



Cuvée

Winemaking newsletter:  
Harvest Special 2022



# Harvest Special 2022



**Perdomini  
IOC**  
*Révétons votre différence*

# The new additions to the Perdomini-IOC range

As in previous years, we are happy to present the latest additions to our range, as always the result of the commitment to research and innovation that distinguishes us.

## Natjja™

An organic nutrition supplement to improve and protect the health and wellbeing of winemaking yeast throughout alcoholic fermentation, leading to an enhancement in the expression of aromas and flavours. The inclusion of a specially selected fungal-origin chitosan with anti-free-radical effects and the zinc deriving from the yeast mean that NATJJA™ helps optimize the secondary metabolism of the yeast which reveals aromas and flavours, as well as ensuring successful alcoholic fermentation and protecting these aromas and flavours from oxidation.

## Natjja Fizz™

An organic nutrition supplement developed to improve and protect the health and wellbeing of winemaking yeast during secondary fermentation using the *Charmat* method. Thanks to its balance of organic elements, together with the anti-free-radical effect provided by a specially selected fungal-origin chitosan and the 'anti-stress' role (alcohol and carbon dioxide are the main causes of stress) performed by the minerals in the formula (magnesium and zinc), NATJJA FIZZ™ allows winemakers to optimize the secondary metabolism of the yeast where aromas and flavours are developed, and to ensure that the secondary fermentation.

## IOC Calypso

A *Metschnikowia pulcherrima* yeast selected for its unique enzyme activity. When used at the pre-fermentation stages on white or rosé must – in particular when cold-macerating on the lees – it acts as an innovative bioprotection tool which helps enhance the sensory potential of the grapes. It limits browning in must and the oxidation reactions which can affect the more sensitive aromas and flavours.

## IOC Infini'TwICE

A combination of the strain contained in IOC TwICE™ and a second yeast with a strong capacity for fermentation, leading to the production of fresh, complex and balanced wines. This synergy makes it possible to extend the winemaking uses of the original strain, as the sensory package is enhanced: volume at the beginning, then notes of lemon, apricot and exotic fruits balancing out the volume and leaving a very pleasant feeling in the mouth. These characteristics make it ideal not only with Chardonnay grapes, but also other varieties such as Viognier, Grenache, Semillon, Vermentino, Airen and more.

## IOC Boreal

Pre-fermentation *Lachancea thermotolerans* yeast which takes sugars and turns them into L-lactic acid. To be used at least twenty-four hours before inoculating the chosen *Saccharomyces cerevisiae* strain for alcoholic fermentation. Also helps enhance the complexity of the flavours and bouquet in the wines produced.

## Phenox-free

PVPP in combination with specially selected deactivated yeasts, leading to a reduction in the amount of PVPP used. This product is more natural than unadulterated PVPP, yet produces comparable or even superior results than those achieved using pure PVPP, in terms of colour enhancement, preservation of aromas and flavours, and mouthfeel (less bitterness). When used as a preventive treatment on white and rosé musts, Phenox-free allows winemakers to craft wines that are less susceptible to oxidation and have notably improved roundness, thanks to the deactivated yeast cells.

## Qi Smoke™

A formula composed of fungal-origin chitosan and charcoal for winemaking use, Qi SMOKE™ has been specially developed to eliminate the smell of smoke from wines produced using grapes exposed to forest fires. The combined effects of the adsorption performed by the charcoal and the chitosan's unique ability to capture and flocculate particles mean that the molecules responsible for the smell of smoke (cresol and guaiacol compounds) are effectively eliminated.



## NATJJA<sup>fizz</sup>

### Optimization of secondary fermentation

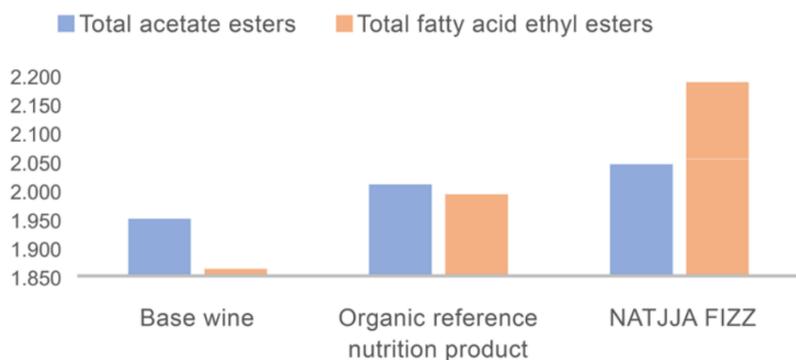
An innovative way to provide nutrition when using the *Charmat* method: government of the stress the yeast suffers because of CO<sub>2</sub> and ethanol.

NATJJA FIZZ™ is the outcome of targeted experimentation for the *Charmat* method, with a formula specially adapted for this purpose. The aim is to minimize the stress the yeast is subjected to by the presence of carbon dioxide and ethanol, thereby optimizing the sensory profile of the sparkling wine.

The formula is packed with micronutrients such as zinc and magnesium and is the follow-on from the idea behind NATJJA™. It allows the yeast to adapt perfectly to the conditions in the autoclave by maintaining the efficiency of the trans-membrane processes that allow macro- and micro-nutrients to be adsorbed into the yeast cell and any toxic molecules to be expelled.

Full expression of the fruity notes in the wine, thanks to greater wellbeing for the yeast

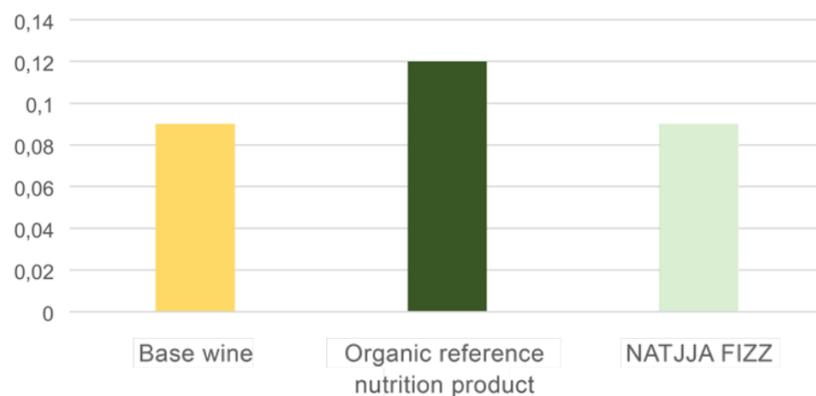
FRUITY ESTERS AFTER SECONDARY FERMENTATION (µg/L)  
(base wine: 26g/L of sugars - YAN 74 mg/L)



The results of the analyses performed on sensory characteristics and aroma expression confirm that NATJJA™ is a very interesting form of yeast nutrition. The anti-free-radical impact provided by NATJJA™ guarantees a reduction in oxidative stress for the yeast cells and better preservation of the aromas and flavours they release. The resultant wines therefore better express their sensory potential.

### Proven results to reduce the stress suffered by yeast cells during fermentation

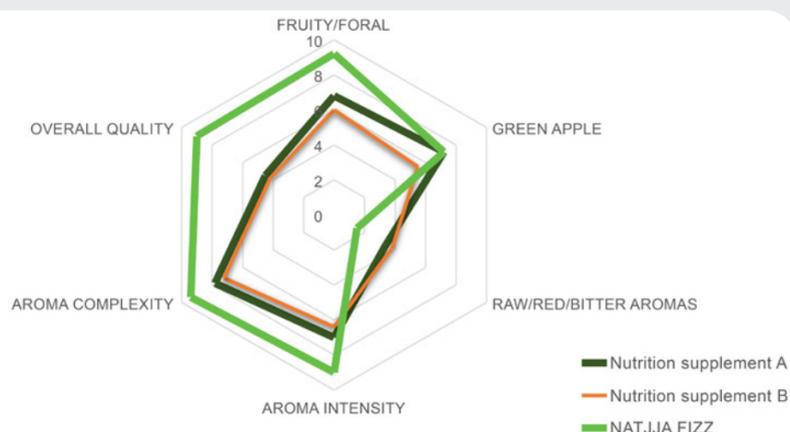
VOLATILE ACIDITY POST-SECONDARY FERMENTATION (g/L)  
(base wine : 26g/l sugars - YAN 74mg/L)



In situations of oxidative stress, winemaking yeasts tend to produce more acetic acid, and sometimes its ester, ethyl acetate.

After supplementation with NATJJA FIZZ™, the resultant wines display lower levels of volatile acidity and ethyl acetate. This indicates that the oxidative stress suffered by the yeast is reduced when NATJJA FIZZ™ is used, right from the beginning of secondary fermentation.

### SENSORY RESULTS: BLIND TASTING - Average of 5 tasters, scores from 0 to 10



# NATJJA



## Optimization of fermentation

**An innovative new path for organic nutrition: enhancement of the yeast cells' wellbeing and optimization of their capacity to release aromas and flavours**

From an idea initiated by the R&D team at the IOC group and developed in cooperation with the Edmund Mach foundation in San Michele all'Adige (South Tyrol), we have **NATJJA™**: an innovative, 100% organic yeast nutrient designed to improve the health and wellbeing of yeast in order to optimize the revelation of aromas and flavours.

Containing a specially selected yeast autolysate, a zinc-rich deactivated yeast and a unique fungal-origin chitosan (from *Aspergillus niger*) with anti-free-radical effects, **NATJJA™** helps reduce oxidative stress in the yeast cells and optimize the secondary metabolism where aromas and flavours are released, thereby preserving the sensory characteristics of the grapes and ensuring successful alcoholic fermentation.

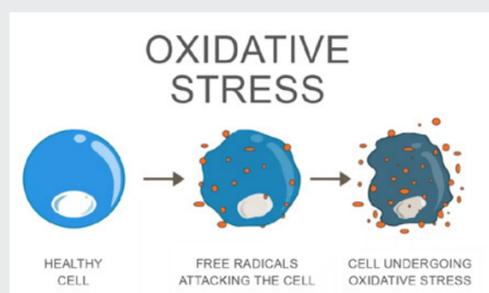
The results obtained have shown that **NATJJA™** effectively plays an important role in responding to the oxidative stress suffered by *Saccharomyces cerevisiae*, thanks to the inclusion in the formula of a specially selected chitosan with a powerful anti-free-radical effect, which helps inhibit the free radicals produced during certain redox phenomena at the beginning of alcoholic fermentation and again when the alcohol levels rise; these phenomena would otherwise have a negative impact on the amino acids, on the bioavailable proteins and on the membrane lipids, forcing the yeast to set complex biological and/or chemical mechanisms in motion to ensure their own survival.

**Free radicals:** all aerobic organisms use molecular oxygen (O<sub>2</sub>) for respiration or the oxidation of nutrients in order to obtain energy efficiently; however, this leads to the production of free radicals. In winemaking, as more ethanol is produced during the fermentation process, more and more free radicals are formed.

The presence of free radicals causes oxidative stress in the yeast cell, forcing it to put in place a number of defence mechanisms, for example using 'enzyme strategies' or 'exploiting' glutathione, a crucial molecule in the adaptive response of *S. cerevisiae* to oxidative stress.

(Jamieson et al., 1994; Izawa et al., 1996, Costa et al., 1993, Halliwell, 2007).

**The probable mechanisms behind chitosan's free-radical-combatting capacity:** chitosan has many interesting features for winemakers, as it is non-toxic, biocompatible, biodegradable, antimicrobial and antioxidant. Most studies on the antioxidant power of chitosan have been based on the capacity of the hydroxyl and amino groups to eliminate free radicals and form stable macromolecular radicals. As an antioxidant, therefore, chitosan can have a positive effect on the yeast's health and protect it from being progressively damaged by free radicals. As it is also involved in the chelation of metals, chitosan also helps the yeast not to go into oxidative stress, avoiding the release of iron, copper and other metals which would stimulate the start of a free-radical chain reaction.



The reduction in the oxidative stress the yeast cells are exposed to, brought about by the free-radical-combatting chitosan, leads to the yeast cells having to put in place less compensation mechanisms. This in turn allows the cells to assimilate the right nutrients, starting with amino acids, components which are used by yeast but, as they are not readily available, require metabolic effort and therefore energy expenditure on the part of the yeast.

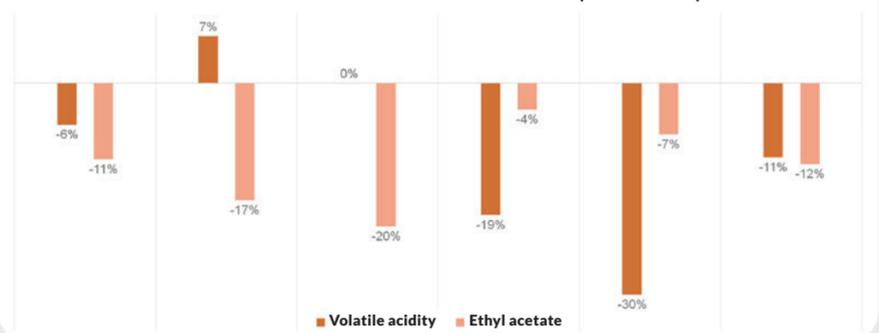
In summary, **NATJJA™** enables the optimization of certain metabolic flows which allow all the elements the yeast needs to be biosynthesized and therefore allow it to grow efficiently and in the best possible health. This also leads to greater functionality in the biosynthesis processes involved in the transformation of aroma precursors into specific volatile compounds.



The ideal time for adding **NATJJA™** to wine is immediately after inoculating the yeast chosen for fermentation, as this is the moment when aroma precursors are assimilated.

**NATJJA™** is suitable for producing white, red and rosé wines from both neutral and aromatic grape varieties. Regardless of the variety used, as far as the aromatic potential of the must is concerned, **NATJJA™** will display a sensory result that perfectly fits the sensory profile of the chosen grapes and the desired outcomes for the wine.

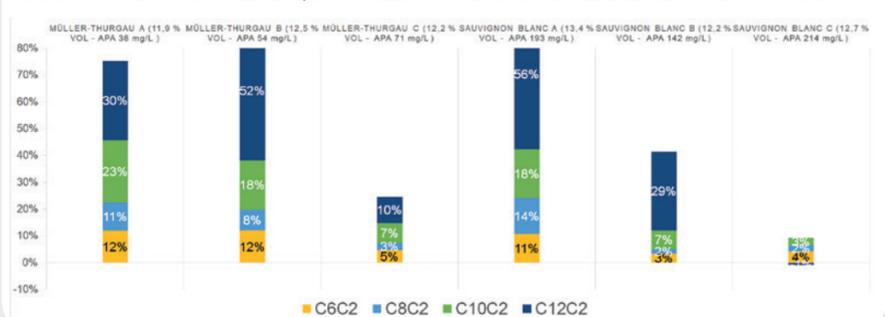
**VARIATION IN THE POST-A.F. LEVELS OF FATTY ACID ETHYL ESTERS OBTAINED THROUGH USE OF THE NATJJA™ NUTRITION SUPPLEMENT, COMPARED WITH AN ORGANIC REFERENCE NUTRITION PRODUCT (DAP SUPPLY)**



In situations of oxidative stress, winemaking yeasts tend to produce more acetic acid, and at times also its ester, ethyl acetate.

After supplementation with **NATJJA™**, the resultant wines display lower levels of volatile acidity and less ethyl acetate content. This indicates that the oxidative stress suffered by the yeast is reduced thanks to using **NATJJA™** right from the beginning of fermentation.

**VARIATION IN THE POST-A.F. LEVELS OF FATTY ACID ETHYL ESTERS OBTAINED THROUGH USE OF THE NATJJA™ NUTRITION SUPPLEMENT, COMPARED WITH AN ORGANIC REFERENCE NUTRITION PRODUCT**



The results of the analyses conducted on the sensory profiles of the wines confirm that **NATJJA™** is an effective and innovative way to nourish yeast. The free-radical-combatting effects of **NATJJA™** guarantee a reduction in the oxidative stress suffered by the yeast and the preservation of the aromas and flavours released. This means that the finished wines better express their varietal aromatic potential (thiols) and fermentation capacity (fatty acid ethyl esters).

**SENSORY RESULTS: BLIND TASTING – Average of 5 tasters, scores from 0 to 10**



# The Perdomini product range



 = Products AUTHORIZED in the production of organic wines as required by Regulation (EU) N.2018/1584. They can be directly allowed or allowed if obtained from organic raw materials, if available (products indicated with \* / necessary request to Perdomini of specific declaration).

 = Product with BIO certification.



## OPTIMIZATION OF ALCOHOLIC FERMENTATION

### Activit

A fermentation activator, made up of ammonium salts, inactive yeast and thiamine. It generates organic and inorganic nitrogen and has a detoxifying effect, allowing the full aromatic expression of the yeast.

### Activit AD

Nutrient made up of organic and inorganic nitrogen (biammonic phosphate) and thiamine. Unlike conventional complex nutrients, the main organic base is an autolyzed yeast.

### Activit O

An alcoholic fermentation nutrient, 100% organic with added thiamine. When used in yeast inoculation and 1/3 of the way through fermentation, it generates greater production of fruity and floral aromas and reduces the production of sulphur.

### Activit Safe™

Activit Safe™ is a 100% organic nutrient to be used at the two-thirds stage of alcoholic fermentation. It's made from a yeast autolysate with a high aminic-nitrogen content and yeast cell walls which adsorb the inhibitory toxins that can accumulate during fermentation. Activit Safe™ allows the yeast populations to activate their sugar-consuming metabolisms and to limit the stress they suffer as a result of the accumulation of toxic substances.

### Aromactivit 1

100% organic nutrient. When used just after adding the yeast to the must, it leads to an increase in the aroma-creating metabolic activities of the yeast, stimulating in particular the expression of fruity and floral notes.

### Aromactivit 2

Composite nutrient which, when used 1/3 of the way through alcoholic fermentation, helps to increase and optimize the aroma-creating metabolic activities of the yeast.

### CellClean

100% *Saccharomyces cerevisiae* yeast hulls with high detoxifying power. CellClean yeast hulls absorb alcoholic fermentation inhibitors such as medium-chain fatty acids (hexanoic acid, octanoic acid and decanoic acid) and residue of plant protection products.

### Ecobiol

A special fermentation regulator and activator that generates both growth factors and survival factors associated with cellulose. Ideal for all fermentation situations.

### Ecobiol Blanc

A product derived from yeast hulls, rich in rapid-release parietal polysaccharides. When used during fermentation, it makes it possible to obtain more stable wine in terms of colour and flavour (softness and structure) and the bouquet in general.

### Ecobiol Perlage

A special regulator for secondary fermentation that generate ammoniacal nitrogen and amino-acid nitrogen. It does not contain inert material. It enables the yeast to express its aromatic potential in full. It does not generate sulphates.

### Ecobiol Pied de Cuve

Specially formulated fermentation regulator. When used during the rehydration of yeasts, it provides sterols and other vital components to aid yeast metabolism.

### Ecobiol Pied de Cuve Arom

Specially formulated fermentation regulator. When used during the rehydration of yeasts, it provides vital components allowing the yeast to fully express its potential for aromas and flavours.

### OEnocell

A special fermentation regulator for use in all situations. It makes must less cloudy, regulates fermentation and enhances the potential of yeast.

### Fosfo Vit

A yeast nutrient made up of phosphate and thiamine. It can also be used in the production of organic wine.

### Fosfo Vit+

A yeast nutrient made up of phosphate, cellulose and thiamine.

### Min Vit

A yeast nutrient made up of ammonium salts (sulphates and phosphates), thiamine and inert material.

### Natjja™

An organic nutrition supplement to improve and protect the health and wellbeing of winemaking yeast throughout alcoholic fermentation, leading to an enhancement in the expression of aromas and flavours. The inclusion of a specially selected fungal-origin chitosan with anti-free-radical effects and the zinc deriving from the yeast mean that NATJJA™ helps optimize the secondary metabolism of the yeast which reveals aromas and flavours, as well as ensuring successful alcoholic fermentation and protecting these aromas and flavours from oxidation.

### Natjja Fizz™

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## YEASTS FOR ALCOHOLIC FERMENTATION

### La Claire range

#### C58

For elegant and complex ageing red wines, where the main desired features are taste characteristics and primary and secondary aromas.

#### CGC62

For "important" white wines, where the aim is to exalt the olfactory impact in terms of intensity and complexity. For floral wines (white flowers) and fruity wines (citrus fruit in general and wild apple).

#### EM2

For "important" white wines or ageing white wines, where the aim is to exalt primary aromas, the typical character of the grape variety and the sensory complexity of the wine.

#### eXtase

Yeast isolated from Sauvignon Blanc grapes in the Bordeaux region. Distinguished by its ability to strongly enhance the strength of aromas – in particular citrusy notes, which provide a very pleasant sense of freshness on the nose and in the mouth. With adequate nitrogen-rich nutrition and low-temperature fermentation, La Claire eXtase facilitates the development of a fruity aromatic profile (esters/acetates), while at higher average temperatures it encourages the development of very intense thiol and citrus aromas.

#### eXtreme

*Saccharomyces cerevisiae* strain isolated in Napa Valley, California. Ideal for optimal management of the alcoholic fermentation of quality wines with a high alcohol content. Experiments carried out by IOC Group in cooperation with various research institutes on the synergy between yeasts and bacteria have shown it to be highly compatible with the co-inoculation procedure.

#### SP665

For red and white wines, especially recommended in prise de mousse to produce wine that reflects the typical characteristics of the area and the grape variety. For musts that are difficult to process in limited conditions (amarone, passiti etc.).

#### T73

For balanced young or new wines, rich in fragrances (red fruits), while respecting the typical colour of the grape variety.

#### Varietal Touch

A special yeast for wines with a strong varietal character, ideal for quality white wines. Thanks to its unique enzyme properties, La Claire Varietal Touch can reveal the varietal aromas present in the must.

#### VDP

For white wines with a strong aromatic character, used to enhance the aromatic and floral components. It is especially recommended for the prise de mousse of neutral or semi-aromatic wines.

### IOC (Institut Oenologique de Champagne) range

#### 18-2007

In Champagne, it is the most widely used strain in vinification and prise de mousse. It exalts the qualities of the variety and the *terroir* in the finest wines.

#### BIO

Certified ORGANIC yeast. For use when fermenting organically grown grapes. Enhances the natural goodness of the grapes and draws out the characteristics of their native *terroir*.

#### Fresh Rosé

Next-generation yeast that helps produce fresh, fruity rosé wines. Can be used when creating white and rosé wines to produce strong aromas and a long *shelf life*.

#### IOC Be Fresh

Yeast *Saccharomyces cerevisiae*. The result of an innovative yeast selection technology, IOC Be Fresh reveals the aromas linked to the freshness of fruitiness in red wines. IOC Be Fresh does not have the ability to produce SO<sub>2</sub> and allows to reduce the production of ethanal, a molecule that combines easily with sulfites. All these characteristics contribute to make IOC Be Fresh an excellent tool for the vinification of ripe grapes and to obtain healthy, clean red wines, which have a remarkable freshness flavours.

#### IOC Be Fruits

Yeast selected for its ability to draw out fruity esters (red berries, pineapple and citrus fruits) in white and rosé wines. Unable to produce SO<sub>2</sub>. Can reduce the formation of ethanal, a molecule that easily bonds with sulphites.

#### IOC Be Thiols

Yeast for use in wines with a wealth of fruity thiols. Ideal for producing salubrious, thiol-rich wines and at the same time keeping sulphite levels at a minimum.

#### IOC DynaMix

Complex blend of specially selected yeasts from different varieties of grape to draw out all the potential of the *terroir* with no risk. IOC DynaMix enhances the expression of microbial diversity and at the same time avoids the excessive standardization of wine which can come from uncontrolled fermentation. IOC DynaMix has been formulated specifically for red wines.

#### IOC Infini'TwICE

A combination of the strain contained in IOC TwICE™ and a second yeast with a strong capacity for fermentation, leading to the production of fresh, complex and balanced wines. This synergy makes it possible to extend the winemaking uses of the original strain, as the sensory package is enhanced: volume at the beginning, then notes of lemon, apricot and exotic fruits balancing out the volume and leaving a very pleasant feeling in the mouth. These characteristics make it ideal not only with Chardonnay grapes, but also other varieties such as Viognier, Grenache, Semillon, Vermentino, Airen and more.

#### Prime Rouge

A special yeast for the fermentation of young red wines. It makes it possible to obtain well-rounded wines with an aroma of red fruit. The resulting wines are characterised by their intense colour, a sharp aromatic intensity with reduced vegetal notes.

#### R9008

Thanks to its high production of polysaccharides and glycerol, this yeast is recommended for wines with a high alcoholic content or to obtain soft structured wines. It reduces the herbaceous sensation and aggressive tannins.

#### TwICE

A yeast selected for white wines with a strong character. It improves the varietal character, revealing white fruit (peach, pear and apricot) and citrus fruit (lemon).

### Lieviti per la Bioprotezione

da tradurre

#### Gaïa™

*Metschnikowia fructicola* yeast, which has no fermentation activity but can combat unwanted yeasts. Gaïa™ has been shown to be a useful tool in limiting pre-fermentation sulphitation.

#### Gaïa™ kit appassimento

Specially designed kit for the prevention and control of *Botrytis cinerea* on grapes chosen for drying in order to produce top-quality wines.

NEW

#### IOC Boreal

Pre-fermentation *Lachancea thermotolerans* yeast which takes sugars and turns them into L-lactic acid. To be used at least twenty-four hours before inoculating the chosen *Saccharomyces cerevisiae* strain for alcoholic fermentation. Also helps enhance the complexity of the flavours and bouquet in the wines produced.

NEW

#### IOC Calypso

A *Metschnikowia pulcherrima* yeast selected for its unique enzyme activity. When used at the pre-fermentation stages on white or rosé must – in particular when cold-macerating on the lees – it acts as an innovative bioprotection tool which helps enhance the sensory potential of the grapes. It limits browning in must and the oxidation reactions which can affect the more sensitive aromas and flavours.

### Blastosel range

#### Delice

Yeast strain selected for its ability to optimize the taste of red wines by releasing mannoproteins that help to improve in-the-mouth sensations and to reduce astringency. The sensory input of Blastosel Delice lies in the enhancement of notes of red berries, dark berries and spices.

#### Delta

Characterised by regular and rapid fermentation with cleaning, even in the most difficult situations. Resistant to high sugar and alcohol levels, medium-low nitrogen requirement.

#### FR95

For ready-to-drink white wines with a decisive fruity character, where the aim is to enrich the aromatic properties with aromas that are a perfect match for the natural endowment of the grape variety.

#### Grand Cru

For "important" red wines, in order to develop intense aromas (spicy and fruity in general). It does not produce sulphur aromas.

#### Horizon

This strain displays excellent fermentation activity and is perfect for use on both white and red musts to enhance varietal characteristics. Suitable for primary fermentation, as long as temperature and nutrition conditions are favourable.

#### Lambda

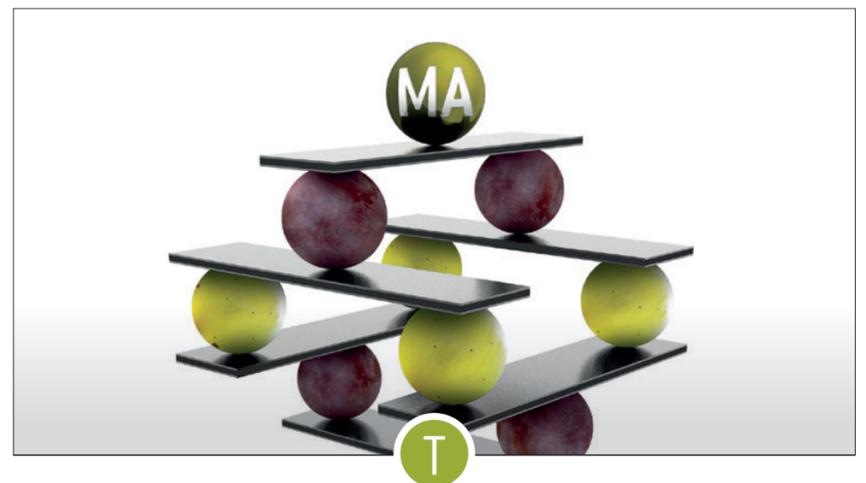
Characterised by regular fermentation speed, even at low temperatures.

#### P346

A yeast for the fermentation of aromatic white wines, excellent for the production of aromatic and fresh (citrus fruit, white flowers) *Charmat* sparkling wines. Guaranteed regular fermentation, even in conditions with low temperatures.

#### WhiteFeel

Yeast strain selected for its ability to enhance exotic-fruit and citrus-fruit aromas (pineapple, grapefruit) in white and rosé wines. Creates balance between roundness and freshness.



## TREATMENTS CONTAINING SELECTED YEAST DERIVATIVES

#### Ecobiol Rouge

A product derived from yeast hulls, rich in rapid-release parietal polysaccharides. When used during fermentation, it makes it possible to obtain more stable wine in terms of colour and flavour (softness and structure) and the bouquet in general.

#### Ecobiol SH

An alcoholic fermentation nutrient without ammonium salts, which only generates amino-acid nitrogen. It also reduces hints of sulphur that develop during alcoholic fermentation.

#### Fullprotect

This blend of tannins and yeast polysaccharides is effective thanks to the synergy between specific polysaccharides and tannins, which leads to effective preservation of colour, aromas and flavours in white and rosé wines. Performs a targeted action against oxidation at the pre-fermentation stages. Fullprotect is an effective alternative to using SO<sub>2</sub>.

#### Glutarom Extra

Nutrient packed with reduced glutathione (GSH). When added at the beginning of fermentation, it leads to the creation of a wine with a higher concentration of GSH, provided that the yeast is given enough organic nitrogen.

#### Netarom

An ageing adjuvant made with inactive yeast selected for its ability to absorb products responsible for the reduction taste.

#### Netarom Extra

An ageing adjuvant made with inactive yeast rich in copper, makes it possible to absorb products that cause reduction taste without adding copper to the wine.

#### ultiMA Fresh

A product made with special completely soluble mannoproteins. When added to the wine before bottling, it stabilises the softness ("sugariness") and aromatic persistence by increasing the overall freshness of the wine. It does not alter the filterability of the wine.

#### ultiMA Jump

Preparation made from 100%-soluble yeast mannoproteins which have been selected specially for their ability to improve white and rosé wines. UltiMA Jump is particularly effective at drawing out citrusy thiol notes, leading to intense freshness in the mouth. Our research has demonstrated the ability of UltiMA Jump to bring the structure of wines back into balance, reduce dryness and astringency, and increase the persistence of aromas and flavours.

#### ultiMA Ready Expression

Selected mannoprotein fractions in liquid form for instant activation and solubility in the wine to add a touch of freshness in terms of the balance of flavours. In red wines, this product is highly effective at reducing sourness and astringency, while in white wines it enhances sapidity.

#### ultiMA Ready Fizz

Selected mannoprotein fractions in liquid form for instant activation and solubility in the wine, leading to creamier bubbles. Provides significant help in attaining a finer perlage in sparkling wines produced using the *Charmat* method.

#### ultiMA Ready Life

Liquid preparation made from selected mannoproteins which interacts with the aromatic components of the wine. Increases the colloidal balance of the wine and increases both length in the mouth and "sugariness".

#### ultiMA Soft

A product made with special completely soluble mannoproteins. When added to the wine before bottling, it stabilises the softness ("sugariness") and aromatic persistence by increasing salinity and roundness and decreasing acidic edges. It does not alter the filterability of the wine.

# E

## ENZYMES

### Eno&Zymes range

#### AromColor

Pectolytic enzyme in granule form, for use when macerating red-wine grapes. Boosts the breakdown of the polysaccharides, tannins and aroma precursors contained in the skins. Moreover, thanks to its special formulation, it frees aroma precursors right from the fermentation stage.

#### AromPress

A granular pectolytic enzyme for skin maceration for aromatic white wines. It is conducive to aromatic extraction and expression.

#### ClearSpeed

A granular pectolytic enzyme to accelerate the clarification of white must, thereby guaranteeing fresher, fruitier aromas.

#### EnzyFlow

A granular pectolytic/ $\beta$ -glucanase enzyme, one of a kind, with supplementary action to improve the filterability of must and wine.

#### EvolutionPlus

A granular pectolytic/ $\beta$ -glucanase enzyme for the ageing of white and red wines. It improves the overall sensory profile (taste and aromas) of the wine.

#### Process Extreme

In granule form, for clarifying or macerating troublesome base materials. Thanks to its formula, it is active even at low pH and in difficult conditions in general. Suitable for working on sparkling-wine bases or not-fully-ripe grapes.

#### SweetPress

A granular pectolytic enzyme for the skin maceration of white grapes. It is conducive to aromatic extraction.

#### TrueColor

A granular pectolytic enzyme for maceration of red grapes. It is conducive to the breakup of tannins, polysaccharides and aromatic precursors contained in the skin.

### Zimopec range

#### 2 Flotoflash

Flotoflash 2 is a product developed for flotation in the most difficult cases. It has a high pectolytic activity that breaks down pectins and assists the formation and growth of floccules that are easier to separate. The advantages deriving from the use of Zimopec Flotoflash 2 are a reduction in the pre-flotation dwell time, a reduction in the use of clarifiers and better growth of floccules, which is reflected in better clarification.

#### Clear Flash

A liquid enzyme for the clarification of white wines. The formula makes it possible to obtain clear must in rapid time and at low temperatures.

#### Color Flash

A liquid enzyme for extraction and stabilisation during red maceration.

#### Flotoflash

A liquid enzyme for continuous and discontinuous flotation. The formula makes it possible to obtain clear must in rapid time and at low temperatures.

#### P110L

A liquid enzyme formula for the rapid clarification of white must. The formula makes it possible to obtain clear must in rapid time.

#### PML

A liquid enzyme formula for the pre-fermentation maceration of white grape varieties. It is conducive to the release of aromatic precursors. It increases the yield of flower must.

#### Press Flash

A liquid enzyme for the skin maceration of white grapes.

#### PX5

A solid enzyme formula for optimising the extraction of precursors and polyphenols from red grape varieties. It improves the sensory profile.

#### PXL-09

A liquid enzyme formula for extraction from red grape skins. It improves the overall quality and the production processes.



# S

## MICROBIOLOGICAL STABILIZATION

### OxyLess range

#### OxyLess M

A special antioxidant for red and white musts. It protects the aromatic properties obtained at the end of alcoholic fermentation. It is rich in glutathione and antioxidant amino acids.

#### OxyLess U

A special antioxidant for red and white grapes. It prevents browning and oxidation of the must aromas.

#### OxyLess V

A special antioxidant for red and white wines. It protects against oxidation and stabilises the anthocyanin fraction still unstable during wine racking processes.



## VINIFICATION AND FINING

#### Bent'Up

Bent'Up is a sodium bentonite clay particularly recommended for flotation with excellent clarification properties. It displays the ability to adsorb proteins and effectively removes unstable protein particles, oxidase enzyme compounds (polyphenol oxidase) and phenol-based particles. In white wines, its capacity to eliminate heat-sensitive proteins avoids the onset of clouding. Strongly recommended for use when the wine has been treated with carbon, as it can remove any residual particles still suspended in the wine.

#### Clear GT F

Clarifier formulated using PVPP, non-animal-origin protein and silica gel for rapid, high-performance flotation.

#### Clear GT R

Product containing non-animal-origin protein, selected yeast hulls and silica gel for phenol clarification during fermentation leading to greater softness in the mouth.

#### Clear GT W

Clarifier formulated using PVPP, non-animal-origin protein and bentonite for the synergistic removal of unstable proteins and oxidizable phenols.

#### Cristalline Liquid

High quality liquid isinglass, stabilised and ready to use.

#### Cristalline Plus

Isinglass derived from swim bladder. A natural clarifying agent with high molecular weight and incomparable brightening power.

#### Easy'Up

Liquid additive made from vegetable charcoal, pea protein and bentonite clay designed for use in flotation. Easy'Up performs a powerful action on browned/oxidized must, helps reduce the quantity of oxidized and oxidizable phenol compounds, facilitates clarification and helps create a more compact flotation cap.

#### Fyneo

Protein-rich yeast extract which provides a powerful clarifying action and aid to rapid sedimentation. It fines the wines by eliminating any hard or bitter sensations, yet preserves the desirable sensory characteristics.

#### Inobent Nat

Non-activated bentonite clay for use as a fining agent in must and wine. In granular form for ease of use. Inobent Nat displays excellent declouding properties as it ensures optimal lees sedimentation. Inobent Nat interacts with proteins to provide optimal protein stabilization in white and rosé wines.

#### Inofine V Mes

Liquid additive made from pea protein, for performing fining or flotation on must. Recommended as a preventive treatment for musts at high risk of oxidation, Inofine V Mes significantly increases resistance to oxidation, enhances sensory properties, reduces bitter tastes and eliminates vegetal or grassy notes from wines subject to oxidative browning.

#### LumyClean Plus

Stabilizer used to eliminate oxidized and oxidizable polyphenols from must and wine. When making white and red wines, it can be used both as a preventive and curative treatment in order to prevent oxidative degradation or to 'rejuvenate' oxidized wines. Lumyclean Plus also enhances the longevity of wines and significantly improves their colour when it has been affected by oxidation. Lumyclean Plus is also effective at reducing the riboflavin content of white and rosé wines, helping the winemaker avoid the so-called 'light-struck taste' phenomenon.

#### MetalClean

Insoluble polyvinylimidazole and polyvinylpyrrolidone (PVI/PVP) co-polymers and chitosan derived from *Aspergillus niger*. MetalClean exploits the synergistic capacity of its components to adsorb metals such as copper, iron, lead and aluminium. MetalClean's metal-removing action creates an optimal environment for starting off and regulating alcoholic fermentation, while lessening any tendency to oxidation or *pinking*.

#### P-Cell

Compound clarifying and stabilising agent (PVPP, activated bentonites and alpha-cellulosic fibres) ideal for use in fermentation.

NEW

#### Phenox-free

PVPP in combination with specially selected deactivated yeasts, leading to a reduction in the amount of PVPP used. This product is more natural than unadulterated PVPP, yet produces comparable or even superior results than those achieved using pure PVPP, in terms of colour enhancement, preservation of aromas and flavours, and mouthfeel (less bitterness). When used as a preventive treatment on white and rosé musts, Phenox-free allows winemakers to craft wines that are less susceptible to oxidation and have notably improved roundness, thanks to the deactivated yeast cells.

#### PK SOL M

A product for the clarification of red, white and rosé wines, allergen free. The latest-generation formula made up with chitin polysaccharides. Excellent brightening and subtractive power towards the oxidised and oxidisable polyphenolic fraction.

#### Qi Fine

Hi-tech additive composed of non-animal-origin polysaccharides (chitin derivatives and pea protein), very effective in stimulating rapid flocculation in red wines. Perfect for eliminating phenolic compounds, Qi Fine is an excellent natural, biodegradable, allergen-free, animal-product-free solution.

#### Qi Fine Mes

Liquid additive made from fungal-origin chitosan and pea protein, for performing fining or flotation on white and rosé must. Thanks to the synergistic action of its components, Qi Fine Mes leads to quicker, more effective flocculation and sedimentation. Perfect for use in flotation, as it's easy to use and leads to swift detachment of solid particles from the liquid interface.

#### Qi No[Ox]

A clarifying agent and stabiliser for wines and musts, an alternative to casein, the first non-allergenic and biodegradable formula that does not contain products of animal origin or synthetic products.

#### Qi Trapping

A unique and innovative technological adjuvant, allergen free, consisting of polysaccharides derived from chitin and yeast derivatives, which makes it possible to reduce the concentration of unwanted heavy metals.

#### Qi Up-XC

Powder clarifier for flotation procedures in white, rosé and red musts. Qi Up-XC is an innovative flotation additive: natural, biodegradable, allergen-free and free from animal products. Made of biopolymers from chitin derivatives with an elevated surface charge affecting the pH of the wine, it enhances performances in the process in which the solid particles separate from the liquid through the rapid formation of flocs; these bond to the micro gas bubbles, become less dense and float to the surface.

#### Qi Up XC Mes

Liquid additive made from chitosan, for performing fining or flotation on white and rosé must. This product is distinguished by its high surface density charge at the pH of the wine. This property gives it a high level of affinity and reactivity to suspended particles, which means that it produces rapid flocculation.

## TREATMENTS TO CORRECT SPECIFIC DEFECTS

**Absolute MV** 

This product selectively reduces pesticide content. For use during alcoholic fermentation or during clarification of the wine. Can be used on both red and white wines.

**Absolute SP** 

Blend of yeast hulls from various strains of *S. cerevisiae*. Ideal for reducing pesticide residues, which can potentially inhibit alcoholic fermentation or bubble production. Absolute SP is recommended for use in base wines destined to become sparkling wines.

**Carbo F** 

Special vegetable carbon with intense decolourizing power. During production, Carbo F undergoes a chemical-physical activation process that increases its efficacy, as it gives the carbon extra reactivity. Carbo F is highly porous, making it perform extremely well in winemaking, as the contact surface between the carbon and the must/wine is exceptionally large. The low doses required allow the wine to preserve its whole bouquet of aromas.

**Carbo Grané** 

Carbo Grané is a carbon in pellet form with an exceptional decolourizing ability. The chemical activation process leads to extremely porous particles which can adsorb various different types of molecules, depending on their size. The careful selection of ingredients is a guarantee of the quality of Carbo Grané, and of a total absence of unwanted by-products, such as metals or odours foreign to the treated product.

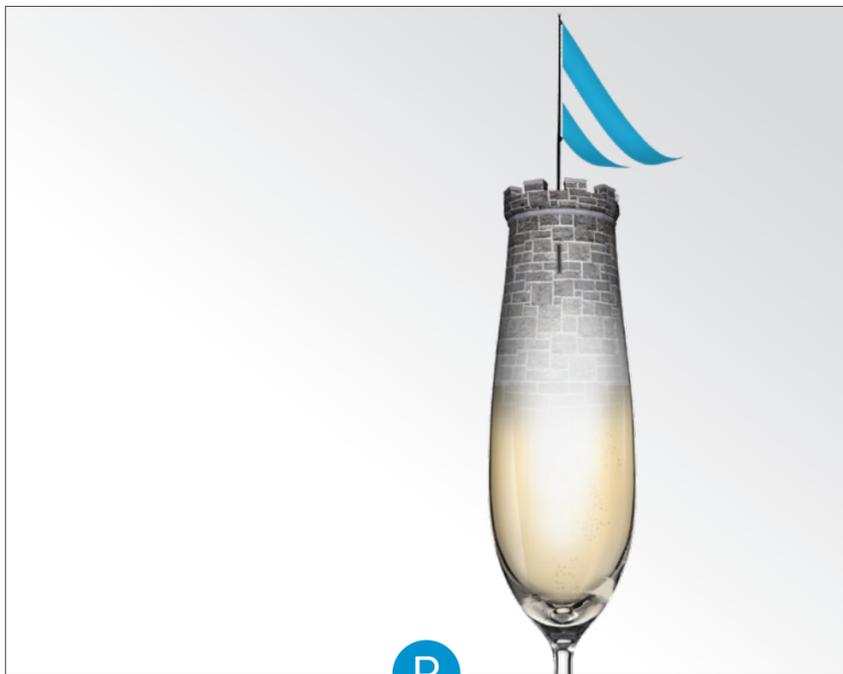
**Lumyclean Rex** 

Blend of a special activated vegetable charcoal – selected for its high level of purity – and silica gel. Effective at very low doses and with short contact times, Lumyclean Rex is a special treatment for white and rosé wines that helps winemakers avoid the so-called ‘light-struck’ taste’ caused by the photoreduction of riboflavin (a photosensitive molecule) following exposure to natural or artificial light when the wine has been bottled in colourless glass. If the correct dosages are used, Lumyclean Rex does not alter the colour of rosé wines.

**Qi Smoke™** 

A formula composed of fungal-origin chitosan and charcoal for winemaking use, Qi SMOKE™ has been specially developed to eliminate the smell of smoke from wines produced using grapes exposed to forest fires. The combined effects of the adsorption performed by the charcoal and the chitosan's unique ability to capture and flocculate particles mean that the molecules responsible for the smell of smoke (cresol and guaiacol compounds) are effectively eliminated.

NEW



B

## BACTERIA FOR MALOLACTIC FERMENTATION

**Extraflore Pure Fruit** 

*Oenococcus oeni* for direct inoculation to give purity of the fruity notes and for the control of malolactic fermentation in difficult conditions. Oenological selected bacteria, vigorous in difficult conditions (high alcohol, high acidity or reduced quantity of malic acid or low temperatures). Suitable for very different types and origins of wine, it can be added directly into the must or wine. Extraflore Pure Fruit favours the purity of the fruity profile of the grapes and helps to reach roundness.

**IOC Extraflore** 

Direct inoculation bacteria (MBR). They increase spicy and fruity notes and the sensation of roundness and volume. They are ideal when used in the post-alcoholic fermentation inoculation technique and are suitable above all for red wines.

**IOC Inobacter** 

Long preparation bacteria (Standard). They are suitable for all oenological situations, thanks to low production of diacetyl, and exalt the varietal notes of the wine. They are suitable for the preparation of sparkling bases with the traditional method or wines with “difficult” oenological conditions.

**IOC Inoflore** 

Direct inoculation bacteria (MBR). They increase fruity and floral notes, resulting in minimum production of diacetyl (“butter”). They are ideal when used in the yeast/bacteria co-inoculation technique and are suitable for white, red and rosé wines.

**IOC Maxiflore Elite**

Rapid preparation bacteria (1-Step). They increase fruity notes and the sensation of body and volume in the mouth. They are suitable for large volumes in red and white wine vinification processes.

**IOC Maxiflore Satine**

Rapid preparation bacteria (1-Step). They increase fruity notes with low production of diacetyl. They are extremely resistant to high alcohol content and are suitable above all for red wine vinification processes.

**IOC Sentinel**

Innovative, totally allergen-free and GMO-free product for keeping bacteria under control both before and after malolactic fermentation.

**Nutriflore FML**

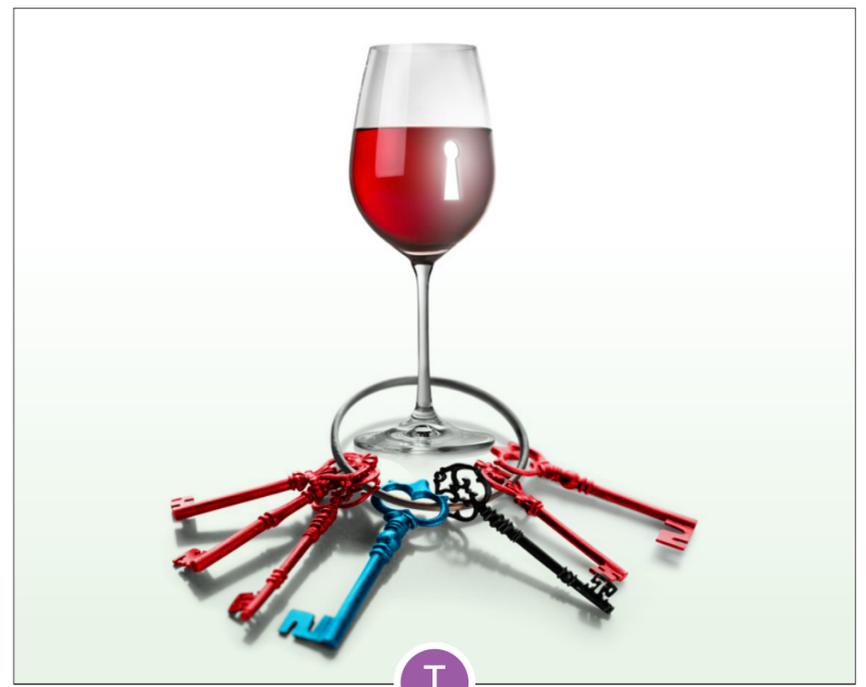
A malolactic fermentation regulator and activator. It adds essential nutrients to allow bacteria to carry out optimum malolactic fermentation, along with fundamental supports for rapid fermentation.

**Nutriflore PDC**

A special nutrient for the rehydration of malolactic bacteria. It is especially recommended when there are difficult alcoholic fermentation conditions.

**Zimopec Ovolys**

A pure hen egg white derivative. It acts against gram+ bacteria (lactic bacteria). It has no effect against acetic bacteria and yeast.



T

## TANNINS

**Bouquet B49**

A tannin for white and rosé musts, with a small fraction derived from yeast rich in glutathione. It is ideal for obtaining wines with a fruity, exotic character, and is a powerful antioxidant.

**Cromofix SR** 

An oenological tannin for colour stabilisation in red wines. The chemical nature of the tannin in Cromofix is extremely similar to the condensed tannins in grapes.

**Cromox** 

A tannin derived from a blend of proanthocyanidic tannins and gallotannins. Cromox has pronounced antioxidant and stabilising action of the colouring part.

**Essential AntiOxidant** 

Gall nut tannin with an excellent an-tioxidant power. It inhibits the enzymatic activity responsible for the oxidation of musts coming from harvests affected by *Botrytis*. Extremely pure tannin very rich in polyphenols. At the recommended dosages it does not bring bitter or astringent notes.

**Essential PEL** 

A proanthocyanidic tannin derived from white grape skins. It improves the structure, body and softness of the wine. It exalts the primary aromas of the wine by increasing its intensity without affecting its sensory profile.

**Essential PEP** 

A grape seed tannin, ideal for obtaining protein stabilisation and colour stabilisation, and for improving the structure of the wine (ideal if used in conjunction with micro-oxygenation).

**FullColor** 

Blend of proanthocyanidins, ellagic tannins and polysaccharides (yeast-derived) to use in the fermentation of red-wine grapes. Aids colour stabilization and enhances flavours.

**Gallotan** 

It can be used as an adjuvant in clarification operations and is an excellent antioxidant whose action is enhanced when used with sulphur. It protects aromatic substances against oxidation and is essential for treating must infected by *Botrytis*.

**Mann Bouquet B19**

A product for white and rosé musts, made up with tannins and yeast derivative rich in polysaccharides and glutathione. It adds notes of flowers and white fruit. It is an excellent antioxidant.

**Mann Bouquet R16** 

A product for red musts, made up with tannins and yeast derivative rich in polysaccharides. It adds complexity and notes of spice and black fruit (currant), and contributes to colour stabilisation.

**Privilège Duo** 

Oakwood tannin preparation designed especially for use in malolactic fermentation in tandem with Maxiflore Satine, 48h before inoculation. The synergy between Privilège Duo and Maxiflore Satine boosts the production of aroma precursors which increase sensory hints of woodiness (vanilla).

**Tan FlavourFF** 

A proanthocyanidic tannin for white and red vinification processes, rich in flavonoids and aromatic precursors.

**Tanifase Elevage** 

A pure ellagic tannin. The quality of the obtainable results reflects the careful selection of raw materials. It is ideal for eliminating sulphur proteins, preventing oxidation and improving the sensory profile of every wine.

**Tanin Bouquet B45** 

A citrus tannin for white and rosé musts, which expresses citrus notes, together with effective antioxidant action.

**Tanin Bouquet R36** 

A cherry tannin for red and rosé musts, which expresses notes of red fruit and stabilises the colour.

**Tanin SR** 

A pure quebracho tannin for colour stabilisation.

**Tanin TC** 

A pure ellagic chestnut tannin characterised by the absence of bitterness and high chemical reactivity.

**Volutan** 

A 100% liquid grape tannin. Thanks to its original extraction method, it is 100% soluble without any precipitation. It is derived solely from white grapes. It is used in colour stabilisation and to generate softness in wine.





## To avoid any kind of malnutrition... choose the menu that goes down best with your yeast!

Using yeast nutrients has become common practice and is considered essential by many in the winemaking industry to get the best sensory and technical characteristics out of the yeasts. Experience shows that malnourished yeasts not only fail to express the full potential of the

characteristics the winemaker wants to give the wine, but also often trigger unwanted processes (production of off-flavours, acetaldehyde, etc.) so that they constitute a loss in terms of both the exploitation of the yeasts themselves and the value of the finished product. With this in mind, it's

not difficult to see how important it is to choose the right nutrient(s) to optimize the performance of the inoculated yeasts. Numerous studies have shown that the kind of nutrition used leads to greater sensory differences in the wine than the strain of yeast!

Composition		Source of nitrogen		Amount of yeast assimilable nitrogen (mg/L) provided by dose of 40 g/hL		Ammoniacal nitrogen		Factors provided by yeast				Other	
		Organic nitrogen	Mineral nitrogen	Direct calculation	Theoretical calculation	Phosphates	Sulphates	Amino acids	Sterols and lipids	Minerals	Vitamins	Added thiamine	Cellulose
Yeast protectors	Ecobiol pied de cuve			na	na			na	•••	••••	••••		
	Ecobiol pied de cuve Arom			na	na			na	••••••	•••	••••		
Stimulation of sensory metabolism	Natija™ *	•••••		13	35			•••••	•	•••••	••••		
	Natija Fizz™ *	•••••		13	35			•••••	•	•••••	••••		
Organic nutrients	Activit O	••••••		17	45			••••••	•	•••	•••	•••	
	Extra PM	••••		12	31			••••	•	•••	•••		
	Activit Safe™	•••		8	20			•••	••	••	••		
Mixed nutrients	Activit	••	•••	52	53	x		•		••	••	••	
	Activit AD	••••	•••	57	68	x		••		••	••	••	
	Ecobiol	••	•••	48	56	x	x	•		••	••		••
	Ecobiol Perlage	•••	••	36	42	x		••		••	••		
Detoxifiers	Cellclean			na	na			na	••	••	••		
Simple nutrients (minerals)	Fosfovit		•••••	84	84	x						•••	
	Fosfovit +		••••	76	76	x						•••••	•
	MinVit		••••	76	76	x	x					•••	•
	Phosphate Titres		••••	84	84	ok						•••••	

\* Contiene chitosano specifico per effetto antiradicalico.

da tradurre



## IOC oenological bacteria: to satisfy your senses.

In order not to compromise all the work done during the grape harvest and to complete the yeast action, IOC oenological bacteria are at the top of the range

in winemaking applications. They make it possible to control processes by guaranteeing linearity in the desired taste-sensory characteristics of the wine. In the world of

modern winemaking, being able to provide a fully linear product for a harvest season is a significant commercial strength and an additional guarantee for your buyers.

Sensory and technical features

Winemaking applications

Product type	IOC Inoflore	IOC Extraflore	IOC Maxiflore Satin	IOC Maxiflore Elite	IOC Inobacter	Extraflore Pure Fruit
	MBR (direct inoculation)	MBR (direct inoculation)	1-Step starter culture	1-Step starter culture	Standard (Pied de cuve)	MBR (direct inoculation)
Ease of use	••••	••••	•••	•••	••	••••
Co-inoculation	••••	••	••••	••	•	••••
Sequential inoculation	••	••••	••••	••••	••••	••••
Application parameters	Alcol 14%	Alcol 14%	Alcol 16%	Alcol 15,5%	Alcol 13,5%	Alcol 16,5%
	pH > 3,25	pH > 3,15	pH > 3,25	pH > 3,10	pH > 2,90	pH > 3,10
	SO <sub>2</sub> tot < 60 mg/l	SO <sub>2</sub> tot < 40 mg/l	SO <sub>2</sub> tot < 60 mg/l	SO <sub>2</sub> tot < 60 mg/l	SO <sub>2</sub> tot < 60 mg/l	SO <sub>2</sub> tot < 50 mg/l
	Temp > 18°C	Temp > 18°C	Temp > 18°C	Temp > 18°C	Temp > 16°C	Temp > 15°C
Polyphenol resistance	••	••	••••	••	-	••••
Aromatic complexity	••••	••••	••	••••	•••	•••
Diacetyl	None if in co-inoculation	Average	Very low	Important	Very low	Very low
Spicy	•	••••	••	••••	••••	•
Fruity	••••	••	•••	••	•••	••••
Roundness	••	•••	••••	•••	•••	•••
White wines	••••	••	••	••••	••••	••
Red wines	••••	••••	••••	••••	••	••••
Rosé wines	••	•	•	•	••	••
New wine	••••	•	•	•	••	••••
Sparkling wine base	•	•	•	•	••••	•