



CATALOG

2024 - 2025



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.



Since 1923

OENOFRANCE

OENOFRANCE®, THE GENESIS

- 1943 • OENOFRANCE® was founded thanks to the vision of two men, Mr Dardant and Mr Tournel.
- 1970 • Launch in France of the first active dry yeast (ADY), selected by INRA-Colmar and specifically designed for the production of aromatic white wines.
- 1980
- 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 • Launch of the first agglomerating yeast, CIVC selection, in the form of an ADY.
- 1990
- 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 • Research on the precipitation of quercetin in wines.
- 2022
- 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.

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.



Since 1923

OENOFRANCE

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Key

In accordance with current European regulations



Can be added to must or wine without rehydration



What if the *answer* to a *controlled* oenological itinerary was to be found in the vineyard *and* the cellar?

Reasoned agro-oenology, an innovative concept

Today's viticulture and vinification techniques are evolving in response to the climatic context. It is with this in mind that OENOTERRIS® was created, in order to **better respond to consumer requirements.**

Created for personalised support, OENOTERRIS® is based on the concept of reasoned agro-oenology: it offers **technological itineraries from the vineyard to the bottle**, designed to preserve and optimise the quality of wines.

6

Measurement indicators and tools at each stage of the wine-making process.

Vineyard levers

The indicators

① Rigorous agronomic monitoring of the plot up to maturity, using differentiating sensors.

The tools

A range of **nutritional biostimulants** to meet oenological goals by targeting problems in the vineyard.

oenoterris fleur oenoterris expression oenoterris arôme

Cellar levers

Must indicators

② Analysis of the must's conventional parameters & measurement of innovative indicators (fermentability and organoleptic potential parameters).

Wine indicators

③ Analysis of wine aromas (esters, thiols) and of polyphenols.

④ Sensory analysis of finished wines to check organoleptic quality and whether goals were achieved.

Must & wine tools

• Smart'App Fining, a new decisionmaking tool that classifies musts at the end of the pressing process in order to apply the appropriate fining method.

• Tailor-made protocols to manage the chosen technological itinerary.

• Follow-up and advice from our experts on the use of selected oenological products.



Simple, accurate, instant measuring with no calibration



Choice of fining product adapted to the must and to the goals



Reasoned addition = optimised cost

oenoterris

The first oenological act

A range of foliar biostimulants specially formulated to meet specific oenological objectives.

oenoterris fleur



Flowering

oenoterris expression



Fruit set

oenoterris arôme



Veraison

Agro-oenological objectives

NOURISH & REBALANCE

- Ensures even flowering
- Limits asynchrony phenomena
- Reinforces resistance to abiotic stress
- Enables phenolic ripening of high-quality red grapes
- Optimizes aromatic potential for white and rosé wines

ENSURE DRINKABILITY

- Contributes to optimal water regulation
- Ensures proper functioning of root systems and foliage
- Stimulates polyphenol and anthocyanin synthesis
- Helps ensure even phenolic ripeness throughout the bunch

GUARANTEE AROMATIC FRESHNESS

- Improves nitrogen assimilation and amino acid accumulation in berries (ester precursors)
- Stimulates glutathione synthesis (synthesis of thiols and reducing elements)
- Ensures proper functioning of root system and foliage
- Optimizes aromatic potential for white and rosé wine production

Results

Results from 7 years of high-volume trials, from vineyard to bottling, in French, Italian and Portuguese vineyards.

In the vineyard

+12% average weight
Heavier, more homogeneous bunches



Verdejo, control

+10%
Better nitrogen assimilation



Verdejo, Oenoterris®

Drinkability programme

+56% Heavier, more homogeneous bunches

Higher concentration of fruity esters in red wines

+45%

These results have been observed under controlled conditions in trials carried out on different grape varieties and terroirs, including the entire vine and wine process.

More information on oenoterris.com

Freshness programme

+17% Better glutathione (GSH) synthesis

Greater resistance to oxidation

Increased ageing potential and longevity

+108% GC3SH

+18% GC3SH

+7% C3SH

Better synthesis of aroma precursors in musts

+189% 3SH

+1100% A3SH

Higher thiol concentration in white and rosé wines

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 (β -lyase activity).



EXPÉRIENCE
Sauvignon

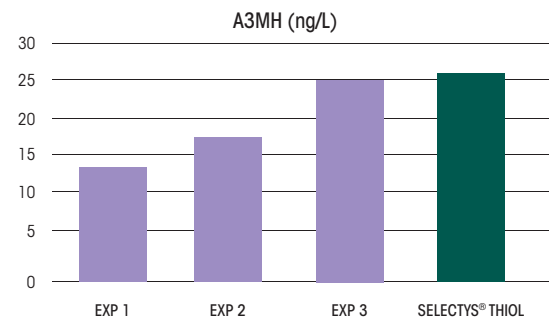
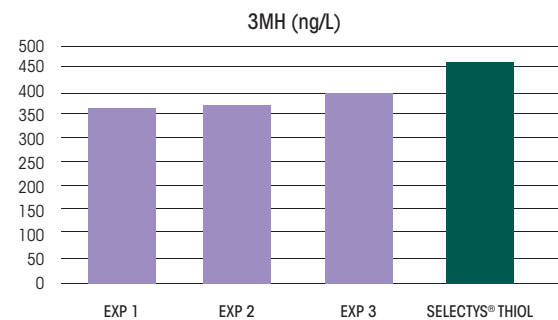
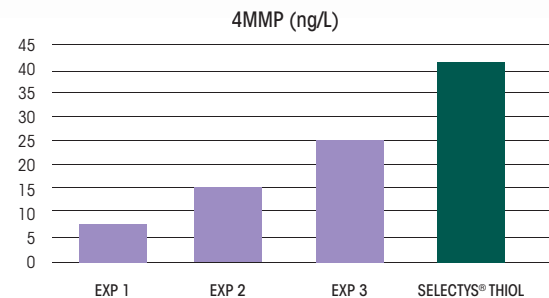
Campus Montagnac



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

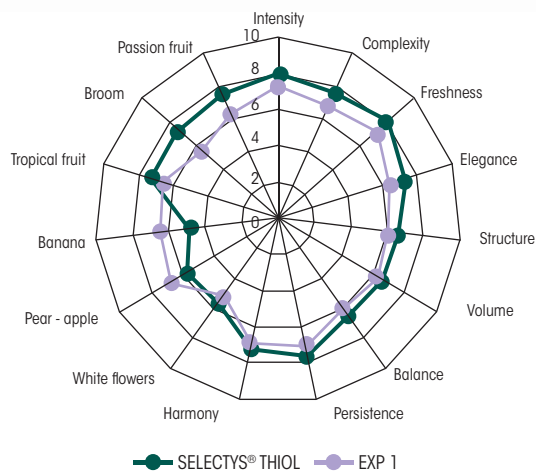


Innovative selection method based on genetics!
 Fermentation security
 Volume and taste balance
 Intense, elegant thiol aromas (4MMP / 3MH / 3MHA)

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



Aromatic profile Selectys® Thiol Sensory analysis - Sauvignon Blanc Tasting



3 YEARS OF RESEARCH

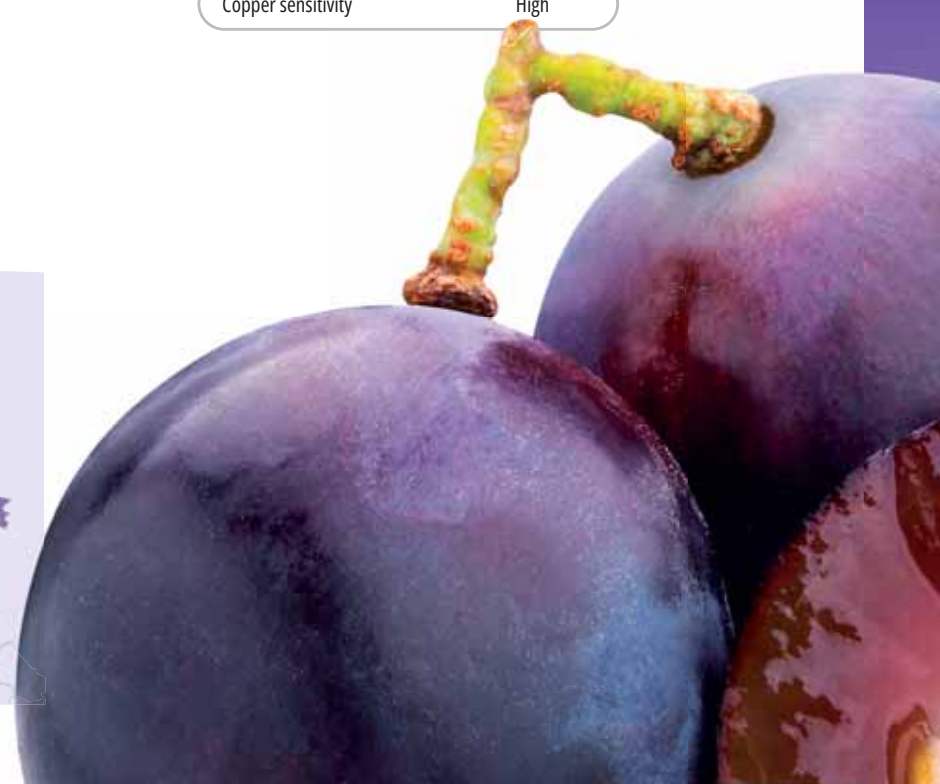
20 PARTNER WINERIES IN FRANCE AND ITALY

1 IRC7 GENE

SELECTYS® THIOL low SO₂ 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 SO₂ production.

AF temperature recommended for thiol expression	16°C - 18°C
H ₂ S production	low
SO₂ 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 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® L'ÉLÉGANTE



A Burgundy selection resulting from a collaboration with the Laboratoire Burgundia Oenologie, SELECTYS® L'ÉLÉGANTE is a *Saccharomyces cerevisiae* from a terroir recognised for its great white wines (Meursault 1^{er} Cru). SELECTYS® L'ÉLÉGANTE expresses itself with intensity and complexity, bringing together fruity (yellow fruit, citrus), floral (white flowers, honey) and mineral (flint) notes. In the mouth, these wines have a fine balance, combining freshness, volume and length in the mouth. We recommend SELECTYS® L'ÉLÉGANTE for the production of white wines of remarkable quality, combining refined aroma and taste, while having excellent ageing potential.

PACKAGING: 500 g
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



YEASTS

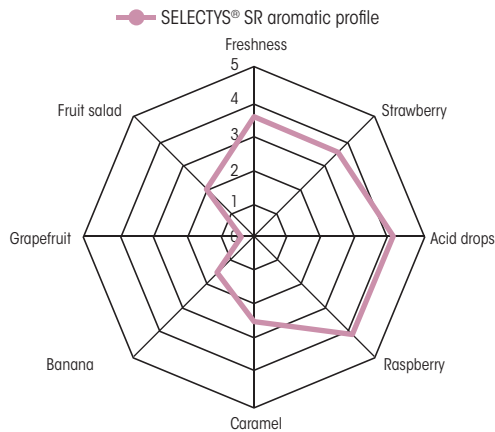
SELECTYS® SR



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 and 10 kg

APPLICATION RATE: 20 g/hL



SELECTYS® LA BAYANUS



SELECTYS® LA BAYANUS is a *Saccharomyces cerevisiae galactose* -yeast (the new name for bayanus). With a high resistance to alcohol and very good fermentation efficiency, it ensures smooth alcoholic fermentation and prevents organoleptic alteration. SELECTYS® LA BAYANUS is a very versatile yeast and can be used for the production of all types of wine.

PACKAGING: 500 g and 10 kg

APPLICATION RATE: 20 g/hL



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 methoxy-pyrazine 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



OENOFRANCE® originals

SELECTYS® LA CEREVISIAE



SELECTYS® LA CEREVISIAE is a *Saccharomyces cerevisiae* Active Dry Yeast (ADY), selected in France by the Institut National de la Recherche Agronomique (INRA) in Narbonne. With great vigour, SELECTYS® LA CEREVISIAE ensures regular, safe and complete fermentations.

It respects the characteristics of the grape variety and brings body and versatility to the wines. SELECTYS® LA CEREVISIAE is valued in the formulation of base wines for use in sparkling wines.

PACKAGING: 500 g and 10 kg

APPLICATION RATE: 20 g/hL



SELECTYS® K



SELECTYS® K is a strain of *Saccharomyces cerevisiae* var *bayanus* to give stability and finesse (respect of the terroir) to any type of wine. It has a killer factor that provides excellent implantation whatever the native population present may be. SELECTYS® K has a very good resistance to alcohol that allows it to conduct alcoholic fermentation even in difficult conditions.

PACKAGING: 500 g and 10 kg

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, SO₂ 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.

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.



SELECTYS® LA MARQUISE



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.

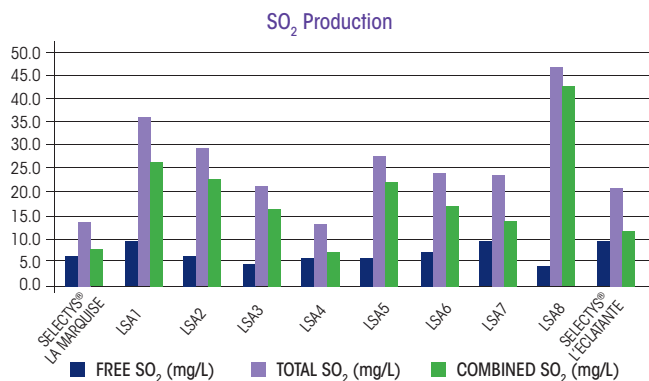
PACKAGING: 500 g and 10 kg

APPLICATION RATE: 20 g/hL



Good fermentation kinetics and low production of SO₂

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



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 SO₂ 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 SO₂



100% natural




















Granules for rapid rehydration

See product details on page 64

OENOFRANCE® originals

SELECTYS® product range



NAME	RECOMMENDED FOR	AROMATIC EXPRESSION	PACKAGING	AF KINETICS	OPTIMUM T
 SELECTYS® Thiol <i>S. cerevisiae</i>	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® Italica CR1 <i>S. cerevisiae</i>	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 <i>S. cerevisiae galactose - x S. uvarum</i>	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 <i>S. cerevisiae</i>	Used for making aromatic white and rosé wines with white and yellow flesh fresh fruits profile	Production of fermentation aromas	500 g and 10 kg	Very fast	10 to 16°C
 SELECTYS® L'Eclatante <i>S. cerevisiae galactose</i>	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 <i>S. cerevisiae galactose -</i>	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® L'Elegante <i>S. cerevisiae</i>	Used for making white wines to be aged with an elegant and complex aromatic profile	Aromatic finesse - production of fermentation aromas	500 g	Average	12 to 20°C
 SELECTYS® La Croquante <i>S. cerevisiae</i>	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 <i>S. cerevisiae</i>	Production of rosé wines with a voluptuous profile of tangy red berries	Production of fermentation aromas - expression of varietal aromas	500 g and 10 kg	Fast	14 to 20°C
 SELECTYS® L'Authentique <i>S. cerevisiae</i>	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 and 10 kg	Average	18 to 30°C
 SELECTYS® La Raffinée <i>S. cerevisiae</i>	Used for making complex and fruity red wines with reduced vegetal notes	Production of fermentation aromas - reveals vegetal notes	500 g and 10 kg	Average	15 to 28°C
 SELECTYS® La Délicieuse <i>S. cerevisiae</i>	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
 SELECTYS® La Bayanus <i>S. cerevisiae galactose -</i>	Production of wines with complete fermentation security	Neutral	500 g and 10 kg	Fast	15 to 30°C
 SELECTYS® La Cerevisiae <i>S. cerevisiae</i>	Formulation of base wines for use in sparkling wines	Neutral	500 g and 10 kg	Rapid multiplication, short latency phase, average kinetics	15 to 35°C
 SELECTYS® K <i>Saccharomyces cerevisiae var. bayanus</i>	Formulation of wines in complete safety, in respect of the terroir	Neutral (aromatic sharpness, respect of the grape variety)	500 g and 10 kg	Fast to very fast	10 to 28°C
 NEVEA™ Non-saccharomyces <i>Lachancea thermotolerans</i>	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

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Fermentation kinetics: Slow - Normal - Fast
Nitrogen requirement: Low - Medium - Heavy
Production of SO₂: 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)

YEASTS

SELECTYS® product range



NITROGEN REQUIREMENTS	RESISTENCE TO ALCOHOL	PRODUCTION OF SO ₂	PRODUCTION OF VOLATILE ACIDITY	SENSITIVITY TO CU	RECOMMENDED TURBIDITY	BREAKDOWN OF MALIC ACID	PRODUCTION OF H ₂ S	KILLER FACTOR	NAME	
Moderate	15%	Low	Weak	Highly sensitive	100-150 NTU	N.A.	Weak	Killer K1	SELECTYS® Thiol <i>S. cerevisiae</i>	
Low	> 18%	Average	Very weak	N.A.	No red strain	Medium to high	Very weak	N.A.	SELECTYS® Italica CR1 <i>S. cerevisiae</i>	
Moderate	14%	Average to low	Low	Sensitive	80-100 NTU	Average	Low	Sensitive	SELECTYS® La Persane <i>S. cerevisiae galactose - xS. uvarum</i>	
Average to high	15%	Average to low	Average	Sensitive	80-100 NTU	Heavy	Low	Killer	SELECTYS® La Fruitée <i>S. cerevisiae</i>	
Low	16.50%	Low	Low	Highly sensitive	80-100 NTU	Average	Low	Killer	SELECTYS® L'Eclatante <i>S. cerevisiae galactose</i>	
Low	15.50%	Low	Low	Sensitive	N.A.	Average	N.A.	Killer	SELECTYS® La Marquise <i>S. cerevisiae galactose -</i>	
High	13%	Low	Low	Moderately sensitive	100-120 NTU	Average	Low	Killer	SELECTYS® L'Elegante <i>S. cerevisiae</i>	
Average	17%	Average to heavy	Low Average	Highly sensitive	80-120 NTU	Average	N.A.	Neutral	SELECTYS® La Croquante <i>S. cerevisiae</i>	
High	16%	Average to low	Average to low	Highly sensitive	50-80 NTU	Average	Low	Killer	SELECTYS® SR <i>S. cerevisiae</i>	
Average	15%	Low	Low	Sensitive	N.A.	N.A.	Low	Neutral	SELECTYS® L'Authentique <i>S. cerevisiae</i>	
High	16%	Average to low	Low	Moderately sensitive	N.A.	Heavy	N.A.	Sensitive	SELECTYS® La Raffinée <i>S. cerevisiae</i>	
Average	15%	Low	Average	Not very sensitive	N.A.	N.A.	Low	Sensitive	SELECTYS® La Délicieuse <i>S. cerevisiae</i>	
Low	16%	Low	Low	N.A.	N.A.	N.A.	Low	Sensitive	SELECTYS® La Bayanus <i>S. cerevisiae galactose -</i>	
Average to high	14%	Very weak	Very weak	N.A.	No generic strain	Average	Negligible	Sensitive	SELECTYS® La Cerevisiae <i>S. cerevisiae</i>	
Moderate	16.50%	Low	Low	N.A.	"No strain colour"	N.A.	Weak	Killer	SELECTYS® K <i>Saccharomyces cerevisiae var. bayanus</i>	
High	< 10% vol	Average	Average	N.A.	N.A.	N.A.	N.A.	N.A.	NEVEA™ Non-saccharomyces <i>Lachancea thermotolerans</i>	

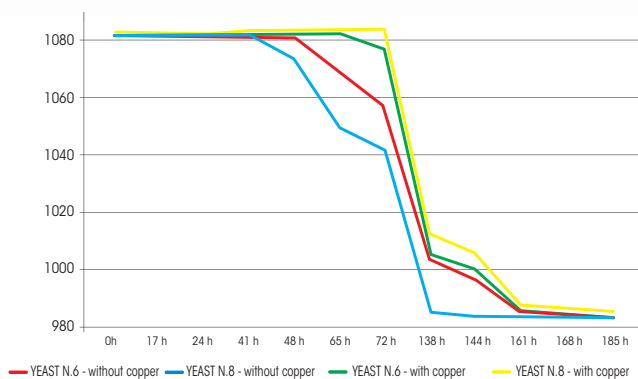
COPPER

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.

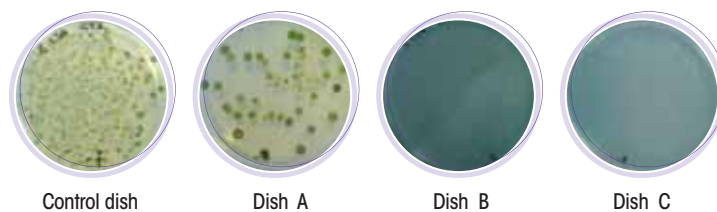
Monitoring of alcoholic fermentation in a Sauvignon must containing 1 mg/L of copper



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 $\text{CuSO}_4 \cdot 5(\text{H}_2\text{O})$: dish A (50 $\mu\text{mol/L}$), dish B (75 $\mu\text{mol/L}$), dish C (100 $\mu\text{mol/L}$). 10 strains of commercial yeasts were tested in this way.

Sensitivity to copper with Selectys® SR



At 50 $\mu\text{mol/L}$ 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® L'Elégante	Moderately 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'Éclatante	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 32

MAKE YOUR LIFE EASIER WITH



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
DROPS&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®	<i>Saccharomyces cerevisiae</i> selected for its ability to bypass rehydration without performance loss.
SELECTYS® La Fruitée	<i>S. cerevisiae</i> selected for aromatic white and rosé wines with fresh fermentation profiles.
SELECTYS® La Marquise	<i>S. cerevisiae</i> galactose for the production of still wines under difficult conditions.
SELECTYS® Italica CR1	<i>S. cerevisiae</i> 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.

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
- SO₂ 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 (under 10 °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 O₂/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 H₂S (reduction odour) this is connected, among other things, to a nutrient deficiency: nitrogen, oxygen, pantothenic acid, vitamins
- Production of volatile acidity

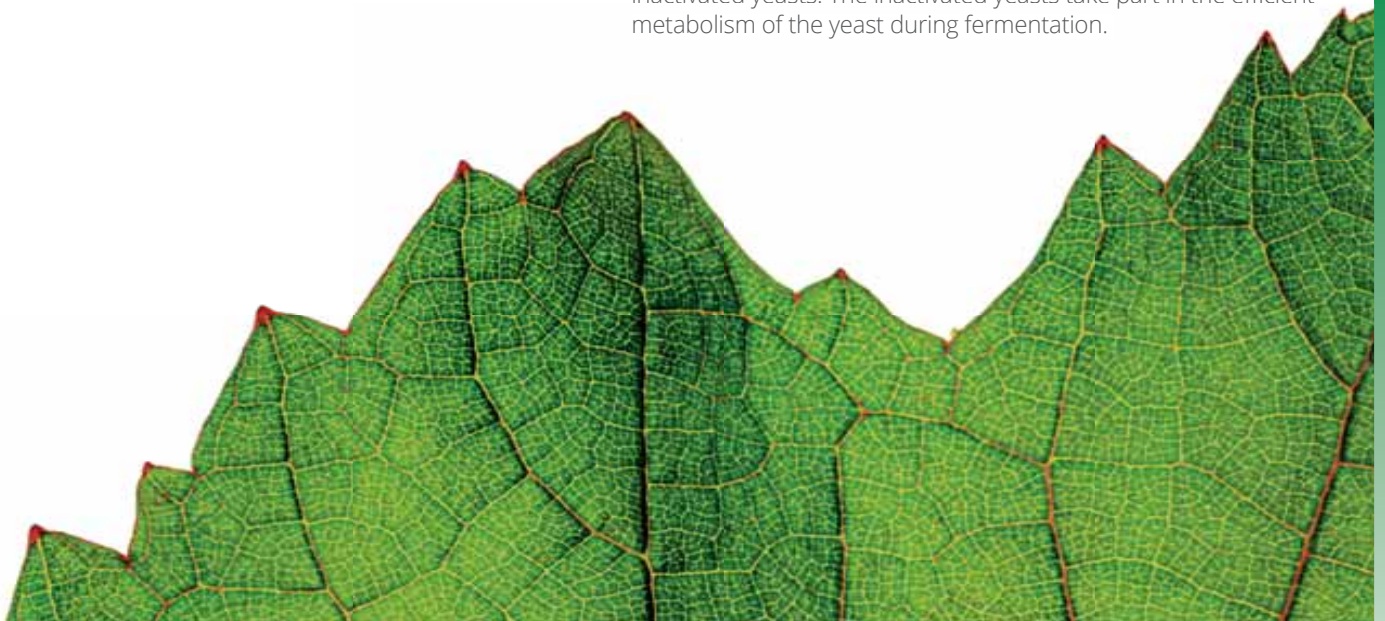
What should be done in these cases?

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.

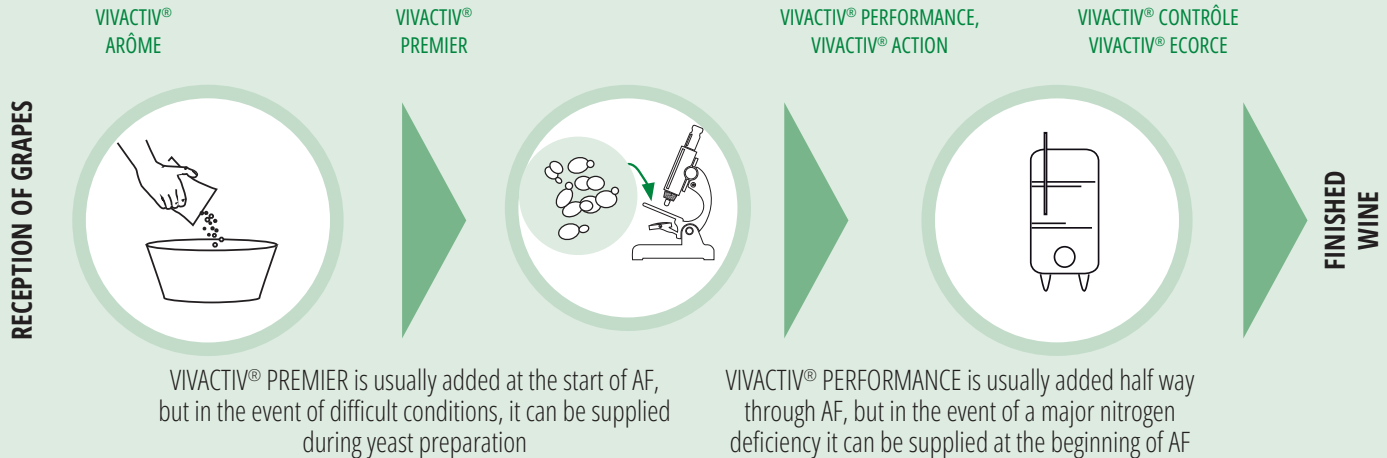
VIVACTIV® CONTRÔLE is a complex nutrient aimed at facilitating the final stage of alcoholic fermentation (AF) in the event of sluggish or stuck fermentation. It is solely made up of inactivated yeast derivatives and yeast hulls.

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.



Active nutrition

Use of nutrients when producing wine



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



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



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



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



Active nutrition

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 diammonium phosphate. This complete activator also contains thiamine (growth factor at the time of cell multiplication) but also cellulose which facilitates the release of CO₂, 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



Preparation of bacteria

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

VIVACTIV® range



CATEGORY	for an addition of 20 g/hL			NITROGEN	THIAMINE	GROWTH SUBSTRATE
	AVAILABLE ORGANIC N	AVAILABLE MINERAL N	TOTAL AVAILABLE N			
EXPRESSION OF AROMAS						
VIVACTIV® ARÔME	Organic nutrient for the optimisation of aromas during AF	8 mg/L	8 mg/L	●		●
PROTECTION / GROWTH						
VIVACTIV® PREMIER	Organic nutrient for qualitative management of AF	7 mg/L	7 mg/L	●	●	●●
NITROGEN NUTRITION						
VIVACTIV® PERFORMANCE	Complex nutrient for the activation of alcoholic fermentation	2 mg/L	21 mg/L (without sulfate)	23 mg/L	●●	●
VIVACTIV® ACTION	Complex nutrient for the production of organic wines		25 mg/L (without sulfate)	25 mg/L	●●	● ●●●
VIVACTIV®	Complex nutrient rich in organic and inorganic nitrogen	3 mg/L	17 mg/L (without sulfate)	20 mg/L	●●	●
VIVACTIV® 100	Fermentation nutrient rich in diammonium phosphate	1.5 mg/L	29 mg/L (without sulfate)	30.5 mg/L	●●	●
CONTROLLING FINAL STAGES OF AF						
VIVACTIV® CONTRÔLE	Complex nutrient to secure the final phase of AF	6 mg/L	6 mg/L	6 mg/L	●	●●
VIVACTIV® ECORCE	A detoxification agent that optimises fermentation					●●●●
OTHER						
VIVACTIV® MALO	Organic nutrient for the activation of MLF	ND	ND	ND		

LES ESSENTIELS

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

Rational use of nutrients according to properties of yeasts and characteristics of musts

White and Rosé Wines

		SELECTYS® La Fruitée	SELECTYS® La Persane	SELECTYS® La Marquise	SELECTYS® L'Elégante	SELECTYS® L'Eclatante	SELECTYS® La Croquante	SELECTYS® SR
Aromatic category		Fermentation	Fermentation	Finesse / Elegance	Finesse / Elegance	Varietal	Fermentation	Fermentation
Characteristics of must/ quantity of nitrogen	Moment of nitrogen supply / nitrogen requirements	Average to high	Average	Low	High	Low	Average	High
Low available N deficiency 140 - 180 mg/L	Preparation of yeast	VIVACTIV® ARÔME	VIVACTIV® ARÔME		VIVACTIV® PREMIER or VIVACTIV® ARÔME			VIVACTIV® ARÔME
	Beginning FA - 1/3 de FA	VIVACTIV® PREMIER			VIVACTIV® PERFORMANCE			VIVACTIV® PERFORMANCE
	From mid-AF					VIVACTIV® CONTRÔLE		
Average available N deficiency 80 - 140 mg/L	Preparation of yeast	VIVACTIV® ARÔME	VIVACTIV® ARÔME	VIVACTIV® PREMIER ou VIVACTIV® ARÔME	VIVACTIV® PREMIER or VIVACTIV® ARÔME	VIVACTIV® ARÔME		VIVACTIV® ARÔME
	Beginning FA - 1/3 of FA	VIVACTIV® PREMIER	VIVACTIV® PREMIER		VIVACTIV® PERFORMANCE			VIVACTIV® PREMIER
	From mid-AF	VIVACTIV® CONTRÔLE or VIVACTIV® PERFORMANCE			VIVACTIV® CONTRÔLE or VIVACTIV® PERFORMANCE		VIVACTIV® PERFORMANCE	VIVACTIV® CONTRÔLE or VIVACTIV® PERFORMANCE
Major available N deficiency < 80 mg/L	Preparation of yeast	VIVACTIV® PREMIER	VIVACTIV® ARÔME	VIVACTIV® PREMIER or VIVACTIV® ARÔME	VIVACTIV® PREMIER	VIVACTIV® ARÔME	VIVACTIV® PREMIER	VIVACTIV® PREMIER
	Beginning FA - 1/3 of FA	VIVACTIV® PERFORMANCE*	VIVACTIV® PERFORMANCE		VIVACTIV® PERFORMANCE *		VIVACTIV® PERFORMANCE	VIVACTIV® PERFORMANCE *
	From mid-AF	VIVACTIV® CONTRÔLE or VIVACTIV® PERFORMANCE	VIVACTIV® CONTRÔLE	VIVACTIV® PERFORMANCE	VIVACTIV® CONTRÔLE or VIVACTIV® PERFORMANCE	VIVACTIV® PERFORMANCE	VIVACTIV® CONTRÔLE	VIVACTIV® CONTRÔLE or VIVACTIV® PERFORMANCE

Recommended dosage: 20 g/hL * increase average recommended dosage

- To obtain a thiol profile, prefer VIVACTIV® ARÔME so as to avoid inhibiting the expression of varietal aromas at the beginning of alcoholic fermentation.
- To obtain a fermentation profile, we recommend the use of VIVACTIV® ARÔME during yeast inoculation in relatively easy conditions. In the event of major deficiencies, it may be replaced by VIVACTIV® PREMIER, which, thanks to the supply of survival factors, will help the yeast to achieve AF.
- In the event of major deficiency, it is advisable to increase the average recommended dose of VIVACTIV® PERFORMANCE in order to provide the yeast with a sufficient concentration of available nitrogen.

YEAST PRODUCTS

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

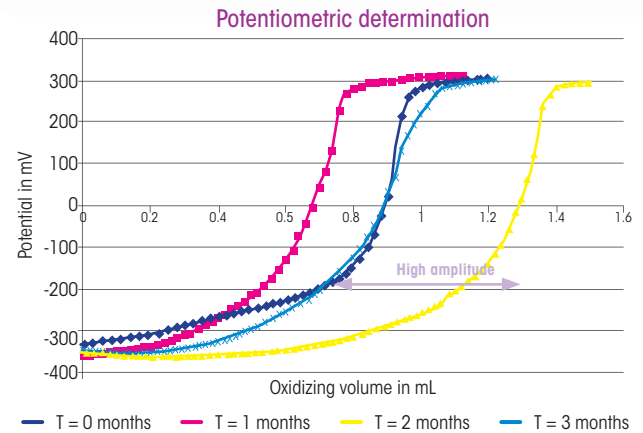


Maturing can quickly become a problem when wine lees are not qualitative (lack of grape maturity, deficient sanitary conditions, reducing tendency, etc.). Without lees, maturing is not possible. With this result, OENOFRANCE® developed an alternative to natural wine lees: PHYLIA® LF. PHYLIA® LF was formulated 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 polysaccharides in wines which will play a role in coating tannins
- Capacity to eliminate reduction notes on wines
- Ability to reduce ochratoxin A content

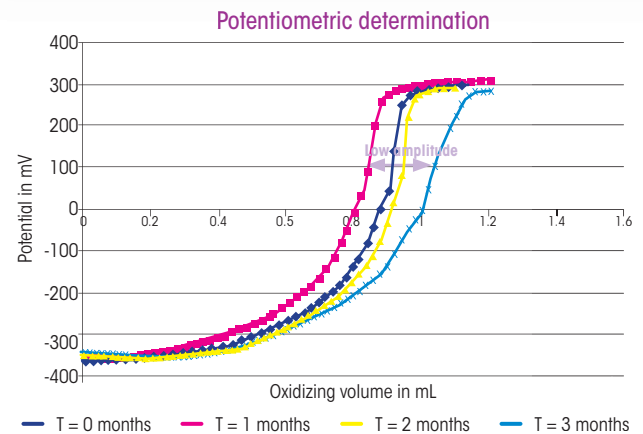
Impact on redox potential of wines

Red control wine (natural line)



We note a significant range on the oxidation 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 DO₄₂₀ 12 hours after adding a defined quantity of water.

D2: measurement of DO₄₂₀ 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.

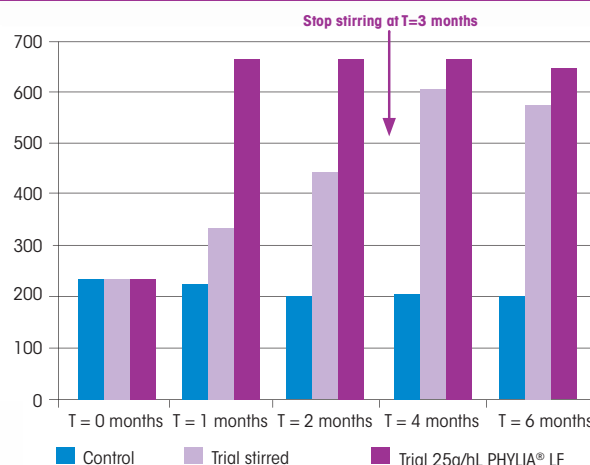
	T=0	T=30 days	T=60 days	T=90 days
Control	- 3.8	+ 3.3	+ 4.7	+ 7.1
25 g/hL PHYLIA® LF	- 0.9	- 25.4	- 15.9	- 19.0

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



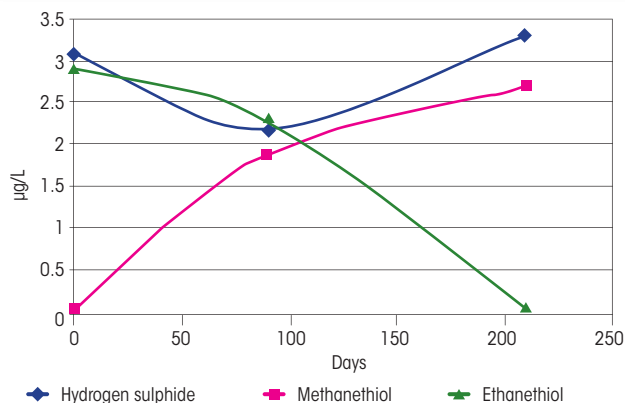
Concerning the ability of PHYLIA® LF to release polysaccharides, we monitored the release of polysaccharides into the medium for six months, using three methods: (1) on natural lees without stirring (bâtonnage), (2) on natural lees with stirring (carried out for the first three months of the trial),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

- Firstly, we note the interest of stirring natural lees 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 (H₂S, CH₃SH and CH₃CH₂SH) 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.

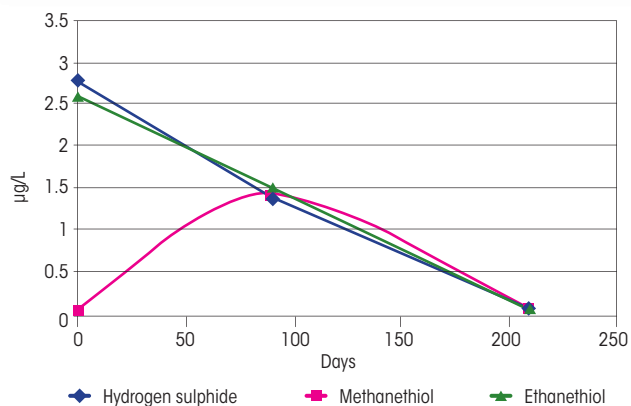


PHYLIA® product range

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 persistent 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 with 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

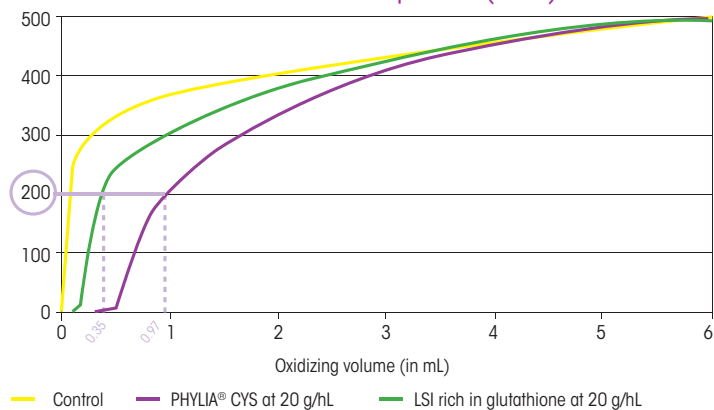
PHYLIA® CYS is an association of specific inactive yeasts (rich in amino acids in small reducing peptides) and selected microcrystallin cellulose. Due to its high antioxidant capacity, when added before the start of alcoholic fermentation, PHYLIA® CYS effectively protects aromas against oxidation. PHYLIA® 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: 1 kg and 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 à 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 and 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".

PHYLIA® product range

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).

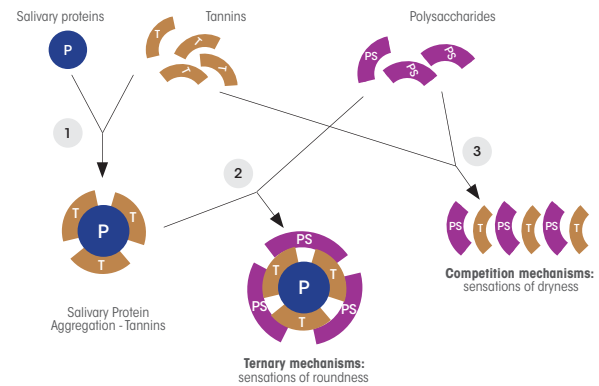


Figure n°1: Possible mechanisms of action of polysaccharides on taste properties: (2) Ternary mechanisms and (3) Competition mechanisms involved in the inhibition of the aggregation of tannins and salivary proteins by polysaccharides.

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 jar

DOSAGE: 0,5 to 5 g/hL

Consult our oenologists to obtain
a personalized protocol

Effects of PHYLIA® ICÔNE

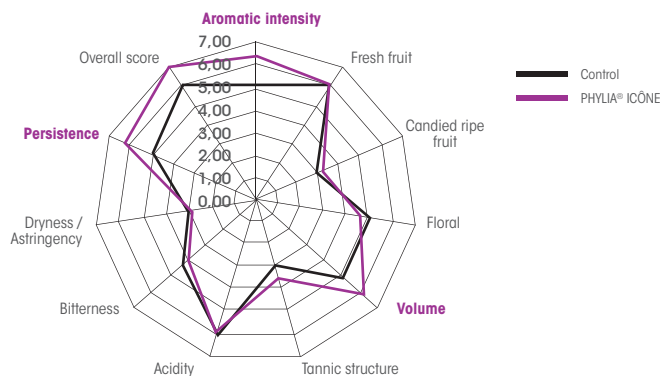
MANNOPROTEINS

- ✓ **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

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

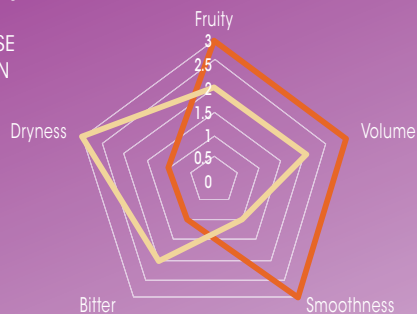
CONTRIBUTE
TO INCREASING VOLUME

Oenological properties during ageing

- Protection of aromas and colour
- Softening of tannins: reduces astringency while providing volume and structure
- Management of redox balance
- Reduced SO₂ 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

— Control
— OENOVEGAN® SBS



Effects of OENOVEGAN® SBS

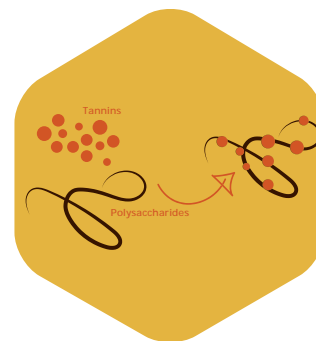
PLANT POLYSACCHARIDES + YEAST POLYSACCHARIDES

- ✓ 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 OENO₂ promotes the organoleptic balance and stability of the wine over time. OENO₂ 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**

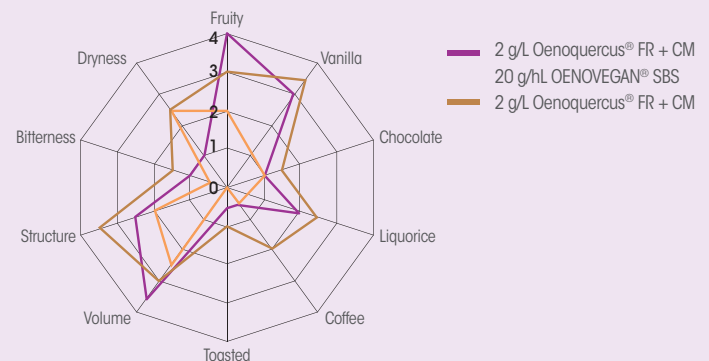


Figure 3. Aromatic profile of a red wine made from Sangiovese grapes (Italy, 2020) and aged with wood chips, with and without the addition of OENOVEGAN® SBS.

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®

DIWINE®

NEW GENERATION OF WINEMAKING AUXILIARIES

This is a range of six 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



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 and maturation of red wines

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.

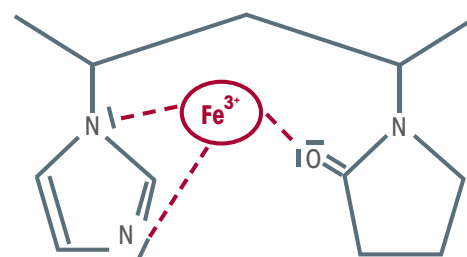


Figure 1 : Structure of PVP/PVI enabling chelation of heavy metals

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

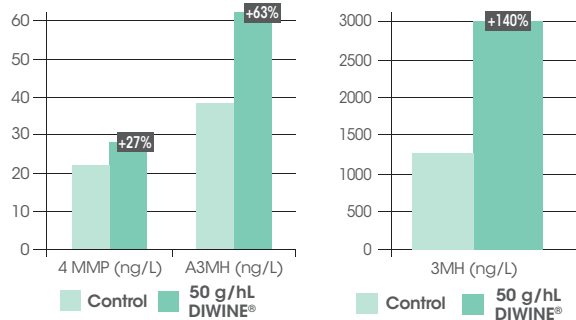
Optimises the revelation of thiol aromas in wines



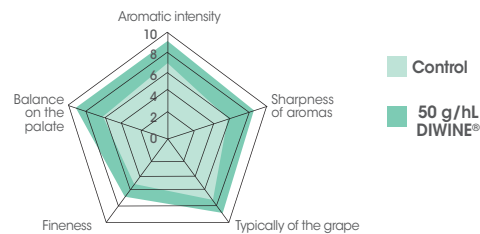
DIWINE[®] THIOL optimises the revelation of thiols and maintains the aromatic freshness of wines by acting at two levels:

- 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.

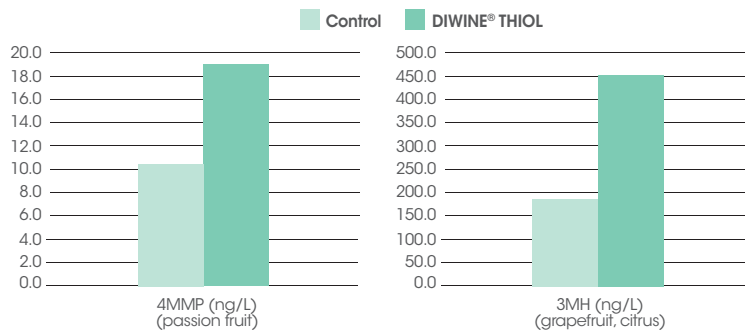
Impact of adding DIWINE[®] THIOL on must of Sauvignon Blanc. Thiols analyses performed on the wine after bottling



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

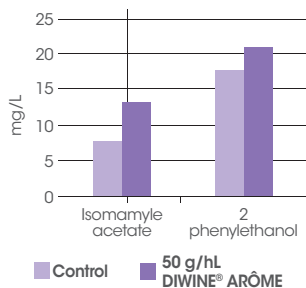
Increases the aromatic intensity and volume in the mouth



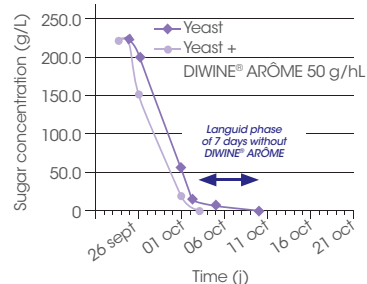
The constituents of **DIWINE® ARÔME** act synergistically to optimise the generation of aromas by the yeast and to prevent the risk of oxidation of the aromas and polyphenols.

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

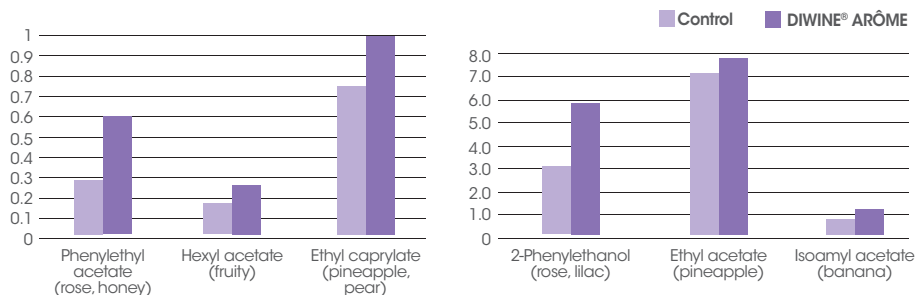


Impact of DIWINE® ARÔME on the course of the alcoholic fermentation of a Viognier must



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

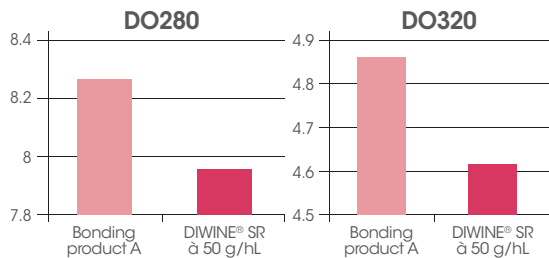


DIWINE® SR extends the life of rosé wines.

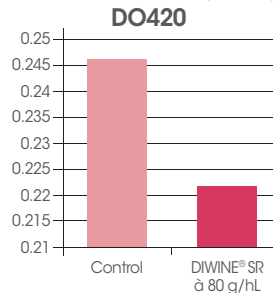
DIWINE® SR prevents oxidation phenomena very damaging to rosé wines and thus preserves the freshness of aromas and colour desired by the winemaker.

Moreover, **DIWINE® SR** contributes to the stabilisation of rosé wines from a protein perspective.

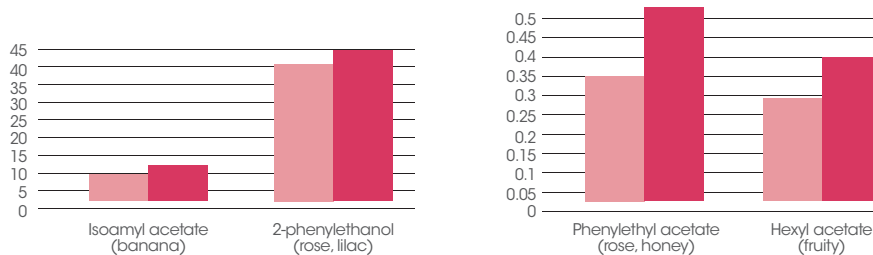
Impact of adding **DIWINE® SR** on a rosé must (Syrah - Grenache) on the total polyphenols (DO280) and the oxidisable polyphenols (DO320)



Impact of adding **DIWINE® SR** on 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

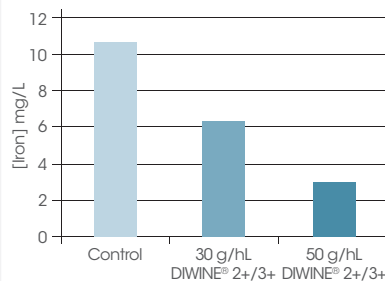


DIWINE[®] 2+/3+ fixes and causes the precipitation of heavy metals with decreasing affinity starting from copper going up to zinc.

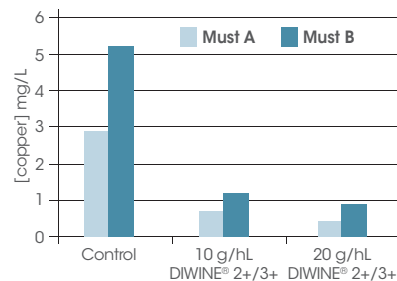
$\text{Cu}^{2+} > \text{Au}^{2+} = \text{Ag}^+ = \text{Hg}^{2+} > \text{Fe}^{3+} > \text{Al}^{3+} > \text{Ni}^{2+} > \text{Co}^{2+} > \text{Zn}^{2+}$

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.

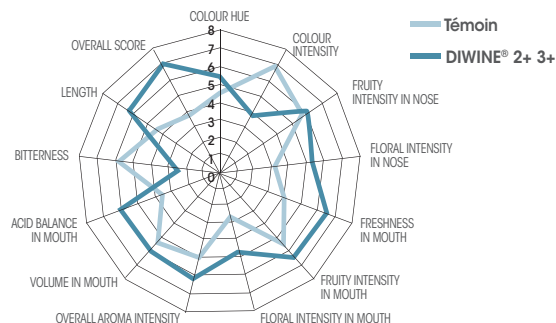
Impact of DIWINE[®] 2+/3+ on a red wine with a proven risk of iron casse



Impact of DIWINE[®] 2+/3+ on two musts showing a very high concentration of copper



Sensory analysis. Impact of DIWINE[®] 2+3+ on GRENACHE



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 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**

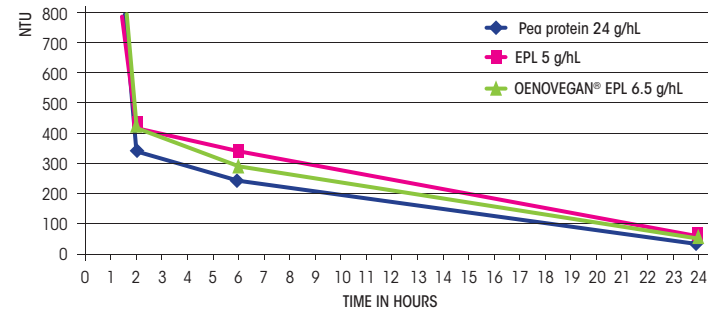


 **Can be used in musts and wines**

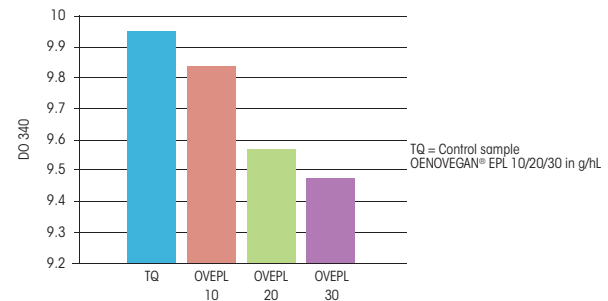
 **Lower doses**

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

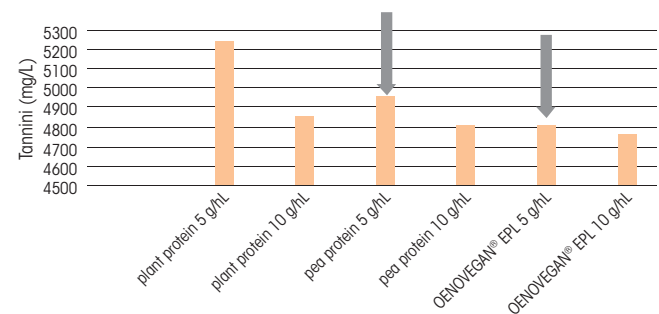
Evolution of turbidity - Grenache Rosé



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.

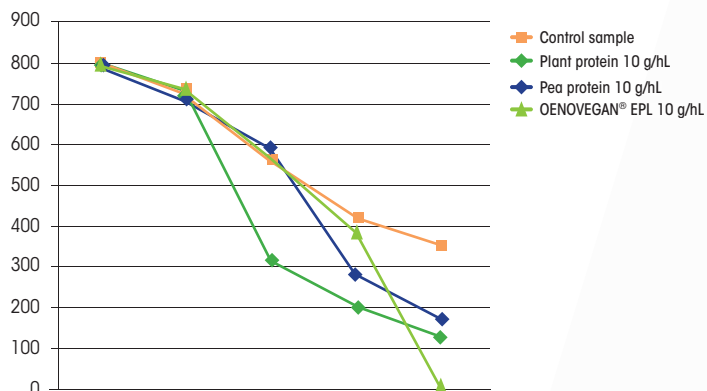
Impact of turbidity in static

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



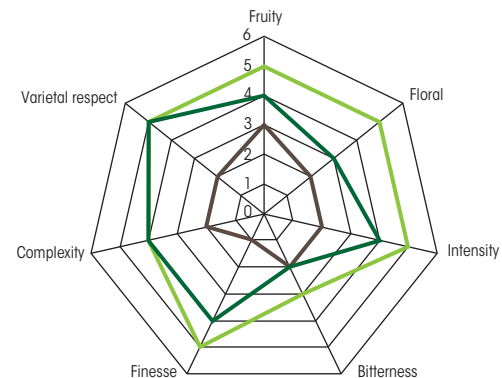
Fining while
preserving
the aroma
profile



More
effective than
plant protein

SENSORY ANALYSIS

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



— PVPP 20 g/hL — OENOVEGAN® EPL 7 g/hL — OENOVEGAN® EPL 12 g/hL

The winemakers

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



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 and 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



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!



Awarded prize at Intervitis 2010



Mention at Sitevi 2009

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



OENOCLEAR

OENOCLEAR 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. OENOCLEAR is likewise very efficient by floating.

PACKAGING: 20 L

APPLICATION RATE: 5 to 20 cL/hL

OENOVEGAN® F



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



The winemakers

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



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.

In case of very spoiled harvest or too coloured white musts, this treatment may be completed by an addition of 50 to 100 gr/100 L of VINIFICATEUR C.



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



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



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 or pressing. After collaborating during 3 vintages and classifying the impact of our glues with these indices, we have defined business rules that enable us to suggest the most suitable glue according to the fining goals: clarification, colour impact and/or organoleptic impact.

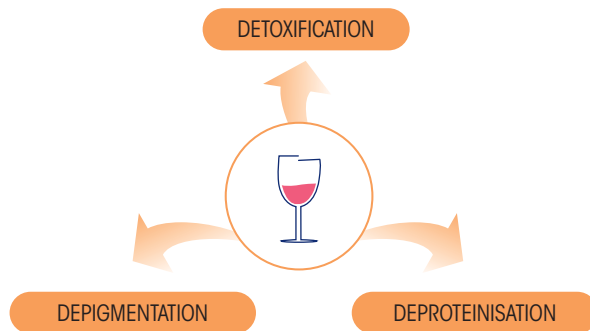
The winemakers

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.

The winemakers

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



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: 1 kg, 5 kg and 15 kg

APPLICATION RATE: 40 to 100 g/hL



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

FORMULE 1-CF



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



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

Lysis Intense AND SKIN MACERATION ON SAUVIGNON BLANC



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

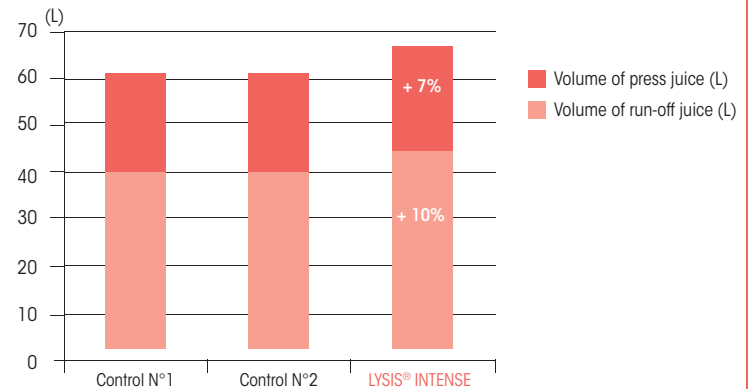


Figure n°1: Increase in yields of run-off and press juice from the enzymed procedure compared to controls.

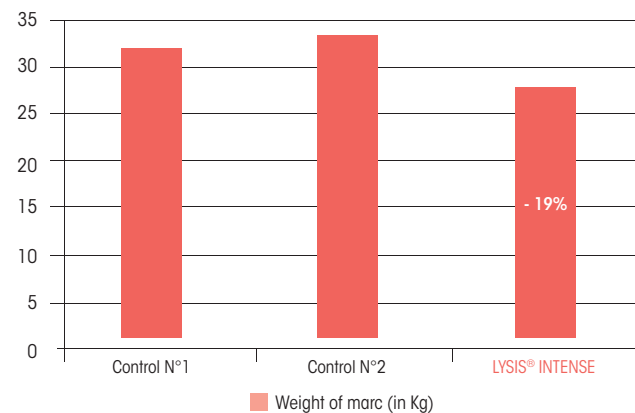


Figure n°2: Weight of marc obtained after pressing.

	CONTROL N°1	CONTROL N°2	LYSIS® INTENSE
TAV in % V/V	12	11.9	12
Total acidity in g/L H₂SO₄	4.1	4.1	4.2
Volatile acidity in g/L H₂SO₄	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
DO₂₈₀	5.95	6.06	6.14
DO₃₂₀	4.99	4.92	4.24
DO₄₂₀	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 quinones 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 glutathione 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 a lot 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 H₂SO₄	4.8	4.8	4.9
Volatile acidity in g/L H₂SO₄	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 SO₂ in mg/L	35	35	31
Total SO₂ in mg/L	141	124	128
DO₂₈₀	5.98	5.88	5.73
DO₃₂₀	1.95	1.9	1.93
DO₄₂₀	0.082	0.097	0.106

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

Dosage of volatile thiols

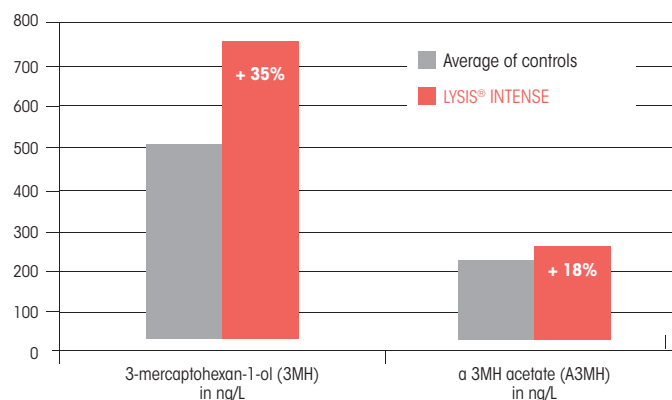


Figure n°3: Dosage of volatile thiols on finished wine - Perception threshold of volatile thiols: 60 ng/L for 3MH, 4 ng/L for A3MH.

CONCLUSION:

It would clearly appear that LYSIS® INTENSE is an interesting tool to be used for the skin maceration of white vine varieties, on an 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 a positive impact on wine).



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.

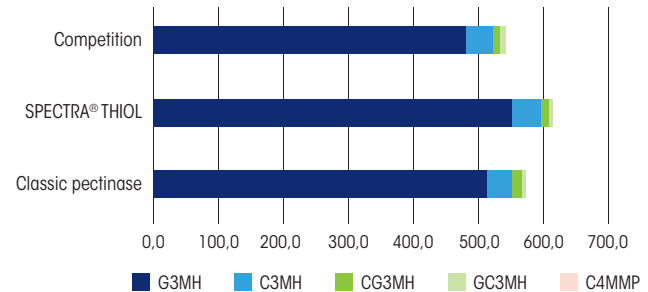


Figure n°1: Concentration of thiol precursors after stabulation at 4°C for 6 days

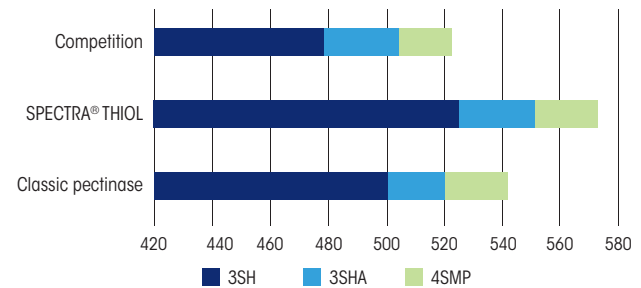


Figure n°2: Concentration of volatile thiols in finished wines
Fermentation with SELECTYS® THIOL at 20 g/hL

PACKAGING: 100 mL and 1 L flasks

APPLICATION RATE: 2 to 4 mL/hL



SPECTRA® range

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



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

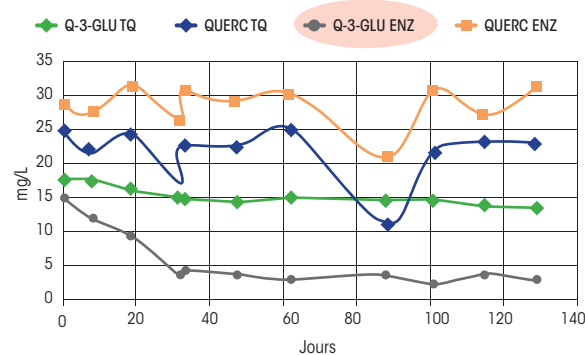


Figure n°1: Impact of SPECTRA® QF at 5 g/hL on the various forms of quercetin over time.

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® 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® 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® 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 winemaking 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



Specific processes

LYSIS® ELEVAGE



LYSIS® ELEVAGE is active on polysaccharides, namely β -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® 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



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



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

BACTERIA

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 SO₂:** this is the principal limiting factor of bacterial growth, and it is essential to respect concentration limits of total SO₂ 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 SO₂, 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 deficiency

- 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:

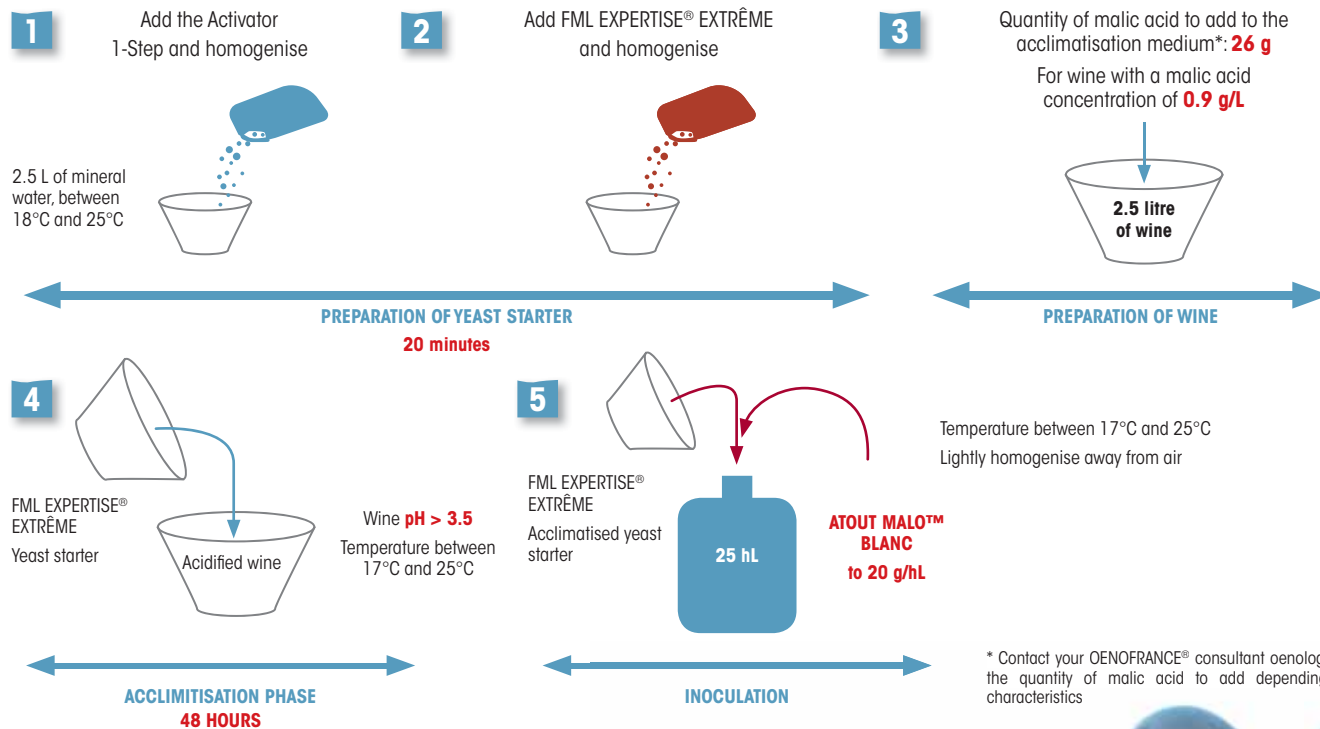
- **Impact of chlorine:** lactic acid bacteria are very sensitive to the chlorine contained in tap water. In the case of directly inoculated bacteria, spring water or mineral water should be used for rehydration.
- **Respecting temperatures:** just as for yeast, instructions regarding temperatures for 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 SO₂ 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.



51

 **Example of an EXTREME situation: A very sulphited Northern white wine: Total SO₂ at 100 mg/L**
 FML EXPERTISE® C is the low pH white wine best adapted bacteria. It's also highly resistant to SO₂. Nevertheless, a concentration of 100 mg/L of total SO₂ does not enable applying the traditional protocol. After rehydration, it is recommended to go through 3 or 4 acclimatisation phases instead of 2 in order for the bacteria to adapt little by little to SO₂.



Bacteria product range

BACTÉLIA® CRESCENDO

BACTÉLIA® CRESCENDO is an *Oenococcus oeni* 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® 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.



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.



NAME	DOSES	TYPE	ALCOHOL	pH	SO ₂ T / SO ₂ L	OPTIMUM TEMPERATURE RANGE *	END FA	CO-INOCULATION	SENSORY PROFILE	PRODUCTION OF DIACÉTYLE
Bactélie® 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
Bactélie® 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
Bactélie® 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® C	100 hL	Starter cultur	< 14%	> 2.9	< 60 mg/L / < 10 mg/L	> 18°C and < 25°C	●●●	●●●	Neutral, respect of fruitiness	Very low
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® C

FML EXPERTISE® C is a *Oenococcus oeni* bacteria used for inoculating white wines with low pH levels and average degree of alcohol. This is an ideal bacteria for carrying out malolactic fermentation on base wine to be used for bottle fermentation. The implementation protocol of FML EXPERTISE® C includes an acclimatisation in several phases before inoculating the 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.



TANNINS

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



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 :

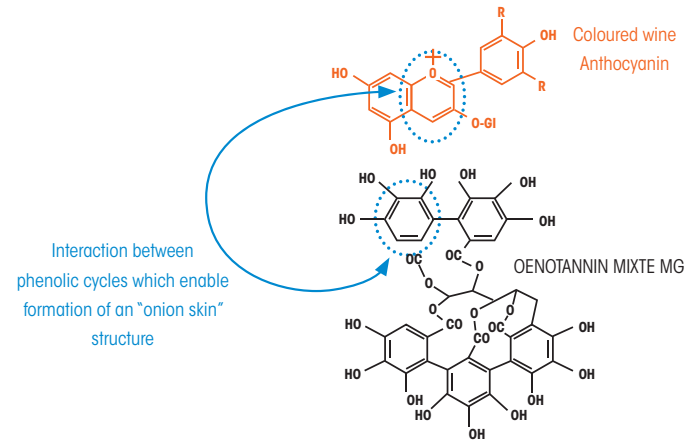
Stage 1

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.

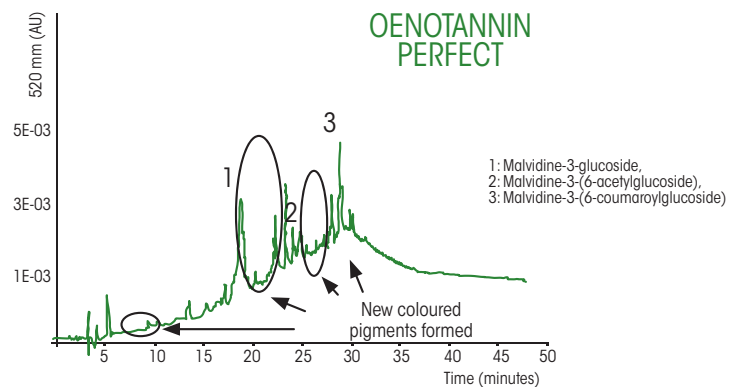
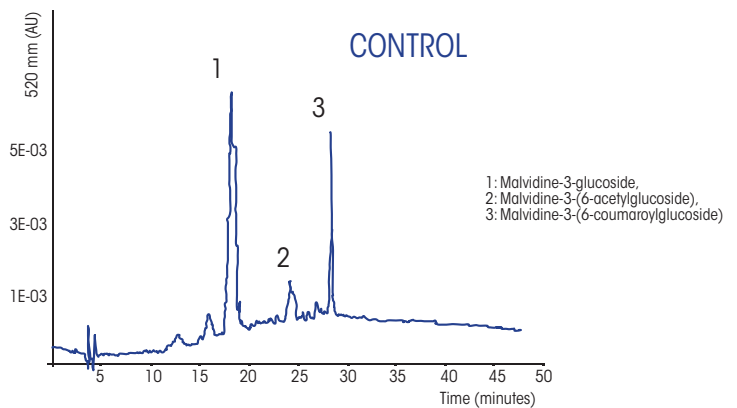
Stage 2

At the end of devatting, when solid matter is separated from liquid matter, a so-called OENOTANNIN PERFECT tannin is used to definitively stabilise 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 OENOTANNIN 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. OENOTANNIN 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 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-lasase properties are put to use when used on adverse harvests.

PACKAGING: 1 kg

APPLICATION RATE: 2 to 20 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 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. OENO₂ 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 OENO₂ 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 as a wine maturing accessory. This product fosters slow oxidation while conserving tannins and other wine compounds. It likewise contributes 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

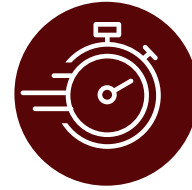
OENOFrance® has always been close to its customers and the specific problems they encounter. It is for this reason that OENOFrance® is the only oenological products company to market pure botanical origin tannins. OENOFrance® studied the chemical properties of different available tannins over several 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®

NO QUERCUS

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



INSTANT ACTION

The active ingredients of NOQUERCUS
are available immediately

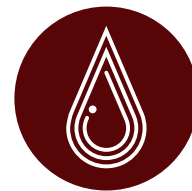


PROTECTS

polyphenols against oxidation

STABILIZES

the colouring matter



PRESERVES

the wine's freshness

CONTRIBUTES

to the wine's sucrosity
and complexity

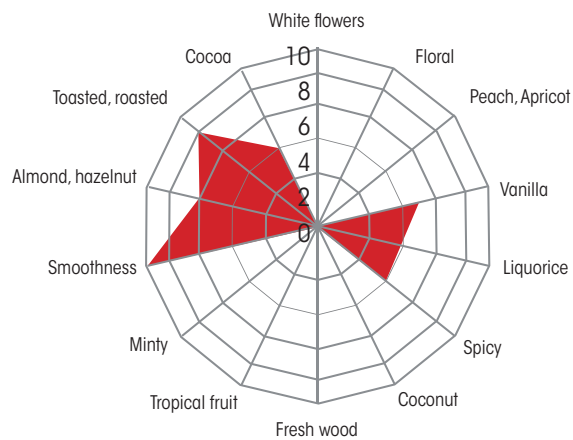
NOQUERCUS®

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 à 0.6 g/L

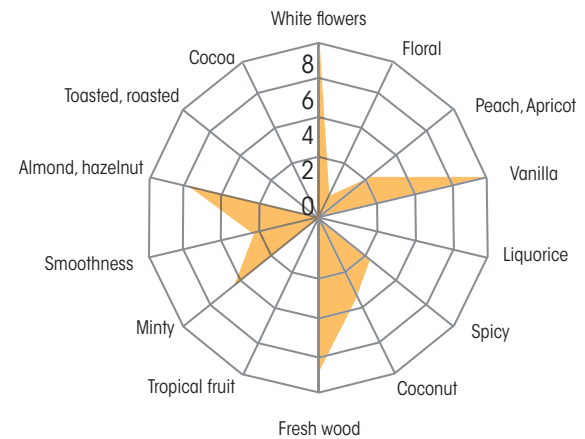


NOQUERCUS® BLANC

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

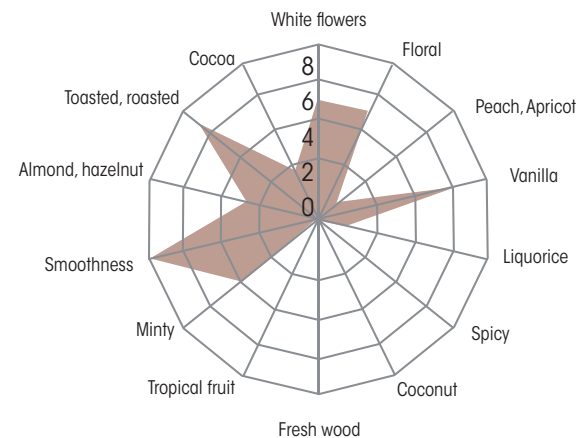


NOQUERCUS® DOUCEUR

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



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

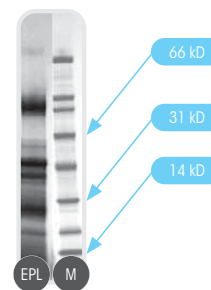
The production of PHYLIA® EPL lies in managing yeast treatment and purifying compounds obtained in view of retaining solely the sought after proteins.

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



EPL: Yeast protein extract PHYLIA® EPL

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.

M: size in kD Markers

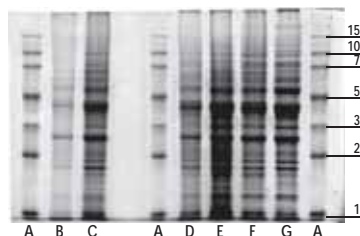
LIVE YEAST



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

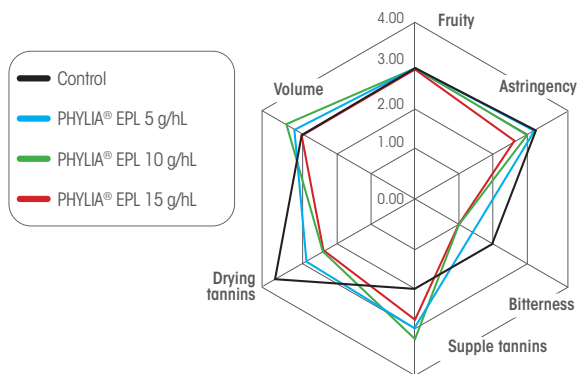


Its applications

- 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

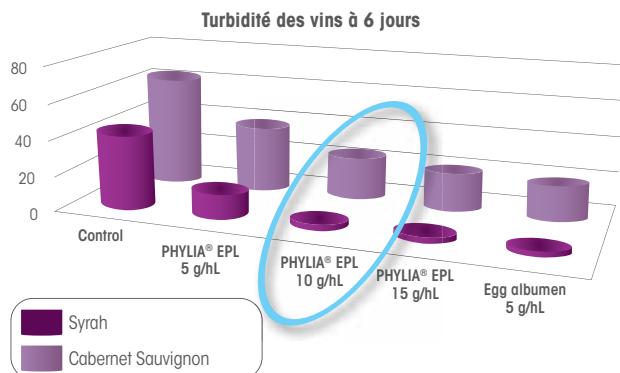
Trials on different doses on red Syrah wine.



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 fining of wines

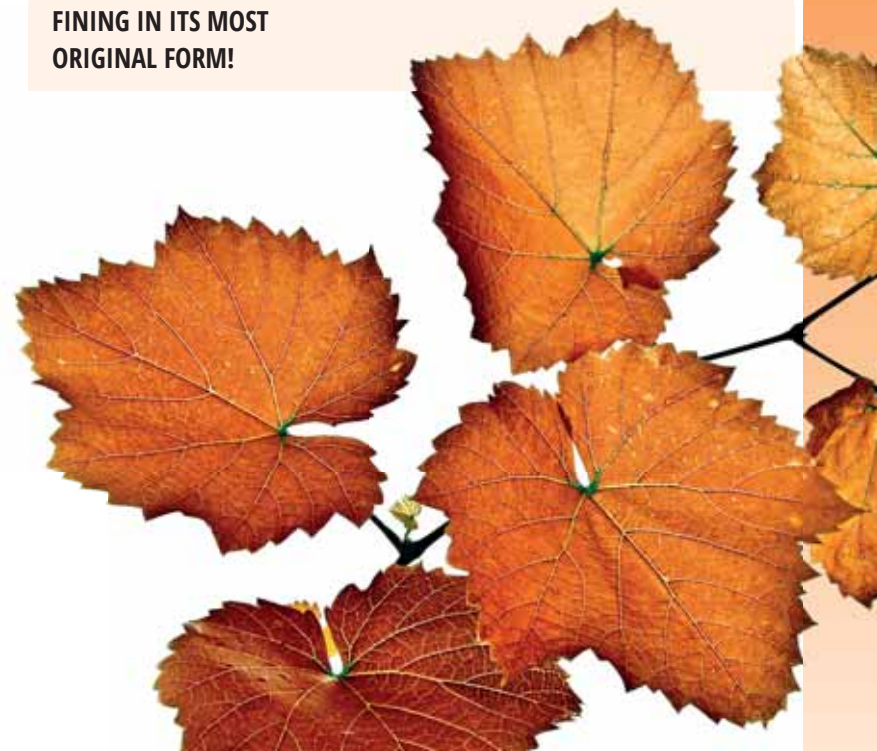
FINING IN ITS MOST ORIGINAL FORM!



Awarded prize at Intervitis 2010



Mention at Sitevi 2009



PHYLIA® EPL

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 and 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



OENOVEGAN® EXTRA

OENOVEGAN® EXTRA is a specific non-animal-based fining agent for the removal of aromas that mask fruitiness. Specially developed to remove smoky flavours in musts and wines, OENOVEGAN® EXTRA enables you to recover the fruitiness and freshness of your wines. It can be used during fermentation for clarification and fining.

PACKAGING: 5 kg
APPLICATION RATE: consult the technical data sheet.
Maximum legal dose: 100 g/hL



AFFIMENTO

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

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



GÉLATINE N

GÉLATINE N preserves the tannic structure of red wines. It uses less tannins than COLLE H for precipitating and enables a gentle gumming of the tannic structure. 80% of these proteins have a molecular weight of over 80 000 daltons. Very efficient for clarifying associated with OENOGEL 30 silica gel, it is also recommended for devatting musts by flotation.

PACKAGING: 1 L, 5 L, 20 L, 120 L and 1000 L container
APPLICATION RATE: 3 to 10 cL/hL



COLLE H

More hydrolyzed than GÉLATINE N, with proteins with a molecular weight ranging between 50 000 and 75 000 da, COLLE H eliminates tannins with astringent properties.

PACKAGING: 1 L and 20 L
APPLICATION RATE: press wine: 5cL/hL
free-run wine: 2cL/hL



Fining products for wines

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



OENOGEL 30

OENOGEL 30 is made up of silica sol. This product is added before the gelatin of fish fining agents and improves the compacting of lees, speeds up the clarification and avoids overfining. Contrary to tannins, this does not harden white wine.

PACKAGING: 1 L and 20 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® 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® 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, OENOFRENCE®'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



STABILISERS

On must

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 SO₂ 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 SO₂



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 SO₂
- 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.



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 SO₂**
- **To produce a clearer aromatic profile**

This product is approved for organic and vegan winemaking.



Reduction of *Brettanomyces bruxellensis* populations



Fast acting



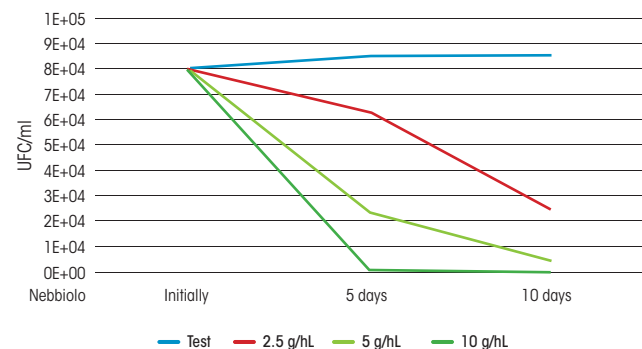
Granules for immediate dispersion



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



Protein stabilization

MAXIMUM PURITY
MAXIMUM EFFICIENCY

Performa

FOR THE PROTEIN STABILITY OF YOUR WINE



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

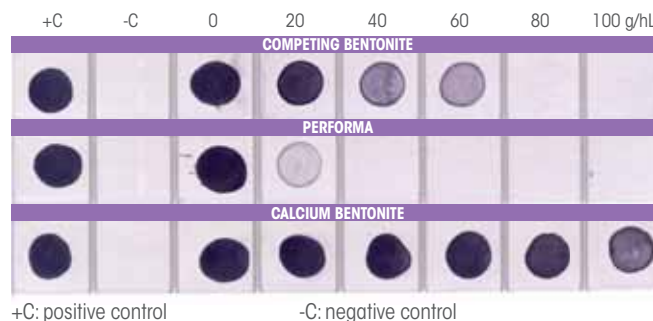


Never rehydrate bentonite in wine



Leave to stand for 3 to 6 hours

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



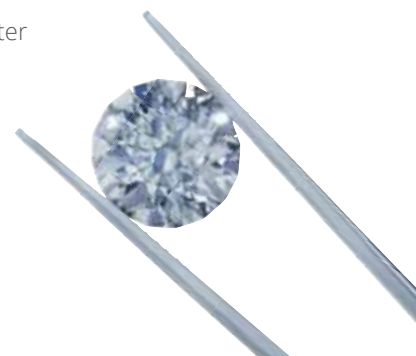
To carry out this test, an unstable white wine was treated with various bentonites at doses ranging from 20 to 100 g/hL. A drop of each treated wine, a drop of the control wine (graded 0), as well as a drop of a positive control (graded C+) and of a negative control (graded C-) is then placed on a strip 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 SO₂.
- LYSOGRAM+ makes it possible to reduce dosages of SO₂ without replacing it, since it has no reducing properties and is inactive 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



Protein stabilization

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

Protein stabilization

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).

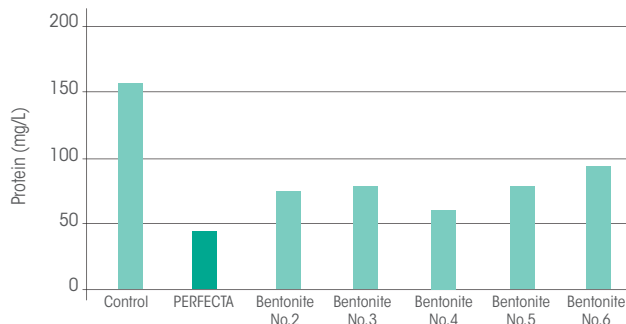


Figure n°1: PERFECTA's **deproteinising power** compared to 5 other bentonites available on the market. Trials were conducted with white wines produced from Garganega (Italy, 2020).

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).

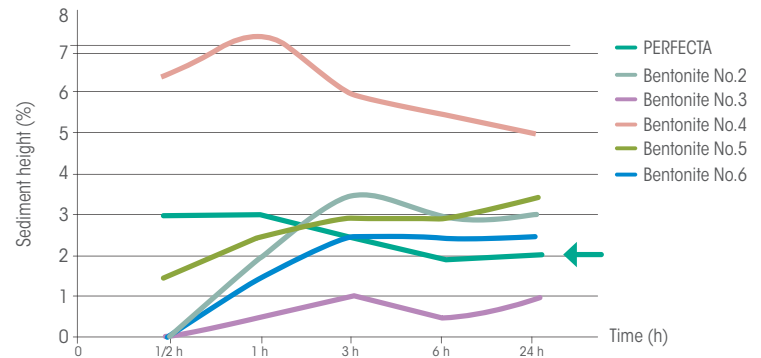


Figure n°2: PERFECTA's **compacting power** compared to 5 other bentonites available on the market. Trials were conducted with rosé wines produced from Pinot Noir (Italy, 2020).

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.**

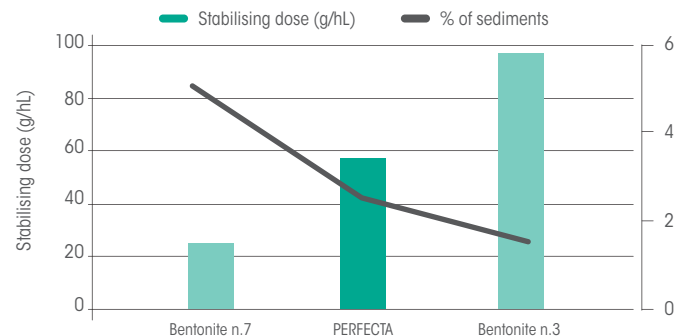


Figure n°3: The relation between stabilisation and sedimentation achieved with PERFECTA and two other bentonites available on the market.

Tartaric stabilization

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

Kyocell
CELLULOSE GUM OR NATURAL
ORIGIN IN COMPLIANCE WITH
THE OENOLOGICAL CODEX



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 (T^{2-}). The balances can be written as follows:



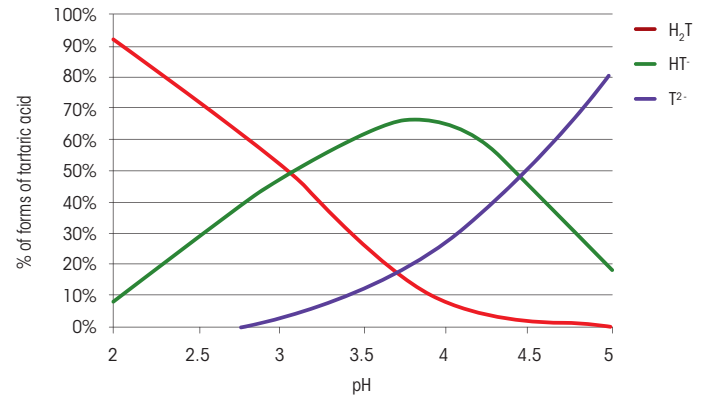
These balances are regulated by the pH levels in solutions and according to the wine pH level the distribution of different forms of tartaric acid varies.

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.



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:

- $[HT^-] \times [K^+] < S_{KHT} \Rightarrow$ KHT is totally soluble
- $[HT^-] \times [K^+] > S_{KHT} \Rightarrow$ KHT crystallises

Several factors influence this crystallisation phenomenon.

- 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)

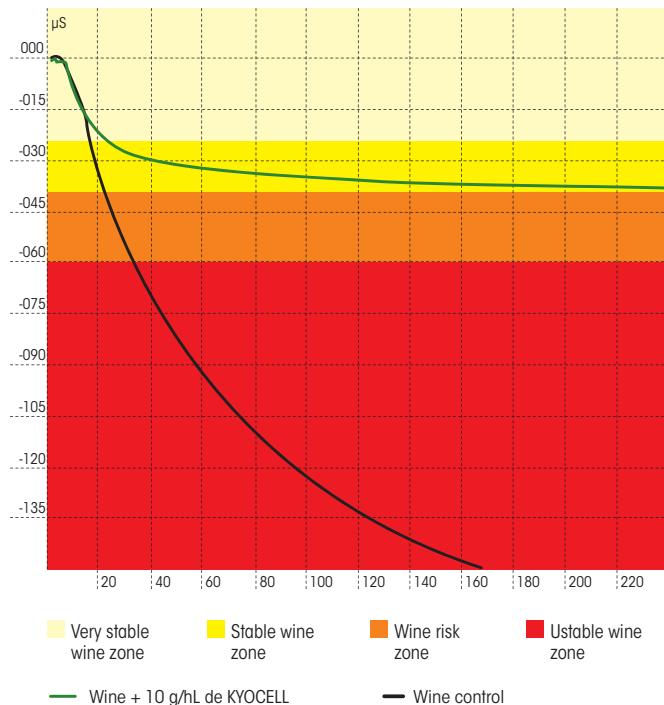
The choice of using one or another of the methods will depend on the type of wine to stabilise, its composition and equipment available.

Each method has its advantages and its disadvantages:

Chilling 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



KYOCELL 2.0



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



BITARTRYL

This metatartaric acid is manufactured under the control of OENOFRANCE®, in order to obtain a constant quality product. Efficient against tartaric precipitations, its very low reversibility rate provides long lasting results.

PACKAGING: 1 kg

APPLICATION RATE: 10 g/hL



BITARTRATE DE POTASSIUM

BITARTRATE DE POTASSIUM (E336), still referred to as cream of tartar or potassium tartaric acid is used during the cold treatment of wine. Used at doses of 400 g/hL, it 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



KYLMA®



KYLMA®

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



KYLMA®
I N T E N S E



Intensity &
volume



Fruitiness
& Length

KYLMA®
P U R E

KYLMA®
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!

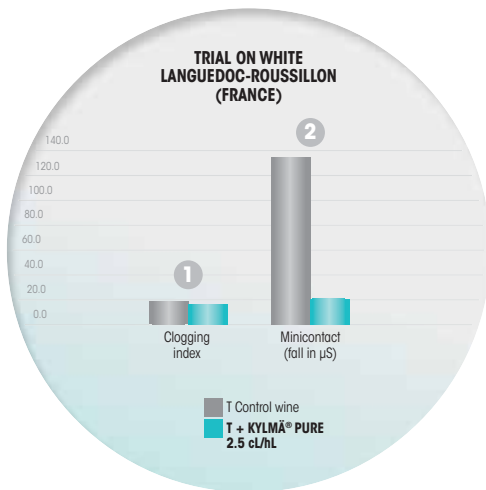
KYLMÄ®
P U R E



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



Commentaries KYLMÄ® PURE trial

- 1 No increase in clogging index
- 2 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®
I N T E N S E

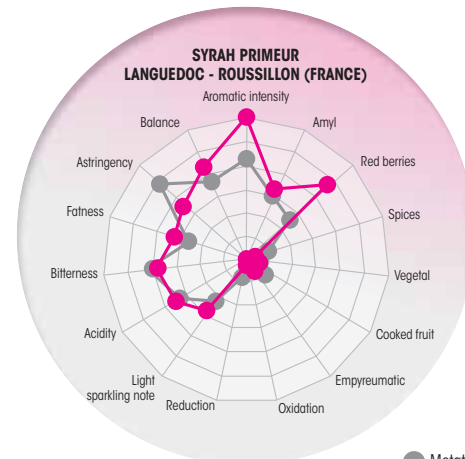


KYLMÄ® INTENSE is a concentrated solution (5%) of potassium polyaspartate, containing a pool of polysaccharides. It combines a triple promise for the processing of red wines: tartaric stabilisation, a strong improvement of the stabilisation of the colouring agent and an organoleptic contribution on the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

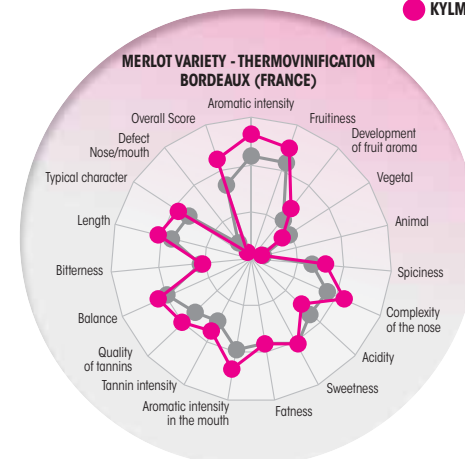
PACKAGING: 1 L, 5 L, 20 L, 1000 L

APPLICATION RATE: 10 to 20 cL/hL

TASTE ANALYSES



● Metatartratic acid
● KYLMÄ® INTENSE



Improve and secure the future of your wines!



KYLMA® 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. KYLMA® SR has a positive organoleptic impact on wines, making them fresher, more elegant and rounder.

PACKAGING: 5 L, 20 L

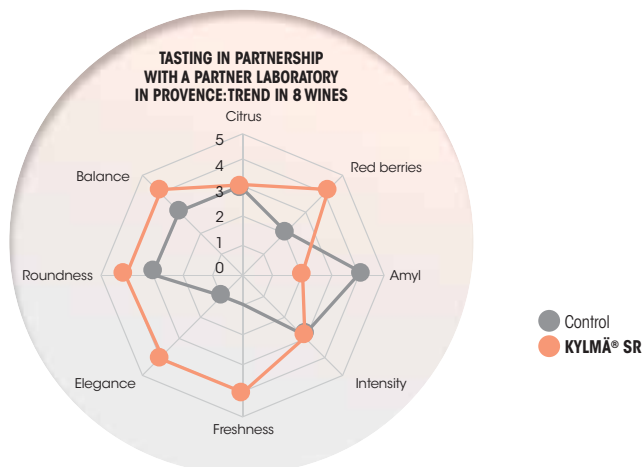
APPLICATION RATE: 10 to 20 cL/hL

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



What determines the quality of an arabic gum?

The chemical composition:

Arabic gum is a complex and ramified polysaccharide. It is made up of arabinogalactan 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).

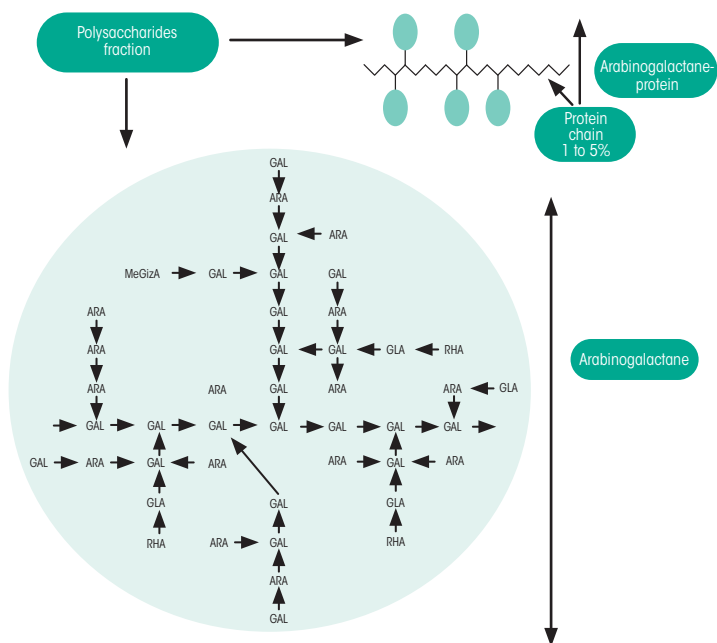


Schéma 1: Schematic representation of arabic gum according to "The Wattle Blossom Model" (Fincher et al. 1983)

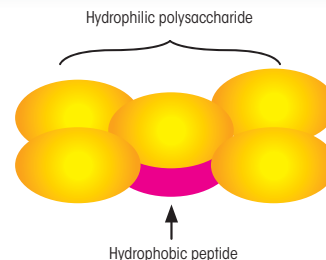


Schéma 2: Three dimensional representation of arabic gum according to Randal

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 SO₂. 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 SO₂ 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 SO₂ 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



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 et 120 L and 1000 L container packages available upon request

APPLICATION RATE: 2.5 to 10 cL/hL



GOMME VEREK BIO

KORDOFAN BIO is a certified organic natural gum arabic in powder made from acacia Verek (or acacia Senegal). The harvest and manufacturing conditions for KORDOFAN BIO make for a extremely pure gum and very efficient for the colloidal stabilization of organic red wines.

PACKAGING: 1 kg

APPLICATION RATE: 10 to 50 g/hL



GOMME SR

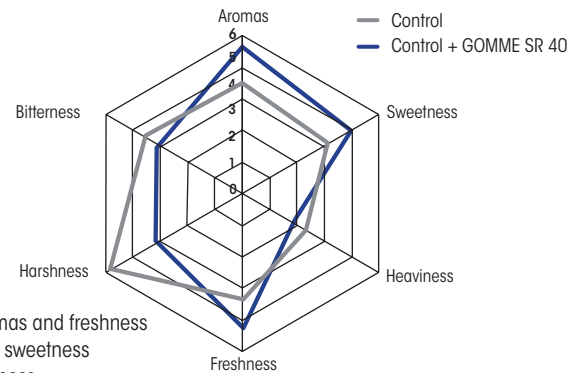
GOMME SR is a preparation based on Seyal gum arabic and SO_2 . Ultrafiltered, it can be added just before bottling without risking clogging. Used to stabilise wines against precipitation and cloudiness, this product has shown that it also removes hardness, and provides sweetness to wines.

PACKAGING: 5 L and 20 L, 1000 L container packages available upon request

APPLICATION RATE: 10 to 40 cL/hL



Tasting compared to a rosé from Provence with the same wine with 40 cL/hL of GOMME SR added:



- More aromas and freshness
- Increased sweetness
- Less harshness

Colloidal stabilization

GOMME FRAÎCHEUR

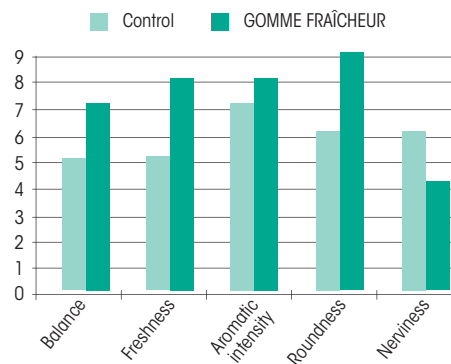
GOMME FRAÎCHEUR is a preparation based on high quality gum arabic. This gum makes it possible to obtain an almost colourless solution with very low turbidity. GOMME FRAÎCHEUR contributes to colloidal stabilisation of wines by preventing the formation of colloids that can lead to the development of cloudiness 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 available on demand

APPLICATION RATE: 10 to 40 cL/hL



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



COMMERCIAL NAME	WINE POSITIONING	CONCENTRATION (g/L)	DENSITY	ORIGIN	IMPACT ON COLOR STABILITY	IMPACT ON ROUNDNESS	IMPACT ON TARTARIC STABILITY AND IRON
ARABINA	All wines	290	1100	Seyal	●	●	●
KORDOFAN	All wines	290	1100	Verek	●●●●	●	●
GOMME VEREK BIO	Organic wines			Verek	●●●●	●	●
GOMME SR	All wines	200	1100	Seyal	●	●●	●
GOMME FRAÎCHEUR	All wines			Verek + Seyal	●●	●●	●

Wood range: OenoQuercus®

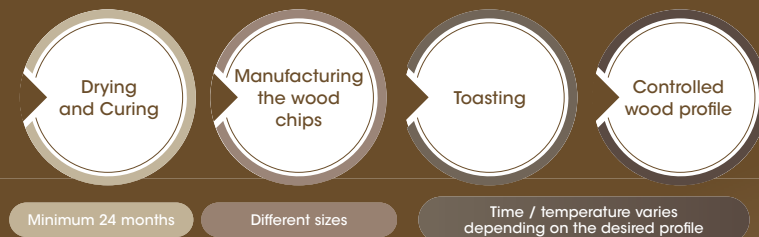
THE ORIGIN OF THE WOOD

Selected with stave milling partners

- Selecting the qualities of the wood
- Wood pieces of high quality
- 2 botanical species used:
FRENCH OAK: **Quercus Petraea** (sessile oak)
AMERICAN OAK: **Quercus Alba** (white oak)

Wood processing

Radiant Heat Toasting Method



Convection Toasting Method



The TOAST

- Controlling the toast (temperature, duration): **homogeneous, reproducible**
- Toast adapted to the **raw material's composition**



Convection core toasting

Ventilated hot air system for a more homogeneous product with more aromatic intensity and complexity.

- Woody, vanilla and spicy notes
- Choice of raw material and drying
- Reduced treatment doses



Radiant heat toasting

For a specific, precise aroma profile.

- Woody, elegant notes
- Reveals flavours

OENO₂

Synergy Wood range for oenology

The macro- and micro-oxygenation of OENO₂ promote organoleptic balance and the stability of the wine over time. OENO₂ enables precise adaptation to the wine's needs by diffusing the quantity of oxygen required at each stage of its development.

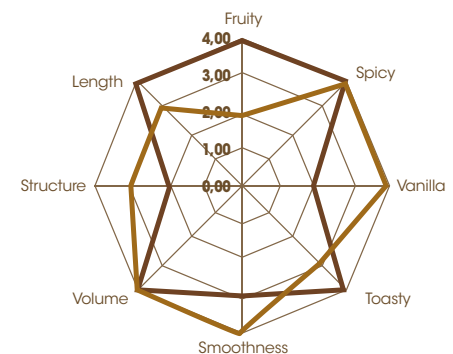
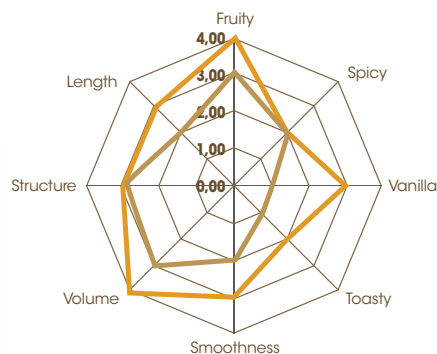
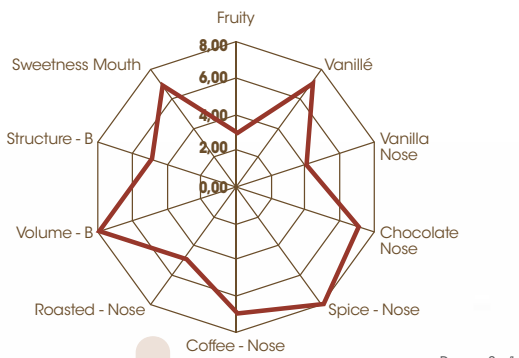
- ✓ **ENSURES BETTER INTEGRATION OF WOOD ALTERNATIVES.**

Wood range: OenoQuercus®

Different types of toasts

TOASTS		DEFINITION	APPLICATIONS
FRESH WOOD	BF	No toasting, thermal dehydration after drying.	Vinification of white and red wine.
LIGHT TOAST	CL	Light toast characterised by complex fruity and spicy notes.	Ideal for white and red wine vinification.
MEDIUM TOAST	CM	Medium toast for a smooth profile with notes of vanilla, while respecting the fruit and the characteristics of the grape variety.	Mainly during ageing. Excellent response in red wines in combination with yeast derivatives to improve fruity profile.
MEDIUM PLUS TOAST	CM+	Medium + long toast with different levels for a warm, complex aroma profile.	Mainly during ageing to add volume, complexity, smoothness and warmer notes. Characterised by notes of coffee and toast.
HEAVY TOAST	CF	High-temperature toast while preserving smoothness and fruity profiles.	Mainly while ageing wines of medium to robust structure, with the goal of reducing vegetal characteristics and imparting more complex toasty wood notes.
INTENSE TOAST	CI	High temperature for an expressive roasted woody profile with notes of jam.	Mainly during ageing to add volume and smoothness. Allows you to reduce the doses used and correct grape ripeness and microbiological deviations.

Characterization according to the type of toast



FRESH WOOD LIGHT TOAST

MEDIUM TOAST MEDIUM+ TOAST



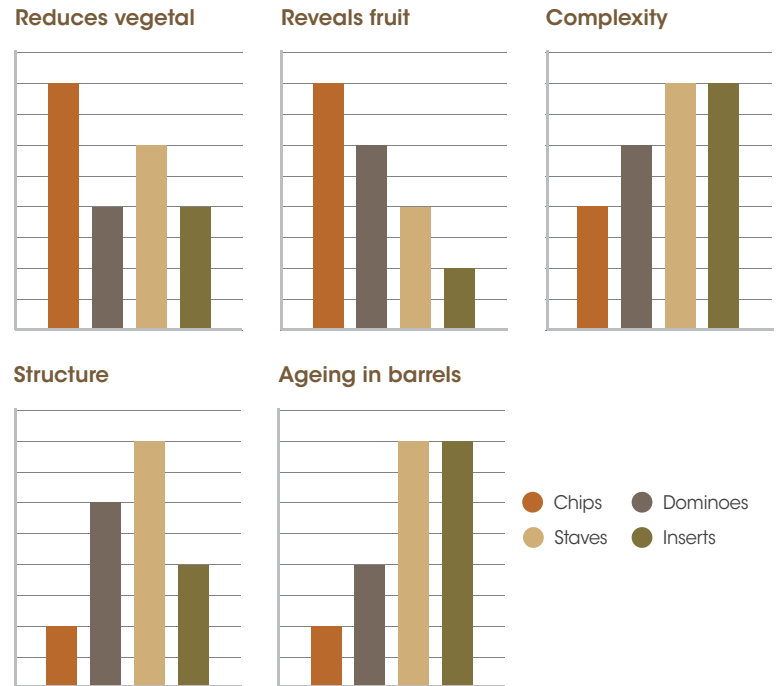
Intense Toast, latest innovation and type of toast in the **OenoQuercus®** range, is used during ageing to obtain a very expressive roasted wood profile with jammy notes and to bring **volume** and **sweetness** to the palate. Intense toast allows for a reduction in the amount of oak used and corrects ripening defects in the grapes and microbiological deviations.

Wood range: OenoQuercus®

Different types of wood for oenology



Main applications by type of wood



PRODUCTS	SIZE	LEVEL OF TOAST	PROPRIETIES	VINIFICATION	AGEING	DOSAGE	CONTACT TIME	PACKAGING
CHIPS	> 4 mm	CL, CM, CM+, CF, DUO, DOUCEUR, FR, Q1, CI	Structure, sucrosity, fruity, woody notes	••	••••	0.5 to 10 g/L	45 days	10 kg
CHIPS VINIFICATION	> 4 mm	BFSELECTION BC3, SELECTION RG7, SELECTION SR	Fruity note, sweetness, volume, correction of the vegetal, light structure	••••	••	0.5 to 3 g/L	10-30 days	10 kg
DOMINOES	50x30x10 mm	CM, CM+	Fruity aromas, well-integrated oak, structure	•••	••••	2 to 10 g/L	90 days	10 kg
STAVES 7 mm	910x50x7 mm	CL, CM, CM+	Structure, sucrosity, volume, woody notes	••	••••	0.5 to 5 staves/hL	5 months	50 staves/bag
STAVES 27 mm	910x50x27 mm	Q1	Structure, volume, complex woody notes	•	••••	0.5 to 5 staves/hL	8 months	10 staves/bag
INSERTS	8 segments x 3 = 24 pieces (0.3/0.4 m ²)	Q1	Old barrels, prolonged use of casks	•	••••	1 Kit/barrel	5 months	10 inserts/box

Wood range: OenoQuercus®





THE OENOQUERCUS RANGE

Origin and size





ECLAT (CHIPS)

-  Oenoquercus® ECLAT CL FR
-  Oenoquercus® ECLAT CM FR
-  Oenoquercus® ECLAT CM+ FR
-  Oenoquercus® ECLAT CF FR
-  Oenoquercus® ECLAT CI FR





ECLAT VINIFICATION

-  Oenoquercus® ECLAT BF
-  Oenoquercus® SELECTION BC3 (blanc)
-  Oenoquercus® SELECTION RG7 (rouge)
-  Oenoquercus® SELECTION SR (rosé)

ECLAT AGEING

-  Oenoquercus® ECLAT DUO
-  Oenoquercus® ECLAT DOUCEUR
-  Oenoquercus® ECLAT FR
-  Oenoquercus® ECLAT Q1

STAVES

-  Oenoquercus® STAVE Q1 27 MM
-  Oenoquercus® STAVE CL FR 7MM
-  Oenoquercus® STAVE CM FR 7MM
-  Oenoquercus® STAVE CM+ FR 7MM

DOMINOES

-  Oenoquercus® DOMINO CM FR
-  Oenoquercus® DOMINO CM US
-  Oenoquercus® DOMINO CM + FR

BARREL INSERTS

-  Oenoquercus® INSERT Q1

Name	ORIGIN	DIMENSIONS				
		Chips	Dominoes	Stave 7 mm	Stave 27 mm	Barrel inserts
BF	FR					
CL	FR					
CM	FR					
CM	US					
CM+	FR					
CF	FR					
CI	FR					
DOUCEUR	FR					
Q1	FR					
SÉLECTION BC3	B					
SÉLECTION ROSÉ	B					
SÉLECTION RG7	B					
FR	FR					
DUO	B					

FR: French oak US: American oak B: Blend of American and French oak
 BF: Untoasted Oak CL: Light Toast CM: Medium Toast CM+: Medium Plus Toast CF: High Toast

Wood range: OenoQuercus®

Characteristics by type of toast



TOAST	FRUITY	SPICE	VANILLA	LIQUOR	WOODED
BF	●●●	●●	●	●	●●●
CL	●●●●	●●	●●●	●●	●
CM	●●	●●●●	●●●●	●●●	●●
CM+	●●●●	●●●●	●●	●●●●	●●
CF	●●●	●●	●●	●●●●	●
INTENSE	●●●	●●●●	●●●	●●●●	●●
BC3	●●●●	●	●●	●	●
RG7	●●●●	●●	●●●	●	●
SR	●●●●	●●	●●	●	●●
DUO	●●●	●●●	●●●●	●●	●●●
Q1	●●	●●●●	●●●	●●●●	●●●
FR	●●●	●●●	●●●●	●●●	●●●●

Characteristics by type of toast



TOAST	SWEETNESS	VOLUME	STRUCTURE	ASTRINGENCY	LENGTH
BF	●●	●●●	●●●	●●●	●●
CL	●●●	●●●●	●●●	●●●	●●●
CM	●●●●	●●●●	●●●	●●	●●●
CM+	●●●	●●●●	●●	●●	●●●●
CF	●	●●●	●●	●	●●●●
INTENSE	●●●●	●●●	●●●	●●	●●●●
BC3	●●●●	●●●●	●●	●	●●●
RG7	●●●	●●●●	●●	●●	●●●
SR	●●●	●●●●	●●	●	●●
DUO	●●●●	●●●	●●●	●●●	●●●
Q1	●●●	●●●●	●●●●	●●●	●●●●
FR	●●●●	●●	●●●●	●●●●	●●●

Wood range: OenoQuercus®

Selected oak chips for winemaking

OENOQUERCUS SELECTION BC3 (WHITE)



Applications:

Chardonnay, Muscat, Melon de Bourgogne and other neutral varieties.

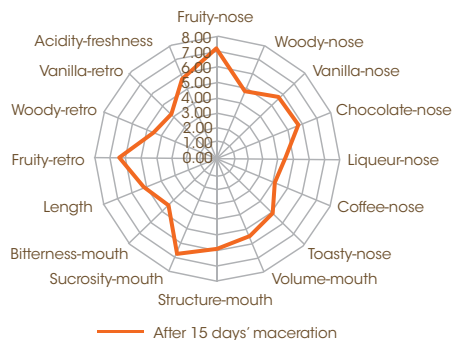
Dosage: From 1 to 3 g/L

depending on the wine's alcohol potential and the aromatic power of the grape variety.

Aims:

To impart volume and sucrosity.

To express the exotic profile of your grape variety with notes of cooked fruit and added volume in the mouth.



OENOQUERCUS SELECTION SR (ROSÉ)



Applications:

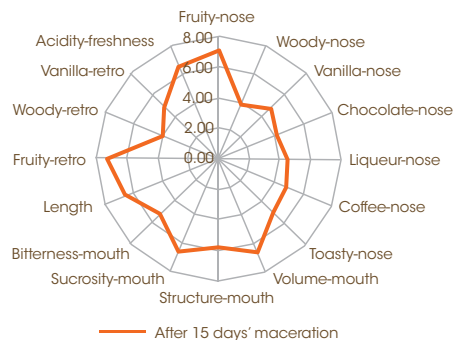
Rosé of Syrah, Grenache, Merlot, Cabernet S. and other neutral varieties.

Dosage: 0.5 to 2 g/L

Depending on the desired goal: to respect the fruity profile or to aim for complexity.

Aims:

Reduce vegetal characteristics, increase the fruit's complexity, add structure, freshness, smoothness and persistence. Stabilise colour.



OENOQUERCUS SELECTION RG7 (RED)



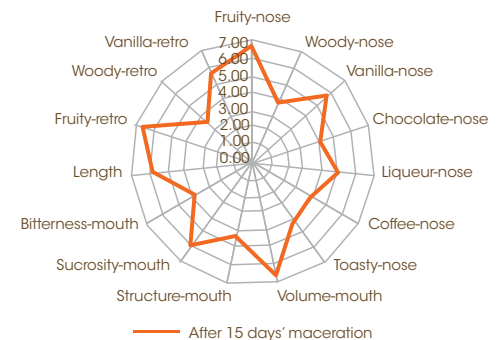
Applications:

A formulation intended for harvests of good and medium maturity, in traditional vinification, for thermovinification or flash détente musts. Also of interest for grapes that were altered just before picking (enhancement of the fruit, added structure).

Dosage: 2 to 4 g/L

Aims:

Develop the fruit of the wine, add roundness and volume in the mouth.



Wood range: OenoQuercus®

Selected oak chips for ageing

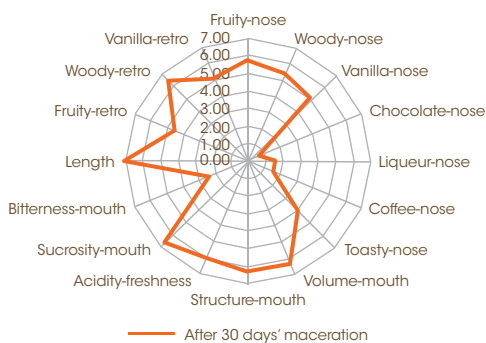
ECLAT DUO

Provides structure, smoothness and volume. The nose is smooth and complex with an exotic fruit profile. Also affects persistence and sucrosity.

A blend of French and American oak that adds structure and smoothness during fermentation. It imparts soft, light and very fine notes such as tropical fruit, with a major effect on length.

Dosage: 1 to 4 g/L

Contact time: 3 to 6 weeks



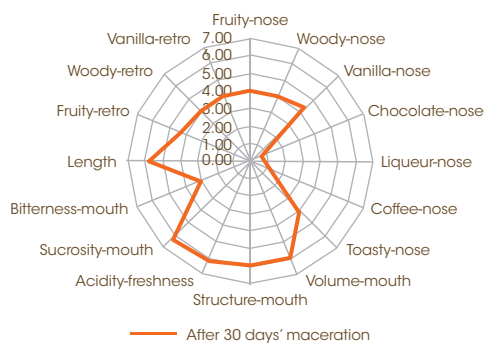
ECLAT FR

Imparts complexity, texture, volume and soft notes. The nose is complex with a fruity, spicy profile. Also affects length and the sweet, spicy character.

Used mainly while ageing, with significant effects on structure and all taste sensations in general. It is also of interest for the vinification of white wines. Suitable for treating red wines with vegetal notes.

Dosage: 2 to 5 g/L

Contact time: 3 to 6 weeks



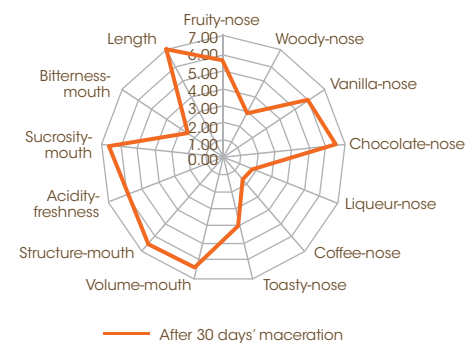
ECLAT DOUCEUR

Imparts smooth notes and sucrosity. The nose is rich, with a profile of white chocolate and caramel.

Mainly used while ageing to add smooth notes and richness. Adapts really well to Cabernet and Merlot varieties.

Dosage: 1 to 5 g/L

Contact time: 3 to 8 weeks



ECLAT INTENSE

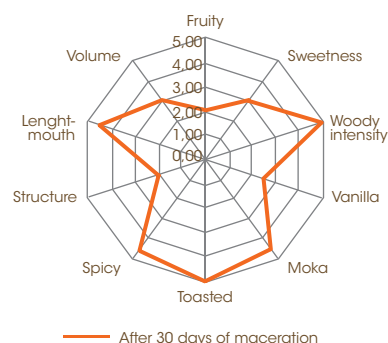
Adds sweetness, fullness and complexity. The nose is fruity with notes of sweet spices, roasted coffee and delicious chocolate, while reducing the vegetal character.

This new approach makes it possible to heat wood to high temperatures and to have a very targeted aromatic impact, bringing great complexity.

Dosage: Vinification: 0.5 to 2 g/L

Aging: 1 to 4 g/L

Contact time: 3 to 6 weeks



Wood range: OenoQuercus®

Synergy of wood with yeast derivatives

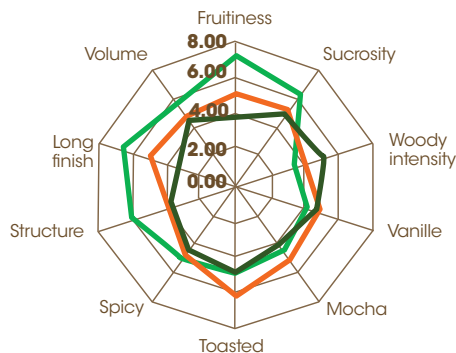
Study carried out after 40 days of maceration with medium toast and medium toast + in synergy with PHYLIA® CYS and PHYLIA® EXEL.

Phylia® Cys

Association of specific inactivated yeasts rich in amino acids and small reducing peptides to protect from oxidation and preserve the fresh aroma.

Synergy Eclat Medium Toast FR with PHYLIA® CYS and PHYLIA® EXEL

- CM FR
- CM FR + PHYLIA® EXEL
- CM FR + PHYLIA® CYS

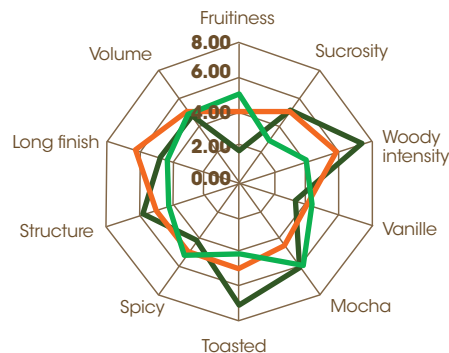


Phylia® Exel

Resulting from a process of partial autolysis of yeast to obtain polysaccharides (including mannoproteins) and proteins to develop the sensation of volume and fat in the mouth.

Synergy Eclat Medium Toast + FR with PHYLIA® CYS and PHYLIA® EXEL

- CM FR
- CM FR + PHYLIA® EXEL
- CM FR + PHYLIA® CYS

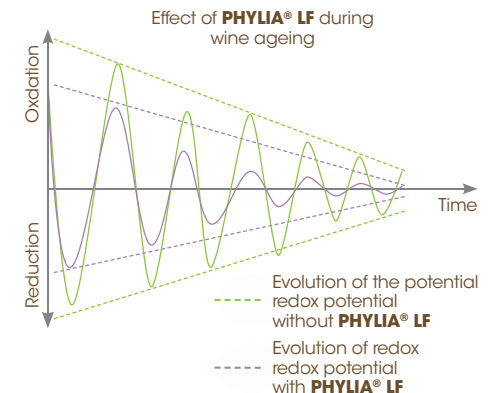


Phylia® Lf

The benefits of ageing on lee

PHYLIA® LF is a high-performance tool for correcting these faults (oxidative or reductive drifts) and successfully ageing white, red and rosé wines in safe conditions.

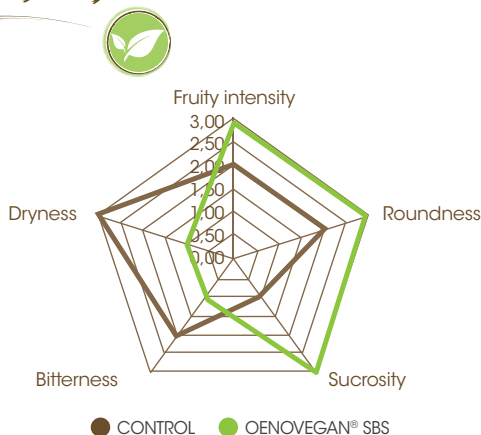
PHYLIA® LF prevents both reductive and oxidative drifts. PHYLIA® LF has the same protective properties as the natural lees of a wine without their potential risks (production of mercaptans, microbiological drift).



OENOVEGAN® Sweet Boosting Structure

Association of polysaccharides from yeast and plants to optimise the integration of wood alternatives in static or dynamic ageing.

OENOVEGAN® SBS was selected for its richness in polysaccharides and reducing elements. This association facilitates the management of oxidation-reducing mechanisms as it allows wood alternatives to be integrated faster.



OENOFRANCE®, committed and responsible



Forest eco-management label

Commitment to sustainable forest management



Recyclable packaging
Recyclable paper bags and a significant reduction in printing ink

Wood range: OenoQuercus®

WOOD KIT

Create your
wine profile

Discover the impact
of our wood on your wines.

**Test, experiment
and create unique
blends with the Wood Kit.**



NEW

Test
with tasting
report

Create
personalised
recipes

Precise
wood
dosage

Test
complementary
products

Optimise
contact
time

Preparation
for dynamic
infusion

**FOR TRIALS,
CONTACT
YOUR OENOLOGIST.**

Francesco CAVINI



Wood and oxygen expert from
the SOFRALAB® Group

From one winemaker
to another.

The OENOQUERCUS Wood kit is an essential tool to ensure the best choice for ageing your wines in relation to the definition of a specific profile. It provides precision and customisation to enable each oenologist to reveal the unique and authentic character of each vintage.

DYNAMIC INFUSER

Faster, more precise and more economical management of your wood chip addition!
Vinification and Ageing



The Dynamic Infuser system was created to improve the extraction of alternative products while ageing wines.

In fact, with traditional use the diffusion of wood compounds is not optimal.

Thanks to this system's automated mixing and pumping over, contact times are precisely and dynamically controlled to obtain a targeted organoleptic profile.

Advantages of the infusion system

Easier to use

- The pilot tank can be filled and emptied from the outside. There is no need to install the infusion nets inside the wine tank to be treated
- Thanks to the homogenizing propellers, the emptying system promotes the exit of the previously extracted alternatives

Better use of alternatives

- Management of wood extraction kinetics in batch or continuous mode
- The homogenization system enables more efficient and effective extraction of alternatives

The possibility of managing extraction kinetics

- The management of the wine recirculation speed allows you to speed up or slow down the extraction kinetics
- The creation of pause and work cycles for the pump and the homogenization system allows you to control the processes
- Preparation of highly concentrated wines

Reduction of oxidation phenomena

- The possibility of using inert gases (N_2 / CO_2) promotes the elimination of air
- The system of inerting while automatically filling the tank also limits air contact with the wine

Fully automatic cycles

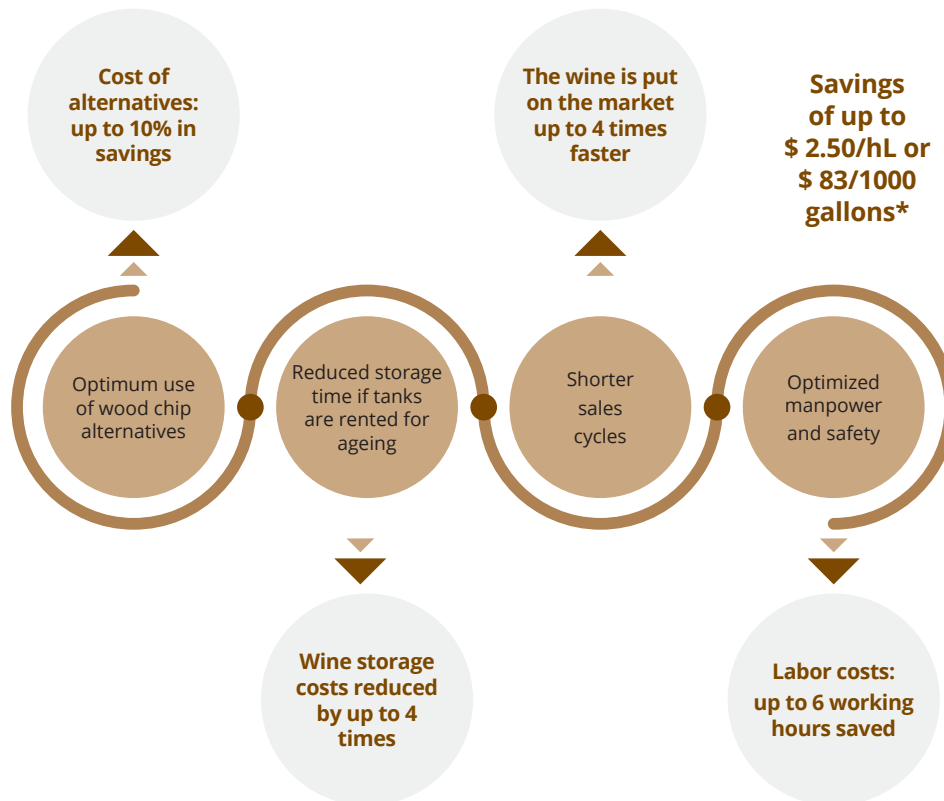
Programming all the control parameters, on a weekly or monthly basis, makes it possible to establish fully automated extraction processes that make treatment repeatable and place it under the user's control

Management of oxygen addition

- The on-board oxygenation unit facilitates control of the polymerisation and integration processes of the mixtures extracted from the wood
- Addition during a slow recirculation phase enables better homogenization and the optimum transfer of oxygen into the tank during treatment

DYNAMIC INFUSER

An effective and economical tool for managing wood chip addition



OENOQUERCUS® Synergy with DYNAMIC INFUSER

- ✓ IMPROVES WOOD INTENSITY
- ✓ IMPROVES EXTRACTION
- ✓ IMPROVES TASTE QUALITY

SPECIFIC TREATMENTS

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

Charbon Gota



CHARBON GOTA is an activated oenological carbon of plant origin (wood) suitable for food purposes. It is a mesoporous carbon: its pores are larger than those of deodorising carbons, but smaller than those of oenological decolourising carbons. This specificity makes it extremely effective for the decontamination of musts. CHARBON GOTA is especially effective for the elimination of ochratoxin A and geosmin, while limiting colour loss in wines.

Compared to a classic decolourising carbon (Carbon 1) or to a deodorising carbon (Carbon 2), CHARBON GOTA considerably reduces the ochratoxin A and geosmin content of wines (respectively -83% and -72% at 40 g/hL), while limiting effects on the wine's colour intensity.

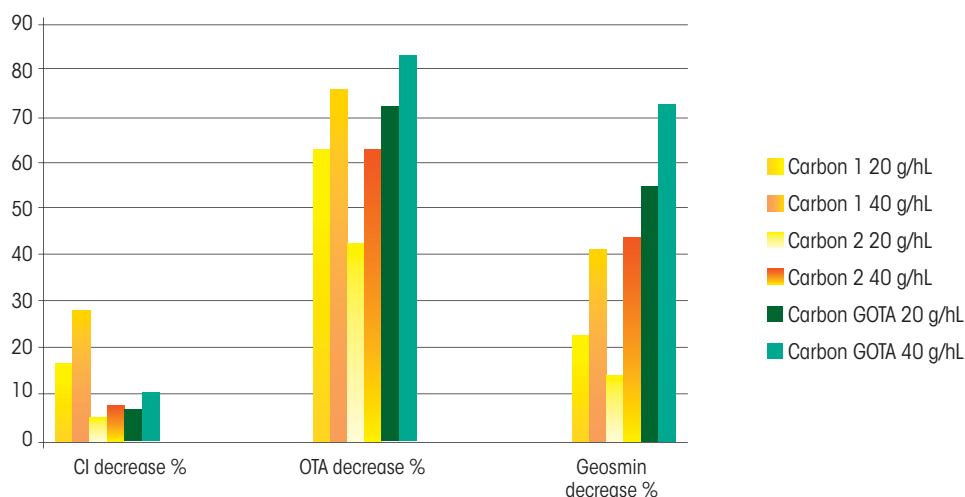
The differences between the various carbons are most pronounced with regard to geosmin: in this trial carried out in partnership with IFV France, CHARBON GOTA is the only one that decreases geosmin content by over 50% at 20 g/hL. At 40 g/hL, the decrease exceeds 70%.

Initial ochratoxin A concentration: 1.8 µg/l

Initial geosmin concentration: 123 ng/L

Initial colour intensity: 11.88

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	
			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
			POLYEX PVPP	A high-quality PVPP which adsorbs phenolic compounds likely to oxidize and polymerize	20 to 80 g/hL	1 kg, 5 kg and 20 kg
			PVPP GRANULÉE	PVPP in granules to absorb phenolic compounds. Easy to use.	20 to 80 g/hL	1 kg and 20 kg
			DELICARBONE GRAINS	Active carbons used to destain musts and white wines.	100 g/hL (legal maximum)	1 kg and 5 kg
			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
			CHARBON ULTRA D	Carbon with significant decolourisation capacity.	100 g/hL (legal maximum)	1 kg, 5 kg and 12.5 kg
			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
			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
			REDOXINE	A product based on ascorbic acid and citric acid, it protects wines against all oxidative processes. Also prevents iron casse. Refreshes wine before bottling.	10 to 30 g/hL	1 kg
			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, 5 kg and 25 kg
			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
			ACIDE FUMARIQUE <i>Les Essentiels</i>	Inhibitor of malolactic fermentation.	30 to 60 g/hL. Maximum legal dose: 60 g/hL	5 kg and 25 kg
			SOLUTION SULFUREUSE 6% <i>Les Essentiels</i>	Sulphur dioxide solution 6% for sulphiting musts and wine.	Adjust dose based on desired sulphiting	10 L
			ACIDE METATARTRIQUE V40 <i>Les Essentiels</i>	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
  	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
 	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
  	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
  	BICARBONATE DE POTASSIUM	Deacidification	Depending on the desired deacidification (see technical sheet)	1 kg, 5 kg and 25 kg
  	CARBONATE DE CALCIUM	Very powerful deacidification	Depending on the desired deacidification (see technical sheet)	1 kg and 25 kg
  	DESACID	Deacidification	Depending on the desired deacidification (see technical sheet)	10 kg



PRESERVATIVES

	PRODUCT NAME	PROPERTIES	DOSAGE	PACKAGING
 	BAKTOL® POWDRE (Potassium Metabisulfite) <i>Les Essentiels</i>	Antiseptic, antioxydase and antioxidant	depending on the SO ₂ dosage required (see data sheet)	1 kg and 25 kg
 	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
 	EFFERBAKTOL 50	Potassium metabisulphite effervescent granules at dosages of 50 g of pure SO ₂ / bag		125 g
 	EFFERBAKTOL 100	Potassium metabisulphite effervescent granules at dosages of 100 g of pure SO ₂ / bag		250 g
 	EFFERBAKTOL 125	Potassium metabisulphite effervescent granules at dosages of 125 g of pure SO ₂ / bag		300 g
 	EFFERBAKTOL 400	Potassium metabisulphite effervescent granules at dosages of 400 g of pure SO ₂ / bag		1 kg
 	BAKTOL® (Potassium Bisulfite) <i>Les Essentiels</i>	Sulfiting of musts and wines		depending on the SO ₂ dosage required (see data sheet)
 	SULFOSSOL® (Ammonium Bisulfite) <i>Les Essentiels</i>	Sulfiting of musts and wines, and ammoniacal nitrogen supply	depending on the SO ₂ dosage required (see data sheet)	1 L, 5 L, 10 L and 20 L. Packed in 1000 L cans on request
 	PASTEURIL/ PASTEURIL FLASH	More stable sulfiting of wines, avoids release of SO ₂ into the atmosphere. Avoids ascence and unwanted re-fermentation	depending on the SO ₂ dosage required (see data sheet)	500 g / 267 g
 	SORBATE DE POTASSIUMV <i>Les Essentiels</i>	Antifungal, blocks development of alcoholic and mycodermic yeasts	20 to 25 g/hL	1 kg and 25 kg
	SULFIGAL	Environmentally-friendly, facilitates racking, protects from oxidation	4 to 8 cl/hL	10 L



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	91,96
ACIDE CITRIQUE	x	x	91,96
ACIDE LACTIQUE	x		92
ACIDE METATARTRIQUE	x		96
ACIDE METATARTRIQUE V40	x		91
ACIDE TARTRIQUE	x	x	92,96
AFFIMENTO	x		62
ARABINA	x	x	77
BACTÉLIA® ALTA	x	x	52
BACTÉLIA® CRESCENDO	x	x	52
BACTÉLIA® TEMPO	x	x	52
BAKTOL®	x		93
BAKTOL® POWDRE	x		93
BENTONITE S	x		67,96
BICARBONATE DE POTASSIUM	x		92,96
BITARTRATE DE POTASSIUM	x	x	71,96
BITARTRYL	x		71,96
CARBONATE DE CALCIUM	x	x	92
CASEINE SOLUBLE	x	x	40
CHARBON GOTA	x	x	90,91,96
CHARBON SUPER D	x	x	91
CHARBON ULTRA D	x	x	91
COPPER CITRATE 2%	x		91
COLLE DE POISSON OF	x		62
COLLE H	x	x	62
COLLOGEL	x		63
DELICARBONE GRAINS	x	x	91
DESACID	x		92
EFFERBAKTOL 50	x		93
EFFERBAKTOL 100	x		93
EFFERBAKTOL 125	x		93
EFFERBAKTOL 400	x		93

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EFFERBAKTOL 2 AND 5 GRANULES	x		93
FML EXPERTISE® C	x		53
FML EXPERTISE® EXTREME	x	x	53
FML EXPERTISE® S	x	x	53
GÉLATINE N	x		62
GOMME FRAÎCHEUR	x		78
GOMME SR	x	x	77
IS 15	x	x	62
KORDOFAN	x	x	77
GOMME VEREK BIO	x	x	77
LEVULINES	x		96
LYSIS® ACTIV 60	x	x	47
LYSIS® ALLEGRO		x	47
LYSIS® COULEUR		x	48
LYSIS® ELEVAGE		x	49
LYSIS® ELITE	x	x	47
LYSIS® ESSENTIA		x	47
LYSIS® FLASH D		x	49
LYSIS® FILTRAB		x	49
LYSIS® FIRST		x	48
LYSIS® GRENAT	x	x	48
LYSIS® IMPACT	x	x	48
LYSIS® INTENSE		x	47
LYSIS® MPC		x	48
LYSIS® SPÉCIAL R	x	x	48
LYSIS® UC	x	x	48
LYSIS® ULTRA	x	x	47
MÉTABISULFITE DE POTASSIUM	x		96
NEVEA™	x	x	14,15
NOQUERCUS®	x	x	59
NOQUERCUS® BLANC	x	x	59
NOQUERCUS® DOUCEUR	x	x	59

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NUTRIMENT P	x		22
OENOGEL 30		x	63
OENOQUERCUS® ECLAT BF	x	x	82
OENOQUERCUS® ECLAT CL FR	x	x	82
OENOQUERCUS® ECLAT CM FR	x	x	82
OENOQUERCUS® ECLAT CM+ FR	x	x	82
OENOQUERCUS® ECLAT CF FR	x	x	82
OENOQUERCUS® ECLAT CI FR	x	x	82
OENOQUERCUS® ECLAT DUO	x	x	82,85
OENOQUERCUS® ECLAT DOUCEUR	x	x	82,85
OENOQUERCUS® ECLAT FR	x	x	82,85
OENOQUERCUS® ECLAT INTENSE	x	x	85
OENOQUERCUS® ECLAT Q1	x	x	82
OENOQUERCUS® DOMINO CM FR	x	x	82
OENOQUERCUS® DOMINO CM US	x	x	82
OENOQUERCUS® DOMINO CM + FR	x	x	82
OENOQUERCUS® INSERT Q1	x	x	82
OENOQUERCUS® STAVE Q1 27 MM	x	x	82
OENOQUERCUS® STAVE CL FR 7MM	x	x	82
OENOQUERCUS® STAVE CM FR 7MM	x	x	82
OENOQUERCUS® STAVE CM+ FR 7MM	x	x	82
OENOQUERCUS® INSERT Q1	x	x	82
OENOTANNIN CÉLESTE	x	x	56
OENOTANNIN FRAÎCHEUR	x	x	56
OENOTANNIN INITIAL	x	x	56
OENOTANNIN MIXTE MG	x	x	55,96
OENOTANNIN OENOGAL	x	x	55
OENOTANNIN PERFECT	x	x	55
OENOTANNIN STABRED	x	x	55
OENOTANNIN VB 105	x	x	56
OENOTANNIN VB TOUCH	x	x	56
OENOTANNIN VELVET	x	x	56

The organic product range

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OENOVEGAN® EPL	x	x	37,39,63
OENOVEGAN® F	x		39
OENOVEGAN® MICRO	x		65
OENOVEGAN® MICRO FA	x		13,64
OENOVEGAN® PURE	x	x	39,63
OENOVEGAN® SBS	x	x	30,86
PASTEURIL/PASTEURIL FLASH	x		93
PERFORMA	x		67
PHOSPHATE DIAMMONIQUE	x		22,96
PHYLIA® AR	x	x	27
PHYLIA® CYS	x	x	26,86
PHYLIA® EPL	x	x	27,39,62,96
PHYLIA® EXEL	x	x	27,86
PHYLIA® ICÔNE	x	x	27,29

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PHYLIA® LF	x	x	26,86
REDOXINE	x	x	91
SELECTYS® ITALICA CR1	x	x	12
SELECTYS® K	x	x	12
SELECTYS® L'AUTHENTIQUE	x	x	11
SELECTYS® L'ÉCLATANTE	x	x	10
SELECTYS® L'ÉLÉGANTE	x	x	10
SELECTYS® LA BAVANUS	x	x	11
SELECTYS® LA CEREVISIAE	x	x	12
SELECTYS® LA CROQUANTE	x	x	10
SELECTYS® LA DÉLICIEUSE	x	x	11
SELECTYS® LA FRUITÉE	x	x	10
SELECTYS® LA MARQUISE	x	x	13
SELECTYS® LA PERSANE	x	x	10

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SELECTYS® LA RAFFINÉE	x	x	11
SELECTYS® SR	x	x	11
SELECTYS® THIOL	x	x	9
SPECTRA QUERCITINE FREE	x	x	46
SPECTRA THIOL	x		45
SOLUTION SULFUREUSE 6%	x		91
THIAMINE	x		22
VINIFICATEUR N	x		40
VIVACTIV® ACTION	x		21
VIVACTIV® ARÔME	x	x	20
VIVACTIV® CONTRÔLE	x	x	21
VIVACTIV® ECORCE	x	x	21
VIVACTIV® PERFORMANCE	x		20
VIVACTIV® PREMIER	x		20

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.martinvalatte.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	1 kg (depends on the batch) - 25 kg
  	ACIDE TARTRIQUE	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 PONDRE	25 kg
 	LEVULINES	500 g
  	MÉTABISULFITE DE POTASSIUM	1 kg and 25 kg
  	OENOTANNIN MIXTE MG	12.5 kg
  	PHYLIA® EPL	500 g
  	PHOSPHATE DIAMMONIQUE	25 kg
 	PVPP PONDRE	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.

ACIDE ASCORBIQUE	91,96	EFFERBAKTOL 50	93
ACIDE CITRIQUE	91,96	EFFERBAKTOL 100	93
ACIDE FUMARIQUE	91	EFFERBAKTOL 125	93
ACIDE LACTIQUE	92	EFFERBAKTOL 400	93
ACIDE MALIQUE	92,96	EFFERBAKTOL 2 AND 5 GRANULES	93
ACIDE MÉTATARTRIQUE	96	FML EXPERTISE® C	53
ACIDE MÉTATARTRIQUE V40	91	FML EXPERTISE® EXTRÊME	53
ACIDE TARTRIQUE	92,96	FML EXPERTISE® S	53
AFFIMENTO	62	FORMULE 1-CF	42
ALTOCASE	40	GELATINE N	62
ARABINA	77	GOMME FRAÎCHEUR	78
BACTÉLIA® ALTA	52	GOMME SR	77
BACTÉLIA® CRESCENDO	52	INFUSEUR DYNAMIQUE	31,88,89
BACTÉLIA® TEMPO	52	IS 15	62
BAKTOL®	93	KORDOFAN	77
BAKTOL® POUDRE	93	GOMME VEREK BIO	77
BENTONITE S	67,96	KYLMA® INTENSE	74
BICARBONATE DE POTASSIUM	92,96	KYLMA® PURE	74
BITARTRATE DE POTASSIUM	71,96	KYLMA® SR	75
BITARTRYL	71,96	KYOCELL	71
CARBONATE DE CALCIUM	92	KYOCELL 2.0	71
CASEINE SOLUBLE	40	LEVULINES	96
CHARBON GOTA	90,91,96	LYSIS® ACTIV 60	47
CHARBON SUPER D	91	LYSIS® ALLEGRO	47
CHARBON ULTRA D	91	LYSIS® COULEUR	48
COPPER CITRATE 2%	91	LYSIS® ELEVAGE	49
COLLE DE POISSON OF	62	LYSIS® ELITE	47
COLLE H	62	LYSIS® ESSENTIA	47
COLLOGEL	63	LYSIS® FILTRAB	49
CMC GRANULÉ	96	LYSIS® FIRST	48
CMC POUDRE	96	LYSIS® FLASH D	49
CRISTADOLCINE EF	67	LYSIS® GRENAT	48
DELICARBONE GRAINS	91	LYSIS® IMPACT	48
DESACID	92	LYSIS® INTENSE	47
DIWINE® 2+/3+	36	LYSIS® MPC	48
DIWINE® ARÔME	34	LYSIS® SPECIAL R	48
DIWINE® SR	35	LYSIS® UC	48
DIWINE® THIOL	33	LYSIS® ULTRA	47
DROP&GO	17	LYSOGRAM+	67
ECLAT DOUCEUR	85	MERCAPTOL	91
ECLAT DUO	85	MÉTABISULFITE DE POTASSIUM	96
ECLAT FR	85	NEVEA™	14,15
ECLAT INTENSE	85	NOQUERCUS®	59

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OENO,	31,55,79	PERFECTA	68,69
OENOCLAR	39	PERFORMA	67
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OENOQUERCUS® ECLAT BF	82	PHYLIA® CYS	26,86
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OENOQUERCUS® ECLAT CM FR	82	PHYLIA® EXEL	27,86
OENOQUERCUS® ECLAT CM+ FR	82	PHYLIA® ICÔNE	27,29
OENOQUERCUS® ECLAT CF FR	82	PHYLIA® LF	26,86
OENOQUERCUS® ECLAT CI FR	82	POLYEX PVPP	91
OENOQUERCUS® ECLAT DUO	82	PHOSPHATE DIAMMONIQUE	22,96
OENOQUERCUS® ECLAT DOUCEUR	82	PVPP GRANULÉ	91
OENOQUERCUS® ECLAT FR	82	PVPP POWDRE	96
OENOQUERCUS® ECLAT Q1	82	REDOXINE	91
OENOQUERCUS® STAVE Q1 27 MM	82	SELECTYS® ITALICA CR1	12
OENOQUERCUS® STAVE CL FR 7MM	82	SELECTYS® K	12
OENOQUERCUS® STAVE CM FR 7MM	82	SELECTYS® L'AUTHENTIQUE	11
OENOQUERCUS® STAVE CM+ FR 7MM	82	SELECTYS® L'ECLATANTE	10
OENOQUERCUS® DOMINO CM FR	82	SELECTYS® L'ELEGANTE	10
OENOQUERCUS® DOMINO CM US	82	SELECTYS® LA BAYANUS	11
OENOQUERCUS® DOMINO CM + FR	82	SELECTYS® LA CEREVISIAE	12
OENOQUERCUS® INSERT Q1	82	SELECTYS® LA CROQUANTE	10
OENOQUERCUS SELECTION BC3 (WHITE)	84	SELECTYS® LA DELICIEUSE	11
OENOQUERCUS SELECTION RG7 (RED)	84	SELECTYS® LA FRUITEE	10
OENOQUERCUS SELECTION SR (ROSÉ)	84	SELECTYS® LA MARQUISE	13
OENOTANNIN CÉLESTE	56	SELECTYS® LA PERSANE	10
OENOTANNIN FRAÎCHEUR	56	SELECTYS® LA RAFFINEE	11
OENOTANNIN INITIAL	56	SELECTYS® SR	11
OENOTANNIN MIXTE MG	55,96	SELECTYS® THIOL	9
OENOTANNIN OENOGAL	55	SOLUTION SULFUREUSE 6%	91
OENOTANNIN PERFECT	55	SORBATE DE POTASSIUM	91,96
OENOTANNIN STABRED	55	SPECTRA QUERCITINE FREE	46
OENOTANNIN VB 105	56	SPECTRA THIOL	45
OENOTANNIN VB TOUCH	56	SULFATE D'AMMONIUM	22
OENOTANNIN VELVET	56	SULFIGAL	93
OENOVEGAN® EPL	37,39,63	SULFOSSOL®	93
OENOVEGAN® EXTRA	62	THIAMINE	22
OENOVEGAN® F	39	VINIFICATEUR N	40
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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



To restart the alcoholic fermentation



Allergen-free product



Products that can be used in vegan winemaking



In accordance with current European regulations



Low SO₂-producing product



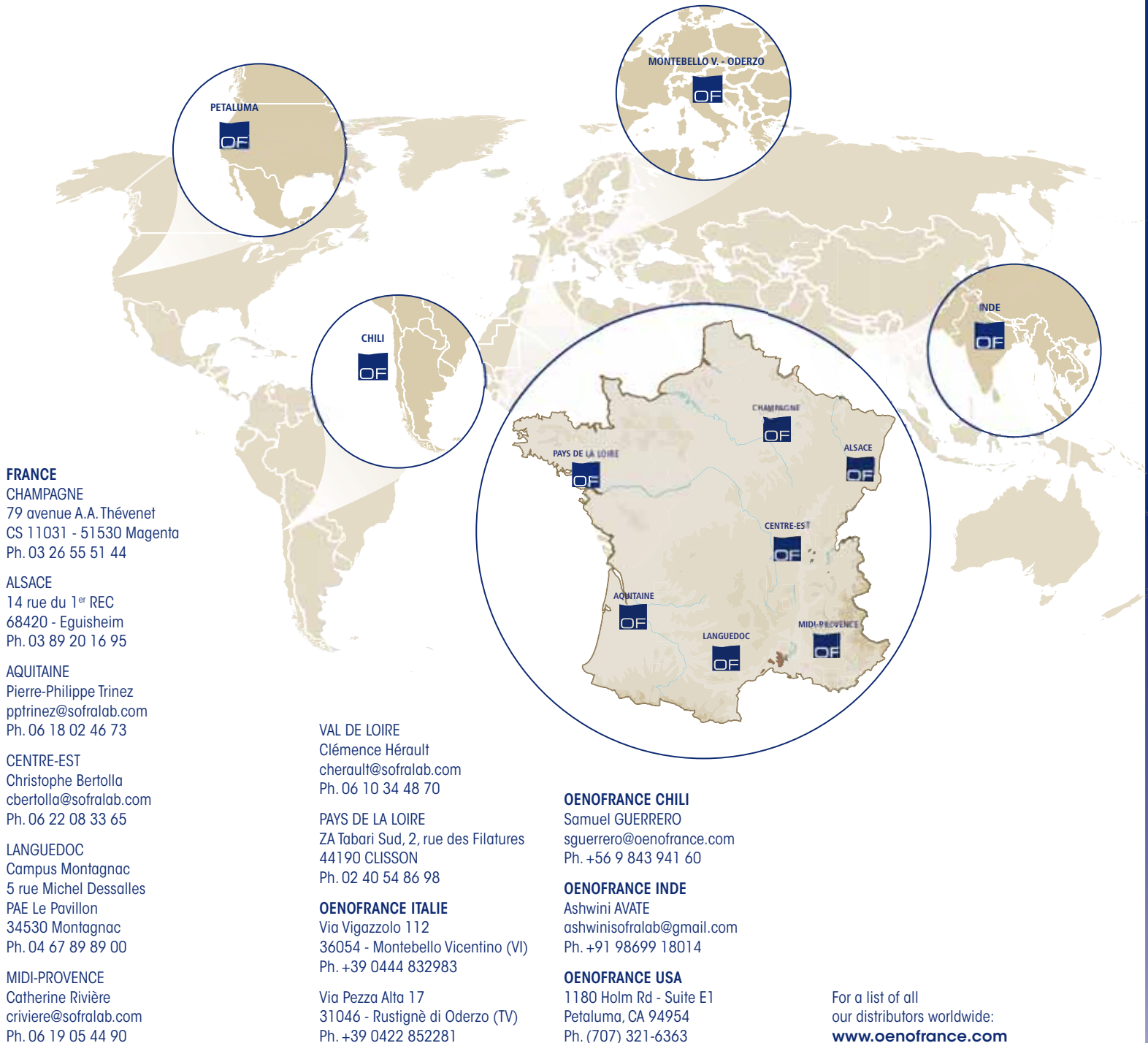
Imagined, created and developed by OENOFRANCE® teams



Can be added to must or wine without rehydration

Note

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