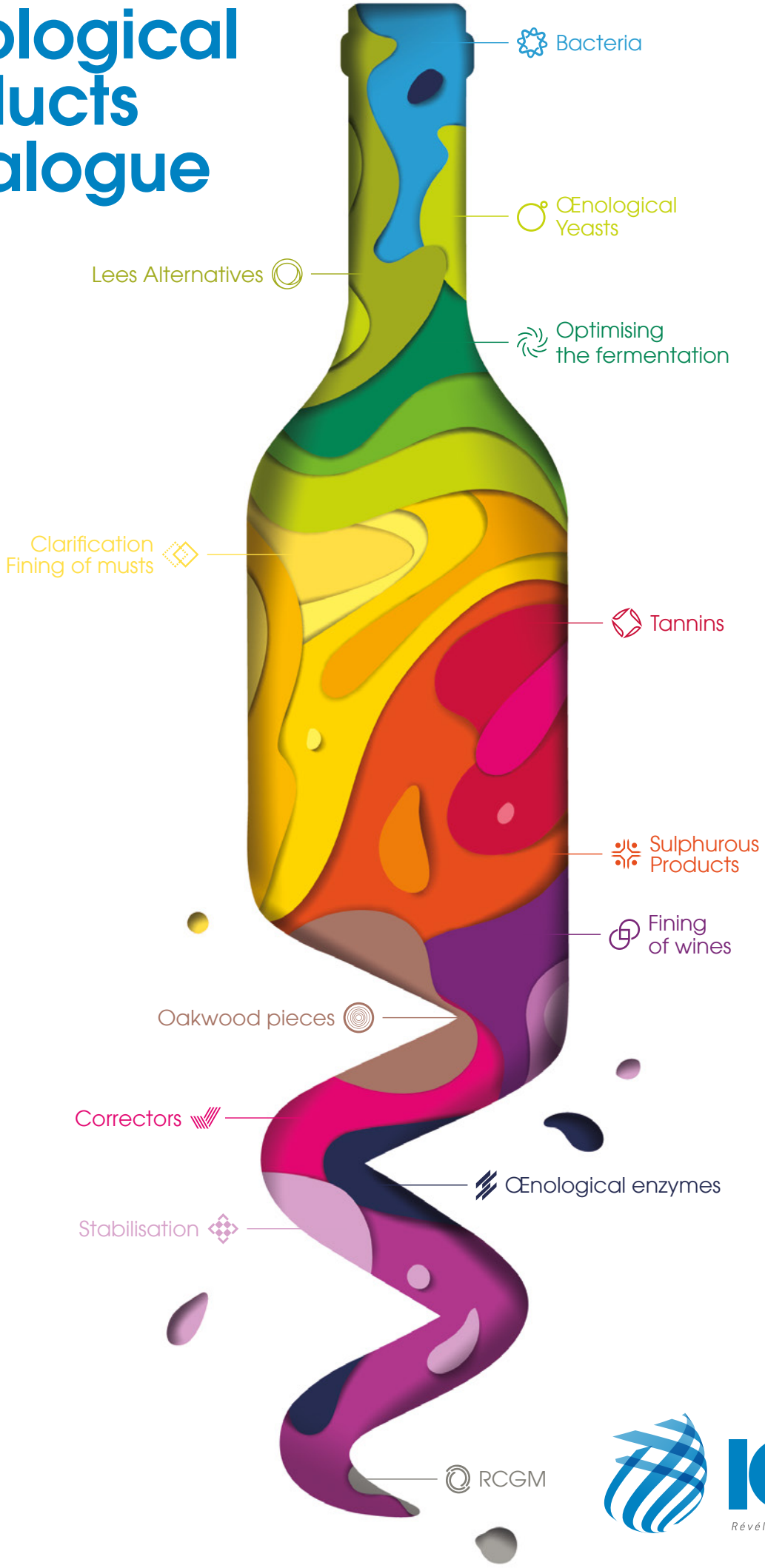
Œnological Products Catalogue



IOC

Révélons votre différence

IOC
a unique partner

**Because you are unique,
we will help you make a difference.**

Our expertise in wine profile management is underpinned by a strong presence throughout vineyards in France and around the world.

This expertise is enriched every day, thanks to the constant interaction between our oenologists, laboratories and you, forming an integral part of our learning community.

Time management and rationalisation: our aim is to make your work easier. That's why we're constantly striving to find more effective formulas that are more respectful of your wine and easier to use.

Thanks to its field experience and its "Control and Development" laboratory, IOC has developed a range of traditional and innovative oenological products for the vinification and ageing of still and sparkling wines.

Usable in BIO (1) and NOP

Œnological products distributed by IOC for use in EU ORGANIC and/or NOP vinification in accordance with COMMISSION IMPLEMENTING REGULATION (EU) No. 203/2012 of 08 March 2012 and Commission Implementing Regulation No. 2018/1584 of 22 October 2018 amending Regulation (EC) No. 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No. 834/2007 and the NOP Regulation for the USA with regard to organic wine. It is your responsibility to contact your certification body to check that products bearing this label comply with your charter. This statement is a guide and remains an interpretation, which we hope is as accurate as possible, of the regulations in force. The Institut Œnologique de Champagne cannot under any circumstances be held responsible for an error of judgment, or for any damage linked to the use of a product in ORGANIC or NOP vinification without further verification.

All products marked Organic or NOP were approved at the time the catalogue went to press. To check whether the product is still suitable for Organic or NOP vinification, please refer to our list of "ORGANIC/NOP products" available on our website in the Brochures section. This list is updated regularly and is proof of the validity of the information relating to the regulations.

(1) From organic materials if available. (2) Exclusively for clarification. (3) As a filtration agent.

Our new products
2024-2025

IOC SMOOZBERRY ™

Volume on the palate and varietal fruit intensity in red wines

- → Fullness on the palate thanks to an exceptional release of polysaccharides
- → Varietal aromatic revelation expressing fresh fruit: ß-damascenone, some esters and varietal thiols
- → Amplification of the fruity character of grape varieties such as Syrah, Merlot, Cabernet, Grenache, Gamay, Pinot, Tempranillo, etc.

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ACTIPROTECT EXPRESS ™

Much simpler yeast inoculation, without compromising fermentation quality

- → Combination of a high-quality yeast protector and an innovative micro-agglomeration process: high sterol bioavailability
- → Decisive simplification of yeast rehydration: accelerated resuspension, reduced powderiness, no need to heat the water beforehand, no temperature acclimatisation of the yeasts
- → Improves fermentation safety and aromatic revelation

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EXTRAFLORE DENSITY ™

Add volume to your wines

- → Robust under limiting conditions (high alcohol, low malic acid)
- → Contributes to smoothness and roundness
- → Reduces bitterness and aggressivity making red wines easier to drink

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Our new products
2024-2025

EDIFYS™ RANGE

Shaping the tactile dimension of red wines

EDIFYS RILIEVO ™

- → Alternative to lees which sculpts the attack and the mid-palate
- → Reinforces the sensation of volume in mouth
- → Contributes to the sensation of freshness

EDIFYS INCISO ™

- → Alternative to lees which builds the finish
- → Reduction of bitterness and astringency
- → Bringing out the ripeness

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VINOFINE ROUGE ™

The leading vegan alternative to gelatin in red wine

- → Unique effectiveness, proven by a 4-year collaborative project
- → Aromas are better respected, recognised by users
- → Reasonable cost

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Table of contents

For most products, you will find an insert specifying whether it is suitable for the production of:

red wines · rosés wines · white wines · base wines for sparkling wines · sparkling wines

Œnological Yeasts

Pre-fermentation bioprotection

NEW

Biosanitation of harvesting equipment

Spraying the surfaces of harvesting equipment (particularly harvesting machines) in contact with the grapes will prevent the proliferation of acetic bacteria and apiculate yeasts.

In grape transporters

Managing long transport times and high temperatures
Adapted to high temperatures, long transport or waiting times and poor sanitary conditions.

On the grapes during drying

Limiting the development of *Botrytis cinerea* during drying process (e.g. Amarone)
Greatly reduces the development of rot typically observed in drying chambers.

When the grapes arrive in the cellar

Protecting the must throughout the pre-fermentation phases
Helps to prevent spoilage microorganisms or fermentation starting too early in the pre-fermentation phases.

When filling the pre-fermentation cold maceration tanks

Combatting the rise in volatile acidity while limiting fermentation triggering
Controls *Hanseniaspora uvarum* and delays fermentation start, allowing real extraction of anthocyanins in the aqueous phase.

In the press for skin maceration

Limiting the risk of starting fermentation while reducing sulphite levels
Limits the development of fermentative yeasts, particularly in the case of lower sulphite levels, to ensure good clarification after pressing.

At the end of the press for white must destined to sparkling wine using the traditional method

Limiting deviations and controlling the sensory profile
Given the changing maturity of the grapes (higher pH), and the desire to limit sulphites, adding IOC GAIA ™ to the run-off vat or at the beginning of the filling of the settling vat helps to counteract yeast or bacterial acetic deviations, and limits undesirable aromatic developments that will harm the elegance and finesse of sparkling wines produced using the traditional method.

Before clarification of white or rosé musts

Limiting the risk of starting fermentation and reducing sulphite levels
Limits fermentative activity, which hinders clarification, particularly in the case of lower sulphite levels or temperatures that are a little too high, or over long periods of time.

For the maceration with or of grapes lees in white or rosé musts

Limiting the risk of starting fermentation and reducing sulphite levels
Limits the development of fermentative yeasts, particularly in the case of lower sulphite levels or temperatures that are a little too high, or over long periods of time.

Before yeast inoculation for base wines produced using the "Asti Spumante" method (closed tank fermentation starting on must)

Limiting the risk of starting fermentation and the production of ethanal during the heating of the must
The must reheating phase (stored at low temperature) for fermentation can last up to 72 hours, resulting in undesirable microbiological developments, particularly sources of large quantities of acetaldehyde. Adding IOC GAIA ™ to the cold must before reheating avoids triggering unwanted fermentation.

On juice, during storage

Protecting juices during conservation or transport over long periods of time
Maintains the must in optimum condition for use throughout the year, and reduces the amount of refrigeration and filtration required to prevent fermentation.

IOC GAÏA ™ 500 g

Indicative dosage: 5 to 20 g/hL

Microbiological bioprotection of harvests and musts (in addition to or as an alternative to the action of sulphites)

→ *Metschnikowia fructicola* non-fermentative yeast: most affective against undesirable yeasts and acetic bacteria
→ Limits the production of acetic acid and ethyl acetate in the pre-fermentation phase
→ Proven properties for biosanitation of harvesting equipment (machine, sorting table, etc.)

IOC CALYPSO ™ 500 g

Indicative dosage: 5 to 20 g/hL

Bioprotection adapted to the cold stabulation on grape lees process (in addition to or as an alternative to the action of sulphites)

→ Non-fermentative *Metschnikowia pulcherrima* yeast with high cold implantation properties
→ Enhances the revelation and preservation of varietal thiols
→ Reduces the risk of AF starting on lees

IOC BOREAL ™ 500 g

Indicative dosage: 20 to 30 g/hL

Give your wines a breath of fresh air

→ *Lachancea thermotolerans* yeast with original and unique fermentation properties
→ Aromatic complexity
→ Produces lactic acid (inoculation at least 24 hours before *S. cerevisiae*)

Exceptional yeasts: the unconventional

IOC BIO ™ 500 g

Indicative dosage: 20 g/hL

Certified organic yeast, respectful of grape varieties and terroirs

→ Organic production process
→ Selected to preserve wine typicity
→ Expresses grape varieties, without "technological" aromas

IOC DYNAMIX ™ 500 g

Indicative dosage: 20 g/hL

Strength in diversity

→ Blend of 5 complementary yeasts from different vineyards, with tested implantation in the musts
→ Expresses the microbial biodiversity and originality of each fermentation according to vintage and harvest
→ Ensures the safe completion of fermentation and the absence of off-flavours

(1) From biological materials if available.

Yeasts for red wines

Acetate esters	Fatty acid esters	Terpenes and esters	ß-damascenone and thiols
All grape varieties (including Tempranillo, Cabernet, Cariñena, Merlot, Sangiovese, Cabernet, Pinot, Grenache, Syrah, Monastrell, Mouratón, Graciano...)		All grape varieties (including Syrah, Grenache, Touriga n., Pinot, Gamay...)	Various grape varieties (including Shiraz, Merlot, Pinot noir, Grenache, Cabernet...)

Fresh fruity amyl	Flowers, fresh black and red fruit	Ripe fruit and non-herbaceous	Ripe and fresh varietal fruit	Spices and black fruit	Black fruits and varietal typicity
↓	↓	↓	↓	↓	↓
IOC Primrouge R 9001 ™	IOC BE FRESH ™	IOC R 9008 ™	IOC Révélation Terroir ™	IOC R 9002 ™	IOC SmoozBerry ™

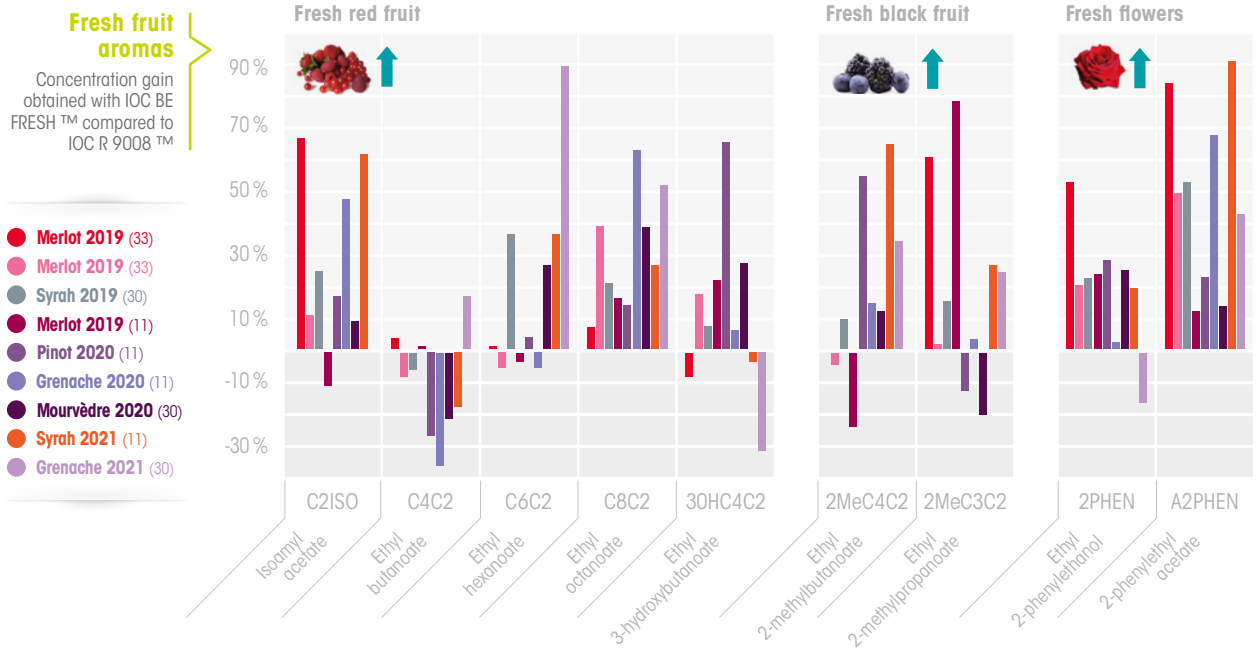
IOC BE FRESH ™ 500 g

VEGAN and usable in BIO (1) and NOP — ZERO ADDITIVE

Indicative dosage: 20 g/hL

Natural yeast to balance the freshness of ripe red grapes... without producing sulphides flavors nor sulphites

→ Does not contribute to wine reduction
→ Fruity freshness (complex fruity esters): for aromatic over-ripe harvests
→ No SO_2 formation + low level of ethanal = sulphite limitation



(1) From biological materials if available.

IOC PRIMROUGE - R 9001 ™ 500 g

Indicative dosage: 20 g/hL

The leading choice for the vinification of vins rouges primeurs (new red wines)

→ Produces flattering and round wines
→ Very aromatic red fruit wines (strawberry, raspberry)
→ Liquid phase vinification of medium-ripe red musts

IOC R 9002 ™ 500 g | 10 kg

Indicative dosage: 20 g/hL

Spices, black fruit and full-body

→ Structured and full-bodied wines for ageing
→ Reveals spicy and black fruit aromas
→ Adapted to harvests that have reached sufficient aromatic and phenolic ripeness

IOC R 9008 ™ 500 g | 10 kg

Indicative dosage: 20 g/hL

Robustness, volume, ripe fruit and length

→ Reveals complex ripe fruity aromas (terpenes): masks herbaceous notes
→ Significantly releases polysaccharides: volume on the palate and reduced astringency
→ Particularly adapted to harvests which are not sufficiently ripe, either aromatically or phenolically, even when rich in sugar

IOC RÉVÉLATION TERROIR ™ 500 g | 10 kg

Indicative dosage: 20 g/hL

Fine, fruity and colourful

→ Preserves colour (+ 5 to 15% colour intensity)
→ Ensures balance between the freshness and ripeness of fruit, finesse and elegance
→ Pinot Noir selection, also adapted to Gamay, Grenache Noir, Merlot, Carignan and Tempranillo

IOC SMOOZBERRY ™

Indicative dosage: 20 g/hL

NEW 500 g

Volume on the palate and varietal fruit intensity in red wines

→ Fullness on the palate thanks to an exceptional release of polysaccharides
→ Varietal aromatic revelation expressing fresh fruit: ß-damascenone, some esters and varietal thiols
→ Amplification of the fruity character of grape varieties such as Syrah, Merlot, Cabernet, Grenache, Gamay, Pinot, Tempranillo, etc.

(1) From biological materials if available.

Yeasts for white wines, rosé wines and sparkling wine bases

3MH profile	Acetate esters	Fatty acid and acetate esters	Terpenes and C13 - norisoprenoids
Sauvignon, Colombard, Shiraz, Verdejo, Garnacha, Muscat, Treixadura, Pinot…	"Neutral" grapes (Chardonnay, Airén, Garnacha, Viuja, Cinsault, Cariñena…)	"Neutral" or "terpene" varieties: Chenin, Chardonnay, Semillon, Vermentino, Muscat, etc.	"Terpene" grape varieties

Thiolated fruity freshness for white and rosé wines → IOC Révélation Thiols ™ → IOC BE THIOLS ™

Fresh amyl fruity in white and rosé wines → IOC B 2000 ™ → IOC BE FRUITS ™

Fruit ripeness in white wines → IOC B 3000 ™

Balance of freshness and complexity in white wines → IOC Infini'TwICE ™

Fruity, floral and spicy notes in rosé wines → IOC Fresh Rosé ™

Thiol-revealing yeasts

IOC BE THIOLS ™

500g | 10kg

VEGAN and usable in BIO (1) and NOP — ZERO ADDITIVE

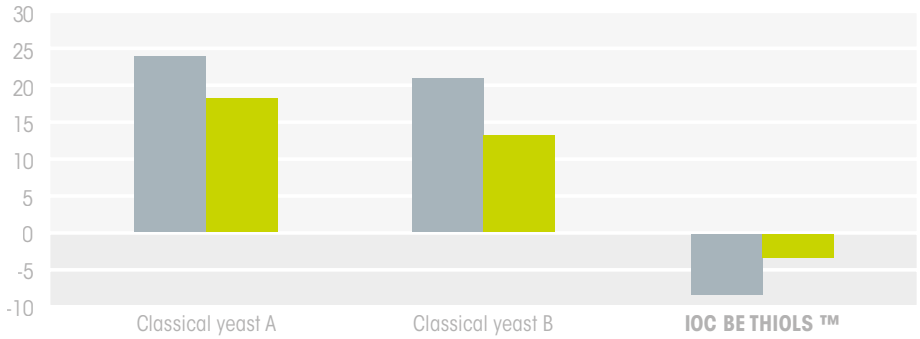
Indicative dosage: 20 g/hL

Natural tool for producing thiol wines with low sulphite levels

- → From IOC REVELATION THIOLS ™: fruity thiols (grapefruit and exotic fruit)
- → Low levels of sulphite
- → The leading choice for grape varieties rich in thiol precursors, but also for aromatically refreshing less rich varieties

Total SO_2 concentrations: differences between wine and must (mg/L)

- Grenache rosé (initial sulphiting 30 mg/L pH 3.30 - TAV 14 % vol.)
- Sauvignon blanc (initial sulphiting 50 mg/L pH 3.30 - TAV 12.25 % vol.)



(1) From biological materials if available.

IOC RÉVÉLATION THIOLS ™ 500 g | 10 kg

Indicative dosage: 20 g/hL

Fully expresses fruity thiols

→ Reveals fruity varietal thiols
→ Notes of citrus and exotic fruit, and limited vegetal notes
→ Adapted for all grape varieties containing thiol precursors (Colombard, Sauvignon, Grenache Blanc, Muscat, Syrah, Cabernet Sauvignon, Tempranillo, etc.)

Yeasts that reveal fruity and floral esters and terpenes

IOC BE FRUITS ™

500 g | 10 kg

Indicative dosage: 20 g/hL

Wines rich in fruity esters with low sulphites and sulphides levels

→ From IOC B 2000 ™: clear and intense fruity esters
→ No SO_2 formation + low level of acetaldehyde = sulphite limitation
→ Does not contribute to wine reduction

IOC B 2000 ™ 500 g | 10 kg

Indicative dosage: 20 g/hL

Aromatic freshness and intensity

→ Fresh fruity aromatic expression: acetate esters
→ Drives different aromatic profiles according to fermentation temperature
→ Harmoniously combines fermentative and exotic notes

IOC B 3000 ™ 500 g

Indicative dosage: 20 g/hL

Yellow fruit, flowers and volume on the palate

→ Wine aromatic intensity and complexity
→ Contributes to volume and roundness on the palate
→ Highly adapted to the Chardonnay grape variety

IOC FRESH ROSÉ ™ 500 g | 10 kg

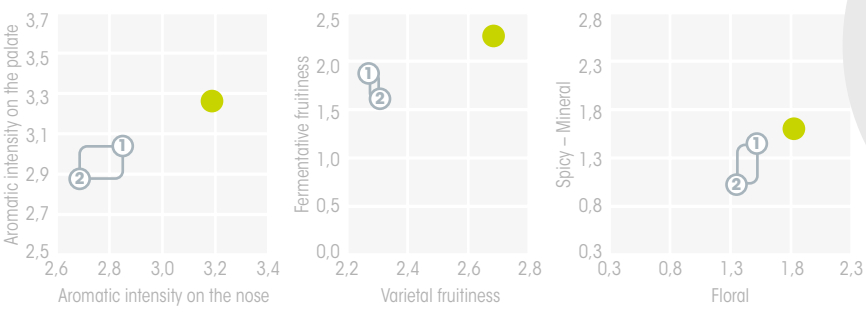
Indicative dosage: 20 g/hL

Floral and varietal expression in rosé wines

→ Floral and spicy intensity in young wines
→ Reduces aggressive sensations (acidity, dryness and bitterness)
→ Reveals the fresh varietal properties of aromatic grape varieties such as Syrah and Cabernet Sauvignon

Tests carried out at the Chamber of Agriculture of Gironde on Cabernet Sauvignon rosé: more fruity (varietal and fermentative) / floral / spicy

● IOC FRESH ROSÉ ™
①② Control 1 and 2



On tasting, this strain's main benefit is a strong increase in aromatic intensity, with fruity notes that are mainly varietal but also fermentative. The aromatic profile shows floral notes, which further enhance the complexity. Overall, the degree of preference in early tasting has improved with this strain.

Jean-Christophe Crachereau, formerly in charge of testing "Oenological practices and products", Chamber of Agriculture of Gironde

(1) From biological materials if available.

IOC INFINI'TWICE ™ 500 g

Perfectly balances volume and freshness in white wines without limitation

Indicative dosage: 20 g/hL

- → Fresh, complex and well-balanced Chardonnay selection, also adapted to Viognier, Semillon, Grenache Blanc, Muscat, etc.
- → Volume on the attack and a fresh finish
- → Secures fermentation and amplifies the aromatic and kinetic properties of IOC TwICE ™: lemon, exotic fruit, apricot and peach aromas, light floral notes

IOC TWICE ™ 500 g

Perfectly balances volume on the palate and a fresh finish

Indicative dosage: 20 g/hL

- → Strain selected by IFV Beaune for the production of Chardonnay with a full attack and a fresh finish
- → Enhances citrus fruit (especially lemon), peach, apricot and flower aromas
- → Excellent mutage compatibility for semi-dry wines from all grape varieties

Yeasts for secondary fermentation and sparkling wine bases

IOC 18-2007 ™

500 g | 10 kg

Indicative dosage: 20 g/hL

Secondary fermentation: 4 to 10 g/hL

The leading choice for secondary fermentation

Its excellent adaptation to the most difficult environments means that sugars are consumed quickly and completely, while avoiding the production of undesirable secondary compounds.

- → Perfectly adapted to the most difficult environments: low pH, low temperature, high alcohol content, etc.
- → Very rapid implantation, complete degradation of sugars and low nutritional requirements
- → Ensures secondary fermentation and manages stuck fermentations

IOC FIZZ ™ 500 g

For the Charmat method (closed tank fermentation)

Indicative dosage: 20 g/hL

- → Vinification of sparkling wines when using the Charmat method (closed tank fermentation)
- → Adapts to difficult environments
- → Fast and complete secondary fermentation

IOC FIZZ+ ™ 500 g

Yeast which reveals fruity notes when using the Charmat method (closed tank fermentation)

Indicative dosage: 20 g/hL

- → Answers the market's desire to diversify wines made using the Charmat method (closed tank fermentation)
- → Excellent fermentative properties, both in the first and second fermentation
- → Contributes to the fruity intensity of these wines

(1) From biological materials if available.

	Type of wine	Killer properties	Alcohol tolerance	Nitrogen requirements	Volatile acidity production	Glycerol production	SO_2 production	Fermentation speed
SPECIFIC								
IOC PRIMROUGE ™		Sensitive	14 %	high	very low	high	low	moderate
IOC R 9002 ™		Killer	15 %	high	very low	moderate	low	moderate
IOC R 9008 ™		Sensitive	16 %	low	low	high	low	fast
IOC RÉVÉLATION TERROIR ™		Killer	15 %	high	low	moderate	low	moderate
IOC SMOOZBERRY ™		Killer	16 %	moderate	moderate	moderate	low	moderate
IOC FRESH ROSÉ ™		Killer	16 %	moderate	low	low	low to medium	fast
IOC B 2000 ™		Killer	14 %	low	very low	low	medium	fast
IOC RÉVÉLATION THIOLS ™		Killer	15 %	moderate	low	low	medium	very fast
IOC B 3000 ™		Sensitive	14 %	moderate	low	high	low	slow
IOC TWICE ™		Killer	15,5 %	high	low to moderate	nd	very low	slow
IOC INFINI'TWICE ™		Killer	15,5 %	moderate	low	nd	very low	moderate
IOC 18-2007 ™		Killer	15 % min.	low	low	moderate	low	very fast
IOC FIZZ ™		Killer	18 %	low	low	moderate	low to medium	fast
IOC FIZZ+ ™		Killer	14 % min.	low	low to moderate	moderate	medium	very fast
NON SO_2 - PRODUCING								
IOC BE FRESH ™		Killer	15,5 %	high	moderate	nd	near zero	moderate
IOC BE FRUITS ™		Killer	14 %	low	very low	low	near zero	fast
IOC BE THIOLS ™		Killer	15 %	moderate	low	low	near zero	very fast
UNCONVENTIONAL								
IOC BIO ™		Killer	15 %	low	low	low	low	fast
IOC DYNAMIX ™		Killer	16 %	moderate	low	nd	very low	moderate
IOC BOREAL ™		na	10 %	high	very low	nd	nd	slow

nd: not-determined.

Versatile yeasts

These versatile yeasts are adapted to all colours of wine and above all offer a high level of fermentation security while limiting the risk of sensory deviations. They can all be used in ORGANIC and NOP wines.

	Application	Alcohol tolerance	Nitrogen requirements	Production of volatile acidity	Glycerol production	Production of SO_2 and H_2S
IOC 11-1002 ™	Regularity and safety – neutrality	16 %	low	very low	low	low
IOC 11-1002 K ™	Fast implantation (Killer) and safety – finesse	15,5 %	very low	low	low	low
IOC BY ™	Galactose - yeast (formerly *Bayanus*) of great robustness and partial demalication	16 %	low	low	low	low
IOC HARMONIE ™	552 Davis - Finesse and no off-flavours	15 %	moderate	very low	very low	low

IOC 11-1002 ™ 500 g

Regular and complete fermentation of white, rosé and light red wines

→ Highly resistant to high degrees of alcohol
→ Regular and complete fermentation
→ Does not define the wine's aromatic character

Indicative dosage: 10 to 20 g/hL

IOC 11-1002 K ™ 500 g | 10 kg

Competitive advantage for secure implantation and fermentation

→ Killer factor, which enables its implantation and leads to a rapid fermentation start
→ Good resistance to high degrees of alcohol
→ Regular and complete fermentation

Indicative dosage: 10 to 20 g/hL

IOC BY ™ 500 g | 10 kg

Robust fermentation

→ Highly resistant to high degrees of alcohol
→ Regular and complete fermentation
→ Restarting stuck fermentation

Indicative dosage: 20 g/hL

IOC HARMONIE ™ 500 g

Respectful of grape varieties and terroirs

→ Respects typicality
→ Aromatic clarity
→ Low volatile acidity

Indicative dosage: 20 g/hL

Optimising the fermentation

Access our dedicated decision-making tool on:
https://ioc.eu.com/en/oenology-advice/decision-making-tool/
Proposal and automatic calculation of optimised protocols, as close as possible to your constraints, product objectives and choice of yeast.

Environmental assessment

Aggressive environment

BASIC CONDITIONS		0
Vinification without oxygen		+ 1
Potential alcohol	> 13,5 % vol.	+ 1
	> 14,5 % vol.	+ 2
Must turbidity < 80 NTU		+ 1
Temperature < 15 °C or > 28 °C		+ 1
pH < 3,2		+ 1
Repeatedly difficult AF		2

0 | 1 | 2 | 3 and + ← TOTAL

Nitrogen deficiency for yeast with moderate requirements*

	POTENTIAL ALCOHOL			
Assimilable nitrogen in the must	< 12,5 % vol.	from 12,5 to 13,5 % vol.	from 13,5 to 14,5 % vol.	> 14,5 % vol.
> 200 mg/L	No nitrogen deficiency		Low deficiency	Moderate deficiency
from 150 to 200 mg/L	No nitrogen deficiency	Low deficiency	Moderate deficiency	High deficiency
from 120 to 150 mg/L	Low deficiency	Moderate deficiency	High deficiency	Extreme deficiency
from 90 to 120 mg/L	High deficiency	High deficiency	Extreme deficiency	Extreme deficiency
< 90 mg/L	Extreme deficiency	Extreme deficiency	Maximum deficiency	Maximum deficiency

* For yeast with low requirements, reduce the deficiency by one level; for yeast with high requirements, increase it by one level.

Fermentation strategies adapted to the product objective

NEW

ACTIPROTECT EXPRESS ™

Much simpler yeast inoculation, without compromising fermentation quality

New, time-saving yeast rehydration tool:
→ direct rehydration in water at ambient temperature (from 15°C)
→ easier mixing (better wettability)
→ no need to acclimatise the yeast to the temperature of the must
→ rich in bio-available sterols, improving fermentation safety and the quality of sensory metabolism

ACTIPROTECT EXPRESS ™ can be used in place of the other yeast protection/preparation products listed below in rehydration, without any loss of performance.

	Yeast protection and must detoxification	Yeast nutrition
FERMENTATION SAFETY	YEAST REHYDRATION **ACTIPROTECT+™** 0 20 30 30 g/hL AT 2/3 FA **ACTICLEAN™** OR **RESKUE™** 0 0 0 20 g/hL	AT THE BEGINNING OF THE FA White / pink musts - **VITISTART™** Red musts - **ACTIVIT™** 0 10 20 30 30 30 g/hL AT 1/3 FA **Diammonium phosphate** 0 5 15 20 30 45 g/hL
AROMATIC SAFETY	YEAST REHYDRATION Securing aromas **ACTIPROTECT+™** (30 g/hL)	AT THE BEGINNING OF THE FA **ACTIVIT O ™** 0* 10 20 20 20 20 g/hL AT 1/3 FA **ACTIVIT O ™** OR **ACTIVIT NAT ™** 0 10 30 20 20 20 g/hL **+ Diammonium phosphate** 0 0 0 15 30 45 g/hL
AROMATIC OPTIMISATION	YEAST REHYDRATION Amplify the revelation of aromas **ACTIPROTECT ROSÉ ™** (30 g/hL)	**ENHANCING BIOMASS TO BRING OUT AROMAS** AT THE BEGINNING OF AF **AROMACTIVIT 1 ™** (25-30 g/hL) **+ ACTIVIT™** 0 0 0 5 10 20 g/hL AT 1/3 OF AF **AROMACTIVIT 2 ™** (15-20 g/hL) **+ Diammonium phosphate** 0 0 0 15 20 30 g/hL **LIMITATION OF OXIDATIVE STRESS, OPTIMIZATION OF YEAST WELLNESS & AROMATIC EXPRESSION** AT THE BEGINNING OF AF **NATJJA ™** (40 g/hL) **+ Diammonium phosphate** (15 g/hL) (if YAN <90 mg/L) AT 1/3 OF AF **Diammonium phosphate** (20 g/hL)

* 5 to 10 g/hL if sulphurous odours appear.

Yeast protection

ACTIPROTECT EXPRESS ™

NEW 1 kg | 15 kg

Indicative dosage: 30 g/hL

Much simpler yeast inoculation, without compromising fermentation quality

→ Combination of a high-quality yeast protector and an innovative micro-agglomeration process: high sterol bioavailability
→ Decisive simplification of yeast rehydration: accelerated resuspension, reduced powderiness, no need to heat the water beforehand, no temperature acclimatisation of the yeasts
→ Improves fermentation safety and aromatic revelation

ACTIPROTECT+™ 1 kg

Indicative dosage: 20 to 30 g/hL

Prepares yeast for alcoholic fermentation

→ Strengthens the yeast membrane to facilitate exchanges (internalisation of sugars)
→ Better resistance to alcohol: safe end to fermentation
→ Reduces the production of malodorous compounds and volatile acidity

ACTIPROTECT ROSÉ ™ 1 kg

Indicative dosage: 30 g/hL

Yeast protector for the aromatic revelation of rosé wines

→ Very rich in sterols: active yeast membrane strengthened during rehydration
→ Better internalisation of aromatic precursors
→ Improves the revelation of aromatic potential under rosé must fermentation conditions (low turbidity, low temperature)

HYDRA PC ™ 1 kg

Indicative dosage: 10 to 40 g/hL

Protects the yeast intended for secondary fermentation leaven

→ Strengthens the yeast membrane thanks to sterols and magnesium
→ Increases resistance to alcohol and dissolved carbon dioxide
→ Adapts better to the conditions of the leaven and secondary fermentation

Detoxifying agents and aids

ACTICLEAN™ 1 kg | 5 kg | 10 kg

Indicative dosage: 20 to 60 g/hL

Detoxifying inactivated yeast and cellulose aid preventing stuck fermentation

→ Prevents sluggish and stuck fermentations
→ Adapted for use in difficult conditions, at 2/3 of AF

BIO YEAST CELL WALLS ™ 1 kg | 5 kg | 15 kg

Indicative dosage: 20 to 40 g/hL

Yeast hulls produced from certified organic raw materials

→ Adsorbs toxic fatty acids
→ Reduces the risk of stuck alcoholic fermentation
→ Detoxifies wine before malolactic fermentation or restarting alcoholic fermentation

(1) From biological materials if available.

CELLCLEAN™ 1kg | 5kg | 15kg

Specific detoxifying yeast hulls

Indicative dosage: 10 to 40 g/hL

→ Adsorbs toxic fatty acids
→ Reduces the risk of stuck alcoholic fermentation
→ Detoxifies wine before malolactic fermentation or restarting alcoholic fermentation

Nutrients to stimulate yeast aromatic metabolism

AROMACTIVIT 1&2 ™ 1kg | 5kg

Improves yeast biomass to optimise wine aromas

Indicative dosage:
AROMACTIVIT 1: 25 to 30 g/hL
AROMACTIVIT 2: 15 to 20 g/hL

→ Combines the action of 2 nutrients added sequentially
→ Just after yeast inoculation: AROMACTIVIT 1 ™: biomass and internalisation of aroma precursors without overpopulation
→ Incorporation a third of the way through fermentation: AROMACTIVIT 2 ™: metabolic flows redirected towards aromatic biosynthesis

NATJJA ™ 1kg | 10kg

Improves the well-being of the yeast and optimises its aromatic revelation properties

Indicative dosage: 40 g/hL

→ High-quality, 100% organic nitrogen source for balanced assimilation
→ Natural anti-free radical components to help reduce oxidative stress in yeast
→ Improves the overall well-being of the yeast: safer fermentation and better aromatic revelation

NATJJA FIZZ ™ 1kg | 10kg

Improves the well-being of the yeast and optimises its aromatic revelation properties when using the Charmat method (closed tank fermentation)

Indicative dosage: 20 g/hL

→ High-quality, 100% organic nitrogen source for balanced assimilation
→ Natural anti-free radical components which help to reduce oxidative stress in yeast and minerals which contribute to the yeast's resistance to secondary fermentation conditions (ethanol, CO_2)
→ Improves the overall well-being of the yeast: safer and better aromatic revelation during secondary fermentation

(1) From biological materials if available.

Nutrition : growth factors

100% organic nutrients

ACTIVIT NAT ™ 1 kg | 5 kg

100% organic source of bio-available amino acids

→ Limits the risk of sulphurous odours
→ Does not inhibit varietal thiol revelation (unlike ammoniacal nitrogen)
→ NOP compatible

Indicative dosage: 10 to 40 g/hL

ACTIVIT NAT ™ and ACTIVIT O ™ are highly effective in preventing the appearance of off-flavours by preventing yeast overgrowth.

ACTIVIT O ™ 1 kg | 5 kg | 15 kg

100% organic complete nutrient, rich in thiamine, for high-quality fermentation

→ Does not inhibit fermentative and varietal aromatic expression (unlike ammoniacal nitrogen)
→ Limits the production of sulphurous odours and SO_2
→ Increases the effectiveness of sulphiting thanks to its high thiamine content (less combination)

Indicative dosage: 10 to 40 g/hL

ACTIVIT SAFE ™ 1 kg | 5 kg | 15 kg

100% organic detoxifying nutrient, specifically for use at the end of fermentation

→ Autolysate rich in amino nitrogen for better assimilation at two-thirds of AF
→ Yeast walls, which adsorb inhibitory toxins accumulated during fermentation
→ Highly effective in cases of underestimated deficiency or to speed up slow fermentation

Indicative dosage: 20 to 40 g/hL

EXTRA PM ™ 1 kg | 15 kg

Optimises secondary fermentation, aromatic freshness and taste

→ Optimises yeast activity during the fermentation process
→ Preserves aromatic freshness and limits the risk of reduction
→ Contributes to the fullness of wines

Indicative dosage: 20 to 40 g/hL

Combined nutrients

ACTIVIT™ 1 kg | 5 kg | 15 kg

Combined nutrient, rich in nitrogen, to control deficiencies

→ Assimilable nitrogen in amino and ammoniacal forms
→ Contributes to micronutritional yeast components
→ Improves fermentation safety compared to ammoniacal nitrogen alone

Indicative dosage: 20 to 40 g/hL

(1) From biological materials if available.

VITISTART™ 1 kg | 5 kg | 15 kg

Complex nutrient and aid to control deficiencies in white or rosé musts

Indicative dosage: 10 to 40 g/hL

→ Adapted to well-clarified musts with medium to high nitrogen deficiencies
→ Combined source of nitrogen (organic and ammoniacal) and thiamine: regular yeast growth and activation of fermentation
→ Must degassing aid (cellulose)

Ammonium salts

Ammonium salts are the nitrogen source most rapidly assimilated by yeasts. They are added preferably during the first 1/3 of the alcoholic fermentation and particularly when nitrogen deficiencies are significant, however not to be added during the yeasts' growth phase (start of AF).

Ammonium salts enable the yeast to perform:
→ biosynthesis of yeast proteins needed for cell multiplication,
→ biosynthesis of membrane proteins essential for sugar transport.

Ammonium salts are absorbed very quickly by yeast, causing a peak in yeast growth. This phenomenon can cause wines to dry out and increase sulphurous tastes. It is often preferable to use complex nutrients.

FOSFOVIT™ 1 kg | 15 kg

Yeast multiplication in vinification

Indicative dosage: 5 to 40 g/hL

→ Combines a single nitrogen source (diammonium phosphate) and thiamine
→ Yeast multiplication
→ Without the disadvantages associated with the use of ammonium sulphate (sulphate: precursor of SO_2 and H_2S, responsible for dryness on the palate)

PHOSPHATES COMPLETS ™ 1 kg | 5 kg

Source of combined ammoniacal nitrogen

Indicative dosage: 10 to 80 g/hL

→ For use in cases of serious deficiency as a supplement to nitrogen nutrition
→ Incorporation a third of the way through alcoholic fermentation, if it is required to balance phosphate and sulphate inputs

DIAMMONIUM PHOSPHATE 1 kg | 5 kg | 25 kg

Supplements nutrition in cases of severe deficiency, without adding sulphates

Indicative dosage: 10 to 80 g/hL

→ For media low in assimilable nitrogen
→ Preferential use one third of the way through fermentation
→ Supplements organic or combined nutrients

PHOSPHATES TITRÉS ™ 1 kg | 5 kg

Boosts yeast growth during secondary fermentation

Indicative dosage: 5 g/hL

→ Source of nitrogen that is generally sufficient for the needs of multiplication during secondary fermentation
→ High thiamine content, required at this stage

THIAMINE 1 kg

Facilitates yeast growth

Indicative dosage: 0,05 g/hL

→ Improves yeast growth
→ Significantly limits SO_2 combination

(1) From biological materials if available.

		Nitrogen source		Added assimilable nitrogen (mg/L) for 40g/hL added		Ammoniacal nitrogen		Nutrients of yeast origin					Others		
		Organic nitrogen	Mineral nitrogen	Direct calculation	Technical equivalent (kinetic)	Phosphates	Sulphates	Aminoacids	Assimilable peptides	Sterols and lipids	Minerals	Vitamins	Added thiamine	Cellulose	Chitosan
Yeast rehydration	ACTIPROTECT EXPRESS ™			na	na			na	na	★★★ ★★★	★★★ ★★	★★ ★★			
	ACTIPROTECT+™			na	na			na	na	★★★	★★ ★★	★★ ★★			
	ACTIPROTECT ROSÉ ™			na	na			na	na	★★★ ★★	★★★	★★ ★★			
	HYDRA PC ™			na	na			na	na	★★★	★★★ ★★	★★ ★★			
Optimizers ofsensory metabolism	NATJJA™	★★★ ★★		13,5	35			★★ ★★	★★	★	★★★ ★★	★★ ★★			★★
	NATJJA FIZZ ™	★★★ ★★		13,5	35			★★ ★★	★★	★	★★★ ★★★	★★ ★★			★
	AROMACTIVIT 1 ™	★★★ ★★		38	53			★★ ★★	★★	★	★★ ★★	★★ ★★	★★		
	AROMACTIVIT 2 ™	★★★	★★★			✓		★★★ ★★	★	★	★★ ★★	★★ ★★	★★		
Organic nutrients	ACTIVIT O ™	★★★ ★★		17	45			★★★ ★★	★	★	★★★	★★★	★★★		
	ACTIVIT NAT ™	★★★ ★★		17	45			★★★ ★★	★	★	★★★	★★★			
	ACTIVIT SAFE ™	★★★		8	20			★★★	★	★★	★★	★★			
	EXTRA PM ™	★★ ★★		12	31			★★ ★★	★	★	★★★	★★★			
Mixed nutrients	ACTIVIT™	★★	★★★	52	56	✓		★★			★★	★★	★★		
	VITISTART™	★	★★	46	48	✓	✓	★			★	★★	★★	★★	
Detoxicants	ACTICLEAN™	★		1,5	4			★			★	★★		★★ ★★	
	CELLCLEAN™			na	na			na	na	★	★★	★★			
Simple nutrients (mineral)	FOSFOVIT™		★★★ ★★	84	84	✓							★★★		
	PHOSPHATES COMPLETS ™		★★★ ★★	84	84	✓	✓								
	PHOSPHATES TITRÉS ™		★★ ★★	84	84	✓							★★★ ★★★		

Malolactic Fermentation Activators

NUTRIFLORE FML ™ 1 kg

Optimised nutrient to accelerate malolactic fermentation

→ Rich in specific peptides that improve bacterial resistance to acidity
→ Improves bacterial survival
→ Particularly adapted to acid wines (pH <3.4)

NUTRIFLORE PDC ™ 250 g

Nutrient dedicated to optimising malolactic starters

→ Activates bacterial enzyme systems in the environment
→ Improves bacterial adaptation and multiplication
→ Accelerates the speed at which starters operate in acid conditions

(1) From biological materials if available.

Œnological enzymes

MYZYM

Accelerate, release & bring out the difference!

IOC's MYZYM™ range is the answer to winemakers' desire for solutions tailored to their needs.

Based on a study of users' expectation of oenological enzymes and our experience throughout vineyards, we created the MYZYM™ range on criteria of **quality, effectiveness and reliability**.

Beforehand, IOC analysed and tested a range of raw materials and formulas on the market before making a **rigorous selection of the best performing materials** in line with the economic realities of the market.

To facilitate the use of our enzymes, we offer micro-granulated formulas, which limit their powderiness, or "ready-to-use" liquid formulas.

MYZYM™ is a complete range of solutions tailored to each application and for all conditions, tested and approved by the wine industry.

Enzymes for clarification

Micro-granulated formulas

MYZYM CLARIF ™ 50g I 250g I 1kg I 10kg

Must clarification

→ Preparation comprising highly purified synergistic pectolytic enzymes
→ Accelerates must settling by pectic hydrolysis

Indicative dosage: 1 to 3 g/hL

MYZYM ULTRA CLARIF ™

50g I 250g I 1kg I 10kg

Clarification of musts in difficult conditions

→ Particularly high endo-polygalacturonase activity
→ Secondary pectolytic activity drastically accelerating depectinisation
→ Ultra-fast clarification, particularly in difficult conditions (pectic grape varieties, low pH, thick skins, etc.)

Indicative dosage: 1 to 2 g/hL

MYZYM CLEAR ™ 100g

Clarification of botrytised musts and wines and enhanced filterability of wines

→ Dual pectolytic and glucanase activity reducing polymers from *Botrytis* and yeasts
→ Excellent ability to settle lees and restore the aromatic clarity of musts
→ Also recommended for wine: optimises filterability and clarification

Indicative dosage: 1 to 3 g/hL

Liquid formulas

MYZYM READY CLARIFICATION ™

50mL I 1L I 10L

Liquid formula for must clarification in difficult conditions

→ High concentration of pectinase activity: rapid clarification
→ Reduces volume of lees
→ Reduces must viscosity while improving wine filterability

Indicative dosage: 1 to 2 mL/hL

MYZYM READY EXTREM ™

500mL I 1L I 10L I 20kg

Clarification under extreme conditions (cold, hot, heavily contaminated juice)

→ Thermostable formula, resistant to high temperatures (< 70°C)
→ Highly active and used before cooling for better reactivity
→ Maintains activity even at low temperatures (< 8°C)

Indicative dosage: 1 to 2 mL/hL

(2) Only for clarification.

MYZYM READY'UP ™ 1L I 10L I 20kg

Clarification in flotation

→ Synergistic pectolytic enzyme ratios adapted to flotation
→ Speeds up the transfer of lees to the surface
→ Easy to use (liquid formula)

Indicative dosage: 2 to 3 mL/hL

Extraction and maceration enzymes

Enzymatic activity	Effect on must and wine
• Pectinelyase (PL) • Polygalacturonase (PG)	• Degrades pectins in the middle lamella and primary wall • Promotes the release of tannins and anthocyanins in granular form inside the vacuole
• Glucanase • Hemicellulase	• Promotes the release of tannins bound to the cell wall • Promotes the extraction of aroma precursors
• Glycosidases	**Hydrolysis of odourless aroma precursors into volatile odorous substances** • Varietal aromas: key to the wine's aromatic profile and character • Enhances aromatic grape variety precursors: release of varietal aromas from grape varieties such as Muscat, Riesling, etc.

Micro-granulated formulas

MYZYM EXTRACT ™

100g I 250g I 1kg I 10kg

Colour extraction and enhanced structure

→ Adapted for making wines from underripe and extractable black grapes
→ Increases free-run wine yield and improves colour (more intense and purplish shade)
→ Improves tannin structure: reduces the frequency and intensity of mechanical action and therefore the risk of trituration

Indicative dosage: 2 to 3 g/100 kg of harvest or 2 to 3 g/hL

MYZYM ULTRA EXTRACT ™ 100g I 250g

Colour extraction and enhanced structure in difficult conditions

→ For wines made from high-potential black grapes: colour stabilisation and structure concentration
→ For less rich grapes: selective colour and tannin extraction by limiting crushing and mechanical work
→ More volume on the palate, more colour, more structure but less astringency

Indicative dosage: 1 to 2 g/100 kg of harvest or 1 to 2 g/hL

MYZYM MPF ™ 100g I 1kg

Extraction of colour and aromatic precursors in cold maceration

→ Compensates the reduction in enzymatic activity due to low operating temperatures
→ For red vinification: extraction of anthocyanins and aromatic potential during cold pre-fermentation maceration
→ For white vinification: extraction of aromatic compounds and precursors during skin maceration

Indicative dosage: 1 to 3 g/100 kg of harvest or 1 to 3 g/hL

(2) Only for clarification.

MYZYM RED FRUITS ™ 100 g I 250 g

Extraction and revelation of aromatic precursors from black grapes

→ Very high cellulase and xylanase activity, glycosidase activity: joint production of fat and fruity aromas from the harvest
→ Revelation of C13-norisoprenoids: enhances the fruity aromas obtained during alcoholic fermentation
→ Adapted to classic or pre-fermentation maceration, rosé wines from the "saignée" method

Indicative dosage:
1 to 2 g/100 kg of harvest
or 1 to 2 g/hL

MYZYM WHITE FRUITS ™

100 g I 250 g | 1 kg | 10 kg

Extraction and revelation of aromatic precursors from white grapes

→ White wines with better aromas
→ Wines richer in aromatic terpenes
→ Adapted to skin maceration, and maceration on/of lees

Indicative dosage:
1 to 3 g/100 kg of harvest
or 1 to 3 g/hL

Liquid formulas

MYZYM READY EXTRACTION ™ NEW

500 mL I 1 L I 10 L

Concentrated liquid enzyme for maceration and colour gain

→ Formula selected on the basis of quantified performance criteria
→ Excellent selective extraction of stable colour in red wine
→ Enhances sensory properties (fullness, fruitiness)

Indicative dosage:
1 to 2 mL/100 kg of harvest
or 1 to 2 mL/hL

MYZYM READY PRESS ™ 1 L I 20 L

Pressing of harvests to make white or rosé wines

→ Increases juice yields and optimises press filling
→ Fewer pressing cycles, drier pomace
→ Anticipates free-run juice clarification

Indicative dosage:
2 to 3 mL/100 kg of harvest
or 2 to 3mL/hL

MYZYM READY SPIRIT ™ 1 L

Pressing of grapes for the production of quality brandies and clarification of juices for other distillation products (low PME activity)

→ Low methyl esterase activity: methanol limitation
→ Improves juice release and drainage: increased pressing volumes
→ Accelerates juice clarification by hydrolysis of soluble pectins

Indicative dosage:
1 to 3 mL/100 kg of harvest
or 1 to 3 mL/hL

(2) Only for clarification.

Stabilisation and ageing enzymes

Enzymatic activities	Effect on must and wine
• Glycosidases	**Hydrolysis of odourless aroma precursors into volatile odorous substances** • Varietal aromas: key to wine's aromatic profile and character. • Enhances aromatic grape variety precursors: release of varietal aromas from grape varieties such as Muscat, Riesling, etc.
• ß-glucanase	• Promotes yeast autolysis: enhances the fullness and body of wines • Improves filterability in altered harvest conditions
• Lysozyme	**Inhibition of gram+ bacteria (lactic acid bacteria)** • Prevents lactic spoilage when alcoholic fermentation stops • Inhibits malolactic fermentation after alcoholic fermentation, stabilisation after malolactic fermentation before bottling

MYZYM AROMA ™ 100 g

Revelation of varietal aromas from precursors

→ Produces wines richer in aromatic terpenes
→ Increases overall fruity intensity, time of contact guided by tasting
→ Other use: before treatment for smoke taint

Indicative dosage: 2 to 5 g/hL

MYZYM CLEAR ™ 100 g

Clarification of wines and enhanced filterability

→ Dual pectolytic and glucanase activity to reduce polymers from alcoholic fermentation
→ Optimises wine clarification and wine racking
→ Better wine filterability and less clogging

Indicative dosage: 1 to 3 g/hL

MYZYM ELEVAGE ™ 100 g

Increases fullness and aromas through accelerated autolysis of yeasts

→ Glucanase activity: release of parietal compounds from the lees responsible for roundness and flavour
→ Reduces maturation time on lees
→ Reduces wine viscosity, making it easier to filter

Indicative dosage: 1 to 3 g/hL

LACTOLYSE™ 500 g

Prevents lactic spoilage and inhibition of malolactic fermentation

→ Lysozyme to inhibit (whites, rosés) or delay (reds) malolactic fermentation
→ If alcoholic fermentation is stuck: to prevent lactic acid spoilage
→ After MLF: to reduce bacterial activity and the risk of producing biogenic amines, negative sulphur compounds and acetic acid

Indicative dosage: 10 to 50 g/hL

(2) Only for clarification.

Summary

Pre-fermentation operations – Clarification

		MYZYM Clarif ™	MYZYM Ultra Clarif ™	MYZYM Ready Clarification ™	MYZYM Clear ™	MYZYM Ready Extrem ™	MYZYM Ready'Up ™	MYZYM Ready Spirit ™
Wine colour		●●●	●●●	●●●	●●●	●●●	●●●	●
Form *		MG	MG	💧	MG	💧	💧	💧
● **Bio** ○ **NOP**		●○	●○	●○	○	●○	●○	●○
State of vinification	Clarification via settling	✓	✓	✓	✓	✓		✓
	Clarification via flotation						✓	
Conditions	Normal	✓						
	Normal to difficult		✓	✓			✓	✓
	Very difficult (*Botrytis*, filterability)				✓	✓		
	Extreme (cold, hot)					✓		
Gain	Juice/sediment ratio	●	●●	●	●●	●●	●●	●
	Time	●●	●●	●●●	●●	●●●	●●	●●
	Filterability	●	●	●	●●●	●●	●	●
Activities	Primary	Pectinase	Pectinase	Pectinase	Pectinase ß-glucanase	Pectinase	Pectinase	Pectinase
	Secondary					Hemicellulase		
Indicative dosage for use		1 to 3 g/hL	1 to 2 g/hL	1 to 2 mL/hL	1 to 3 g/hL	1 to 2 mL/hL	2 to 3 mL/hL	1 to 3 mL/hL
Packaging		50 g - 250 g 1 kg - 10 kg	50 g - 250 g 1 kg - 10 kg	500 mL 1 L - 10 L	100 g	500 mL 1 L - 10 L 20 kg	1 L - 10 L 20 kg	1 L

MG : micro-granulated. 💧 : liquid.

Pre-fermentation operations - Extraction/Maceration

		MYZYM Ready Press ™	MYZYM MPF ™	MYZYM Extract ™	MYZYM Ultra Extract ™	MYZYM Ready Extraction ™	MYZYM Red Fruits ™	MYZYM White Fruits ™
Wine colour		● ●	● ●	●	●	●	● ●	● ●
Form*		💧	MG	MG	MG	💧	MG	MG
● Bio ** **○ NOP**		○	○	○	○	○	○	○
State of vinification	Pressing	✓						
	Skin maceration		✓					✓
	Maceration / Extraction		✓	✓	✓	✓	✓	✓
Conditions	Normal	✓	✓	✓		✓	✓	✓
	Difficult	✓	✓		✓	✓	✓	
Gain	Juice to must ratio	● ●	● ●	●	● ●	● ●	● ●	● ●
	Filterability	●	●	●	●	●	●	●
	Volume on the palate / structure		●	● ●	● ● ●	● ● ●	● ● ●	● ● ●
	Color		● ● ●	●	● ● ●	● ● ●	●	●
	Aromas		● ●		●	●	● ● ●	● ● ●
Key activities	Primary	Pectinase	Pectinase	Pectinase	Pectinase	Pectinase	Pectinase Glycosidase (including arabino-furanosidase)	Pectinase ß-glucosidase
	Secondary	Hemicellulase	Cellulase and hemicellulase	Cellulase and hemicellulase	Cellulase and hemicellulase	Cellulase and hemicellulase	Cellulase and hemicellulase	Cellulase and hemicellulase
Indicative dosage for use		2 to 3 mL/hL	1 to 3 g/hL	2 to 3 g/hL	1 to 2 g/hL	1 to 2 mL/hL	1 to 2 g/hL	1 to 3 g/hL
Packaging		1 L - 20 L	100 g - 1 kg	100 g - 250 g 1 kg - 10 kg	100 g - 250 g	500 mL 1 L - 10 L	100 g - 250 g	100 g - 250 g 1 kg - 10 kg

* MG : micro-granulated. 💧 : liquid.

** Some of the enzymes listed here could be used in EU ORGANIC (BIO) winemaking if used exclusively for clarification - please refer to description of each product and to our list of "ORGANIC/NOP products" available on our website.

Post-fermentation operations - Ageing

		MYZYM Élevage ™	MYZYM Aroma ™
Wine colour		🔴 🌸 🟡	🟡
Form		MG	MG
Bio / **NOP**		○	○
Gain	Filterability	● ● ●	
	Structure	● ● ●	
	Aromas	●	● ● ●
Activities	Primary	ß-glucanase	ß-glucosidase
Indicative dosage for use		1 to 3 g/hL	2 to 5 g/hL
Indicative activity time		2 to 6 weeks	3 to 6 weeks
Packaging		100 g	100 g

Clarification
Fining of musts

Pre- and post-fermentation phases

To improve the oxidative resistance of future wines, it is essential to take action early in the process, after pressing, during the pre-fermentation phase.

Oxygen is the fundamental parameter at the origin of oxidation mechanisms. Controlled addition to the juice can be beneficial in precipitating unstable phenolic compounds, but our test shows that this technique leads to less fine, elegant wines.

Nevertheless, several studies have shown that fining musts limits their oxidability and produces fresher, fruitier white and rosé wines.

It is carried out when the juice is clarified, by static settling or nitrogen flotation. It can also be carried out during fermentation for certain fining agents (chitosan, pea protein), which allow longer contact time.

It removes some of the oxidisable phenolic compounds, phenolic acids, and reduces the concentration in musts and wines of oxidised compounds, quinones. These oxidation products are responsible for the yellow/brown hue and are aromatic "traps", depreciating the thiol potential of wines.

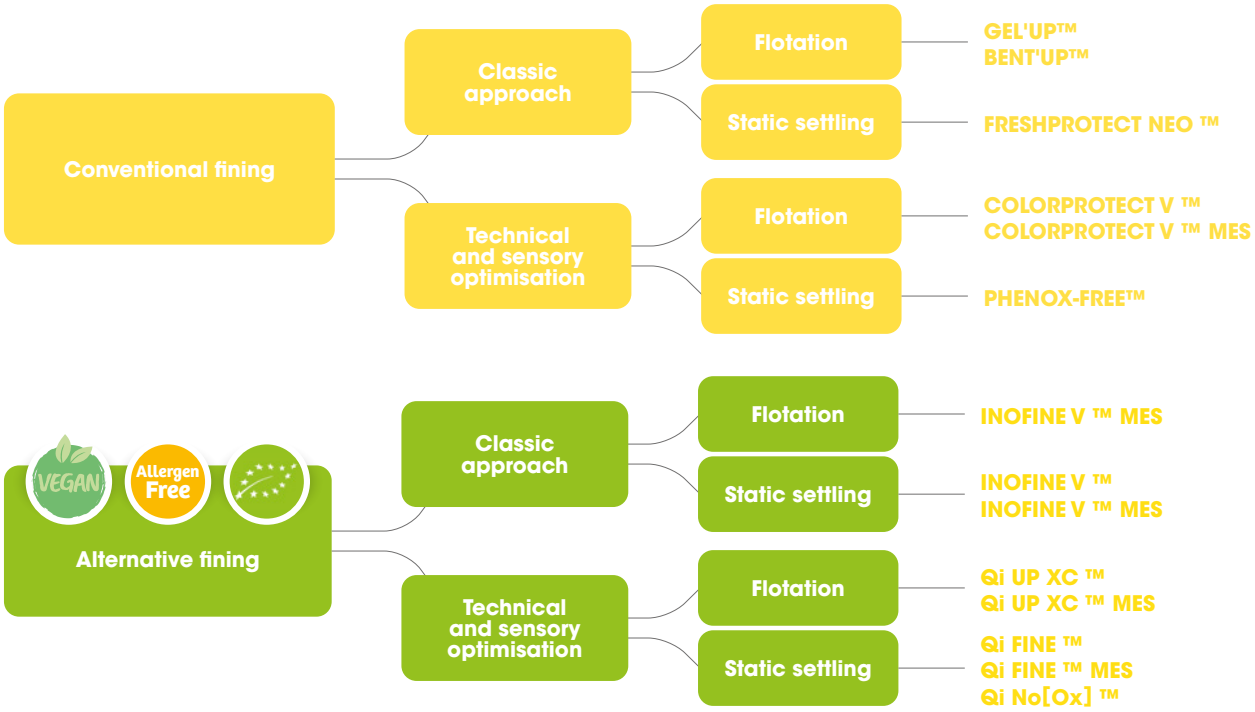
Fining is not simply a matter of reducing the content of oxidation substrates, ortho-diphenols and catechins. It also reduces turbidity, allowing the aromatic profile of the wines to be orientated. This clarification is accompanied by early colloidal stabilisation and conservation of the clarity acquired over time.

Fining involves attractive and repulsive forces related to the electrical charge carried by the molecules. The potential effectiveness of a fining agent, or its affinity to react with the molecules to be eliminated, depends on its charge density.

In our R&D department, we study each fining agent using a device called the Turbiscan®, which enables us to monitor the sedimentation kinetics over time and thus the evolution of the clarity of the fined wine.

A solution for every objective

As well as the technical performance of a fining agent, other factors come into play when choosing one: the required standards and specifications, the vinification process and the market objective of the final product.



The key to successful fining lies in the right choice of fining agent combined with rigorous implementation in the wine cellar: careful preparation of the fining solution, good homogenisation, compliance with sedimentation times and careful racking.

Bentonites

Proteins, which are native to the grapes in white and rosé wines, can be the cause of cloudiness in bottles under the effect of heat. This protein breakdown leads to the formation of a haze, which is detrimental to the marketing of the wines.

The use of a clay, bentonite, belonging to the montmorillonite family, helps to prevent this risk. Ageing and stirring the lees at the end of alcoholic fermentation reduces the protein instability of wines, but the use of bentonite remains the only effective treatment for proteic haze.

Proteins, macromolecules made up of amino acids, are positively charged at the pH of the wine. They interact with the bentonite which, when suspended, contains negatively charged particles, forming a cloud. The new particles formed have a density greater than that of the wine and precipitate: this sedimentation results in the clarification of the wines.

Several laboratory tests are used to assess the risk of proteic haze before bottling. The heat test, which is the most widely used, consists of measuring the difference in turbidity after heating the wine to 80 °C for 30 minutes. The wine is stable if the delta is less than 2 NTU.

From a practical point of view, the more a bentonite is able to swell in water, the more effective it will be at eliminating proteins. There are various bentonites available on the market:

Natural bentonites

- **Sodium bentonite**, with sodium as the main exchangeable cation, is very reactive and has a high capacity for swelling and protein adsorption.
- **Calcium bentonite**, with calcium as the main exchangeable cation, has low swelling and protein adsorption capacity. Nevertheless, it is very effective at compacting the lees.

Activated bentonites

To improve their adsorption properties, these bentonites are activated by sodium carbonate or sodium hydroxide. The result is **activated sodium-calcium or calcium-sodium** (depending on the proportion of sodium ions), which are highly reactive and have a very high swelling rate.

+ DEPROTEINISING

BENTOSTAB™ GRANULÉS

1 kg | 5 kg | 25 kg

Activated sodium bentonite with high deproteinising power

→ Optimum swelling capacity in water
→ Effective at low doses
→ Easy to apply and handle

Indicative dosage: 20 to 100 g/hL

BENTOSTAB™ POUDRE

1 kg | 5 kg | 25 kg

Activated sodium bentonite with high deproteinising power

→ Optimum swelling capacity in water
→ Effective at low doses

Indicative dosage: 20 to 100 g/hL

INOBENT™ 1 kg | 25 kg

Activated calcium-sodium bentonite for clarification

→ Facilitates flocculation and sedimentation of lees at the end of alcoholic fermentation
→ Eliminates unstable colouring matter, ideal for early marketing of red wines
→ Moderate deproteinisation power

Indicative dosage: 20 to 100 g/hL

BENTONITE L100 10 L | 1 000 L

Activated calcium-sodium bentonite solution, 10% concentrate

→ Easy to use thanks to its liquid form
→ Clarifying and deproteinising action

Indicative dosage: 20 to 100 cL/hL

+ CLARIFYING

INOBENT NAT ™ 1 kg | 25 kg

Natural non-activated sodium-calcium bentonite, compatible with NOP vinification

→ Fining and deproteinisation of musts and wines
→ Excellent flocculation and settling properties
→ Reduces wine losses

Indicative dosage: 20 to 100 g/hL

Flotation

GEL'UP™ 15 kg

Gelatin of porcine origin with a high bloom value for rapid clarification and sedimentation by flotation

→ Slightly degraded proteins
→ Compact sedimentation, excellent clarification
→ Hot solubilisation

Indicative dosage: 3 to 15 g/hL

BENT'UP™ 15kg

Activated sodium bentonite, powder formula, specific for flotation

→ Excellent must clarification properties
→ Good compaction of the grape lees and good juice yield
→ Eliminates heat-sensitive proteins

Indicative dosage: 10 to 20 g/hL

Qi UP XC ™ 1kg | 15kg

Clarification and oxidative protection of musts during flotation

→ Effective clarification thanks to the high charge density of chitosan (greater than that of gelatin), even at low doses
→ Preserves the organoleptic qualities of the musts: freshness and fruitiness of the wines
→ Better quality of grape lees and improved filterability

Indicative dosage: 2 to 10 g/hL

Qi UP XC ™ MES 10L

Clarification and oxidative protection of musts during flotation, under liquid form

→ Effective clarification thanks to the high charge density of chitosan (greater than that of gelatin), even at low doses
→ Preserves the organoleptic qualities of the musts: freshness and fruitiness of the wines
→ Better quality of grape lees and improved filterability

Indicative dosage: 2 to 10 cL/hL

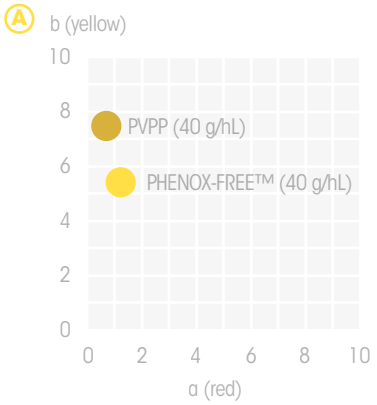
Treatment against oxidation

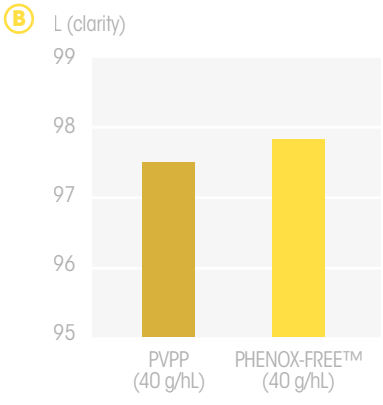
PHENOX-FREE™ 1kg | 15kg

Optimised PVPP: hue, bitterness and dryness correction

→ Less PVPP for greater efficiency: synergistic formula based on specific inactivated yeasts and PVPP
→ Optimised fining effect if added at one-third of alcoholic fermentation
→ Roundness on the palate thanks to inactivated yeasts (less dryness than PVPP)

Indicative dosage: 20 to 60 g/hL





A Corrected chromaticity coordinates a* and b* of bottled wines
Grenache rosé - Provence 2020

B Clarity L* of bottled wines
Grenache rosé - Provence 2020

Trials carried out in the 2020 and 2021 campaigns in several regions (Provence, Bordeaux, Gard, Roussillon): the chromatic characteristics (L*, a*, b*) are at least similar and often better than those of the PVPP-treated variety.

TRAP'METALS™ 1 kg

Reduces metal content in musts and wines

→ Complex formula combining yeast hulls, chitosan and PVI/PVP
→ Improves fermentation kinetics and preserves the musts' thiol potential
→ Reduces risk of iron casse and reduces sensitivity of white wines to *pinking*

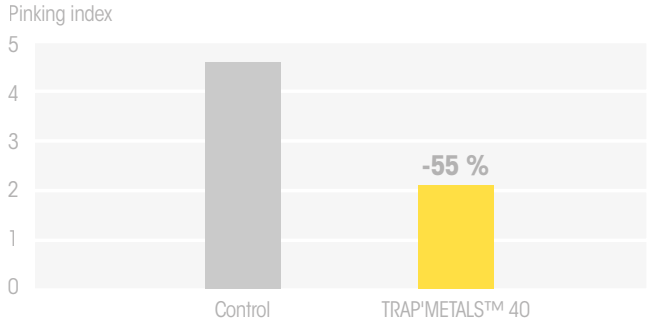
Indicative dosage: 20 to 80 g/hL

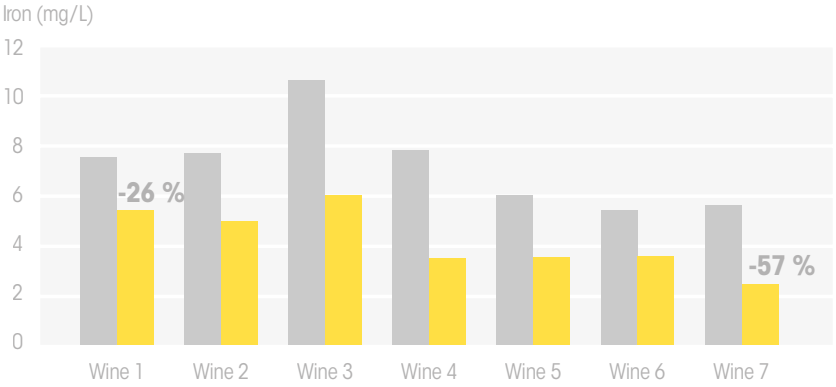
Wine sensitivity to pinking

Preventive treatment of an Alto Adige Yellow Muscat wine (Italy)

The pinking of white wines or "oxidative pinking" is characterised by a change in the colour of the white wine towards shades of grey-pink. White wines rich in polyphenols and slight oxidation are at the root of this phenomenon.

The "pinking index" test enables an early assessment of wine sensitivity. TRAP'METALS™ at 40 g/hL reduces this sensitivity by 50 %.





Iron trapping in Grenache rosé wines

Curative treatment of a Grenache rosé wine (Languedoc Roussillon 2019)

TRAP'METALS™ reduces iron concentration in wines by 25-50 %. Rosé wines are highly clarified, a pretty pale pink. They are clearer and fruitier, and the metallic finish has disappeared.

T0
After TRAP'METALS™ 60 g/hL

COLORPROTECT V ™ 1 kg | 5 kg | 15 kg

Helps prevent juice browning, reduces the sensitivity of wines to *pinking*

→ Bentonite, PVPP and pea protein formula
→ Reduces the content of oxidisable and oxidised phenolic compounds in musts
→ Reduces protein instability in musts

Indicative dosage: 20 to 80 g/hL

COLORPROTECT V ™ MES 10L

Helps prevent juice browning, reduces the sensitivity of wines to *pinking*

→ Liquid solution of bentonite, PVPP and pea protein
→ Reduces the content of oxidisable and oxidised phenolic compounds in musts
→ Easy to use

Indicative dosage: 20 to 80 cL/hL

FRESHPROTECT NEO ™ 1 kg | 5 kg | 15 kg

Preventive and curative treatment of oxidasic casse, reduces bitterness and herbaceous notes

→ Non-allergenic formula combining bentonite, PVPP and cellulose
→ Reduces protein instability in musts
→ Preserves organoleptic qualities

Indicative dosage: 20 to 100 g/hL

(1) From biological materials if available.

POLYOXYL™ 1 kg | 5 kg | 20 kg

Clarification and deproteinisation, reduces bitter and vegetal sensations

→ Non-allergenic preparation combining bentonite and PVPP
→ Improves the taste profile of wines made from spoilt harvests or difficult pressings (high pressure, etc.)

Indicative dosage: 20 to 70 g/hL

POLYOXYL™ L 100 10 L | 1 000 L

Clarification of musts from spoilt harvests

→ Non-allergenic liquid solution combining bentonite and PVPP
→ Easy to use

Indicative dosage: 20 to 70 cL/hL

POTASSIUM CASEINATE 1 kg | 5 kg | 20 kg

Reduces the brownish tones associated with must and wine oxidation

→ Fights oxidation and maderisation in white and rosé wines
→ Particular affinity for oxidised polyphenols

Indicative dosage: 10 to 80 g/hL

PVPP POUDRE 1 kg | 19,96 kg

Treatment for oxidase breakdown in musts and wines

→ Good affinity with oxidised and oxidisable polyphenols
→ Reduces astringency and bitterness

Indicative dosage: 10 to 70 g/hL

New societal and regulatory trends mean that certain fining products, which are derived from synthetic chemistry, allergenic and/or of animal origin, are now disapproved of and withdrawn from vinification processes. This has led us, as part of the oenological products sector, to reflect on and propose alternative solutions. This process has begun with the study of new plant-based fining agents that can be incorporated into "VEGAN" vinification processes.

INOFINE V ™ 1 kg | 5 kg | 15 kg

Vegan and non-allergenic control of must and wine oxidation

Indicative dosage: 10 to 50 g/hL

→ Pea protein with a high capacity to react with oxidised and oxidisable phenolic compounds
→ Reduces must turbidity
→ Reduces bitterness and vegetal notes

INOFINE V ™ MES 10 L | 22 kg | 1 000 kg

Vegan and non-allergenic control of must and wine oxidation

Indicative dosage: 10 to 50 cL/hL

→ Liquid pea protein solution
→ Reduces must turbidity, bitterness and vegetal notes
→ Easy to use, can be used in flotation

Qi range

Since 2009, our R&D department has been working on new fungal-based fining agent, using chitosan, a chitin derivative from the *"Aspergillus Niger"* fungus. This source, and more recently *"Agaricus Bisporus"*, are currently the only two authorised for use in oenology. It is a natural polymer from the polysaccharide family, like cellulose or starch. The chitosan used for fining applications, at the maximum authorised dose of 100 g / hL, has a **different** chemical configuration, degree of acetylation and molecular weight **from those used for antimicrobiological purposes**.

This chitosan has interesting properties for fining phenolic acids, the precursors of quinones. In addition to its chelating properties towards iron and copper (transition metals and oxidation catalysts), it reacts chemically with free radicals to trap and neutralise them (A. Castro Marin et al. 2019).

2012 — Qi No[Ox]
Preventive and curative action against oxidation
Pea protein, Bentonite, Chitosan

2018 — Qi up XC
Clarification and oxidative protection of flotation musts
Chitosan

2019 — Qi fine
Improves colour and taste sensation
Chitosan, Pea protein

2020 — TRAP'METALS
Trapping of metals in wine
PVI-PVP, Chitosan, Yeast hulls

2022
QI SMOKE ™
Correction of smoke taint
Chitosan, charcoal

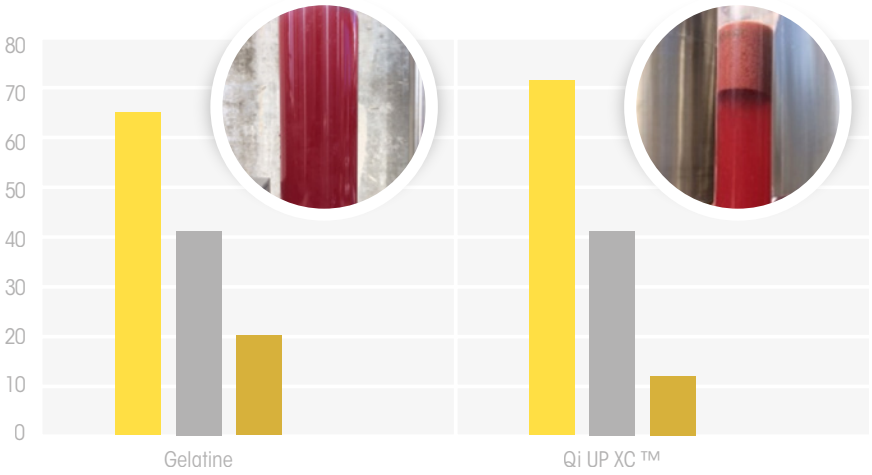
(1) From biological materials if available.

Qi UP XC ™ 1kg | 15kg

Clarification and oxidative protection of flotation musts

Indicative dosage: 2 to 10 g/hL

→ Effective clarification thanks to the high charge density of chitosan (greater than that of gelatin), even at low doses
→ Preserves the organoleptic properties of the musts: freshness and fruitiness of the wines
→ Better quality of grape lees and improved filterability



Changes in chromatic indices after flotation

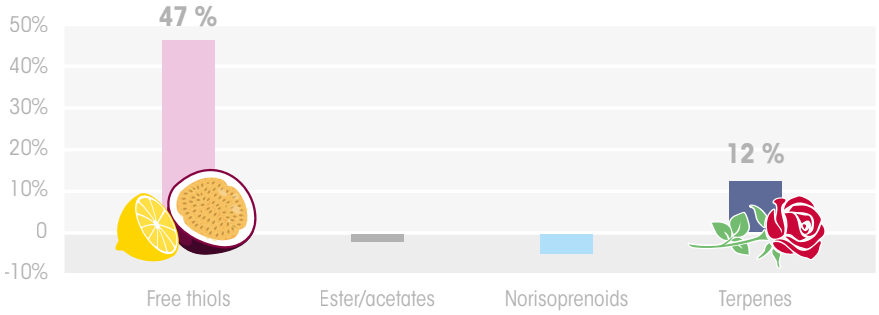
Flotation treatment of a Cinsault rosé must (Languedoc - Sept 2018) 250 hL tank

This trial highlights excellent effectiveness of the formulated chitin derivative, Qi UP XC ™ at 5 g/hL compared to gelatin at 10 g/hL in reducing the yellow b* component value by approximately 35 %.
Qi UP XC ™ interacts with oxidisable polyphenols, preventing their oxidation and therefore must browning.

L* a* b*

Aromatic preservation and optimisation

Qi UP XC ™ optimises the aromatic profile of rosé wine, more than 40 % in free thiols versus the pea protein-treated control. On tasting, the wine treated with Qi UP XC ™ is judged fresher, with intense citrus notes. Control is qualified with heavier aromas and overripe wild strawberry notes.

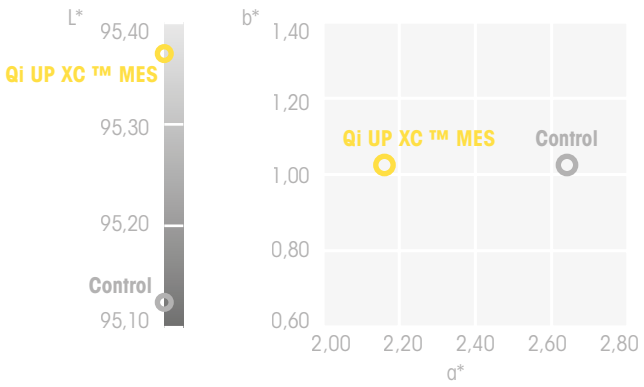


Qi UP XC ™ MES 10L

Clarification and oxidative protection of musts during flotation, under liquid form

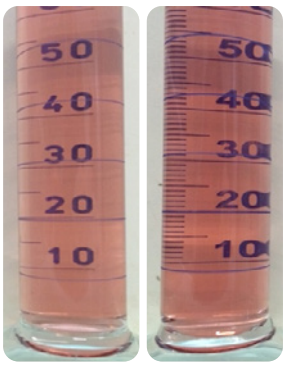
Indicative dosage: 2 to 10 cL/hL

→ Effective clarification thanks to the high charge density of chitosan (greater than that of gelatin), even at low doses
→ Preserves the organoleptic properties of the musts: freshness and fruitiness of the wines
→ Better quality of grape lees and improved filterability



Flotation treatment of a Cinsault rosé must (Languedoc - Sept 2019) 250 hL tank

This trial highlights the high effectiveness of Qi UP XC ™ at 10 cL/hL compared with pea protein at 20 cL/hL in reducing the value of the red a* component at the end of AF, by around 10%.



(1) From biological materials if available.

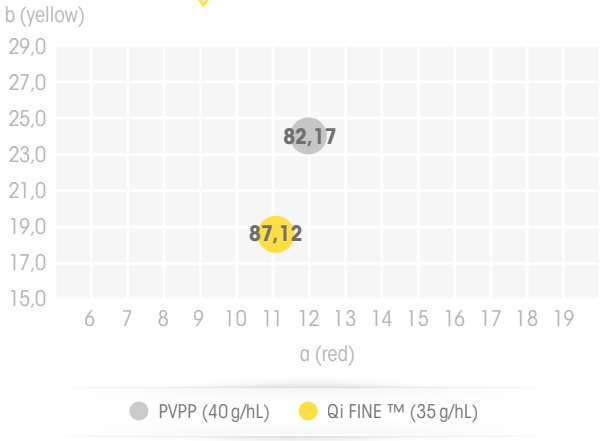
Qi FINE ™ 1 kg | 15 kg

Best alternative to PVPP: biosourced, biodegradable, non-allergenic, vegan

Indicative dosage: 10 to 50 g/hL

→ Synergy between plant biopolymers (chitosan and pea proteins) for the adsorption of oxidisable and coloured polyphenols
→ Specific anti-free radical (antioxidant) role of chitosan: preservation of fruity aromas
→ Economical: at recommended doses, similar cost as PVPP

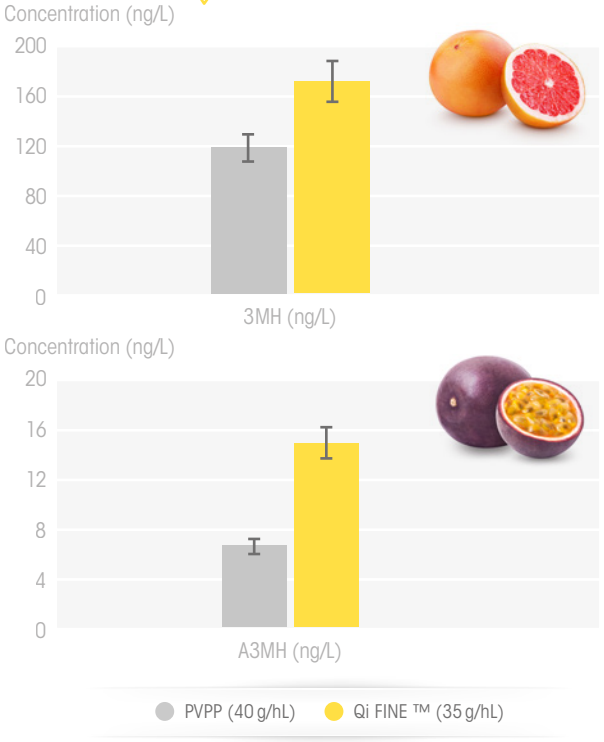
L, a, b chromatic coordinates (corrected) of wines at the end of alcoholic fermentation
Grenache - Provence (2022)



Comparative trial of fining during juice settling of QI FINE ™ vs PVPP on a Grenache rosé must in Provence

Treatment with Qi FINE ™ at 35 g/hL shows superior effectiveness to treatment with PVPP at 40 g/hL on all colorimetric parameters. The anti-free radical properties of chitosan allow wines treated with Qi FINE ™ to retain a superior aromatic potential.

Determination of 3MH and A3MH varietal thiols in finished wine
Grenache - Provence (2022)



Qi FINE ™ MES 10kg

Best liquid alternative to PVPP: biosourced, biodegradable, non-allergenic, vegan

Indicative dosage: 10 to 50 cL/hL

→ Synergy between plant biopolymers (chitosan and pea proteins) for the adsorption of oxidisable and coloured polyphenols
→ Specific anti-free radical (antioxidant) role of chitosan: preservation of fruity aromas
→ Easy to use

Qi No[Ox] ™

1 kg | 5kg | 15kg

Reduces advanced hue and oxidation-related defects

Indicative dosage: 20 to 80 g/hL

→ Plant biopolymers (chitosan, pea proteins) and bentonite
→ Processing aid as an alternative to casein and PVPP
→ Freshens and rejuvenates the colour of oxidised wines

(1) From biological materials if available.

Clarification and fining of musts: decision-making tool

	Application	Clarification	Hue improvement	Antioxidant function *	Reduction in bitterness	Reduction in astringency	Protein stabilisation	Control of processing costs
Qi FINE ™	SET/AF	★★★	★★ ★★	★★ ★★	★★★	★★		★★★
Qi FINE ™ MES	SET/AF/FLO	★★★	★★ ★★	★★ ★★	★★★	★★		★★
Qi NO[OX] ™	AF/W	★★★	★★ ★★	★★★	★★★	★★	★★	★★★
Qi UP XC ™	FLO	★★ ★★	★★ ★★	★★ ★★	★★ ★★	★★★		★★ ★★
Qi UP XC ™ MES	FLO	★★ ★★	★★ ★★	★★ ★★	★★ ★★	★★★		★★ ★★
INOFINE V ™	SET/AF	★★★	★★ ★★		★★★	★★★		★★ ★★
INOFINE V ™ MES	SET/AF/FLO	★★★	★★ ★★		★★★	★★★		★★ ★★
PHENOX-FREE™	AF	★★	★★ ★★		★★ ★★	★★		★★★
COLORPROTECT V ™	SET/AF	★★★	★★ ★★		★★★	★	★★	★★ ★★
COLORPROTECT V ™ MES	SET/AF	★★★	★★ ★★		★★★	★	★★	★★
FRESHPROTECT NEO ™	SET/AF	★★★	★★★		★★	★	★★	★★ ★★
POLYOXYL™	SET/AF	★★★	★★		★★	★	★★	★★ ★★
POLYOXYL™ L100	SET/AF	★★★	★★		★★	★	★★	★★
TRAP'METALS™	SET/AF/W	★	★★★	★★	★★	★		★
POTASSIUM CASEINATE	SET/AF	★	★★ ★★		★★	★		★★
PVPP POUDRE	SET/AF	★	★★ ★★		★★★	★		★★★
GEL'UP™	FLO	★★ ★★			★★	★★★		★★ ★★
BENTOSTAB™ POUDRE/GRANULÉS	AF	★★					★★ ★★	★★ ★★
INOBENT™	AF/W	★★★					★★★	★★ ★★
BENTONITE L100	AF/W	★★★					★★★	★★
INOBENT NAT ™	AF/W	★★ ★★					★★★	★★ ★★
BENT'UP™	FLO	★★ ★★					★★★	★★ ★★

SET = static settling, FLO = flotation, AF = alcoholic fermentation, W = finished wine.

* Specific anti-free radical action of chitosan.

Riddling aid

CLARIFIANT BK ™ 1 kg

Respects bubble strength and finesse

→ Composed of bentonite with low deproteinising power and kaolin
→ Facilitates the sedimentation of yeast into a compact deposit
→ Formation of a non-adherent deposit

Indicative dosage: 4 to 8 g/hL

CLARIFIANT XL ™ 1 L | 5L | 10L

Optimises riddling when using the traditional method

→ High clarification and sedimentation power
→ Proven effectiveness in difficult riddling conditions
→ Produces a compact and non-adherent deposit which is easy to remove

Indicative dosage: 7 to 8 cL/hL

CLARIFIANT NAT ™ 10L

Riddling aid dedicated to traditional methods vinified according to ORGANIC and NOP standards

→ Composed of non-activated bentonite
→ Lower sediment volume than most other riddling aid

Indicative dosage: 8 to 10 cL/hL

CLARIFIANT S ™ 1 L | 5L | 10L

Makes traditional riddling easier

→ IOC's reference riddling aid, combined with PHOSPHATES MAZURE ™
→ Robust and versatile, adapted to all types of wine and different riddling methods
→ Perfectly respects the taste characteristics of base wines

Indicative dosage: 8 cL/hL

PHOSPHATES MAZURE ™ 1 L | 5L | 10L

Coadjuvant of CLARIFIANT S ™ to facilitate riddling when using the traditional method

→ Consistency and elimination of the deposit formed during secondary fermentation
→ Amplifies the action of CLARIFIANT S ™

Indicative dosage: 2 to 3 cL/hL

INOCLAIR 2 ™ Powder : 1 kg | Liquid : 1 L | 10L

Reduces riddling time when using the traditional method

→ Non-adherent deposit
→ Compatible with all types of yeast

Indicative dosage: 3 to 4 g/hL or 7 to 9 cL/hL

Bacteria

Once considered a secondary phase of winemaking, malolactic fermentation (MLF) was long left to chance. Today, its impact and importance, which go far beyond the simple transformation of malic acid into lactic acid, are well known and recognised. They make it an essential stage in the winemaking and ageing process, influencing the rapid availability of the wine and the organisation of work in the cellar, and guaranteeing the quality of the wine as much as its personality.

Access our decision-making tool dedicated to malolactic fermentation

Different types of inoculation

IOC offers a wide range of bacterial preparations to meet every winemaker's technical and economic requirements.

Direct inoculation*

- ML PRIME ™
- MALOTABS™

MBR process direct inoculation

- EXTRAFLORE CO-IN' ™
- EXTRAFLORE COMPLEXITY ™
- EXTRAFLORE PURE FRUIT ™
- EXTRAFLORE DENSITY ™

Inoculation with one acclimatisation step

1-STEP

- MAXIFLORE ELITE ™
- MAXIFLORE SATINE ™

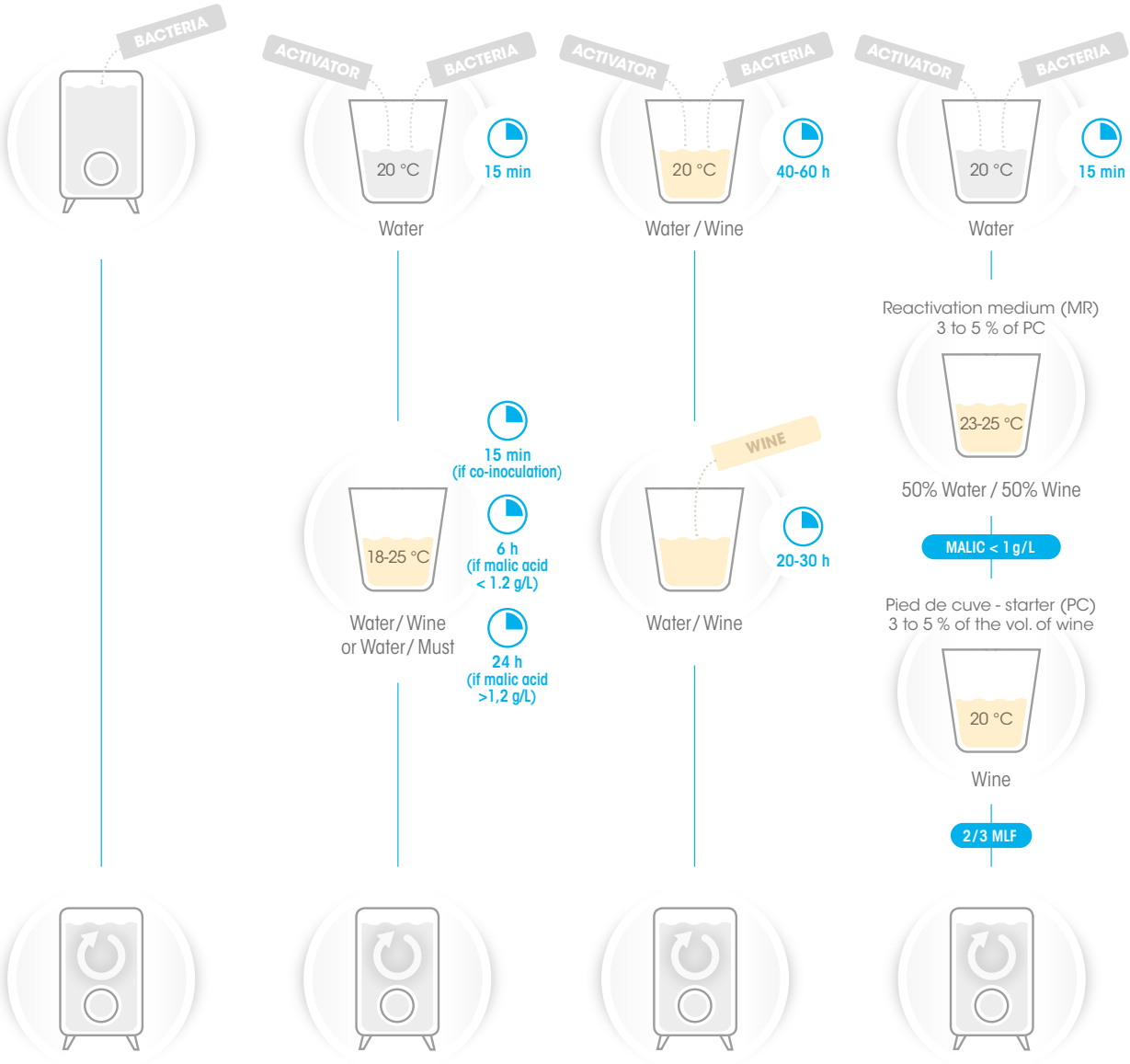
Inoculation with two acclimatisation steps

- ACIDOPHIL+ ™

Inoculation with a reactivation phase and a starter phase

Standard

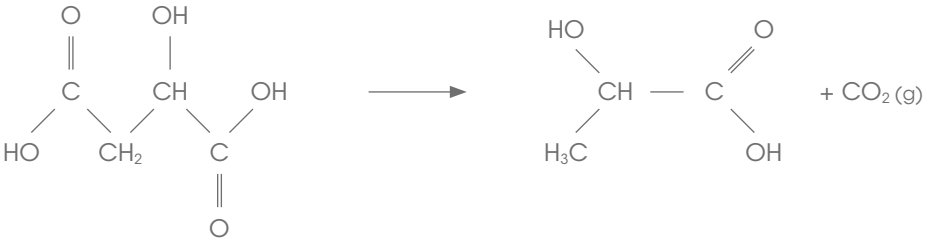
- INOBACTER™



* The bacteria can also be re-suspended in a small volume of water or wine (15 minutes and 20 °C maximum) to ensure easier dispersion of the bacterial population in the wine.

What is malolactic fermentation?

The vast majority of malolactic fermentation is carried out by *Oenococcus oeni*, and a small proportion by *Lactobacillus plantarum*, *Lactobacillus hilgardii* and *Pediococcus parvulus*. Through the malolactic enzyme, L-malic acid is decarboxylated into L-lactic acid:



L-malic acid : 1 g/L

L-lactic acid : 0,67 g/L

In theory, a 1 g/L drop in malic acid lowers the total acidity (TA) by 0.4 g/L, and increases the pH by 5 to 10%.

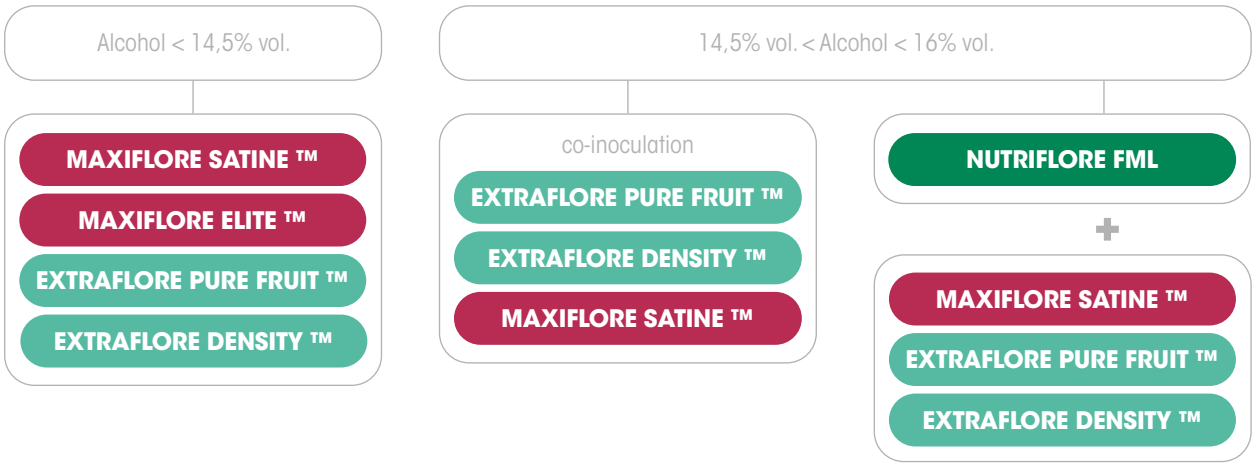
To control this transformation, oenological bacteria have been selected, characterised and produced on an industrial scale according to very strict specifications in terms of purity, viability, activity and stability.

Acidic wines

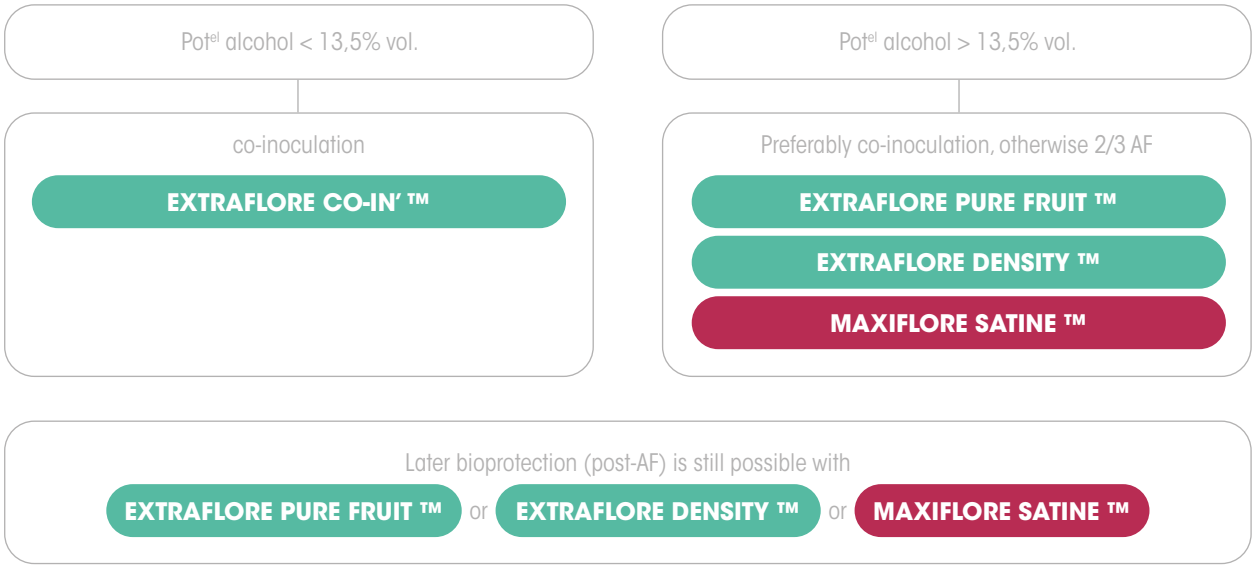
NUTRIFLORE FML +

pH < 3,05	3,05 < pH < 3,2	3,2 < pH < 3,3
INOBACTER™	**INOBACTER™**	**MAXIFLORE ELITE ™**
+ NUTRIFLORE PDC ™		**EXTRAFLORE PURE FRUIT ™**
		EXTRAFLORE COMPLEXITY ™
		EXTRAFLORE DENSITY ™

Concentrated wines



Choosing the best bioprotection oenological bacteria according to the risk of spoilage



Later bioprotection (post-AF) is still possible with

EXTRAFLORE PURE FRUIT ™ or EXTRAFLORE DENSITY ™ or MAXIFLORE SATINE ™

Technological properties and fields of application of our oenological bacteria

		EXTRAFLORE CO-IN' ™	EXTRAFLORE COMPLEXITY ™	EXTRAFLORE DENSITY ™
Conditions of use	Type of product	MBR process direct inoculation (direct inoculation)	MBR process direct inoculation (direct inoculation)	MBR process direct inoculation (direct inoculation)
	Easy-to-use	★★★★	★★★★	★★★★
	Co-inoculation	★★★★	★	★★★
	Sequential inoculation	★	★★★★	★★★★
	Maximum alcohol	< 13,5 % vol.	< 14 % vol.	< 16 % vol (red wine) < 13,5 % vol (white wine)
	Minimum pH	> 3,25	> 3,2	> 3,15
	Maximum total SO_2	< 60 mg/L	< 40 mg/L	< 55 mg/L (red wine) < 30 mg/L (white wine)
	Temperature	18-26 °C (co-inoculation) < 20°C if ethanol > 14 % vol.	18-22 °C < 20°C if ethanol > 14 % vol.	18-26 °C (co-inoculation) < 20°C if ethanol > 14 % vol.
	Resistance to polyphenols	★★	★★	★★★
Sensory profile	Aromatic complexity	★★★★	★★★★	★★★
	Diacetyl (buttery)	Non-existent in co-inoculation	Medium	Low
	Spicy	★	★★★★	★
	Fruity	★★★★	★★	★★★
	Roundness	★★	★★	★★★★★
	Structure	★	★★★★	★★★
Œnological application	White wine	★★	★★	★★
	Red wine	★★★★	★★★★	★★★★
	Rosé wine	★★	★	★★
	Base wine	★	★	★
	Primeur wine (new wine)	★★★★	★	★★

EXTRAFLORE PURE FRUIT ™	MAXIFLORE SATINE ™	MAXIFLORE ELITE ™	INOBACTER™
MBR process direct inoculation (direct inoculation)	1-STEP® (rapid acclimatisation)	1-STEP® (rapid acclimatisation)	Standard (starter)
★★★★	★★★	★★★	★
★★★	★★★★	★★	★★
★★★★	★★★★	★★★★	★★★★
< 16,5 % vol.	< 16 % vol.	< 15,5 % vol.	< 13,5 % vol.
> 3,2	> 3,25	> 3,2	> 2,9
< 50 mg/L	< 60 mg/L	< 60 mg/L	< 60 mg/L
15-26 °C < 20°C if ethanol > 14 % vol.	18-26 °C (co-inoculation) < 20°C if ethanol > 14 % vol.	18-22 °C < 20°C if ethanol > 14 % vol.	16-20 °C
★★★	★★★★	★★	
★★	★★	★★★★	★★★
Very low	Very low	Important	Very low
★	★★	★★★★	
★★★★	★★★	★★	★★★
★★★	★★★★	★★	★★★
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★★	★★	★★	★★★★
★★★★	★★★★	★★★★	★
★★★	★★	★	★★
★	★	★	★★★★
★★★	★★	★	★

Choosing your oenological bacteria to differentiate your wine styles

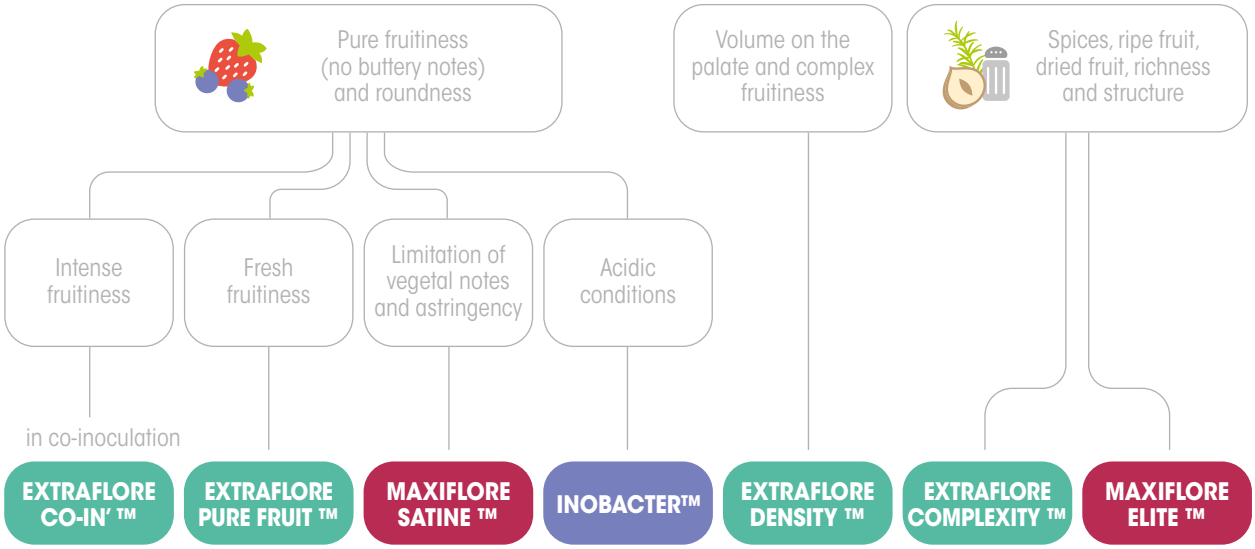
Buttery notes : impact of the choice of bacteria and/or the moment of inoculation (co-inoculation favours the reduction of buttery notes).

Potential production of diacetyl from citric acid by different oenological bacteria in sequential inoculation (post AF)

FROM LEAST BUTTERY

INOBACTER™	MAXIFLORE SATINE ™ / EXTRAFLORE PURE FRUIT ™	EXTRAFLORE DENSITY ™	EXTRAFLORE COMPLEXITY ™ / MAXIFLORE ELITE ™
Very late citric acid attack	Late and weak citric acid attack	Late and moderate citric acid attack	Early citric acid attack
Almost no diacetyl production	Very low diacetyl production	Low diacetyl production if stabilised just after MLF, moderate if stabilised later	High diacetyl production

TO MOST BUTTERY



Extraflore™ range

MBR process direct inoculation • Easy: direct inoculation without acclimatisation

EXTRAFLORE CO-IN' ™

Sachets for: 25 hL | 250 hL

Obtain fruity wines with co-inoculation

→ Efficient kinetics dedicated to co-inoculation
→ Produces a very low level of diacetyl: no milky mask
→ Reveals and preserves fruity aromas

EXTRAFLORE COMPLEXITY ™

Sachets for: 2,5 hL | 25 hL | 250 hL

Controls malolactic fermentation and the sensory complexity of wines

→ Reveals spicy, ripe fruit, aromatic herbs and fresh butter notes
→ Enhances tannin structure in red wines
→ Recommended just after or at the end of alcoholic fermentation rather than during co-inoculation

EXTRAFLORE DENSITY ™

NEW Sachets for: 25 hL | 100 hL

Add volume to your wines

→ Robust under limiting conditions (high alcohol, low malic acid)
→ Contributes to smoothness and roundness
→ Reduces bitterness and aggressivity making red wines easier to drink

EXTRAFLORE PURE FRUIT ™

Sachets for: 25 hL | 100 hL

Ensures the purity of fruity notes and controlled malolactic fermentation in difficult conditions

→ Robust under limiting conditions (high alcohol, low malic acidity)
→ Low diacetyl production (buttery notes)
→ Ensures the expression and purity of fruit, roundness

Maxiflore™ range

- Adapted as closely as possible to the specific characteristics of each wine
- Inoculation after a short reacclimatisation period of 24 hours

MAXIFLORE ELITE ™

Kits for: 25 hL | 100 hL | 500 hL

Contributes to the structure and balance of ripe fruit and spicy notes

→ For red wines, sensation of structure and volume on the palate
→ For white wines, contributes to dried fruit notes
→ Preferably during early inoculation as well as sequential inoculation

MAXIFLORE SATINE ™

Kits for: 25 hL | 100 hL

Reduces astringency and prevents buttery aromas

→ Robustness on highly mature wines rich in polyphenols
→ Low diacetyl production (buttery notes)
→ Masks "green" and "hard" properties and enhances fruitiness and roundness

Our progressive reacclimatisation bacteria

- Safety leading choice for acid wines

INOBACTER ™

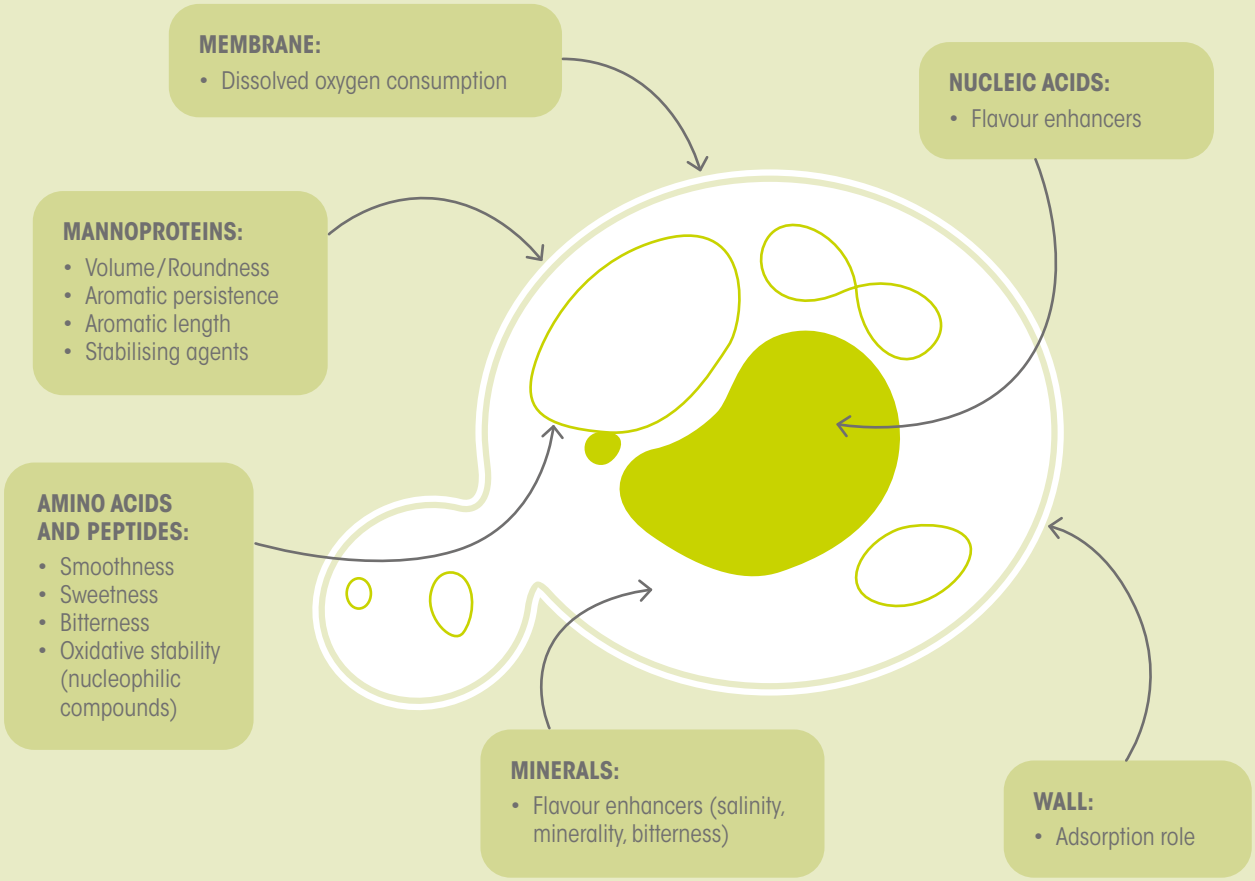
Kits for: 25 hL | 100 hL | 500 hL | 1 000 hL | 2 000 hL

Malolactic fermentation of musts and wines with very low pH

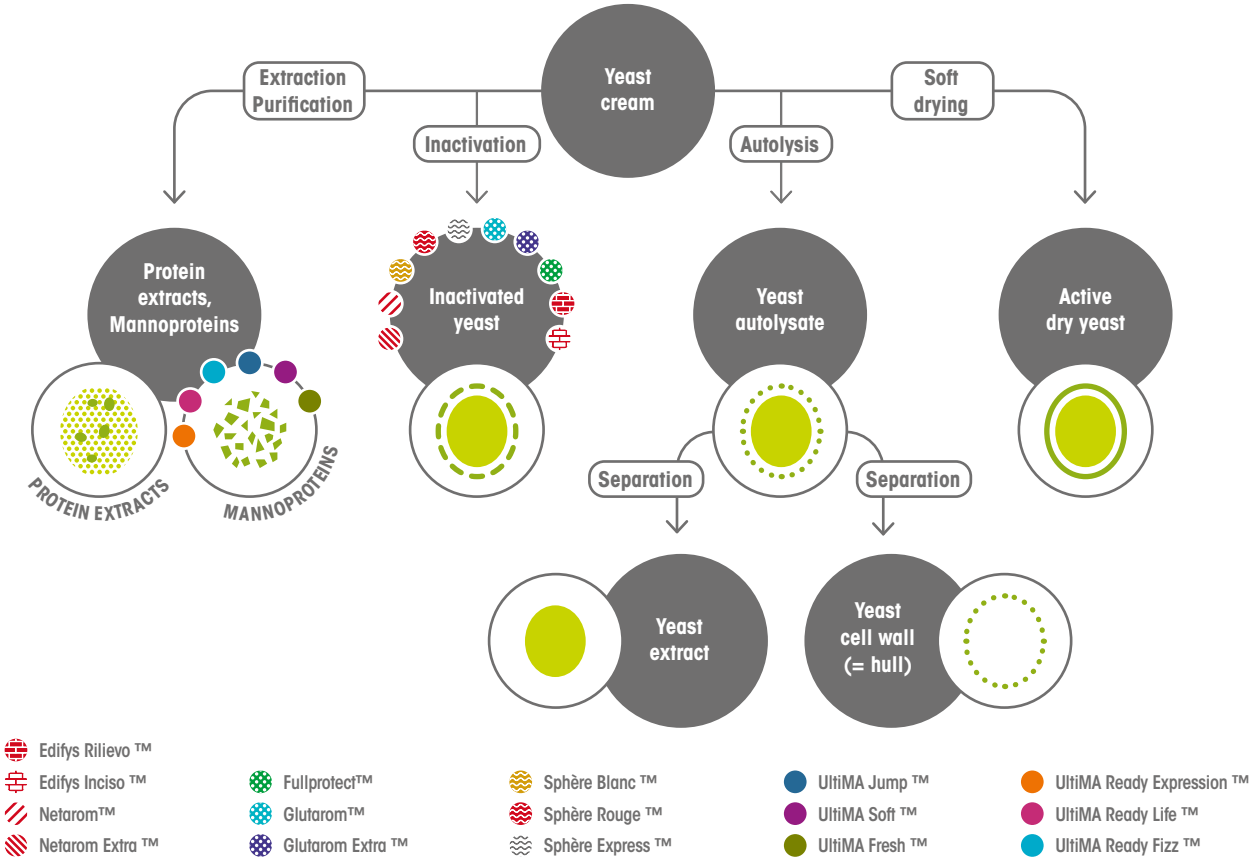
→ Specific genetic type: resistance to low pH
→ Preparation controlled by the microbiology laboratory of the CIVC's "Quality and Sustainable Development Department"
→ Necessary preparation for starters

Lees Alternatives

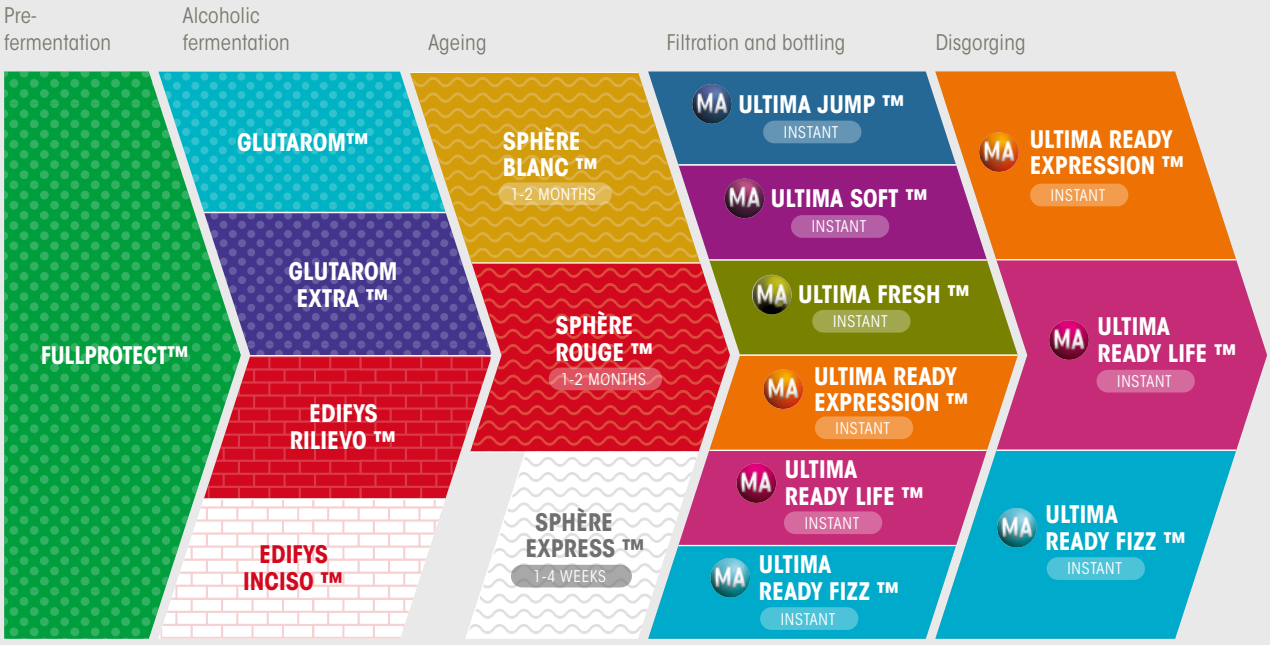
Some potential oenological properties of lees alternatives



Lees Alternatives among other yeast fractions



Lees Alternatives: prime window for action



Before and during fermentation

FULLPROTECT™ 1 kg

Preserves musts and harvests against colour and aroma oxidation

→ Derived from the synergy between inactivated yeast and tannin
→ Protects the colour and aromas of white and rosé wines
→ Complementary alternative for limiting the use of SO_2

Indicative dosage: 30 g/hL

GLUTAROM™ 1 kg | 10 kg

Early aromatic preservation of white and rosé wine

→ Oxidative protection in the pre-fermentation phase and at the start of alcoholic fermentation
→ Contributes to aromatic development (esters and thiols)
→ Improves volume on the palate

Indicative dosage: 15 to 30 g/hL

GLUTAROM EXTRA ™ 1 kg

Very high levels of reduced glutathione to help preserve wines with low sulphite levels

→ Adapted for use on must or at the start of fermentation: increases the glutathione content of wine
→ Improves preservation of wine in tank and bottles, particularly in the case of low sulphite levels
→ Improves length of wines and aromas

Indicative dosage: 15 to 30 g/hL

Specific yeasts with guaranteed reduced glutathione content

Who?	When?	Why?	Rich in glutathione
GLUTAROM EXTRA ™	Start of alcoholic fermentation	Increases the glutathione content of wine (white, rosé or red) to improve the conservation of wine in tank and bottles, particularly in the case of low sulphite levels	★★
GLUTAROM™	Start of alcoholic fermentation	Preserves aromas and improves volume on the palate	★

EDIFYS RILIEVO ™ 1 kg

Improves the attack and mid-palate with sensations of volume, fullness and freshness

→ Beginning of fermentation of red musts: high polysaccharide content to coat reactive tannins and add body
→ Impacts the attack and mid-palate: sensation of volume
→ Contributes to the overall perception of freshness

Indicative dosage: 15 to 30 g/hL

EDIFYS INCISO ™ 1 kg

Improves the finish by reducing the astringency and the greenness of the tannins, with a sensation of maturity

→ Early fermentation of red musts: complexity of tannins
→ Impacts the finish: reduced bitterness and astringency
→ Contributes to the overall perception of maturity

Indicative dosage: 15 to 30 g/hL

(1) From biological materials if available.

Ageing and conservation

SPHÈRE BLANC ™ 1 kg

Indicative dosage: 10 to 20 g/hL

Fullness, roundness and sensory stabilisation in the ageing of white wines

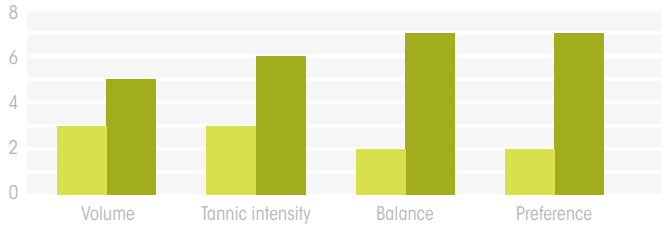
→ Coats excessive acidity and dryness
→ Rapidly amplifies perceptions of roundness and fullness in white wines
→ Long-term stabilisation of taste and aroma sensations

SPHÈRE ROUGE ™ 1 kg

Indicative dosage: 10 to 20 g/hL

Volume, structure and persistence of red wines

→ Small polysaccharides: fullness on the palate
→ Improves tannic perception
→ Sensation of aromatic maturity



SPHÈRE ROUGE ™ : volume and structural balance
Trial at 20 g/hL on Cabernet Sauvignon, Médoc - 9 tasters
Number of tasters giving a better ranking to the wine

SPHÈRE ROUGE ™ Control

SPHÈRE EXPRESS ™ 1 kg

Indicative dosage: 5 to 20 g/hL

Volume and sweetness for very short ageing

→ Accelerates the release of mannoproteins (1 to 4 weeks)
→ Improves the structural quality of wines
→ Balance focused on freshness on the palate

(1) From biological materials if available.

Pre-bottling finish, 100% soluble

Integration of acidity and salinity	Freshness on the palate and reduced bitterness	Aromatic purity and integration of fizziness on the palate	Aromatic definition, freshness, cleanliness and stability
ultiMA soft	ultiMA fresh		ultiMA jump
ultiMA ReadyLife	ultiMA ReadyExpression	ultiMA ReadyFizz	Liquid form

ULTIMA FRESH ™ 500 g | 1 kg

VEGAN and usable in BIO (1) and NOP

Indicative dosage: 20 to 150 mL/hL

Restores balance on the palate

- → Rebalances the taste of wines for which phenolic maturity is not synchronised with technological maturity
- → Freshness on the palate
- → Length, body and volume

ULTIMA JUMP ™ 500 g | 1 kg

VEGAN and usable in BIO (1) and NOP

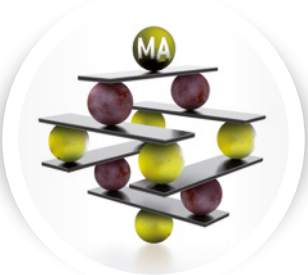
Indicative dosage: 5 to 20 g/hL

LOW SO_2 SOLUTIONS

Preservation and aromatic refreshment of wines

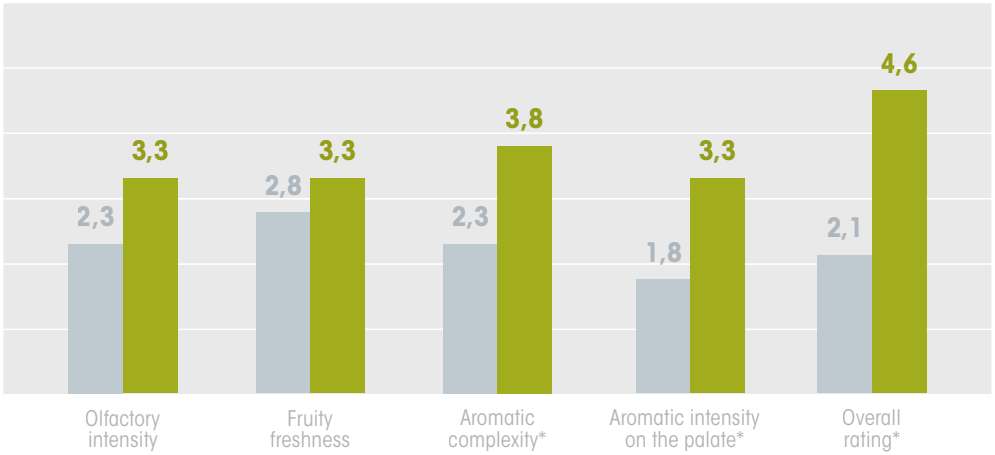
- → Reduces vulnerability of aromas to oxidation
- → Clarity and fruity freshness
- → Reduces oxidative properties (bitterness, ripe fruit)

UltiMA : The art of balance



Sensory analysis - Chardonnay 2020

Average rating given by tasters



(1) From biological materials if available.

ULTIMA READY EXPRESSION ™ 1 L | 5 L

Indicative dosage:
20 to 150 mL/hL

Persistence, freshness and reduced bitterness

→ Freshness sensation in wines
→ Reduces aggressive sensations such as bitterness or astringency
→ Liquid use, particularly suitable for incorporation during disgorging

ULTIMA READY FIZZ ™ 1 L | 5 L

Indicative dosage:
50 to 200 mL/hL

Improves the sparkling sensation on the palate when using the Charmat method (closed tank fermentation)

→ Balances the creamy sensation and freshness from the sparkling sensation
→ Roundness and length on the palate, limits the aggressive taste of bubbles
→ Respects the aromatic purity of sparkling wines

ULTIMA READY LIFE ™ 1 L | 5 L

Indicative dosage:
20 to 150 mL/hL

Roundness and aromatic persistence

→ Better integration of perceived acidity
→ Better balance on the palate (smoothness and persistence)
→ Contributes to foam stability in sparkling wines

ULTIMA SOFT ™ 500 g | 1 kg

Indicative dosage:
5 to 25 g/hL

Fullness and acidity coating

→ Integration of acidity
→ Roundness and reduced dryness
→ Salinity and aromatic persistence

(1) From biological materials if available.

Ageing-Refining-Finishing: decision-making tool
When? Why? How much? And how?

Type	Timing addition / speed	Lees Alternatives	Active composition	Action-specificity		Indicative doses	Contact time	Intermediate resuspension
Ageing	Post-fermentation: minimum 4 weeks	SPHÈRE BLANC ™	Inactivated yeasts	VOLUME SWEETNESS LENGTH	Acidity coating and aromatic stabilisation	Tank: 5-15 g/hL Barrels: 10-20 g/hL	1 month	2 to 4 times
		SPHÈRE ROUGE ™			Quality of structure and aromatic maturity	Poorly structured: 10-20 g/hL Highly structured: 5-15 g/hL	2 months	1 to 2 times
							> 2 months	Not required
Short ageing	Post-fermentation: minimum 1 week	SPHÈRE EXPRESS ™	Inactivated yeasts Free mannoproteins		Quality of structure and freshness	Tank: 5-10 g/hL Barrels: 10-15 g/hL Poorly structured: 10-15 g/hL Highly structured: 5-10 g/hL	1 to 2 weeks	1 time
							> 2 weeks	Not required
Finishing	Before bottling: instant action + solubility	ULTIMA FRESH ™ ULTIMA READY EXPRESSION ™	Free mannoproteins		Freshness on the palate and reduction of bitterness	Tank: 2-10 g/hL Barrels: 5-15 g/hL Poorly structured: 5-15 g/hL Highly structured: 10-20 g/hL	Instant	Not required
		ULTIMA SOFT ™ ULTIMA READY LIFE ™	Free mannoproteins		Salinity and acidity coating	Generous: 2-5 cL/hL Light: 5-15 cL/hL		
		ULTIMA JUMP ™	Free mannoproteins		Cleanliness, freshness and stability of aromas	Tank: 2-10 g/hL Barrels: 5-15 g/hL		
		ULTIMA READY FIZZ ™	Free mannoproteins		Aromatic purity and integration of fizziness	Generous: 2-5 cL/hL Light: 5-15 cL/hL		

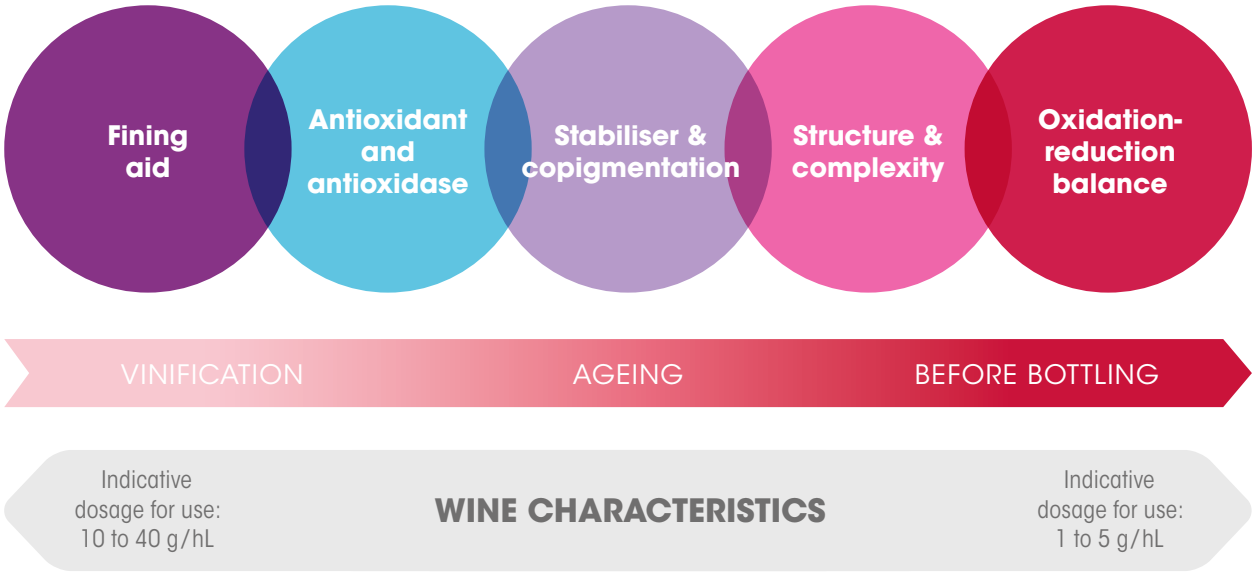
Tannins

Tanisage (addition of tannin) is an age-old practice that has been neglected by winemakers for several years, but is now once again an integral part of our vinification processes, from alcoholic fermentation to bottling. In oenology, experimental data on this practice is still very minimal. And yet, to understand the use of tannins, knowledge of their oenological properties and benefits remains essential.

Exogenous oenological tannins are polyphenols. Extracted from plant sources, they vary in nature and come from various botanical species. They belong to two main families:
- Hydrolysable tannins, the sub-classes of which are composed of ellagitanins and gallotanins,
- Condensed tannins, the sub-classes of which are composed of procyanidins, profisetinidins, prodelphinidins and prorobitenidins.

Their oenological properties depend on their chemical configuration or structure. The choice of this oenological tool depends on the target objective, the nature of the must or wine to be treated and the moment of incorporation. The use of oenological tannins helps to preserve the sensory and taste characteristics of wines thanks to their multiple functions:
- fining aids (reactivity with proteins),
- antioxidant (O_2 consumer),
- antioxidase (anti-laccase),
- colour stabilisation (limits oxidative degradation of anthocyanins, promotes copigmentation),
- metal chelation,
- structuring (increases tannin charge).

Objectives for every phase



Protection and stabilisation during vinification

Protein binding

TANIN TC ™
Ellagic tannins (chestnut)
Indicative dosage: 5 to 18 g/hL

TANIN SR ™
Proanthocyanidin tannin (quebracho)
Indicative dosage: 15 to 40 g/hL

Structure

Roundness

VOLUTAN™
VOLUTAN™ MES
Proanthocyanidin tannin (grape)
Indicative dosage: 1 to 4 cL/hL

Stabilising colour

ESSENTIAL PEP ™
Proanthocyanidin tannin (grape, mimosa black acacia)
Indicative dosage: 5 to 30 g/hL

Antioxidant

ESSENTIAL PEL ™
Proanthocyanidin (grape,mimosa) and gallic (tara) tannins
Indicative dosage: 5 to 30 g/hL

Stabilising colour

Structure

TANIN SR TERROIR ™
Proanthocyanidin (grape, quebracho) and ellagic (oak) tannins
Indicative dosage: 10 to 30 g/hL

Roundness

FULLCOLOR™
Proanthocyanidin (mimosa) and ellagic (chestnut) tannins, yeast polysaccharides
Indicative dosage: 20 to 60 g/hL

Antioxidant

Anti-laccase

ESSENTIAL ANTIOXIDANT ™
LOw SO_2 SOLUTIONS
Gallic tannin (gall nut)
Indicative dosage: 1 to 10 g/hL

TANIN CRISTALLIN ™
Gallic tannin (tara)
Indicative dosage: 3 to 5 g/hL

Roundness

Antioxidant

MANN BOUQUET B19 ™
Proanthocyanidin tannin (mimosa black acacia), inactivated yeast
Indicative dosage: 10 to 40 g/hL

Stabilising colour

MANN BOUQUET R16 ™
Proanthocyanidin (grape) and ellagic (oak, chestnut) tannins, inactivated yeast
Indicative dosage: 10 to 40 g/hL

Correction during ageing

Structure

VOLUTAN™
VOLUTAN™ MES
Proanthocyanidin tannin (grape)
Indicative dosage: 1 to 4 cL/hL

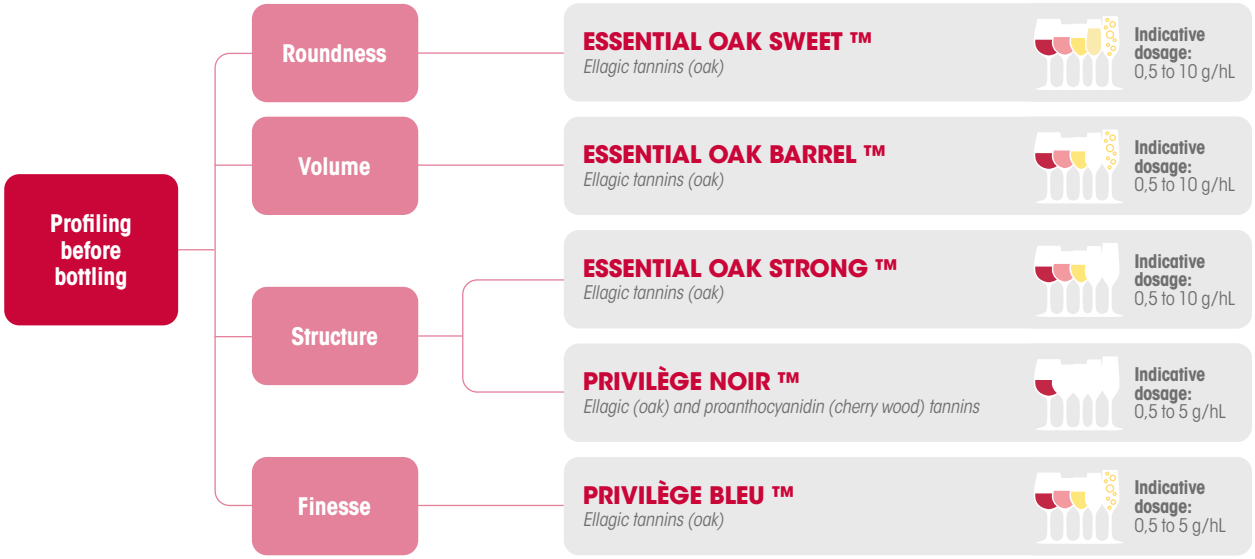
Freshness

ESSENTIAL PASSION ™
Proanthocyanidin (cherry wood) and gallic (gall nut) tannins
Indicative dosage: 1 to 15 g/hL

Reducing greenness

ESSENTIAL FREE VEG ™
Proanthocyanidin tannin (mimosa black acacia)
Indicative dosage: 1 to 15 g/hL

Addition stage | Primary role | Secondary role



Addition stage | Primary role | Secondary role

Protection and stabilisation during vinification

Fining aid - Affinity with proteins

TANIN TC ™ 1kg | 5kg | 25kg

Refining and stabilising wines

→ Ellagic tannin extracted from chestnut
→ Good capacity to react with proteins
→ Available with solubilization service

Indicative dosage: 5 to 8 g/hL

SOLUTION TC ™ 1L | 5L | 10L

Refining and stabilising wines, liquid solution

→ Ellagic tannin solution extracted from chestnut with a concentration of 15% and silica gel, SO_2-stabilised
→ Good capacity to react with proteins

Indicative dosage: 4 to 6 cL/hL

TANIN SR ™ 1kg | 5kg | 15kg

Protection and stabilisation in the pre-fermentation phase

→ Proanthocyanidin tannin extracted from quebracho wood
→ Sacrificial role with regard to proteins
→ Protection with regard to the oxidative degradation of anthocyanins

Indicative dosage : 15 to 40 g/hL

(1) From biological materials if available.

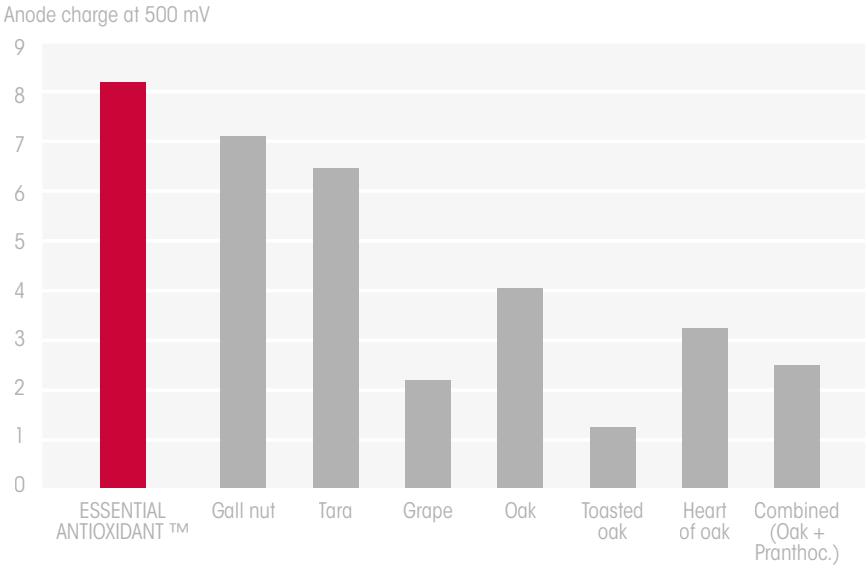
Antioxidant and antioxidase activity

ESSENTIAL ANTIOXIDANT ™ 1 kg | 5 kg

Protects musts and wines against oxidation

Indicative dosage: 1 to 10 g/hL

→ One of the best antioxidant potentials on the market
→ Inhibition of the laccase activity responsible for the oxidation of musts from harvests damaged by *Botrytis*
→ No bitterness or astringency at recommended dosages



Antioxidant properties of tannins

These results highlight the antioxidant capacity of polyphenols, extracted from different botanical origins. ESSENTIAL ANTIOXIDANT ™ is the most antioxidant tannin. It is the most easily oxidised tannin and therefore the most reactive with regard to oxidation in wines.

Grape tannin and toasted oak tannin have a lower antioxidant capacity.

Tannin developped in partnership with: INRAE.

TANIN CRISTALLIN ™ 1 kg | 12,5 kg

Structure and stability of wines over time

Indicative dosage: 3 to 5 g/hL

→ Gallic tannin extracted from Tara
→ Protects against oxidases and eliminates protein-related hazes
→ Adapted for early use on harvests or musts, or during bottling of sparkling base wines for better preservation

MANN BOUQUET B19 ™ 1 kg

Preserves fruity aromas and roundness on the palate

Indicative dosage: 10 to 40 g/hL

→ Combination of proanthocyanidin tannins / inactivated yeasts rich in mannoproteins and glutathione
→ Freshness of aromas is preserved thanks to protection against oxidation in alcoholic fermentation
→ Feeling of body and roundness on the palate

(1) From biological materials if available.

Stabilising colour

FULLCOLOR™ 1 kg | 10 kg

Preserves the wine's colour intensity and taste characteristics

→ Combination of ellagic and proanthocynidin tannins with yeast polysaccharides
→ Enhanced stabilising action of the colouring matter
→ Roundness and reduced astringency

TANIN SR TERROIR ™ 1 kg | 5 kg | 15 kg

Structure and sustainable colour stabilisation

→ Combination of proanthocyanidin tannins (grape, quebracho) and hydrolysable tannins
→ Stabilises the colouring matter
→ Action on the mid-palate for enhanced structure

SOLUTION SR TERROIR ™ 1 L

Colour stabilisation, decreased reductive notes

→ Liquid formula of proanthocyanidin and ellagic tannins and copper sulphate (0.2%)
→ Treats moderate reduction odours in wines
→ Easy to use thanks to its liquid form

Adding structure

VOLUTAN™ 1 kg

Balance and sustainability in wines

→ Tannin 100% extracted from white grapes
→ Structure, body, suppleness and preservation of wines
→ Available with solubilization service

ESSENTIAL PEL ™ 500 g

Improves phenolic and ageing potential in wines

→ Combination of white grape skin tannins, mimosa black acacia tannins and gall nut tannins
→ Antioxidant action preserving freshness when introduced early in the fermentation phase
→ Enhanced balance of tastes

ESSENTIAL PEP ™ 500 g

Colour protection and structure

→ Combination of grape tannins (seeds + skins) and mimosa black acacia tannins
→ Preserves varietal aromatic complexity
→ Stabilises the colouring matter (tannin-anthocyanin interactions)

(1) From biological materials if available.

Correction during ageing

Restoring freshness and masking vegetal character

ESSENTIAL FREE VEG ™ 500 g

Reduces vegetal notes in wines

→ Adapted to wines produced from unripe grapes
→ Reduces astringent finishes and vegetal notes
→ Better perception of varietal aromas, often overpowered by such faults

Indicative dosage: 1 to 15 g/hL

ESSENTIAL PASSION ™ 500 g

Brings out the natural fruity intensity of wines

→ Combination of gallic and cherry wood tannins
→ Provides freshness and highlights the wine's fruity, varietal aromas
→ Corrects structural aggressiveness in wines

Indicative dosage: 1 to 15 g/hL

Profiling before bottling

Ellagitannins, extracted from oak wood, have the property of influencing the oxidation-reduction state of wines. Their addition, **during ageing or just before bottling**, helps to open up the wine's bouquet and enhance its aromatic cleanliness by correcting off-flavours linked to reduction (notes of cabbage, damp cellar, mop) or oxidation (notes of acetaldehyde - fresh apple odour). Through these mechanisms, each formula contributes to complexity, volume on the palate and a sensation of silkier tannins.

ESSENTIAL OAK SWEET ™ 500 g

Roundness, complexity and balance

→ Combination of French oak tannins
→ Complexity on the palate
→ Contributes to the sweetness and elegance of the wine

Indicative dosage: 0,5 to 10 g/hL

ESSENTIAL OAK STRONG ™ 250 g

Structure and character

→ Combination of French oak tannins
→ Respects aromatic complexity
→ Intensified length on the palate

Indicative dosage: 0,5 to 10 g/hL

ESSENTIAL OAK BARREL ™ 500 g

Volume and aromatic intensity

→ Combination of ellagic tannins extracted from the heart of French oak
→ Softens the wine
→ Highlights the wine's volume and structure

Indicative dosage: 0,5 to 10 g/hL

(1) From biological materials if available.

PRIVILÈGE BLEU ™

250 g

Indicative dosage: 0,5 to 5 g/hL

Finesse and complexity

→ Combination of ellagic tannins extracted from American white oak
→ Smooth sensation with volume on the palate
→ Aromatic complexity of the wine is freely expressed

PRIVILÈGE NOIR ™

250 g

Indicative dosage: 0,5 to 5 g/hL

Structure and balance

→ Combination of French oak tannins and cherry wood proanthocyanidin tannins
→ Enhanced structure and fullness of wines
→ Balance between red fruit and black fruit respected

SOLUTION ST ™ 1 L | 5 L | 10 L

Indicative dosage: 2 to 4 cL/hL

Preserves organoleptic properties and prevents reduction odours

→ Liquid solution of gallic and copper sulphate tannins (0.5%)
→ Specific to bottling in white wines
→ Provides structure

(1) From biological materials if available.

Fining of wines

Fining and refining wines: post-fermentation and ageing stages

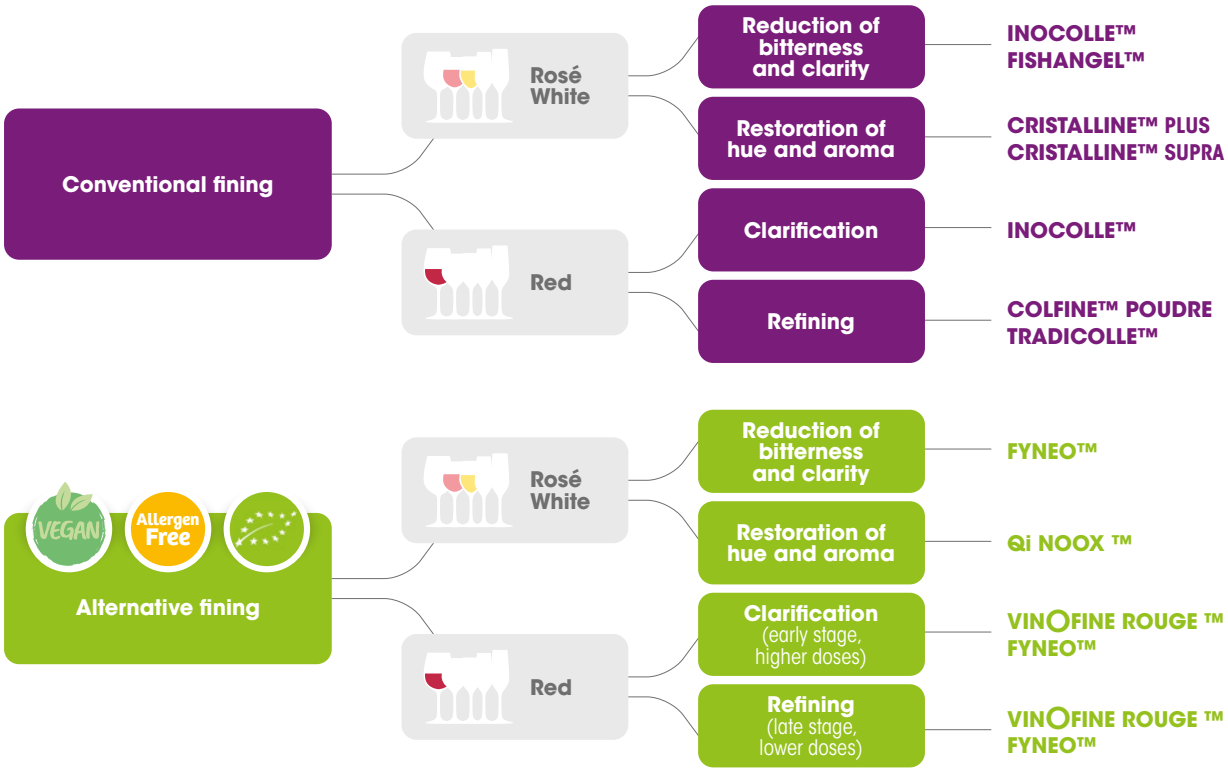
Fining is also used on wines: it facilitates racking and filterability, and can be an interesting tool for minimising the cost of preparing the wine for bottling. As well as improving clarity and physico-chemical and microbiological stability, fining has a number of other benefits, including refining the wine to achieve desired product objectives:

- Marketing a colloidally stable wine.
- Meeting consumer expectations by offering a wine without excessive bitterness or astringency. More generally, fining improves the wine's taste and sensory characteristics.

The choice of fining agent must be made on a case-by-case basis, as a single fining agent is not suitable for all matrices and each wine reacts differently. Prior laboratory tests are essential to determine the optimum dosage for both fining agents and fining-aid.

A solution for every objective

As well as clarifying the wine, fining also reveals its personality. Therefore, it is essential to choose the fining agent that will offer the wine the desired final profile. This choice is guided firstly by the product's market orientations, and then laboratory tests complete the decision.



Alternative solutions

VINOFINE ROUGE ™ NEW

1 kg | 15 kg

VEGAN and usable in BIO (1) — ZERO ADDITIVE

Indicative dosage: 2 to 15 g/hL

The leading vegan alternative to gelatin in red wine

→ Unique effectiveness, proven by a 4-year collaborative project
→ Aromas are better respected, recognised by users
→ Reasonable cost

FYNEO ™ 500 g | 1 kg | 10 kg

VEGAN and usable in BIO (1) and NOP — ZERO ADDITIVE

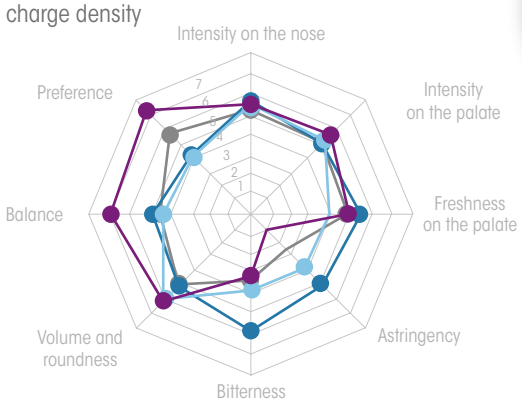
Indicative dosage: 2 to 30 g/hL

Innovative and respectful alternative for fining white, rosé and red wines

→ Yeast protein concentrate with a very high charge density
→ Eliminates harsh and bitter finishes, an alternative to albumin
→ Respects the organoleptic properties of the wines

Exemple on red wine Côtes du Rhône 2014

Results of sensory analysis (9 judges)



Gelatin-based

INOCOLLE™ 1 L | 5 L | 10 L | 22 kg | 1 100 kg

Usable in BIO (1) — ZERO ADDITIVE

Indicative dosage: 3 to 10 cL/hL

Gelatin-based leading choice for colloidal stability in wines of all colours

→ Provides brightness and clarity
→ Respects the structural and aromatic potential of wines
→ When fining white wines, it is recommended to use it in combination with SOLUTION TC ™ or GELOCOLLE™ to avoid overfining

COLFINE™ POUDRE 1 kg | 25 kg

Usable in BIO (1) and NOP — ZERO ADDITIVE

Indicative dosage: 2,5 to 10 g/hL

Porcine gelatin, designed for fining red wines

→ Hydrolysed gelatin for fining young and tannic red wines
→ Removes tannins which cause astringency
→ Enhances the organoleptic potential of press wines

(1) From biological materials if available.

COLFINE™ LIQUIDE 23 kg

Porcine gelatin solution, with a concentration of 30%, designed for fining red wines

→ Hydrolysed gelatin for fining young and tannic red wines
→ Removes tannins which cause astringency
→ Enhances the organoleptic potential of press wines

Fish-/Isinglass-based

CRISTALLINE™ LIQUIDE 1 L | 10L

Highly pure isinglass, designed for fining white and rosé wines

→ Provides brightness and aromatic finesse (rich in collagen)
→ Eliminates harshness on the palate
→ Easy to use thanks to its liquid form, with a concentration of 1%

CRISTALLINE™ PLUS 100 g | 1 kg

Isinglass for fining white and rosé wines

→ Combination of highly pure isinglass and citric acid
→ Provides brightness and aromatic finesse
→ Stabilised with potassium metabisulphite

CRISTALLINE™ SUPRA 100 g | 1 kg

Pure and simple for quality fining of white and rosé wines

→ Exceptional refining quality, provides brightness and suppleness
→ Faster dispersion in wine (pre-hydrolysed powdered isinglass)
→ Dissolves much faster (contains citric acid)

FISHANGEL™ 1 kg

Limpidity, brightness and aromatic clarity on the palate

→ Gelatin/isinglass synergy
→ Strong clarifying action
→ Increased filterability, brightness and suppleness of wines

FISHANGEL™ MES 1 L | 10L

Limpidity, brightness and aromatic cleanliness on the palate

→ Gelatin/isinglass synergy
→ Filterability, brightness and suppleness of wines
→ Easy to use thanks to its liquid form

(1) From biological materials if available.

Egg albumin-based

TRADICOLLE™ 1 kg

Reduces excess polyphenolic fractions, refines structure

→ Atomised hen egg white fining agent
→ Preserves aromatic properties and the typicality of the wine

Other fining agents

GELOCOLLE™ 1 L | 5 L | 10 L | 25 kg | 1 200 kg

Facilitates flocculation, accelerates sedimentation

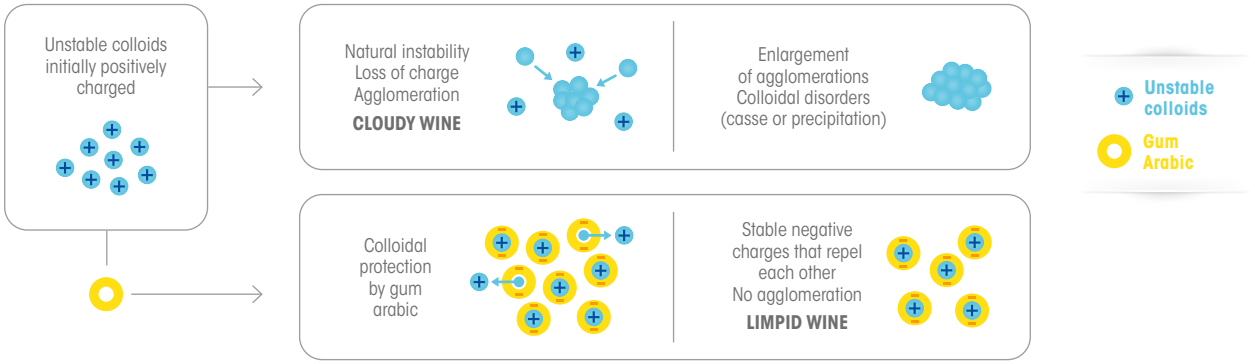
→ Silica gel solution with a concentration of 30%
→ Fining aid combined with the organic fining agent for the purpose of optimising fining

(1) From biological materials if available.

Stabilisation

Colloidal stabilisation

When the wine is ready to be bottled, a final organoleptic and taste check is required. Gum arabic, a natural product derived from the exudate of the bark of the acacia tree, is used as a "stabiliser" against colloidal instability in wines. It improves the sensory and taste characteristics of wines, intensifying the sensation of smoothness and roundness on the palate and reducing the sensation of astringency. It also prevents the risk of iron and copper casse in wines.



A protective colloid, it prevents the precipitation of particles in suspension and must only be used on wines "pre-bottling", i.e. fined, stabilised and clear.

Gum arabic is incorporated 24 to 72 hours before the final bottling filtration or after the filtration paddle using an extremely precise dosing pump.

The dose of gum arabic added depends on the instability of the colouring matter measured after fining and roughing-down filtration. A 48-hour cold resistance test at 4 °C is recommended to measure this instability.

Colour stability test

- Measure the turbidity of the starting sample (NTU before cold).
- If the turbidity is > 2 NTU, filter 30 mL through a 0.65 µm membrane.
- Place these 30 mL (filtered or not) in a bottle and leave for 48 hours at +4 °C.
- After cooling, shake the bottle and, after 15 min. at room temperature, measure the turbidity (NTU after cold).

△ NTU = NTU before cold - NTU after cold

The addition of protective gum arabic is beneficial on wines with instability levels below 30 delta NTU.

< 5 NTU	Stable	
5-10 NTU	Very slight instability	
10-20 NTU	Medium instability	
20-50 NTU	Usual instability	
> 50 NTU	High instability	

Stabilising gum arabic

INOGUM™ 300 1 L | 5L | 22kg | 1100kg

Great protective power over colloidal instability

→ Gum arabic liquid solution from Verek acacia that has been selected and purified
→ Stabilises the colouring matter and metallic hazes
→ Enhances the inhibiting power of metatartaric acid against tartaric precipitations

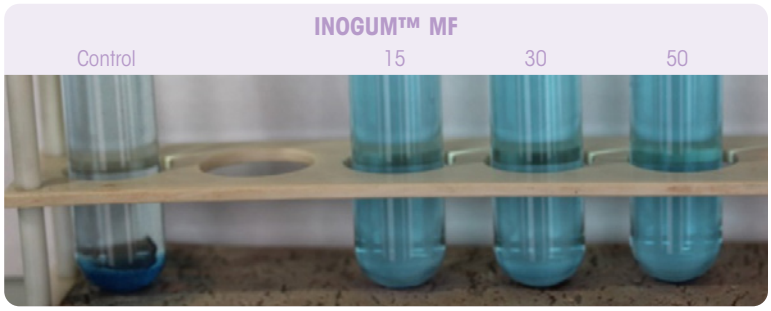
Indicative dosage: 4 to 10 cL/hL

INOGUM™ MF 1 L | 10L | 25kg

Protection against colloidal instability compatible with microfiltration

→ Gum arabic liquid solution from Verek acacia that has been selected, purified and microfiltered
→ Stabilises the colouring matter and metallic casse
→ Does not affect the filterability index of wines

Indicative dosage: 4 to 15 cL/hL



Effectiveness of INOGUM™ MF with respect to stability of colour matter in model solution, at 15, 30 and 50 g/hL. Tube reading after 3 days

From 7 cL/hL, INOGUM™ MF (equivalent to 15 g/hL of gum arabic) is effective with regard to the stability of the colouring matter. No precipitation or deposits appear at the bottom of the tube.

GOMME ARABIQUE SD 1 L

Liquid solution selected to protect sparkling wines

→ Liquid gum arabic that has been purified and filtered
→ Solution which inhibits unstable colloids responsible for cloudiness and deposits after disgorging sparkling wines
→ Surfactant properties allow for better foam stabilisation

Indicative dosage: 4 cL/100 bottles

FLASHGUM™ 1 kg

Effective protection against colloidal instabilities which dissolves instantly

→ Powdered gum arabic extracted from Verek acacia
→ Preventive treatment against precipitations of colouring matter and in copper or iron casse
→ Combats tartaric precipitations (reinforces the effects of metatartaric acid)

Indicative dosage: 5 to 30 g/hL

Coating gum arabic

FLASHGUM™ R 1 kg

Enhances the roundness and sweetness of wines whilst reducing astringency

→ The leading choice of coating gum arabic from the Seyal acacia
→ Softens harshness and dryness, leaves a sensation of roundness and smoothness on the palate
→ Combats any risk of precipitations by protecting colloids

Indicative dosage: 5 to 30 g/hL

(1) From biological materials if available.

FLASHGUM™ R LIQUIDE 1L | 5L | 22kg

Enhances the roundness and sweetness of wines whilst reducing astringency

→ Liquid gum arabic from the Seyal acacia
→ Softens harshness and dryness, leaves a sensation of roundness and smoothness on the palate
→ Combats any risk of precipitations by protecting colloids

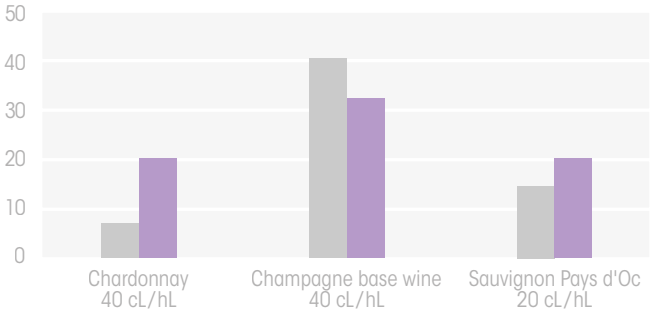
Indicative dosage: 4 to 11 cL/hL

FLASHGUM™ R MF 1L | 10L | 25kg | 1100kg

Provides volume on the palate, stability and filterability to wine

→ Softens red wines by coating the tannins
→ Brings roundness whilst minimising the risk of colloidal precipitation
→ Microfiltered gum which guarantees excellent wine filterability

Indicative dosage: 2 to 10 cL/hL



Evolution of the clogging index

Treatment of wines with FLASHGUM™ R MF between 20 and 40 cL/hL

These results highlight the evolution of the clogging index of wines after treatment with our "coating" gum FLASHGUM™ R MF. The filterability of treated wines remains good after addition, since the CI remains less than or equal to 30. FLASHGUM™ R MF does not affect the filterability index.

Control — FLASHGUM™ R MF

Combined gum arabic

GOMME ARABIQUE 300 22kg | 1100kg

Simple and effective in preparing wines for bottling

→ Combined liquid solution of gum arabic from Verek and Seyal acacias
→ Simplifies the work of those using it
→ Brings roundness and stability to wines

Indicative dosage: 10 to 40 cL/hL

Tartaric and calcium stabilisation

The challenge is to anticipate the formation of tartar or calcium crystals. Treatment methods, whether subtractive or inhibitory, need to be reasoned out according to the length of protection required and adapted to the marketing channel.

Subtractive techniques

MICRONISED CREAM OF TARTAR

1kg | 5kg | 25kg

Tartaric stabilisation of wines

→ Stabilises wine against any tartrate precipitations by saturation at 0 °C
→ Acts as a crystallisation "seed" that triggers the formation of crystals

Indicative dosage: 100 to 400 g/hL

(1) From biological materials if available.

CALCIUM TARTRATE 25 kg

Tartaric stabilisation of wines

→ Salt not very soluble, precipitation is quick and easy
→ Precipitation of natural calcium tartrate in wine
→ Significant reduction in excess Ca^{2+} ion levels

Indicative dosage: 100 to 200 g/hL

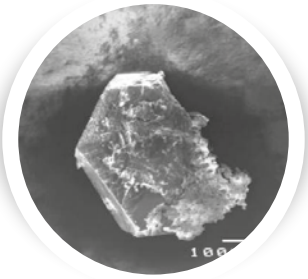
DUOSTAB™ 25 kg

Stabilisation of two salts in one single step

→ Precipitation in one single step of KHT and $CaCO_3$ salts responsible for the formation of crystals in bottles and for *gerbage* (excess frothing) in traditional methods
→ Salts crystalise by super-saturation at 0 °C

Indicative dosage: 200 to 400 g/hL

Determination of the risk of calcium precipitation in wines

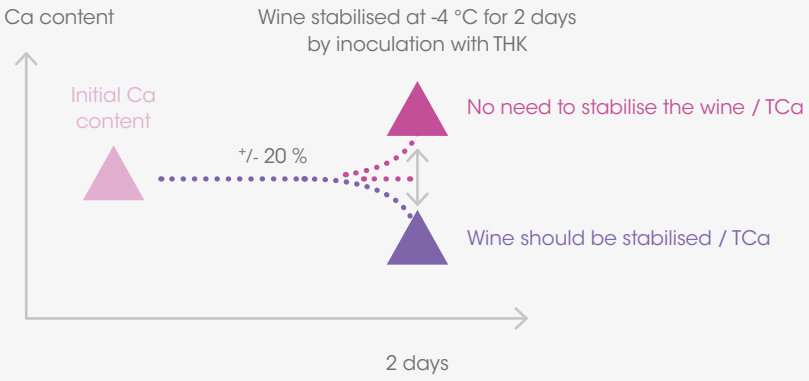


Cold stabulation at -4 °C or contact process at 0°C
Inoculation with 300 to 400 g/hL of THK

→ **Rapid filtration** → **Determination of initial calcium, if > 70 mg/L**

Contact process at 0 °C - continuous stirring
Inoculation with a maximum of 200 g/hL TCa
(Authorised use limit: 200 g/hL)

→ **Rapid filtration** → **Final calcium dosage**



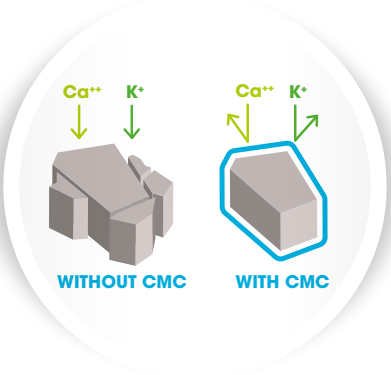
Additive techniques

INOSTAB™ G 1 kg | 5 kg

Highly-purified, powder formulation of cellulose gum (CMC)

VEGAN

Indicative dosage: 2 to 20 g/hL



→ Inhibits the formation of tartar microcrystals by acting as a colloid protector
→ Comes in microgranular form for enhanced dispersion and dissolution
→ Stabilising effect over time

INOSTAB™ MES 1 L | 5L | 10L | 21 kg | 1 000 L

Cellulose gum solution (CMC), with a concentration of 5% and stabilised with potassium bisulphite

VEGAN

Indicative dosage: 8 to 40 cL/hL

→ Inhibits the formation of tartar microcrystals by acting as a colloid protector
→ Easy to use thanks to its liquid form
→ Stabilising effect over time

The addition of CMC to red wine is not recommended, as it interacts with phenolic compounds and causes cloudiness. In white wine, it must be perfectly stable with respect to proteins. A preliminary heat test is recommended to check this stability. The use of CMC is incompatible with wine previously treated with lysozyme.

METATARTARIC ACID 1 kg

Prevents tartaric precipitation risks

VEGAN and usable in BIO

Indicative dosage: 10 g/hL

→ Inhibits crystallisation in potassium bitartrate salts

Correctors Specific treatments

Organoleptic correctors

To correct colour and bad tastes

Œnological carbons, which are exclusively of plant origin (generally derived from wood), are non-crystalline carbonaceous structures of variable porosity. These carbons are known as "activated" carbons. They undergo an activation stage using a physical (temperature) or chemical (phosphoric acid) method to increase their adsorption capacity (the molecules to be eliminated from the wine or must are retained on the surface of the carbon pores).

This retention mechanism is not selective, so the carbon will adsorb molecules of various types. Therefore, we can distinguish macroporous carbons, with very open porosity, or "decolourisers", from microporous carbons, with less open porosity, commonly called "decontaminants or deodorisers". A decolourising carbon requires a weak deodorising action and vice versa.

It is advisable to choose carbons carefully according to the problem at hand, to respect the contact time of 48 hours to avoid the release phenomenon and to stir during the contact time to reinforce the interaction between the liquid and solid phases. The recommended dose for carbons is 20 to 60 g/hL. It is advisable to carry out preliminary laboratory tests to fine-tune the dosage.

Quickly remove or filter the treated wine.

The use of carbon is subject to regulations; please refer to the legislation in force. The OIV (International Organisation of Vine and Wine) code of oenological practices specifies the use of carbon in oenology for well-targeted objectives and a maximum authorised legal dose of 100 g/hL.

Decolourising carbons

+ DECOLOURISING

ACTICARBONE ENO ™ 15kg
or **CARBION ENO ™** 1kg

High decolourising capacity and respectful of sensory characteristics

→ Activated plant-based carbon suitable for treating stained white wines and musts
→ Eliminates phenolic compounds responsible for oxidation defects and corrects excess yellow-orange hue
→ Preserves the wine's aromatic properties

CARBOCLEAN™ 5kg | 15kg

Highly decolourising carbon which preserves aromatic properties

→ Activated plant-based carbon suitable for treating stained white wines and musts
→ Excellent decolourising performance
→ Preserves the wine's organoleptic properties

CARBION ENO-H ™ 1kg

Good decolourising capacity, simplified use

→ Activated plant-based carbon
→ Decolourisation of stained white wines and musts
→ High humidity level improves its handling and limits dust emissions

CARBION™ POUDRE 5kg

Decolourising, respectful of sensory characteristics

→ Activated plant-based carbon
→ Decolourisation of stained white wines and musts

CARBION™ GRANULÉS 1kg | 15kg

Easy to handle, faster sedimentation

→ Activated plant-based carbon
→ Granulated formula improves handling and limits dust emissions
→ Very quick sedimentation

- DECOLOURISING

(1) From biological materials if available. (3) As a filtration agent.

Decontaminating carbons

Œnological carbons are authorised on musts, musts in fermentation and in white wines to reduce the presence of Ochratoxin A. They are also used to correct the organoleptic characteristics of wines made from grapes damaged by powdery mildew and/or contaminated by *Botrytis*.

FLAVOCLEAN™ 1 kg

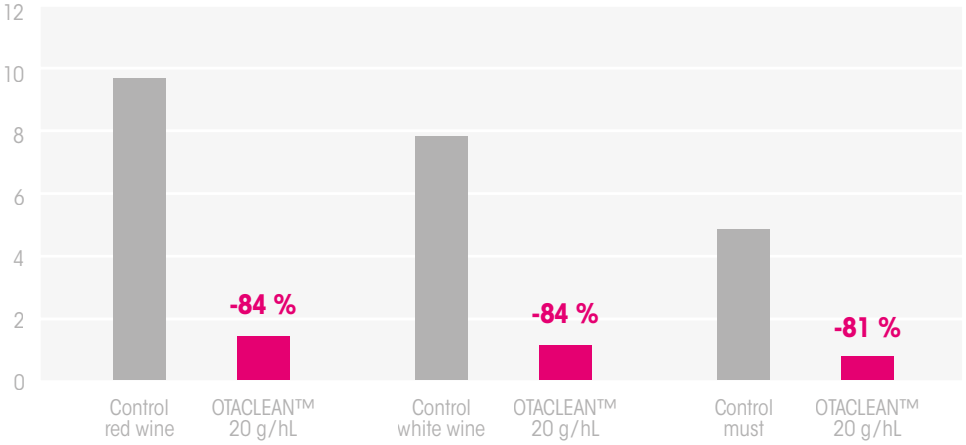
IOC's historical leading choice for correcting off-flavours

→ Activated plant-based carbon used for deodorising or correcting the taste of wines
→ Limits musty-earthy aromas (geosmin)
→ Limits volatile phenols

OTACLEAN™ 1 kg

Adsorbs Ochratoxin A, respects organoleptic properties

→ Activated plant-based carbon used for its excellent adsorptive properties with regard to Ochratoxin A
→ Selective ability, respects the organoleptic properties of wines



Ochratoxin content (µg/L)

On must or wine, treatment with 20 g/hL of OTACLEAN™ reduces the concentration of Ochratoxin A by more than 80 %. Maximum level of Ochratoxin A in wines for marketing: 2 µg/L.

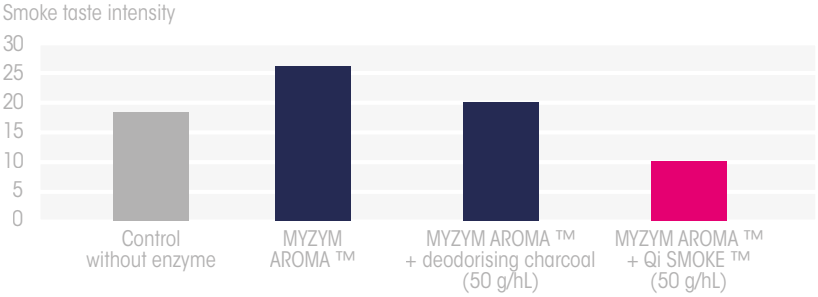
Combatting smoke taint

Qi SMOKE ™ 1 kg

Corrects smoke taint, preserves fruity aromas

Indicative dosage: 20 to 60 g/hL

→ Carbon and chitosan-based formula specially developed to correct smoke taint in wines produced from harvests affected by smoke from fires
→ Selective ability with regard to the molecules that often cause the odours (cresol/guaiacol compounds)
→ In comparison to pure carbon, the aromatic expression of wines is better preserved



Sensory analysis
Averages of 5 trials
Wines contaminated by smoke clouds
Australia 2019

Superior smoke taste intensity reduction due to the synergistic selective adsorption effect of Qi SMOKE ™ compared to other non-specific formulas.

(3) As a filtration agent.

Combatting reduction

Reduced tastes are a recurring problem in oenology and are often difficult to eliminate. They are described by the following terms: rotten egg, cabbage, rubber, alliaceous odours, etc. To help combat these reduced tastes, we offer several categories of products depending on the degree of reduction observed.

NETAROM™ 1 kg

Eliminates slight reductive notes

Indicative dosage: 20 to 40 g/hL

- → Formula made from inactivated yeasts: no reversibility linked to the use of copper salts, no trapping of varietal thiols
- → Adsorption through the cell walls of various sulphur compounds responsible for reductive derivatives
- → Contribution without dryness: roundness and volume on the palate

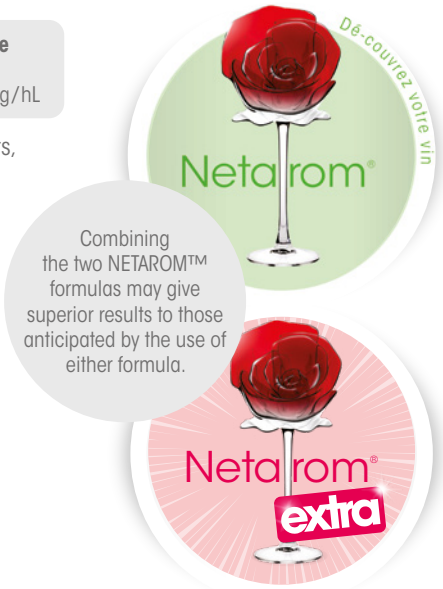
NETAROM EXTRA ™

1 kg

Eliminates intense reductive notes

Indicative dosage: 5 to 30 g/hL

- → Adapted to cases of intense reduction involving heavy sulphur compounds (mercaptans, disulphides), without reversibility linked to the use of copper salts
- → Inactivated yeasts rich in immobilised copper: for wines which need something stronger than NETAROM™
- → Contribution without dryness: roundness and volume on the palate



SOLUTION 700 ™ 1 L | 10L

Copper sulphate solution for eliminating some sulphurous odours

Indicative dosage: 1 to 4 cL/hL

- → Eliminates off-flavours and reductive odours produced by light sulphur compounds with sulphur function (SH)
- → Liquid formula stabilised with citric acid and potassium bisulphite
- → Copper content of the treated sample must be less than or equal to 1 mg/L

REDOXYL™ 5L | 10L

Concentrated copper sulphate solution for eliminating some sulphurous odours

Indicative dosage: 3 to 8 mL/hL

- → Eliminates off-flavours and reductive odours produced by light sulphur compounds with sulphur function (SH)
- → Liquid formula stabilised with citric acid and potassium bisulphite
- → Copper content of the treated sample must be less than or equal to 1 mg/L

REDUCIT™ 1 L

Copper citrate solution for eliminating some sulphurous odours in Organic wine making

Indicative dosage: 2 to 8 cL/hL

- → Eliminates off-flavours and reductive odours produced by light sulphur compounds with sulphur function (SH)
- → Authorised for use in the production of organic-certified wines
- → Liquid formula stabilised with citric acid and potassium bisulphite

(1) From biological materials if available.

Combatting spoilage micro-organisms

FUMARIC ACID 1 kg

Treatment of wines to inhibit or delay malolactic fermentation

→ Bactericidal effect against lactic bacteria
→ Preserves the acidity of wines while reducing SO_2 doses

Indicative dosage: 30 to 60 g/hL

SENTINEL™ 2,5 kg

Control spoilage bacteria and delay malolactic fermentation

→ Formulation based on 100 % fungal biopolymers *(Aspergillus niger)*
→ Reduces lactic and acetic bacteria populations in musts and wines
→ Broader spectrum of action than lysozyme, alternative to SO_2

Indicative dosage: 25 to 60 g/hL

Acidity correctors

Acidity is an essential characteristic of wine, both organoleptically and analytically. It has many effects on wine. It reduces microbial growth and acts on the antiseptic power of sulphur dioxide by increasing its activity. It contributes to the colour intensity of red wines. It contributes to the colloidal stability of wines and regulates any precipitation phenomena.

Acidification can be prevented by rationalising the harvest date, controlling soil amendments and regulating the vine's vigour, as well as by using oenological practices involving the use of yeasts known as "demalicant or acidifying" yeasts.

Curative techniques such as membrane techniques (reverse osmosis or electrodialysis) can also be used to correct the total acidity and pH of wines.

The possible use of the acids listed below is an authorised practice, but is subject to registration and declaration.

Acidification

It is authorised on must and fermenting must at a maximum legal dose of 1.5 g/L expressed as tartaric acid, in a single operation. It may also be applied to finished wines, in several stages, up to the legal limit of 2.5 g/L expressed as tartaric acid. Please refer to current legislation.

L(+) TARTARIC ACID 1 kg | 5 kg | 25 kg

→ Strong diacid, the most effective at correcting pH
→ Recommended for use on musts or during alcoholic fermentation for enhanced integration on the palate
→ May produce harshness on the palate if used in high doses

D, L MALIC ACID 5 kg | 25 kg

→ Has an effect on total acidity
→ May produce a sensation of freshness or greenness depending on the dosage used

ŒNO LACTIC ACID 1 L | 10L | 25 kg

→ Monoacid which corrects total acidity but has little effect on pH
→ Sensation of mild acidity and volume on the palate

CITRIC ACID 1 kg | 5 kg | 25 kg

→ Significantly impacts taste but has little effect on pH
→ Iron is complexed and the risk of the wines having an iron casse is limited
→ Authorised for use in wines up to 1 g/L

Deacidification

POTASSIUM BICARBONATE 1 kg | 25 kg

→ Deacidifies musts and wines
→ Reduces total acidity: in practice, by 1 g/L of H_2SO_4 for 160 to 170 g/hL of product

CALCIUM CARBONATE 1 kg | 5 kg | 25 kg

→ Deacidifies musts and wines by precipitation and formation of calcium tartrate
→ Reduces total acidity: in practice, by 0.5 g/L of H_2SO_4 for 50 g/hL of product

Other acids

ASCORBIC ACID 1 kg | 25 kg

→ Powerful antioxidant
→ Protective action to enhance the antioxidant action of SO_2
→ Prevents "oxidative shock" at the disgorging stage

Indicative dosage: 5 to 10 g/hL

Oakwood pieces

Feelwood™ range

IOC has developed a new range of wood derivatives, "FEELWOOD™", which combines expertise and reproducibility. We offer innovative oenological tools, which are respectful of your wines.

We have opted for an exclusive partnership, with a single supplier handling the processing of oak wood for oenology and providing us with a consistent quality product that meets our customers' requirements.

The wood used to make our products comes exclusively from French oak (***Quercus Petrae***) and American white oak (***Quercus Alba***). These oaks are then stored in open air for a minimum of 18 months. During this maturation period, a number of physico-chemical reactions take place, defining the oenological and aromatic potential of each product, as well as its ellagitannin content.

The wood is then either left in its natural state, or heated by ***"core convection"*** a moderate heating system allowing specific extraction of ellagitannins. These give the wine structure, volume, freshness and aromatic nuances. Each piece of wood receives the same heating treatment (intensity and surface), resulting in a homogenous, reproducible product.

FEELWOOD™ also embodies know-how; the art of blending is part of our history. Our aim is to provide with you a defined, respectful and complex aromatic profile, in harmony with the natural fruity aromas of your wine. Each product corresponds to a recipe, a blend of heats, thus providing you with a woody aromatic profile that meets your product objective.

The spirit of wood bears its fruit

A recipe available in several grain sizes (chips, blocks and staves) that you can choose according to the time you have available to conduct your ageing.

Chips
≈ 10 x 5 x 1 mm

Blocks
≈ 50 x 30 x 10 mm

Staves
≈ 910 x 50 x 12 mm - weight : 320 g
contact surface: 0,11 m²/stave

Vinification – Fermentation

FEELWOOD SWEET & FRESH ™

Chips: 10 kg bag containing 2 infusion nets

Indicative dosage: 0,5 to 3 g/hL

Freshness, fruitiness and structure

→ 100% unheated fresh wood
→ Enhances the structure of tannins without toasted notes
→ Freshness, volume and a sweet finish

FEELWOOD BALANCE & STRUCTURE ™

Chips: 10 kg bag containing 2 infusion nets

Indicative dosage: 0,5 to 3 g/hL

For unbalanced matrices, masks the vegetal notes

→ Combination of unheated, lightly-heated and medium-heated wood
→ Volume and sweetness: coating of astringent tannins caused by a lack of maturity
→ Gives a more mature fruity profile

Ageing

FEELWOOD FRUIT & SOFT ™

Chips: 10 kg bag containing 2 infusion nets

Indicative dosage: 0,5 to 3 g/hL

Respectful of the fruitiness, sweetness and discreet vanilla notes

→ Combination of lightly-heated and medium-heated wood
→ Amplifies the structure of wines: smooth sensation
→ Subtle vanilla notes so as not to overpower the fruit

FEELWOOD FULL & COMPLEX ™

Chips and blocks: 10 kg bag containing 2 infusion nets
Staves: bulk bag of 25 units

Indicative dosage:
0,5 to 5 g/L
1 to 3 stave(s)/hL

Amplitude, sweetness, toasted notes, complexity

→ Combination of extra-long medium-heated and strongly-heated wood
→ Amplitude and sweetness
→ Complex vanilla and toasted notes

FEELWOOD RICH & SUBTLE ™

Chips: 10 kg bag containing 2 infusion nets
Staves: bulk bag of 25 units

Indicative dosage:
0,5 to 5 g/L
1 to 3 stave(s)/hL

Sweetness, complex woody character, notes of mocha and caramel

→ Combination of long medium-heated and strongly-heated wood
→ Brings freshness to ripe matrices
→ Intensifies aromatic persistence

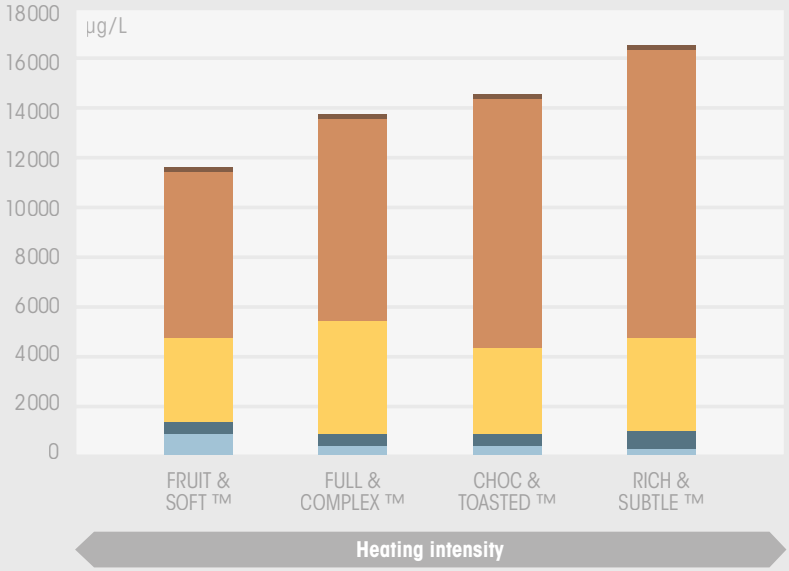
FEELWOOD CHOC & TOASTED ™

Chips: 10 kg bag containing 2 infusion nets

Indicative dosage: 0,5 to 5 g/hL

Grilled, chocolate notes, great sweetening capability

→ Combination of medium-heated and strongly-heated wood
→ Complex woody character, sweetening capability
→ Woody aromatic profile with notes of chocolate, caramel and vanilla



Impact of heating on woody aromatic compounds
Bordeaux red 2016 - 4 g/L
6 weeks contact time

A long, strong heating intensity complexifies the woody aromas and increases sweetness and volume (aldehydes). Light to medium heating, respectful of the fruitiness of the wines, while discreetly boosting them.

- **Enols** (caramel, strawberry jam, liquorice, toasted)
- **Furfural** (sweet almond, toast, caramel)
- **Adhéhydes Phenols** (pastry, biscuit, vanilla)
- **Phenols** (clove, spicy, smoky)
- **Lactones** (coconut)

FEELWOOD VIVACITY & MINERAL ™

Staves: bulk bag of 25 units

Indicative dosage: 1 to 2 stave(s)/hL

Minerality and freshness

→ Combination of medium-heated and strongly-heated wood
→ Used during the fermentation of fresh white wines
→ Discreet woody aromatic profile, maximises citrus notes, expression of minerality

FEELWOOD MATURE & SILKY ™

Staves: bulk bag of 25 units

Indicative dosage: 1 to 2 stave(s)/hL

Complexity, notes of ripe fruit, discreet woody character

→ Combination of medium-heated and strongly-heated wood
→ Silky and unctuous feeling on the palate
→ Complex woody and roasted notes

Use of oakwood pieces is regulated. Make sure you comply with the regulations in force in your wine-growing region.

Sulphurous Products

AMMONIUM BISULPHITE 150 g/L 1 L | 5 L | 10 L

→ Antioxidant and antioxidase properties, antiseptic against yeasts and bacteria, and dissolves anthocyanins
→ Only used on fresh harvests and musts
→ Slightly more stable than potassium bisulphite

POTASSIUM BISULPHITE 150 g/L 1 L | 5 L | 10 L

→ Antioxidant and antioxidase properties, antiseptic against yeasts and bacteria, and dissolves anthocyanins
→ Use on fresh grapes, musts and wines

INODOSE™ 2/5 48/42 tablets under blister

→ Releases 2 g or 5 g of SO_2 per tablet in musts, wines and liqueurs
→ Gradual, uniform release of the SO_2 dose
→ Easier sulphiting, especially for wines aged in oak barrels

POTASSIUM METABISULPHITE 1 kg | 25 kg

→ Adapted for use on fresh grapes (grape harvesters and presses), musts and wines
→ Antioxidant and antioxidase properties, antiseptic against yeasts and bacteria, and dissolves anthocyanins
→ Contains 52-55 % of its weight in SO_2

SULFIDÉGORGEMENT™ 1 L | 10 L

→ Potassium bisulphite-based solution specially designed for disgorging, containing 180 g/L of SO_2
→ Combats unwanted oxidation
→ Prevents premature ageing of wines

SULFITAMINE C ™ 250 mL | 500 mL | 1 L

→ Solution based on ascorbic acid and potassium bisulphite
→ Reducing power to prevent enzymatic and non-enzymatic oxidation of the wine
→ Recommended for use during disgorging to prevent premature ageing of the wine

SULFITANIN™ 1L | 5L | 10L

→ Ammonium bisulphite solution with 100 g/L SO_2 and Tara tannin
→ Antiseptic and antioxidant action of SO_2 complemented by the presence of tannin
→ Can only be used for sulphiting fresh harvests and musts

SULFIVIN™ A 100, 180, 400, 600

Available package sizes: ask your IOC contact person for details

→ Ammonium bisulphite solutions containing 100, 180, 400 and 600 g/L SO_2 respectively
→ Antioxidant and antioxidase properties, antiseptic against yeasts and bacteria, and anthocyanin dissolving properties
→ Only adapted for use on fresh harvests and musts, slightly more stable than potassium bisulphite

SULFIVIN™ K 100, 150, 180

Available package sizes: ask your IOC contact person for details

→ Potassium bisulphite solutions containing 100, 150 and 180 g/L SO_2 respectively
→ Antioxidant and antioxidase properties, antiseptic against yeasts and bacteria, and anthocyanin dissolving properties
→ Adapted for use on fresh harvests, musts and wines

RCGM

SUCRAISIN™ ORGANIC RCGM 20L | 300L | 1 000L

Rectified Concentrated Grape Must for tirage liqueur and/or expedition liqueur

→ Organic-certified RCGM
→ Quick and easy to use thanks to its liquid form
→ Homogeneous finish

SUCRAISIN™ RCGM EXPEDITION LIQUEUR

10L | 20L | 300L | 1 000L

Rectified Concentrated Grape Must for expedition liqueur

→ Quick and easy to use thanks to its liquid form
→ Perfectly neutral
→ Homogeneous finish

SUCRAISIN™ RCGM TIRAGE LIQUEUR 1 000L

Rectified Concentrated Grape Must for tirage liqueur

→ Quick and easy to use thanks to its liquid form
→ Perfectly neutral
→ Homogeneous finish

Œnological products distributed by IOC for use in EU ORGANIC and/or NOP vinification in accordance with COMMISSION IMPLEMENTING REGULATION (EU) No. 203/2012 of 08 March 2012 and Commission Implementing Regulation No. 2018/1584 of 22 October 2018 amending Regulation (EC) No. 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No. 834/2007 and the NOP Regulation for the USA with regard to organic wine. It is your responsibility to contact your certification body to check that products bearing this label comply with your charter. This statement is a guide and remains an interpretation, which we hope is as accurate as possible, of the regulations in force. The Institut Œnologique de Champagne cannot under any circumstances be held responsible for an error of judgment, or for any damage linked to the use of a product in ORGANIC or NOP vinification without further verification.

(1) From organic materials if available. (2) Exclusively for clarification. (3) As a filtration agent.

Notes

Notes

Adresses of our various sites in France

Alsace

6A rue Grenchen
67600 SELESTAT
Tel: 03 88 57 03 80

Bourgogne

Route de Lichères
89800 CHABLIS
Tel: 06 81 05 89 03

4 bis rond point de Marloux
71640 MELLECEY
Tel: 03 85 45 08 70

7 rue Aristide Briand
21700 NUITS-SAINT-GEORGES
Tel: 03 80 61 02 09

Champagne-Ardenne

Faubourg de Champagne
10110 BAR-SUR-SEINE
Tel: 03 25 29 90 22

9 rue du Commerce
51350 CORMONTREUIL
Tel: 03 26 82 33 00

ZI de Mardeuil - BP 25
51201 EPERNAY CEDEX
- Standard / Store :
  Tel: 03 26 51 96 00
- Prestations :
  Tel: 03 26 51 30 48

Grand Sud

7 rue Sauvignon
ZAE Les Tannes Basses
34800 CLERMONT-L'HERAULT
Tel: 04 67 96 07 75

450 rue de Calixte Paillet
ZA Grange Blanche
84350 COURTHEZON
Tel: 04 90 83 09 16

3 avenue Charles de Gaulle
11300 LIMOUX
Tel: 04 68 31 17 67

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