose according to current European regulations: 50 g/hL

OENOVEGAN® MICRO FA

BIOCONTROL PRODUCT FOR MUST MICROORGANISMS BASED ON *ASPERGILLUS NIGER* CHITOSAN

OENOVEGAN® MICRO FA is a 100% natural biocontrol product developed to slow down the growth and reduce the population of spoilage microorganisms naturally present on grapes. It is an effective alternative to SO_2 due to its antifungal properties. OENOVEGAN® MICRO FA enables you to control of the microbiological diversity of musts thanks to the synergy between two active ingredients: activated chitosan and yeast hulls.

- Chitosan is a polymer of the glycosaminoglycan family, derived from the chitin contained in the cell walls of microorganisms such as ***Aspergillus niger***. Its "activated" form has a high degree of deacetylation and gives it more reactivity: positively charged in an acidic environment (pH < 5.5), its molecule reacts by means of electrostatic reactions between the numerous amine functions at its surface and the negatively charged compounds are found in the walls of spoilage microorganisms, causing dysfunction in their membrane and resulting in their death.
- Yeast hulls have detoxifying properties and eliminate certain undesirable molecules (unsaturated fatty acids, pesticides, etc.) contained in the must.

PREVENTIVE

OENOVEGAN® MICRO FA is an easy-to-use solution thanks to its granulated formula, which enables fast rehydration and results in a homogeneous product that ensures effective action on the entire grape harvest or treated must.

An alternative to using SO_2

100% natural

Granules for rapid rehydration

OENOVEGAN® MICRO FA

OENOVEGAN® MICRO FA is a 100% natural biocontrol product developed to slow down the growth and reduce the population of spoilage microorganisms naturally present on grapes. OENOVEGAN® MICRO FA can be used on grapes or on must while vatting and before alcoholic fermentation:

Reduces microbial diversity and controls the growth of undesirable microorganisms (*Brettanomyces*, other indigenous yeasts, bacteria)
It is an alternative to using SO_2
Ensures safe alcoholic fermentation
Detoxifies the must and enables you to obtain a more distinct aromatic profile

PACKAGING: 1 kg, 10 kg
APPLICATION RATE: 15 to 20 g/hL depending on the microbiological risk.
Maximum legal dose: 25 g/hL in accordance with current European regulations

Allergen Free · Vegan · UE Usable in organic

On wine

OENOVEGAN® MICRO

FORMULATED FROM SPECIFIC CHITOSAN

Chitosan in an acidic medium (pH<5.5) is a positively-charged molecule that will react electrochemically with negatively-charged membrane constituents.

Therefore, the use of chitosan as the main compound affects:
- the development of Gram-positive (lactic) bacteria by interacting with membrane liposaccharides
- the development of Gram-negative (acetic) bacteria by interacting with the teichoic acids of cell wall peptidoglycans
- the development of ***Brettanomyces bruxellensis*** and other yeast species by interacting with mannosyl phosphates and membrane sphingolipids.

These mechanisms lead to membrane dysfunction and cell death.

When to use OENOVEGAN® MICRO:

- **For microbiological stabilisation**
  - *Brettanomyces* and bacteria
  - Must and wine
- **A natural plant-based alternative to lower doses of SO_2**
- **To produce a clearer aromatic profile**

This product is approved for organic and vegan winemaking.

Reduction of *Brettanomyces bruxellensis* populations

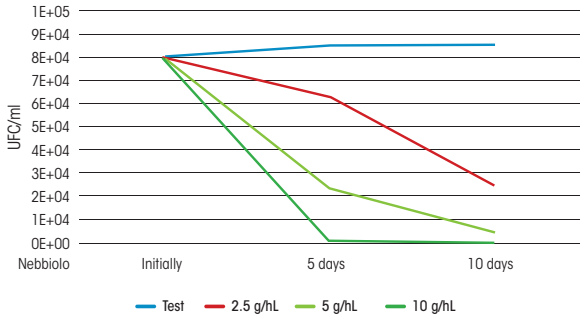
Fast acting

Granules for immediate dispersion

No organoleptic impact

CURATIVE

Evolution of a *Brettanomyces* population and the effects of OENOVEGAN® MICRO on wine



Its specific manufacturing process, in the form of granules for **immediate dispersion**, ensures **fast action: it eliminates *Brettanomyces* in 3 to 4 days**, whereas other products on the market require approximately 2 weeks.

OENOVEGAN® MICRO

OENOVEGAN® MICRO is a plant-based product specifically formulated to control the development of *Brettanomyces bruxellensis* and other spoilage microorganisms. It is a fining product free from derivatives of animal origin, and is therefore suitable for use in vegan production.

PACKAGING: 100 g and 500 g

APPLICATION RATE: 2 to 10 g/hL according to the microbiological risks.
Maximum legal dose: 18 g/hL in accordance with current European regulations

Innovation Oeno-France · Allergen Free · Vegan · UE Usable in organic

Protein stabilization

MAXIMUM PURITY
MAXIMUM EFFICIENCY

Performa

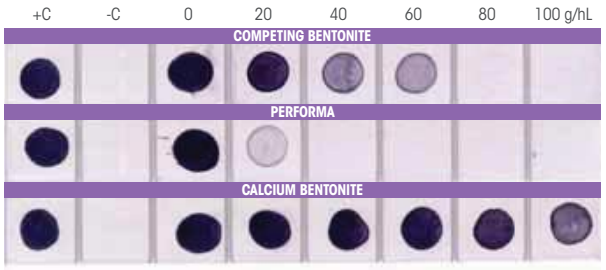
FOR THE PROTEIN STABILITY OF YOUR WINE

Allergen Free · Vegan · UE Usable in organic

- **Extremely pure activated sodium bentonite, also used in the pharmaceutical and cosmetic industries**
- **Respects organoleptic characteristics**
- **Compact settling and minimal loss of wine**
- **Easy to use: quick to prepare and easy to mix**

- **Use demineralized water**
- **Never rehydrate bentonite in wine**
- **Let the suspension stand for 30 min to 3 hours (no more, at the risk of reducing the effectiveness of bentonite)**

Comparison of effectiveness of various bentonites using the VINEO UP INSTABLE PROTEINS test



+C: positive control -C: negative control

To carry out this test, an unstable white wine was treated with various bentonites at doses ranging from 20 to 100 g/hL. A drop of each treated wine, a drop of the control wine (graded 0), as well as a drop of a positive control (graded C+) and of a negative control (graded C-) is then placed on a strip of nitrocellulose.
After several reactions with specific antibodies and successive washing, a violet stain appears on the strip, revealing the presence of proteins in the wine (the colour intensity is proportional to the protein concentration).
In the image above, it can be seen that PERFORMA eliminates all the unstable proteins in the wine at a dose of 40 g/hL, at which stage the violet stain has completely disappeared. For the competing bentonite, a halo is still present at 80 g/hL, which means that there are still traces of proteins at that dose. The calcium bentonite is ineffective: all that can be seen is a faint lightening of the stain with treatment at 100 g/hL.
PERFORMA respects the physicochemical and organoleptic characteristics both of powerful, fruity red wines and aromatic white wines.

PERFORMA's various applications:

- Protein stabilisation
- Elimination of unstable colouring matter
- Destaining of musts and white wines

Protein stabilization

LYSOGRAM+

LYSOGRAM+ is a lysozyme-rich preparation, an enzyme with properties discovered by Alexander Fleming in 1922. It is used in bacteriology since it destroys the cell wall of Gram+ bacteria, such as lactic acid bacteria. Several possible applications:

On a contaminated must: to limit the proliferation of lactic acid bacteria that may cause lactic spoilage.
In the event of stuck fermentation, to avoid bacterial growth while limiting sulfiting, so as to maximize the chances of the added yeast completing fermentation.
On wine undergoing fermentation: to control malolactic fermentation and avoid the risk of its onset before the end of alcoholic fermentation.
On wine at the end of alcoholic fermentation: to avoid the action of indigenous bacterial flora and delay the onset of malolactic fermentation or prevent it.
LYSOGRAM+ does not alter the organoleptic characteristics of wine, unlike SO_2.
LYSOGRAM+ makes it possible to reduce dosages of SO_2 without replacing it, since it has no reducing properties and is inactve against acetic acid bacteria and yeasts.

PACKAGING: 500 g jars in a 15 kg box
APPLICATION RATE: From 10 g/hL to 50 g/hL depending on the desired result, adding it in stages to avoid significant flocculation and the loss of part of the lysozyme (consult your oenologist). Adding it in stages, for example 20 g/hL on must, then 30 g/hL on wine, provides improved stabilization of bacterial populations and better lysozyme activity than a single addition of 50 g/hL.
Maximum legal dose (EU): 50 g/hL.

PERFORMA

Selected from the purest active sodium bentonites used in pharmacy and cosmetics, PERFORMA develops an extremely large absorption surface area. This property considerably lowers the dosage required to eliminate proteins from wines, and thus limits organoleptic impact.

PACKAGING: 1 kg, 5 kg and 10 kg
APPLICATION RATE: 5 to 50 g/hL to be defined by a preliminary laboratory test. In case of high protein stability, larger doses may be necessary. With large doses, it is essential to carry out the operation in two separate additions at 24- or 48-hour intervals after racking

BENTONITE S

BENTONITE S is an active sodium bentonite. It is highly effective at eliminating must and wine proteins, and can therefore be used at lower doses than conventional bentonites, thus limiting organoleptic impact.

PACKAGING: 1 kg, 5 kg and 25 kg
APPLICATION RATE: 20 to 80 g/hL

CRISTADOLCINE EF

CRISTADOLCINE EF, used for the elimination of proteins and for clarification of white and rosé wines, combines three types of bentonite. CRISTADOLCINE EF severely limits the volume of lees. 30 to 60 g/hL are usually sufficient to eliminate all unstable proteins.

PACKAGING: 1 kg and 5 kg
APPLICATION RATE: 30 to 100 g/hL

PERFECTA

PERFECTA is the result of precise research aimed at selecting the right combination of a specific bentonite and hydroxylated silicon dioxide to stabilise wines while respecting their aromatic and organoleptic profile. PERFECTA is a bentonite that can be used during the alcoholic fermentation stage. It promotes protein stabilisation while helping to settle the lees at the end of fermentation. PERFECTA enables fast and effective clarification with excellent sedimentation, while minimising wine losses. PERFECTA is the precise answer when a deproteinising and settling effect is required.

PACKAGING: 1 kg and 10 kg
APPLICATION RATE: The dose varies according to the stability test

THE BEST COMPROMISE BETWEEN PROTEIN STABILISATION AND SEDIMENTATION

PERFECTA is the optimal combination of protein removal and sedimentation of the deposit.

- Protein stabilisation with low organoleptic impact
- Can be used in Alcoholic Fermentation
- Improves the settling of fermentation lees
- Easy to use

Perfecta
A NEW GENERATION OF BENTONITE

Combine protein stabilisation and clarification of your wines

- Promotes **protein stabilisation**. Can also be used on must
- Ensures **fast** and effective **clarification** with excellent sedimentation
- Respects the **organoleptic characteristics** of the wine
- An **economical solution**

A powerful deproteiniser

Bentonite is structured in **layers**. The space between layers can absorb water, causing it to swell and disperse. The cations on its surface (positively charged particles) are released and are then exchanged against proteins which, at the wine's pH, are positively charged. The **unstable proteins that get trapped** precipitate and can be removed by racking. PERFECTA is **activated sodium bentonite**, which gives it added swelling ability and consequently higher deproteinising power than many bentonites on the market (*Figure 1*).

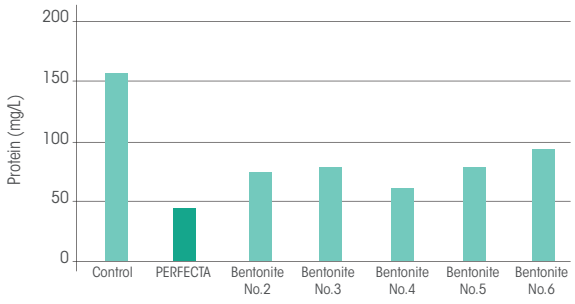


Figure n°1: PERFECTA's **deproteinising power** compared to 5 other bentonites available on the market. Trials were conducted with white wines produced from Garganega (Italy, 2020).

Powerful compaction

The silica fraction in PERFECTA's composition makes **the preparation heavier** and puts pressure on the deposit, **ensuring optimal compaction**. PERFECTA is among the top 3 bentonites tested for **sedimentation power** (*Figure 2*).

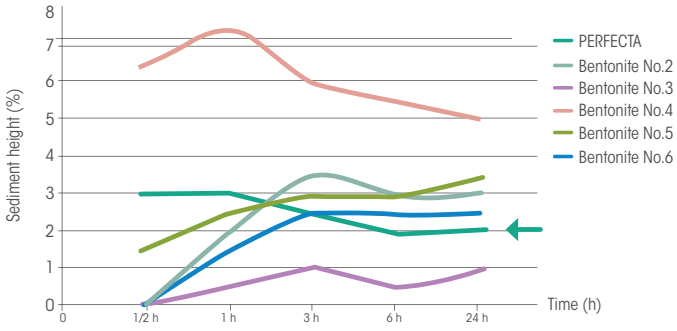


Figure n°2: PERFECTA's **compacting power** compared to 5 other bentonites available on the market. Trials were conducted with rosé wines produced from Pinot Noir (Italy, 2020).

The best compromise between protein stabilisation and sedimentation

PERFECTA is **the optimum combination** of protein elimination and deposit sedimentation (*Figure 3*). The bentonite's effectiveness can be assessed by calculating the variation between the initial and the final turbidity with a heat test. Turbidity largely defines protein instability and the height of the sediment that is formed (%). The lower the ratio, the better the bentonite. **The coefficient thus obtained for PERFECTA is the lowest, which corroborates its balance between stabilisation and sedimentation**.

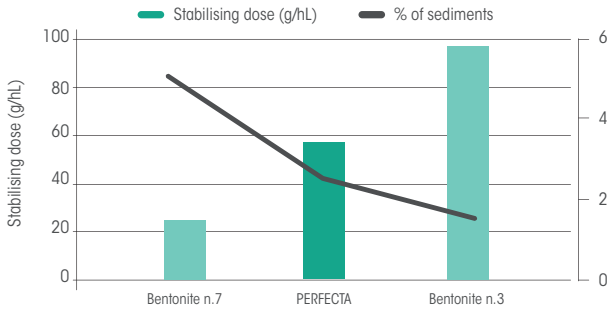


Figure n°3: The relation between stabilisation and sedimentation achieved with PERFECTA and two other bentonites available on the market.

Tartaric stabilization

HOW TO SECURE THE TARTARIC STABILIZATION OF MY WHITE AND ROSÉ WINES WITH REGARD TO POTASSIUM?

Kyocell

CELLULOSE GUM OF NATURAL ORIGIN IN COMPLIANCE WITH THE OENOLOGICAL CODEX

Vegan

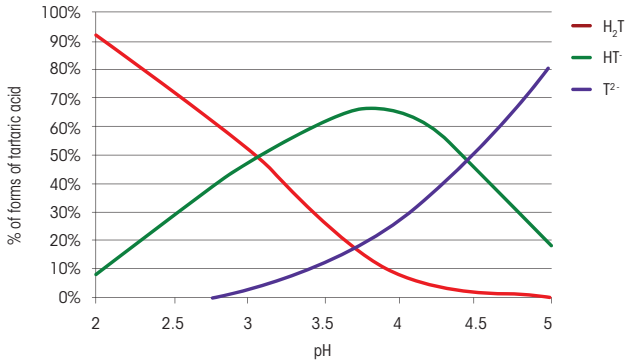
Tartaric acid is vine acid! It is produced in large quantities and is the principle natural source of this acid. Potassium is the other commonly found element in grapes It is a very important physiological role for vines by participating in grape maturation. Consequently, it represents the core of minerals found in musts and wines. This production of tartaric acid and the presence of large quantities of potassium bring on the appearance of crystals in wine. In solutions, tartaric acid can be found in different balanced forms. As such, tartaric acid, which is a diacid chemically speaking, can exist in three distinct forms: tartaric acid (H_2T), bitartrate ion (HT^-) and tartrate ion ($T2^-$). The balances can be written as follows:

$$H_2T \rightleftharpoons HT^- + H^+ \qquad HT^- \rightleftharpoons T^{2-} + H^+$$

These balances are regulated by the pH levels in solutions and according to the wine pH level the distribution of different forms of tartaric acid varies.
The pH of wine (generally can vary between 2.9 and 4), the predominant is bitartrate ion since it represents between 40 and 65% or total present tartaric acid. It clearly appears that the T^{2-} tartrate form is increasingly found with rising pH levels, reaching nearly one-third of tartaric acid of wine.
It is these two forms of tartaric acid which are responsible for the instability of wine by crystallising in the form of potassium bitartrate (KHT) and calcium tartrate (CaT). These crystals appear in the wine since it is a hydro-alcoholic solution when musts are purely an aqueous solution.

$$HT^- + K^+ \rightleftharpoons KHT \qquad T^{2-} + Ca^{2+} \rightleftharpoons CaT$$

Dissociation of tartaric acid according to pH



Every solution, whether aqueous or hydro-alcoholic, has an «acceptance» limit of a chemical species. This value is called the solubility of a species in one or another solution. In this context, we shall speak of S_{KHT} and S_{CaT}. In accordance of this value, two cases are possible.
Example of KHT:
- $[HT^-] \times [K^+] < S_{KHT}$ => KHT is totally soluble
- $[HT^-] \times [K^+] > S_{KHT}$ => KHT crystallises

Several factors influence this crystallisation phenomen.
- Lowering temperature or alcohol level decreases the value 5-fold
- All other factor which increase concentrations of K^+ or HT^-.

As such, increasing the alcohol level during alcoholic fermentation reduces the solubility of KHT and CaT and increasing the pH level increases the concentrations of bitartrate and tartrate, just as a press wine is richer in K^+ than a free running wine or that a cuvée of Champagne is one level less rich. All these factors have an influence as they increase the product of the concentrations and as such create a greater chance of being above the solubility of S_{KHT} and S_{CaT} and thus lead to the crystallisation of KHT and of CaT.
Concerning CaT, the probability of surpassing S_{CaT} is less than for KHT because if the risk exists it is lesser than for KHT.
On the other hand, since wine is not simply a hydro-alcoholic solution, since it contains numerous colloids, the situation is a bit more complex. These so-called protectors ensure having concentrations above S_{KHT} without KHT crystallising. The wine is then said to be oversaturated. Nevertheless this oversaturation phenomenon is not indefinite and at a given moment KHT crystallises anyway.

Tartaric stabilization

This is why we have different options to stabilise wine with regard to tartaric salts:

- Removes excess salt by reducing S (chilling with or without inoculation of potassium bitartrate).
- Enlarge the field of oversaturation of wine with KHT by adding colloidal protectors (metatartaric, KYOCELL)

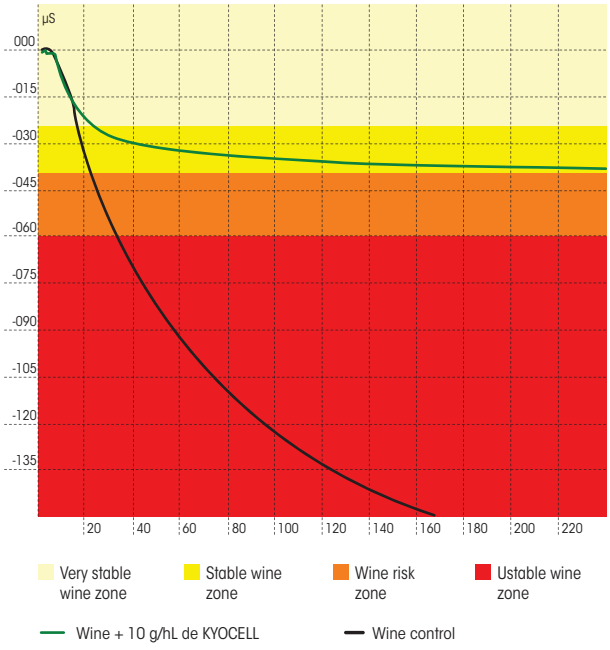
The choice of using one or another of the methods will depend on the type of wine to stabilise, its composition and equipment available.

Each method has its advantages and its disadvantages:

Chlling can be applied to all wines but this will cause pH levels to decrease and will consume more energy. The use of metatartaric will enable stabilising rapid production wines but on the term long its hydrolysis makes it less efficient. Finally, KYOCELL enables stabilising white and rosé still and/or base wines (if the colour is stable), but can not be used on red wines.

In any case, verifying the efficiency of the treatment is crucial either by using a chill test which may block since it lasts 5 days and is carried out at -4°C or by using a minicontact test which we carry out with CHECKSTAB. This enables determining the KHT stability status of the wine within a few minutes.

Minicontact test



KYOCELL

KYOCELL is a cellulose gum (E466) used for stabilizing wine with regard to potassium bitartrate. KYOCELL is made from cellulose extracted from wood. Its main characteristics, viscosity, degree of polymerization and degree of substitution, are particularly adapted to oenology. KYOCELL can be found in granulate and liquid form.

PACKAGING: 5 L, 20 L and 1000 L
APPLICATION RATE: 4 to 20 g/hL/ 8 to 40 cL/hL

Vegan

KYOCELL 2.0

DROP & GO

KYOCELL 2.0 is a 20% cellulose (E466) gum solution. It combines low viscosity and high concentration, ensuring efficient wine stabilisation against potassium bitartrate. It is also easy to use. KYOCELL 2.0 can be used in white and rosé wines, as well as base wines used to obtain sparkling wines.

PACKAGING: 1 L and 20 L
APPLICATION RATE: maximum legal dose according to current European regulations: 20 g/hL, i.e. 10 cL/hL for the 20% solution

Vegan

BITARTRATE DE POTASSIUM

BITARTRATE DE POTASSIUM (E336), still referred to as cream of tarter or potassium tartaric acid is used during the cold treatment of wine. Used at doses of 400 g/hL, is serves as the seed for the crystallization of tartaric acid salts. Crystallization is thus faster and more thorough.

PACKAGING: 5 kg and 25 kg
APPLICATION RATE: 400 g/hL

Allergen Free · Vegan · UE Usable in organic · NOP Usable in organic

KYLMÄ®

DROP & GO

KYLMÄ®

New generation of liquid solutions for total and sustainable tartaric stabilisation. Improve and secure the future of your wines!

Tartrate stabilisation
Total, long-lasting

Organoleptic profile
Enhanced volume and roundness, reduced tannin sensation and bitterness on the finish

Reduced environmental impact
Energy saving
(low temperatures, water)
Less waste

INNOVATION OENOFRANCE Vegan

KYLMÄ® INTENSE

Intensity & volume

Fruitiness & Length

KYLMÄ® PURE

KYLMÄ® SR

Freshness, finesse & roundness

Improve and secure the future of your wines!

KYLMÄ's synergy with the MICRO-DOSING PUMP

- **LESS RISK OF CLOGGING**
- **EASY TO USE**
- **POSSIBILITY OF ENZYME AND GUM ARABIC INJECTION**

MICRO DOSING PUMP
The precision injection system!

Precise, simultaneous dosing (up to 3 types of products)

The machine is delivered ready to use and calibrated

Customisable manual or automatic mode

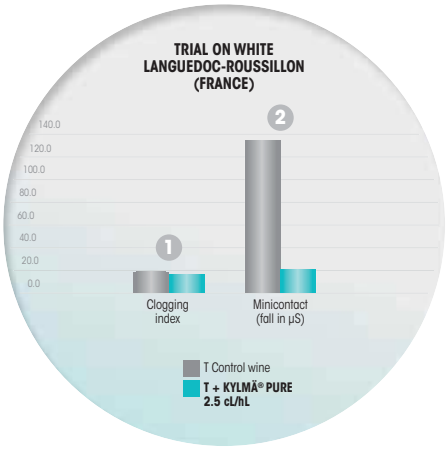
Fast cleaning and maintenance

Improve and secure the future of your wines!

KYLMÄ® PURE

KYLMÄ® PURE is a concentrated solution (20%) of potassium polyaspartate. It ensures the stabilisation of wines with regards to the tartaric precipitation of K bitartrate.

PACKAGING: 1 L, 5 L, 20 L, 1000 L
APPLICATION RATE: from 2.5 to 5 cL/hL.
Maximum legal dose according to current European regulations: 5 cL/hL



Commentaries KYLMÄ® PURE trial
❶ No increase in clogging index
❷ Stable wine with KYLMÄ® PURE
Observation: The mini-contact test is confirmed by the presence of crystals in the control wine following a cold test for 6 days at -4 °C
KYLMÄ® PURE guarantees tartrate stability of the wine and does not increase the clogging index

ENVIRONMENTAL IMPACT

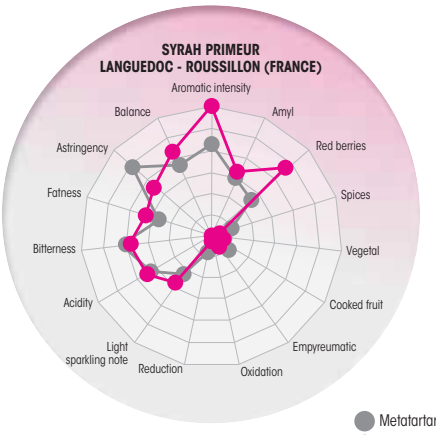
	Cold	Electrodialysis	KYLMÄ® PURE
Energy consumption	0.86 KWh/hL	0.14 KWh/hL	< 0.02 KWh/hL
Water consumption	6 L/hL	21 L/hL	0.2 L/hL
Waste production	Tartrate salts / cleaning	Brine	0

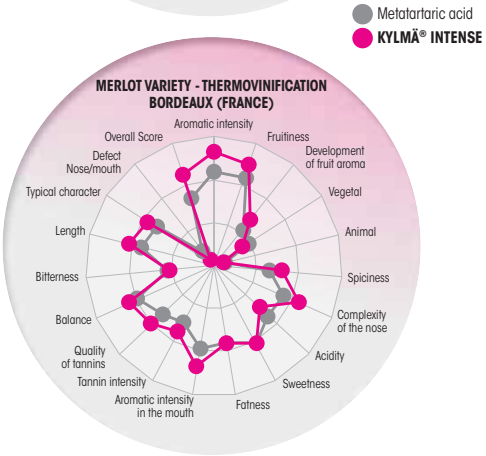
KYLMÄ® INTENSE

KYLMÄ® INTENSE is a concentrated solution (5 %) of potassium polyaspartate, containing a pool of polysaccharides. It combines a triple promise for the processing of red wines: tartaric stabilisation, a strong improvement of the stabilisation of the colouring agent and an organoleptic contribution on the components: roundness, volume and fruity.

PACKAGING: 5 L, 20 L, 1000 L
APPLICATION RATE: 10 to 20 cL/hL.
Maximum legal dose according to current European regulations: 20 cL/hL

TASTE ANALYSES



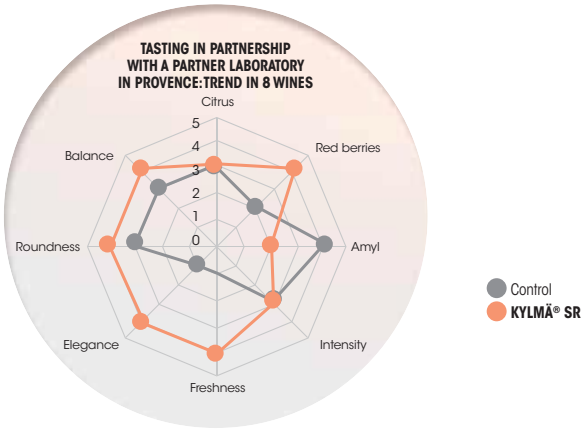


Improve and secure the future of your wines!

KYLMÄ® SR stabilizes your wines against potassium bitartrate precipitation. Specific solution intended for tartrate instabilities in whites and rosés. Instant action: acts on the growth of potassium bitartrate microcrystals. Contributes to freshness, sweetness and roundness. KYLMÄ® SR has a positive organoleptic impact on wines, making them fresher, more elegant and rounder.

PACKAGING: 5 L, 20 L
APPLICATION RATE: 10 to 20 cL/hL.
Maximum legal dose according to current European regulations: 20 cL/hL

Stabilizes your wines against
precipitation of potassium bitartrate
Specific solution intended for tartrate instabilities
in whites and rosés.
Instant action: acts on the growth of potassium bitartrate microcrystals
de bitartrate de potassium
Contributes to freshness, sweetness and roundness.



Colloidal stabilization

WHAT ARABIC GUM TO USE TO IMPROVE WINE ROUNDNESS WITHOUT HARMING FILTRATION?

Gomme SR

Vegan UE Usable in organic NOP Usable in organic

What determines the quality of an arabic gum? The chemical composition:

Arabic gum is a complex and ramified polysaccharide. It is made up of arbinogalactan regions bonded to a protein chain (cf. **schéma 1**). This structure is organized in two parts in space: a hydrophilic complex made up of polysaccharides and a hydrophobic complex made up by the protein part (cf. **schéma 2**).

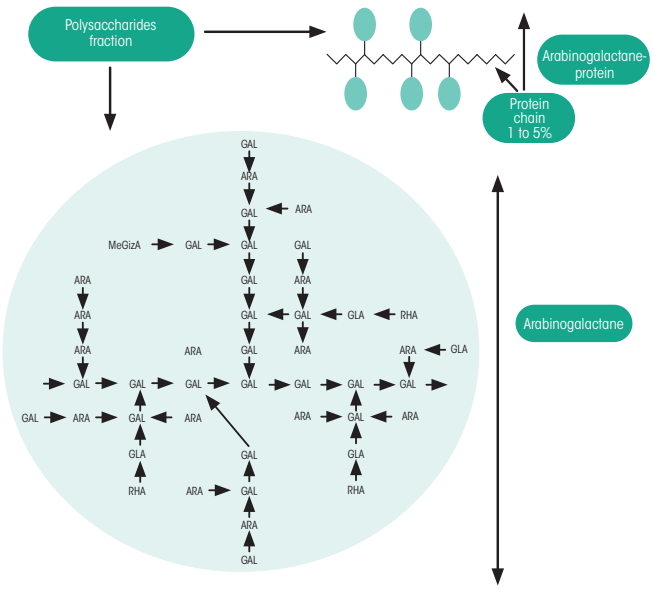


Schéma 1: Schematic representation of arabic gum according to "The Watttle Blossom Model" (Fincher et al. 1983)

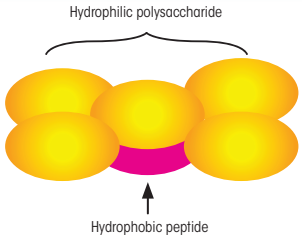


Schéma 2: Three dimensional representation of arabic gum according to Randal

Although there still remain several points that are poorly understood concerning the structure and properties of gum arabic, it seems that the protein component plays an important role in stabilising wine colour. Not all gums have the same protein content. Gum from Acacia Verek is more protein-rich, which gives **it excellent stabilisation capacity**. Its characteristic nitrogen content ranges from 0.25% to 0.4% (m/m), whereas the characteristic nitrogen content of gum from Acacia Seyal lies between 0.10% and 0.2% (m/m).

For instance, **KORDOFAN**, produced from Acacia Verek, is a preparation based on very pure, high quality gum arabic and SO_2. It brings about effective and long-lasting colour stabilisation of all red and rosé wines.

The quality of this preparation based on gum arabic and SO_2 is also due to the precautions taken when it is manufactured. The solution must be as clear and limpid as possible in order to avoid affecting the wine's characteristics and hampering the various stages of filtration. Products based on gum arabic and SO_2 are not a simple aqueous solution of gum arabic. Raw gum arabic and potassium metabisulfite are dissolved, react according to set parameters, and undergo a chemical process designed to purify and stabilise the raw materials and optimise their performance. The final product obtained is not just a simple aqueous solution of the added raw materials but rather a product with unique functional characteristics.

GOMME SR was specially developed for the production of rosé wines with the aim of stabilising the wine's colour and enhancing its roundness. A specific ultrafiltration stage makes this gum especially clear and limpid, which, together with its intrinsic structure, means that it has no effect on filtration.

Colloidal stabilization

ARABINA

ARABINA is a preparation based on Seyal gum arabic and SO_2. Made up of stable macromolecules, it prevents the formation of cloudiness in wine. ARABINA thus lessens the risks of precipitation of colouring matter in red and rosé wines, precipitation of potassium bitartrate, and iron casse. Arabina can be used to guarantee safe bottling of wines with a moderate risk of precipitation.

PACKAGING: 20 L
APPLICATION RATE: 5 to 10 cL/hL. Maximum legal dose: 10 cL/hL

KORDOFAN

KORDOFAN is a preparation based on Verek gum arabic. Its name, KORDOFAN, comes from a region of Africa renowned for the purity of its gum arabic. This protective colloid prevents the onset of cloudiness and deposits of a colloidal nature in wine. Thanks to its origin and quality, KORDOFAN shows remarkable stabilising qualities for every type of wine.

PACKAGING: 1 L, 5 L, 10 L, 20 L and 1000 L
APPLICATION RATE: 3 to 12 cL/hL. Maximum legal dose: 12 cL/hL

GOMME VEREK BIO

GOMME VEREK BIO is an arabic gum (E414) obtained from Acacia Verek, which is organic certified according to the European regulation relative to organic farming ((EC) regulations 2018/848). GOMME VEREK BIO is available as a fine white powder. Thanks to its purity and high quality, GOMME VEREK BIO dissolves totally in water to produce a nearly colourless solution. GOMME VEREK BIO is an arabic gum which is suitable for the colloidal stability of organic red wines.

PACKAGING: 1 kg
APPLICATION RATE: 10 to 30 g/hL
Maximum legal dose: 30 g/hL

GOMME SR

GOMME SR is a preparation based on Seyal gum arabic and SO_2. Ultrafiltered, it can be added just before bottling without risking clogging. Used to stabilise wines against precipitation and cloudiness, this product has shown that it also removes hardness, and provides sweetness to wines.

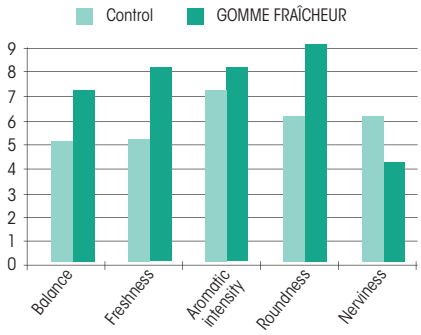
PACKAGING: 5 L and 20 L, 1000 L
APPLICATION RATE: 10 to 15 cL/hL. Maximum legal dose: 15 cL/hL

GOMME FRAÎCHEUR

GOMME FRAÎCHEUR is a preparation based on high quality gum arabic. This gum makes it possible to obtain an almost colourless solution with very low turbidity. GOMME FRAÎCHEUR contributes to colloidal stabilisation of wines by preventing the formation of colloids that can lead to the development of cloudiness in wines. It also allows late rectification while providing roundness and freshness. GOMME FRAÎCHEUR has a negligible effect on a wine s clogging index and can therefore be added equally well before or after membrane filtration.

PACKAGING: 1 L, 20 L and 1000 L
APPLICATION RATE: 10 to 14 cL/hL. Maximul legal dose: 14 cL/hL

Comparative tasting of a white Chardonnay IOP Pays d'Oc and the same wine with addition of GOMME FRAÎCHEUR



Colloidal stabilization

Comparison with the main methods of tartaric stabilization

METHOD	TYPE OF ACTION	ORGANOLEPTIC IMPACT	ENERGY CONSUMPTION	EFFECTIVENESS ON HIGH INSTABILITY	KEY POINTS
PAK	Additive	None	None	High (KHT)	Fast-acting, sustainable, no change to wine
CMC	Additive	Risk to color (red wines)	None	High (as effective as KPA at doses of 20 g/hL)	Difficult application
Metatartaric acid	Additive	Wines become harsher	None	Low to medium	Unstable over time and when exposed to heat
Cold stabilization	Subtractive	Wines become harsher by lowering pH	High	High	Expensive, energy-intensive
Electrodialysis	Subtractive	Wines become harsher by lowering pH	Moderate	High	Heavy and costly equipment, lack of flexibility
Mannoproteins	Additive	More volume	None	Very limited	Not effective on moderately or highly unstable wines

OENOFRANCE® decision-making tool

SELECT THE RIGHT PRODUCT FOR YOUR GOAL

PRODUCTS	COMPOSITION	GOALS	STRONG POINT	REGULATORY ASPECTS
KYLMÄ® INTENSE	KPA and plant polysaccharides		Color and potassium tartrate stabilization	Vegan
KYLMÄ® PURE	Pure KPA		Potassium tartrate stabilization	Vegan
KYLMÄ® SR	KPA and plant polysaccharides		Tartaric stability, freshness and roundness of white and rosé wines	Vegan
KYOCELL	CMC		Potassium tartrate stabilization	Vegan
KYOCELL 2.0	Low-viscosity CMC		Low-viscosity CMC (20%)	Vegan
KORDOFAN	Verek gum arabic and SO_2		Colloidal stabilization for all types of wines	Vegan, UE Usable in organic, NOP Usable in organic
ARABINA	Seyal gum arabic and SO_2		Colloidal stabilization and roundness of wines	Vegan, UE Usable in organic, NOP Usable in organic
GOMME FRAÎCHEUR	Verek and Seyal gum arabic and SO_2		Adds roundness and freshness	Vegan, UE Usable in organic
GOMME VEREK BIO	Verek gum arabic powder		Colloidal stabilization of organic wines	Vegan, UE Usable in organic, NOP Usable in organic, Allergen Free
GOMME SR	Seyal gum arabic and SO_2		Adds sucrosity, eliminate harshness	Vegan, UE Usable in organic, NOP Usable in organic

SPECIFIC TREATMENTS

HOW CAN I REDUCE THE PERCEPTION OF UNPLEASANT TASTES IN MY WINE?

Charbon Gota

CHARBON GOTA is a food grade oenological activated carbon of vegetal origin (wood). Its qualities and porosity render it suitable for must decontamination. Its pores are larger than the ones of deodorizing carbons, but smaller than those of oenological decolorizing carbons: it is a mesoporous carbon. During the trials carried out by ITV France it was found to be more efficient than other types of carbons for the removal of Ochratoxin A and geosmin while limiting the colour losses in wines.

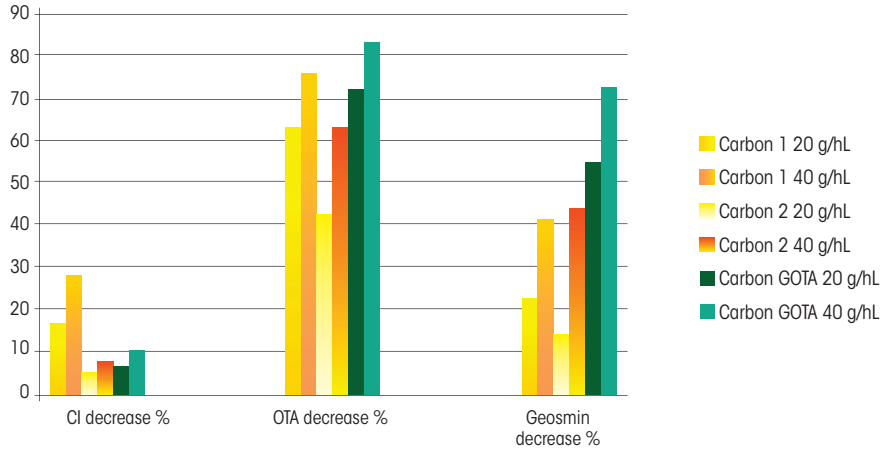
Initial values of Ochratoxin A: 1.8 µg/L

Initial values of geosmin: 123 ng/L

Colour intensity of control wines: 11.88

Compared with a traditional decolorizing (Carbon 1) or deodorizing carbon (Carbon 2), CHARBON GOTA significantly decreased the amounts of Ochratoxin A (more than 70% at 20 g/hl) in wines, but also those of geosmin, while limiting the effect on wine colour intensity. The differences between carbons were stronger in the case of geosmin : in this trial carried out in collaboration with ITV France, CHARBON GOTA was the only one to decrease the amount of geosmin by more than 50% with a 20 g/hL rate. At a 40 g/hL rate, the decrease was more than 70%.

Impact of various oenological carbons on the colour intensity of a red wine and on its concentration in geosmin and ochratoxin A



Specific treatments

	PRODUCT NAME	PROPERTIES	DOSAGE	PACKAGING
Allergen Free, Vegan, UE, NOP	**CHARBON GOTA**	A mesoporous carbon that is highly effective at eliminating mycotoxins such as ochratoxin A or for lowering the content of geosmin, which gives earthy or mushroom flavours.	20 to 40 g/hL	2.5 kg and 10 kg
Allergen Free, Vegan, UE, NOP	**DELICARBONE GRAINS**	Active carbons used to destain musts and white wines.	100 g/hL (legal maximum)	5 kg
Allergen Free, Vegan, UE, NOP	**CHARBON SUPER D**	A charcoal with high adsorption capacity, useful for destaining musts and white wines.	100 g/hL (legal maximum)	1 kg and 5 kg
Allergen Free, Vegan, UE, NOP	**CHARBON ULTRA D**	Carbon with significant decolourisation capacity.	100 g/hL (legal maximum)	1 kg, 5 kg and 12.5 kg
Allergen Free, Vegan	**MERCAPTOL**	Solution based on copper sulfate for the treatment of reduction caused by the presence of hydrogen sulfide or volatile thiols.	0.3 to 1.5 cL/hL	1 L, 5 L and 10 L
Allergen Free, Vegan, UE, NOP	**ACIDE ASCORBIQUE**	Limits the effects of enzymatic oxidation. Used on harvests or white musts, or before bottling, it complements the action of SO_2, the dosage of which can thus be reduced. It improves the preservation of the wine s fruitiness and freshness.	5 to 15 g/hL	250 g, 500 g, 1 kg and 25 kg
Allergen Free, Vegan, UE, NOP	**ACIDE CITRIQUE**	Prevents iron casse in white and rosé wines, avoiding the need for treatment with potassium ferrocyanide. Brings about the formation of a soluble complex of citrate anion and ferric iron.	1 g/L (legal maximum)	1 kg and 25 kg
Allergen Free, Vegan, UE	**COPPER CITRATE 2%**	Copper citrate is a food product that supplies copper ions to neutralise the sulfur compounds that cause reduction tastes.	3.5 to 14 g/hL	1 kg
Allergen Free, Vegan	**ACIDE FUMARIQUE** Les Essentiels	Inhibitor of malolactic fermentation.	30 to 60 g/hL. Maximum legal dose: 60 g/hL	5 kg and 25 kg
Allergen Free, Vegan, UE	**ACIDE METATARTRIQUE V40** Les Essentiels	Prevents crystallization of potassium bitartrate.	10 g/hL (legal maximum)	500 g, 1 kg, 25 kg

ACIDITY CORRECTORS

Les Essentiels

	PRODUCT NAME	PROPERTIES	DOSAGE	PACKAGING
Allergen Free, Vegan, UE Usable in organic, NOP Usable in organic	**ACIDE TARTRIQUE**	Acidification. Can be used to treat concrete tanks	on must or grapes: 150 g/hL (legal maximum); on wine: 250 g/hL (legal maximum)	1 kg, 5 kg and 25 kg
Allergen Free, Vegan	**ACIDE MALIQUE**	Acidification of musts and wines	on must or grapes: 1.3 g/L (legal maximum); on wine: 2.3 g/L (legal maximum)	1 kg, 5 kg and 25 kg
Allergen Free, Vegan, UE Usable in organic	**ACIDE LACTIQUE**	Acidification of musts and wines	on must or grapes: 1.8 g/L (legal maximum); on wine: 3 g/L (legal maximum)	5 kg and 25 kg
Allergen Free, Vegan, UE Usable in organic	**BICARBONATE DE POTASSIUM**	Deacidification	Depending on the desired deacidification (see technical sheet)	1 kg, 5 kg and 25 kg
Allergen Free, Vegan, UE Usable in organic, NOP Usable in organic	**CARBONATE DE CALCIUM**	Very powerful deacidification	Depending on the desired deacidification (see technical sheet)	1 kg and 25 kg
Allergen Free, Vegan, UE Usable in organic	**DESACID**	Deacidification	Depending on the desired deacidification (see technical sheet)	10 kg

PRESERVATIVES

	PRODUCT NAME	PROPERTIES	DOSAGE	PACKAGING
Vegan UE	**BAKTOL® POUDRE (Métabisulfite de Potassium)** Les Essentiels	Antiseptic, antioxydase and antioxidant	Depending on the SO_2 dosage required (see data sheet)	1 kg and 25 kg
Vegan UE	**EFFERBAKTOL 2 AND 5 GRANULES**	Potassium metabisulphite effervescent granules at dosages of 2 g of SO_2 pure dosages or 5 g of pure SO_2	Sulphiting of musts and wines. Depending on desired sulphiting	Box of 40 bags Box of 25 bags
Vegan UE	**EFFERBAKTOL 50**	Potassium metabisulphite effervescent granules at dosages of 50 g of pure SO_2 / bag		125 g
Vegan UE	**EFFERBAKTOL 100**	Potassium metabisulphite effervescent granules at dosages of 100 g of pure SO_2 / bag		250 g
Vegan UE	**EFFERBAKTOL 125**	Potassium metabisulphite effervescent granules at dosages of 125 g of pure SO_2 / bag		300 g
Vegan UE	**EFFERBAKTOL 400**	Potassium metabisulphite effervescent granules at dosages of 400 g of pure SO_2 / bag		1 kg
Vegan UE	**BAKTOL® 50 (Potassium Bisulfite)** Les Essentiels	Potassium bisulphite solution	Dose of SO_2 provided for 1 cL (10 mL) of solution: 0.5 g Dose of solution required to provide 1 g of SO_2: 2,00 cL	5 L, 10 L, 20 L
Vegan UE	**BAKTOL® 100 (Potassium Bisulfite)** Les Essentiels		Dose of SO_2 provided for 1 cL (10 mL) of solution: 1 g Dose of solution required to provide 1 g of SO_2: 1.00 cL	1 L, 5 L, 10 L, 20 L, 1000 L
Vegan UE	**BAKTOL® 180 (Potassium Bisulfite)** Les Essentiels		Dose of SO_2 provided for 1 cL (10 mL) of solution: 1.8 g Dose of solution required to provide 1 g of SO_2: 0.55 cL	10 L, 20 L, 1000 L
Vegan UE	**BAKTOL® 200 (Potassium Bisulfite)** Les Essentiels		Dose of SO_2 provided for 1 cL (10 mL) of solution: 2 g Dose of solution required to provide 1 g of SO_2: 0.5 cL	10 L, 1000 L

PRESERVATIVES

	PRODUCT NAME	PROPERTIES	DOSAGE	PACKAGING
Allergen Free, Vegan	**SULFOSSOL® 50 (Ammonium Bisulfite)** Les Essentiels	Sulfiting of musts and wines, and ammoniacal nitrogen supply	Dose SO_2: 1 g/hL = 2.00 cL 5 g/hL = 10.00 cL 10 g/hL = 20.00 cL	5 L, 10 L
Allergen Free, Vegan	**SULFOSSOL® 100 (Ammonium Bisulfite)** Les Essentiels		Dose SO_2: 1 g/hL = 1.00 cL 5 g/hL = 5.00 cL 10 g/hL = 10.00 cL	20 L, 1000 L
Allergen Free, Vegan	**SULFOSSOL® 200 (Ammonium Bisulfite)** Les Essentiels		Dose SO_2: 1 g/hL = 0.50 cL 5 g/hL = 2.50 cL 10 g/hL = 5.00 cL	1 L, 5 L, 10 L, 20 L, 1000 L
Allergen Free, Vegan	**SULFOSSOL® 400 (Ammonium Bisulfite)** Les Essentiels		Dose SO_2: 1 g/hL = 0.25 cL 5 g/hL = 1.25 cL 10 g/hL = 2.50 cL	5 L, 20 L, 1000 L
Allergen Free, Vegan	**SULFOSSOL® 600 (Ammonium Bisulfite)** Les Essentiels		Dose SO_2: 1 g/hL = 0.16 cL 5 g/hL = 0.83 cL 10 g/hL = 1.66 cL	20 L, 1000 L
Vegan, UE Usable in organic	**PASTEURIL/ PASTEURIL FLASH**	More stable sulfiting of wines, avoids release of SO_2 into the atmosphere. Avoids acescence and unwanted re-fermentation	Depending on the SO_2 dosage required (see data sheet)	500 g / 267 g
Allergen Free, Vegan, UE Usable in organic, NOP Usable in organic	**SOLUTION SULFUREUSE 6%** Les Essentiels	Sulphur dioxide solution 6% for sulphiting musts and wine	Adjust dose based on desired sulphiting. 1 cL of SOLUTION SULFUREUSE 6% provides 0.6 g of pure SO_2. Maximum regulated sulphur dioxide dose rate in wine: refer to regulations in force	10 L
Allergen Free, Vegan	**SORBATE DE POTASSIUM** Les Essentiels	Antifungal, blocks development of alcoholic and mycodermic yeasts	Between 20 to 25 g/hL depending on the nature of the wine. Maximum legal dose: 27 g/hL	1 kg and 25 kg

The Organic Product Range

ORGANIC-AUTHORISED PRODUCTS

Some OENOFRANCE® products are authorised for the production of organic wines. Discover the products authorised for organic production in accordance with current European regulations.

	UE	NOP	page
ACIDE ASCORBIQUE	x	x	95,101
ACIDE CITRIQUE	x	x	95,101
ACIDE LACTIQUE	x		96
ACIDE MÉTATARTRIQUE	x		101
ACIDE MÉTATARTRIQUE V40	x		95
ACIDE TARTRIQUE	x	x	96,101
AFFIMENTO	x		67
ARABINA	x	x	81
BACTÉLIA® ALTA	x	x	57
BACTÉLIA® CRESCENDO	x	x	57
BACTÉLIA® TEMPO	x	x	57
BAKTOL® 50	x		97
BAKTOL® 100	x		97
BAKTOL® 180	x		97
BAKTOL® 200	x		97
BAKTOL® POUDRE	x		97,101
BENTONITE S	x		72,101
BICARBONATE DE POTASSIUM	x		96,101
BITARTRATE DE POTASSIUM	x	x	75,101
BITARTRYL	x		101
CARBONATE DE CALCIUM	x	x	96
CASEINE SOLUBLE	x	x	45
CHARBON GOTA	x	x	94,95,101
CHARBON SUPER D	x	x	95
CHARBON ULTRA D	x	x	95
COPPER CITRATE 2%	x		95
CLIMAX® PRIME	x	x	26
COLLE DE POISSON OF	x		67
COLLOGEL	x		67
DELICARBONE GRAINS	x	x	95
DESACID	x		96
EFFERBAKTOL 50	x		97

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EFFERBAKTOL 100	x		97
EFFERBAKTOL 125	x		97
EFFERBAKTOL 400	x		97
EFFERBAKTOL 2 AND 5 GRANULES	x		97
FML EXPERTISE® EXTREME	x	x	58
FML EXPERTISE® S	x	x	58
GOMME FRAÎCHEUR	x		81
GOMME SR	x	x	81
IS 15	x	x	67
KORDOFAN	x	x	81
GOMME VEREK BIO	x	x	81
LEVULINES	x		101
LEVURE CLASSIC BY	x	x	11
LEVURE CLASSIC CE	x	x	11
LEVURE CLASSIC K	x	x	11
LYSIS® ACTIV 60	x	x	52
LYSIS® ALLEGRO		x	52
LYSIS® COULEUR		x	53
LYSIS® ELEVAGE		x	54
LYSIS® ELITE	x	x	52
LYSIS® ESSENTIA		x	52
LYSIS® FILTRAB		x	54
LYSIS® FIRST		x	53
LYSIS® GRENAT	x	x	53
LYSIS® IMPACT	x	x	53
LYSIS® INTENSE		x	52
LYSIS® MPC		x	53
LYSIS® SPÉCIAL R	x	x	53
LYSIS® UC	x	x	53
LYSIS® ULTRA	x	x	52
NEVEA	x	x	18,19
NOQUERCUS®	x	x	64

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NOQUERCUS® BLANC	x	x	64
NOQUERCUS® DOUCEUR	x	x	64
NUTRIMENT P	x		28
OENOQUERCUS® ECLAT BF	x	x	86
OENOQUERCUS® ECLAT CL FR	x	x	86
OENOQUERCUS® ECLAT CM FR	x	x	86
OENOQUERCUS® ECLAT CM+ FR	x	x	86
OENOQUERCUS® ECLAT CF FR	x	x	86
OENOQUERCUS® ECLAT CI FR	x	x	86
OENOQUERCUS® ECLAT DUO	x	x	86,89
OENOQUERCUS® ECLAT DOUCEUR	x	x	86,89
OENOQUERCUS® ECLAT FR	x	x	86,89
OENOQUERCUS® ECLAT INTENSE	x	x	89
OENOQUERCUS® ECLAT Q1	x	x	86
OENOQUERCUS® DOMINO CM FR	x	x	86
OENOQUERCUS® DOMINO CM US	x	x	86
OENOQUERCUS® DOMINO CM + FR	x	x	86
OENOQUERCUS® INSERT Q1	x	x	86
OENOQUERCUS® STAVE Q1 27 MM	x	x	86
OENOQUERCUS® STAVE CL FR 7MM	x	x	86
OENOQUERCUS® STAVE CM FR 7MM	x	x	86
OENOQUERCUS® INSERT Q1	x	x	86
OENOTANNIN CÉLESTE	x	x	61
OENOTANNIN FRAÎCHEUR	x	x	61
OENOTANNIN INITIAL	x	x	61
OENOTANNIN MIXTE MG	x	x	60,101
OENOTANNIN OENOGAL	x	x	60
OENOTANNIN PERFECT	x	x	60
OENOTANNIN STABRED	x	x	60
OENOTANNIN VB 105	x	x	61
OENOTANNIN VB TOUCH	x	x	61
OENOTANNIN VELVET	x	x	61

The organic product range

	UE	NOP	page
OENOVEGAN® EPL	x	x	42,43,67
OENOVEGAN® F	x		45
OENOVEGAN® MICRO	x		70
OENOVEGAN® MICRO FA	x		16,69
OENOVEGAN® PURE	x	x	44,68
OENOVEGAN® SBS	x	x	35,90
PASTEURIL/PASTEURIL FLASH	x		97
PERFORMA	x		72
PHOSPHATE DIAMMONIQUE	x		28,101
PHYLIA® AR	x	x	32
PHYLIA® CYS	x	x	31,90
PHYLIA® EPL	x	x	32,44,67,101
PHYLIA® EXEL	x	x	32,90
PHYLIA® ICÔNE	x	x	32,34
PHYLIA® LF	x	x	31,90
SELECTYS® ITALICA CR1	x	x	15
SELECTYS® L AUTHENTIQUE	x	x	15
SELECTYS® L ÉCLATANTE	x	x	10
SELECTYS® LA CROQUANTE	x	x	10
SELECTYS® LA DÉLICIEUSE	x	x	15
SELECTYS® LA FRUITÉE	x	x	10
SELECTYS® LA MARQUISE	x	x	16
SELECTYS® LA PERLA	x	x	10
SELECTYS® LA PERSANE	x	x	10
SELECTYS® LA RAFFINÉE	x	x	15
SELECTYS® SR	x	x	11
SELECTYS® THIOL	x	x	9
SELECTYS® THIOL ROUGE	x	x	13
SILICE 30		x	68
SPECTRA QUERCITINE FREE	x	x	51
SPECTRA THIOL	x		50
SOLUTION SULFUREUSE 6%	x	x	97
THIAMINE	x		28
VINIFICATEUR N	x		45
VIVACTIV® 100	x		27
VIVACTIV® ACTION	x		27
VIVACTIV® ARÔME	x	x	26
VIVACTIV® CONTRÔLE	x	x	27
VIVACTIV® ECORCE	x	x	27
VIVACTIV® PERFORMANCE	x		27
VIVACTIV® PREMIER	x		26

UE In accordance with current European regulations

NOP In accordance with the NOP (National Organic Program) U.S. regulation

To find the list of products authorised under the rules of organic vinification (EU organic wine regulation, NOP(USA)) on the site www.martinvialatte.com

The authorization of these products in organic wines is subject to the applications and doses described in the regulations in force for oenological practices.
For more information, consult your oenologist.
The information contained above corresponds to the current state of our knowledge. They are given without commitment or guarantee insofar as the conditions of use are outside of our control.
They do not exempt the user from observing the legislation and safety data in force.

KACHER PRODUCTS

NAME OF PRODUCT	PACKAGING
ACIDE ASCORBIQUE	25 kg
ACIDE CITRIQUE	25 kg
ACIDE MALIQUE	25 kg
ACIDE MÉTATARTRIQUE	500 g (depends on the batch) - 1 kg (depends on the batch) 25 kg
ACIDE TARTRIQUE	25 kg
BAKTOL POUDRE	1 kg and 25 kg
BENTONITE S	25 kg
BICARBONATE DE POTASSIUM	25 kg
BITARTRATE DE POTASSIUM	25 kg
BITARTRYL	1 kg
CHARBON GOTA	10 kg
CMC GRANULÉ	20 kg
CMC POUDRE	25 kg
LEVULINES	500 g
OENOTANNIN MIXTE MG	12.5 kg
PHYLIA® EPL	500 g
PHOSPHATE DIAMMONIQUE	25 kg
PVPP POUDRE	20 kg
SORBATE DE POTASSIUM	25 kg

The availability of these kosher products may vary depending on our supplies.
Please contact the quality department to ensure that the selected batches are kosher.

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Certification ISO 22000

OENOFRANCE® has for many years followed a quality approach based on recognised standards.

After being certified ISO 9001 in 1999, a quality management system, OENOFRANCE® decided in 2009 to step up to ISO 22000, a food safety management system in the food chain.

OENOFRANCE®'s goal was to better meet its customers' expectations with regard to food safety, by demonstrating its control of potential hazards and by permanently providing safe, satisfactory products.

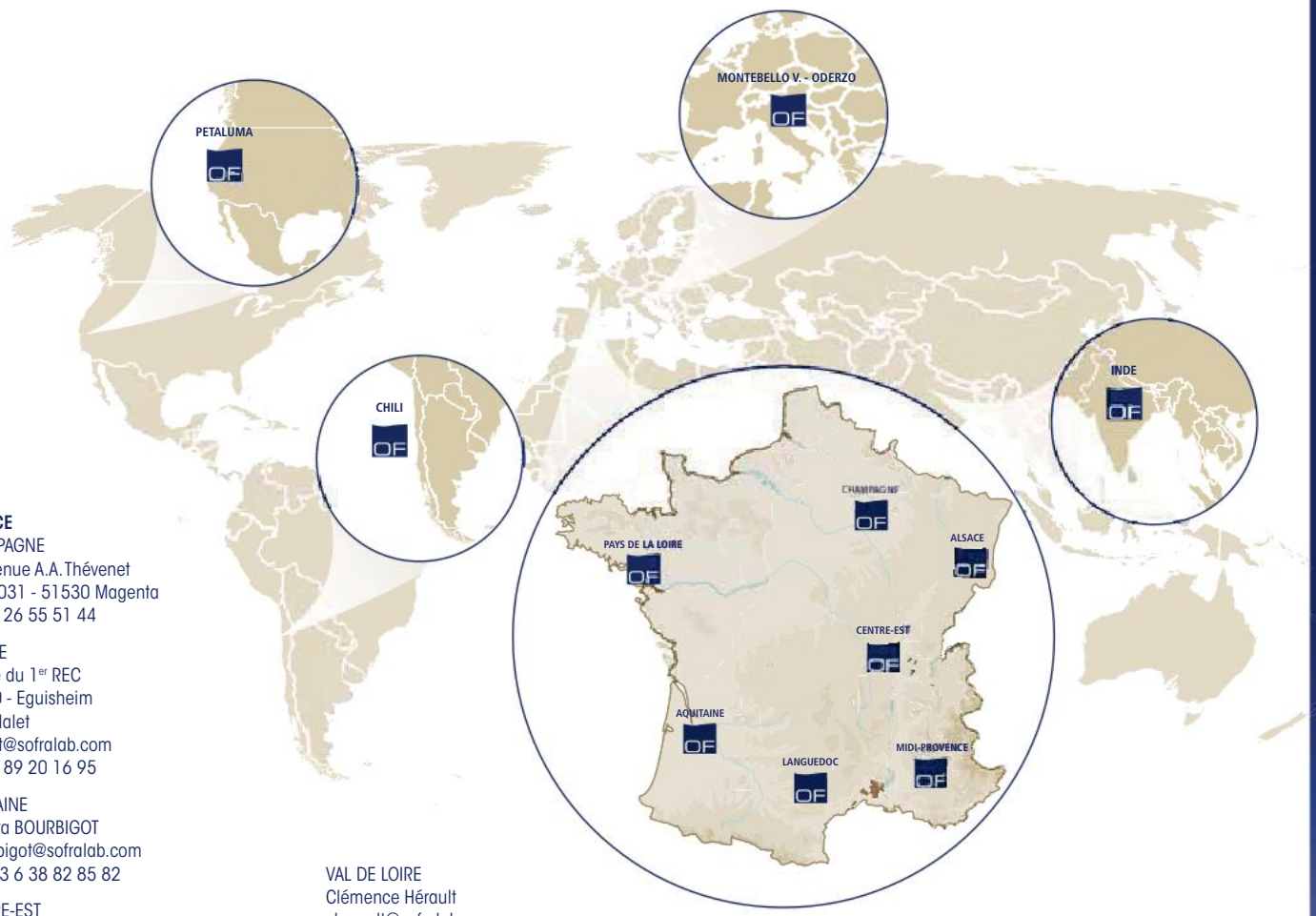
As a result, production, packaging and storage of OENOFRANCE® oenological products are now certified ISO 22000.

Key

- Freshness enhancement program
- To restart the alcoholic fermentation
- Allergen-free product
- Products that can be used in vegan winemaking
- In accordance with current European regulations
- In accordance with the NOP (National Organic Program) U.S. regulation
- Low SO_2-producing product
- Imagined, created and developed by OENOFRANCE® teams
- Can be added to must or wine without rehydration

Note

Our agencies



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