ADVANCED WINEMAKING SOLUTIONS
OENOBOOK N°6
OENOBOOK N°6

OUR COMPANY
Oenobrands, about us ........................................................................................................... 6
Our production sites and logistics center ........................................................................... 7
Our distribution network .................................................................................................... 8
Team presentation ................................................................................................................ 10

IN THE SPOTLIGHT: FERMIVIN
A renewed and rejuvenated range of yeast, Fermivin® ...................................................... 14
Data sheets presentation

CATALOG
Rapidase® enzymes ........................................................................................................... 18
The new liquid enzyme Rapidase Fast Color
Anchor® Yeast .................................................................................................................. 22
Two new yeast blends for red winemaking: Alchemy III and Alchemy IV
Focus on Anchor WE 372, new data
Anchor Co-Inoculant bacteria and the new Co-Inoculant bacteria 3.2
Fermivin yeasts, presentation of the range ...................................................................... 32
Fermivin yeasts, new solutions for rosé, white and red wines
In-Line Ready®, dual technology for yeast addition ....................................................... 36
Natufem®, Maxaferm® and Extraferm®: dedicated winemaking aids ............................. 38
Extraferm, unique and highly adsorbent yeast hulls
Claristar®, stabilization mannoprotein ............................................................................ 42
Final touch®, mannoprotein solutions for wine perfection ............................................. 45

PRACTICAL WINEMAKING
Protocol to restart a stuck fermentation with Extraferm and Fermivin CHAMPION ....... 48
Protocol for the fermentation of high sugar must to produce smooth fruity red wines with Anchor NT 50 ................................................................. 50
The impact of Rapidase Extra Color on red wines quality ............................................ 52

MOBILE TECHNOLOGY
Oenotools® and Oenotools® Blends: the tools for winemakers ................................... 56
Share your experience with us on our websites! .............................................................. 57

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Oenobrands designs and markets oenological products. Its permanent innovation strategy allows the creation of solutions that provide an integrated answer for the ambitions and desires of winemakers, wine traders and consumers.

It is with a strong belief in the future of the industry and dealing with the current changes that Oenobrands, supported by its world renowned parent companies (DSM Food Specialties and Anchor BioTechnologies) develops a range of oenological products including enzymes, yeasts, yeast-derived products and bacteria. With a highly qualified team, expert in many fields, Oenobrands strives to offer winemakers with novel and scientifically sound solutions.

**OUR MISSION**

Oenobrands distributes on five continents through a specialized distribution network its famous brands.

**OUR MOTHER COMPANIES**

**Anchor BioTechnologies**

Anchor BioTechnologies is a division of Anchor Yeast which has been South Africa’s first yeast company since 1923. Anchor Yeast has remained the leader in the supply of yeast, dough raising and fermentation technology to the consumer, bakery, wine and alcohol businesses in Southern Africa. The Company has a talented workforce of 400 people, state of the art production facilities and its own network of national distribution. Anchor Yeast has built its leadership position through a strong, competent Management team that has maintained market focused Business Units, an ongoing commitment to building brands, application of technology and high levels of customer service. More information on [www.anchor.co.za](http://www.anchor.co.za).

**DSM Food Specialties**

DSM Food Specialties is a leading producer of value-added ingredient solutions for the international food and beverage industries, contributing in a major way to the success of the world’s favorite dairy, processed food, fruit juice, alcoholic beverage and functional food brands. DSM Food Specialties’ commitment to reliable and traceable products which meet today’s stringent safety and sustainability requirements is represented by its mark of excellence in nutrition: Quality for Life™. With 1,400 employees active in 25 locations worldwide, DSM Food Specialties is a true global player. More information about DSM Food Specialties can be found at [www.dsm-foodspecialties.com](http://www.dsm-foodspecialties.com) and [www.qualityforlife.com](http://www.qualityforlife.com).

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**OUR PRODUCTION SITES AND LOGISTICS CENTER**

**FRANCE**
- RAPIDASE
- ISO 9001: 2008
- FSSC 22000
- BRC

**ESTONIA**
- MAXAFERM
- ISO 9001: 2008
- FSSC 22000

**SOUTH AFRICA**
- ANCHOR WINE YEAST
- ISO 9001: 2008
- FSSC 22000

**THE NETHERLANDS**
- NATUFERM
- ISO 9001: 2008
- FSSC 22000

**DENMARK**
- FERMIN, EXTRAFERM, CLARISTAR, FINAL TOUCH
- ISO 9001: 2008
- FSSC 22000
- BRC
- IFS
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Winemakers throughout the world have been putting their trust in Fermivin® yeasts since the 1970’s. These yeasts can be used to produce all styles of wine, meeting market and consumer demands.

Indeed, three founding strains were selected in the 70’s in co-operation between Gist-brocades and French Institute of Agricultural Research (INRA) and produced as Instant Dry Yeast: Fermivin 7013, Fermichamp 67J and Fermirouge 7303. New selections were then added to form a complete “family” of yeast strains adapted to different winemaking conditions. In the late 90’s, the ranges Fermicru® and Collection Cépage® were created, while at the same time Gist-brocades merged with the Dutch multinational DSM.

Oenobrands was founded in 2010 with the aim to further develop and consolidate this wine yeast portfolio based on science and marketing. Proud of this heritage and capitalizing an experience of more than 40 years, Oenobrands continues to develop new fermentation solutions and is now offering all its instant dry wine yeasts under the brand Fermivin®.

The Fermivin range has been selected and will continue to be developed by combining Oenobrands knowledge and experience with winemaking tradition and with the expertise of world renowned institutes. Several selections came from famous French vineyards - Champagne, Alsace, Loire Valley, Burgundy, Languedoc-Roussillon and Corsica - and others from the South American vineyards in Chile.

All Fermivin strains share common benefits with their ability to complete fermentation, efficient aroma conversion, minimal foam, low production of volatile acidity and the absence of unpleasant tastes. They are cultivated, dried and checked in our yeast factories to ensure their authenticity, high performance and quality.

Oenobrands is now proud to launch a totally renewed Fermivin range with the motto “PROUD HISTORY - BRIGHT FUTURE”. Fermivin yeasts have been used for the past 40 years and have a promising bright future, we have illustrated this motto with a spiral. This spiral is the idea of a continuous power, infinity, that brings the products from the past to the light of the future. It also reflects a force going forward, a whirlwind that has been formed around them and emphasizes the confidence given by this range.

The product names are codes corresponding to the main feature of the strain and the strain numbers. Bright colored labels bring out the product names to be easily recognized.
Created in 1922 in the city of Seclin, in the North of France, Rapidase® has since proved its usefulness in speeding up industrial processes. Rapidase was the first and is today the most recognized brand of enzyme for winemaking applications.

To offer the best efficiency in application each Rapidase formulation is developed and tested with the world’s most renowned wine research institutes and validated in wineries at production scale. Our technical and sales staff are available to provide you with tests results, as well as assist you in evaluating the product’s premium performances in your specific conditions.

### Rapidase® fast and efficient enzymes

<table>
<thead>
<tr>
<th>Application</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RAPIDASE® Expression Aroma</strong></td>
<td>Aroma precursor extraction in white grapes</td>
</tr>
<tr>
<td><strong>RAPIDASE® Extra Press</strong></td>
<td>Efficient grape pressing</td>
</tr>
<tr>
<td><strong>RAPIDASE® Clear</strong></td>
<td>Clarification of grape must</td>
</tr>
<tr>
<td><strong>RAPIDASE® Clear Extreme</strong></td>
<td>Complete clarification in difficult conditions</td>
</tr>
<tr>
<td><strong>RAPIDASE® Flotation</strong></td>
<td>Grape must flotation</td>
</tr>
<tr>
<td><strong>RAPIDASE® Thermoflash</strong></td>
<td>Depectinization of thermo treated grape musts</td>
</tr>
<tr>
<td><strong>RAPIDASE® Rosé</strong></td>
<td>Processing of aromatic rosé wines</td>
</tr>
<tr>
<td><strong>RAPIDASE® Fast Color</strong></td>
<td>Fast color and polyphenol extraction in short maceration processes</td>
</tr>
<tr>
<td><strong>RAPIDASE® Extra Fruit</strong></td>
<td>Aroma precursor extraction in red grapes</td>
</tr>
<tr>
<td><strong>RAPIDASE® Extra Color</strong></td>
<td>Color and polyphenol extraction in quality maceration</td>
</tr>
<tr>
<td><strong>RAPIDASE® Batonnage</strong></td>
<td>Release of molecules contributing to mouthfeel</td>
</tr>
<tr>
<td><strong>RAPIDASE® Revelation Aroma</strong></td>
<td>Varietal aroma revelation</td>
</tr>
</tbody>
</table>

### Principal activities

- Pectinases (main chain)
- β-glucanase
- β-glucosidase
- Pectinases (side chains)
- Rhamnogalacturonase
- Arabinosidases, Rhamnosidases, Apiosidases

### Secondary activities

- Hemi-cellulases
- Pectinase (side chains)
- Rhamnogalacturonase
- Arabinosidases, Rhamnosidases, Apiosidases

### Liquid/granulate

- **G**
- **L**
- **G/L**
- **L/G**
- **L/L**

### Packaging

- **100 g**
- **1 kg**
- **20 kg**
- **5 kg**

### Principal activities

- **✓**
- **✓**
- **✓**
- **✓**
- **✓**

### Secondary activities

- **✓**
- **✓**
- **✓**
- **✓**
- **✓**

Peace of mind comes with DSM enzymes

Rapidase enzymes are made by DSM, one of the very few global market leaders in food enzymes. DSM enjoys the longest history in producing winemaking enzymes and commits to its reliability through its Quality for life™ program. This commitment assures you that any DSM ingredient you buy is safe in terms of quality, reliability, reproducibility and traceability but also is manufactured in a safe and sustainable way. Any product specification, Material Safety Data Sheet, allergen and non-GMO, manufacturer certificates are available upon request.
RAPIDASE® FAST COLOR:
NEW LIQUID ENZYME FOR SHORT MACERATION PROCESSES OF RED GRAPE

Always attentive to market needs, the Oenobrands team drafted a questionnaire to be submitted to the winemakers of leading wineries worldwide processing red grapes. The intention was to learn about and understand the needs of winemakers for red winemaking.

In response to needs that emerged from this survey, Oenobrands is now presenting a specific new liquid enzyme formulation for short maceration processes with a high capacity for color extraction. Rapidase Fast Color enzyme shows high overall pectolytic activity with secondary cellulase and hemicellulase activities specifically for rapid maceration.

Thanks to its special formula, the enzyme is able to complete full red maceration in a few days, obtaining wines that will be better equipped to enter the subsequent stages of draining, pressing and settling.

Like all enzymes in the Rapidase range produced by DSM, Fast Color is highly active, has been thoroughly tested and validated and is designed to deliver a specific benefit in winemaking while offering all the guarantees of quality.

Rapidase Fast Color was developed through preliminary tests conducted at research institutes (INRA Pech Rouge in France and Fondazione Edmund Mach di San Michele all’Adige in Italy) followed by intensive winery trials.

In all winery tests, when compared with a control sample not treated with the enzyme, Rapidase Fast Color made it possible to bring forward racking by one to three days, depending on the grape variety and type of maceration. On average, macerations of eight days can be reduced to six, obtaining the same levels of anthocyanins and polyphenols.

Figure 1 shows the data for hue and color intensity obtained during trials in a medium-sized winery in Puglia (Italy), whereas the treated wine was racked a day earlier than the control sample.

In Figure 2, we compare the total anthocyanin and polyphenol concentrations after the first racking. Again, in this case, the wine obtained with the enzyme addition required one day less of maceration.

In Figure 3, we show the values of total anthocyanins found after the first day of maceration of Barbera variety in a large winery in northern Italy. In this particular case, the maceration time without enzymes was ten days; whereas only five days were needed in the tank treated with 2 g/hl of Rapidase Fast Color to have an equivalent extraction.

Oenobrands is now offering a new tool, Rapidase Fast Color, to winemakers who have limited maceration tank capacity and need to achieve intense extraction within short maceration times. This new, easy-to-use enzyme will make it possible to reduce maceration time, with pumping over and punching-down, while increasing the concentration of anthocyanins and tannins. In addition, draining and pressing are easier, the wines are more colored and the successive stages of decanting and racking are more efficient.
## Anchor Yeasts Positioning

### WHITE WINE YEAST STRAINS

<table>
<thead>
<tr>
<th>Yeast</th>
<th>Positioning</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Iconic white wines</strong></td>
<td>Produces exotic fruit notes - stone fruit (peach, apricot), thiol, floral, litchi</td>
<td>Good for barrel fermentations, temperature sensitive, Good mouthfeel, Fructophilic</td>
</tr>
<tr>
<td><strong>Very high ester producer</strong></td>
<td>Fruity and floral esters</td>
<td>Complex white wines, Scientifically formulated for optimum aromatic profiles</td>
</tr>
<tr>
<td><strong>RELEASE AND CONVERTER OF THIOLS</strong></td>
<td>Thiol releaser and converter - granadilla, guava</td>
<td>For NZ style Sauvignon blanc, Scientifically formulated for optimum aromatic profiles</td>
</tr>
<tr>
<td><strong>Barrel fermented, complex and aromatic white wines</strong></td>
<td>Floral and citrus notes in Viognier, Tropical and citrus notes in Chardonnay, Rich and ripe style Chenin blanc - pineapple and citrus notes, Very fructophilic (good for Chardonnay), Good mouthfeel, needs higher temperature for fermentation</td>
<td></td>
</tr>
<tr>
<td><strong>Vin 2000</strong></td>
<td>Fresh fruity white and rosé wines</td>
<td>High ester producer, releaser and converter of thials, terpenes, floral and muscat notes, Extremely alcohol tolerant, Very cold tolerant, Very fast fermentation, Rosé wines (strawberry and raspberry aromas) from all red grape varieties, Fructophilic</td>
</tr>
<tr>
<td><strong>Vin 13</strong></td>
<td>Releaser and converter of thials</td>
<td>Most effective yeast for thiol liberation, with intense aromatics, Grapefruit, guava, passion fruit and gooseberry</td>
</tr>
<tr>
<td><strong>NT 16</strong></td>
<td>Aromatic and crisp white wines</td>
<td>Producer of acetate esters (tropical fruit salad), zesty citrus and volatile thiols, Cold tolerant, Adds aroma to neutral varietals and enhances all other white varietals</td>
</tr>
<tr>
<td><strong>N 96</strong></td>
<td>Suitable for sparkling wines</td>
<td>Primary and secondary fermentations</td>
</tr>
</tbody>
</table>

### RED WINE YEAST STRAINS

<table>
<thead>
<tr>
<th>Yeast</th>
<th>Positioning</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Iconic red wines</strong></td>
<td>Intense aromas for complex wines - red and black fruits, cocoa, floral (violet)</td>
<td>Partially consumes malic acid, very malolactic friendly, The higher the potential alcohol, the better the possibility to lower alcohol and produce more glycerol, Has pectolytic activity, contributes to wine clarification, Fructophilic</td>
</tr>
<tr>
<td><strong>Complex red wines</strong></td>
<td>Stable fruit esters with significant fruity aroma contribution</td>
<td>Big producer of phenylethanol, rose and complexity, Good structure and body</td>
</tr>
<tr>
<td><strong>INTENSE RED FRUITS WINES</strong></td>
<td>Long term esters - wines to be aged, Red fruits, Significant aroma intensity, Rounded and smooth wines</td>
<td></td>
</tr>
<tr>
<td><strong>Structured red wines</strong></td>
<td>Fructophilic</td>
<td>Stimulates MLF, Very high alcohol tolerance, Blackberry, blackcurrant, tobacco and prune notes, Red berries in Merlot, Red berries and fresh mint in Cabernet sauvignon</td>
</tr>
<tr>
<td><strong>Fruit forward, easy drinking early release red wines</strong></td>
<td>Enhances strawberry, raspberry, cherry, black berries, blackcurrant and spicy aromas in red wines, Floral aromas in Merlot, Red berry and chocolate in Pinotage and Pinot noir, Cold tolerant, good for cold soaking, cold pre-fermentation maceration, Good to mask green characters, Good glycerol producer that softens the tannins, good mouthfeel</td>
<td></td>
</tr>
<tr>
<td><strong>Full bodied red wines</strong></td>
<td>Cold tolerant, good for cold soaking, cold pre-fermentation maceration, Blackberry &amp; blackcurrant in Cabernet sauvignon and Shiraz, Red berries in Merlot</td>
<td></td>
</tr>
<tr>
<td><strong>Traditional style red wines</strong></td>
<td>Wines with firm tannin structure, good for ageing, Blackberry and blackcurrant in Cabernet sauvignon and Syrah, For wines where delayed MLF is desired and for micro-oxygenation</td>
<td></td>
</tr>
<tr>
<td><strong>Fruity and Floral red wines</strong></td>
<td>Enhances red berry and floral aromas in reds, Suitable for semi-sweet wines (slow down with low temperature)</td>
<td></td>
</tr>
</tbody>
</table>
Anchor Alchemy Red

Two new yeast blends scientifically formulated for enhanced fruitiness and complexity in quality red wines

AWRI WORLD CLASS RESEARCH INSTITUTE

Anchor Yeast and the Australian Wine Research Institute have been working together since 2008 on this project, which was aimed at developing new strains. The objective was to produce novel strains with divergent flavor profiles: specifically for increased aroma, complexity and reliability, whilst retaining fermentation performance.

The key outcome has been the selection of 2 completely new strains, designed by forcing an existing commercial Anchor Yeast strain to grow on known yeast inhibitors. These strains were obtained by non-GM techniques and produce specific flavor-active metabolites in higher levels than any other commercial yeast strain. One strain can produce very high levels of acetate esters and fusel alcohols, such as phenyl-ethyl acetate and 2,3-methylbutylacetate, the other strain is able to produce very high levels of certain volatile fatty acids and ethyl esters, such as ethyl hexanoate.

These strains were tested by the AWRI by fermenting Merlot grapes with the two new strains blended at varying ratios with other commercially available Anchor Yeast red wine strains in simultaneous inoculation conditions. Each simultaneous inoculation produced different profiles of volatile metabolites. The most promising blends (strains and ratios) were further tested and evaluated.

Simultaneous inoculation of yeast strains, with different flavor and fermentation behaviors is a proven tool to enhance aroma of white grapes such as Sauvignon blanc and Chardonnay. It is the first time this concept will be promoted for the production of intense red wines.

The new Anchor Alchemy Red blends share the common traits of the complete Anchor Wine Yeast portfolio: Anchor Yeast’s promise of reliable and complete fermentations, aromatic wines, high alcohol tolerance, etc.

LARGE SCALE WINERY TRIALS

Large scale trials were done in 2015 in various countries. We trialed 450 kg of each blend and fermented approximately 15 000 hl of must with each blend.

TRIALS DONE AROUND THE WORLD, 2015:

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>WINERIES</th>
<th>CULTIVARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>4</td>
<td>Cabernet sauvignon, Malbec, Shiraz</td>
</tr>
<tr>
<td>Spain</td>
<td>12</td>
<td>Tempranillo, Syrah, Cabernet sauvignon, Bóバル, Merlot, Garnacha</td>
</tr>
<tr>
<td>Portugal</td>
<td>5</td>
<td>Touriga Nacional, Tinta Barroca, Aragonés, Castelão, Alfrocheiro, Syrah</td>
</tr>
<tr>
<td>France</td>
<td>10</td>
<td>Syrah, Grolleau, Cabernet franc, Merlot, Grenache, Carignan</td>
</tr>
<tr>
<td>Italy</td>
<td>18</td>
<td>Merlot, Barbera, Cabernet sauvignon, Chaienasanca, Nebbiolo</td>
</tr>
<tr>
<td>USA</td>
<td>1</td>
<td>Cabernet sauvignon</td>
</tr>
</tbody>
</table>

More than 90% of winemakers who have tried Anchor Alchemy Red blends in 2015 insisted they would use the strain again and would recommend it to their colleagues!

Finished wines from the European wine trials were sent for sensory analyses at NYSEO’s in France. Results further confirm the distinct styles produced by each blend:

- Stable fruit esters with significant fruit contribution
- Big producer of phenyl ethanol - floral and complex
- Good structure and body

The new Anchor Alchemy Red blends are now available and produced widely around the world. They are recommended for creating high-quality red wines with distinct flavors and aromas. Contact your local yeast supplier for more information.
The aroma profiles obtained with both Anchor Alchemy Red blends were compared with the reference yeasts that are normally used by the wineries. The average values of those reference strains are indicated as 100% on the aroma wheel.

**COMMENTS ON AROMA WHEEL**

Common to both Anchor Alchemy Red blends is their very high fruit contribution due to higher total esters and ethyl hexanoate content. This is further enhanced by β-damascenone and a decrease in methoxy-pyrazines which can mask fruit characters.

What differentiates the Anchor Alchemy blends?

**Anchor Alchemy III Complex** is a very high producer of 2-phenyl-ethanol and acetate esters.

**Anchor Alchemy IV Intense Fruit** is a very high producer of ethyl esters, especially ethyl hexanoate, which contributes to the longevity of fruit aromas.

**TESTIMONIALS: WHAT DID OUR EUROPEAN WINEMAKERS HAVE TO SAY?**

**Alchemy III Complex:**
- Good quality structured Cabernet sauvignon, aroma and flavor are perfect;
- Long, good structure, black and red fruits;
- A lot of fruitiness red and black, high intensity, mineral, round;
- Complete nose, no reduction, red forest fruits, toasted notes, blackcurrant and dried fruits.

**Alchemy IV Intense Fruit:**
- Cabernet sauvignon wine will go into top quality blends of the winery;
- Cabernet sauvignon is more fruity and has better mouthfeel than with Anchor III Complex;
- Mineral and red fruits;
- Red forest fruits, dried leaves, liquorice and mint.
Float like a butterfly, sting like a bee with Anchor®

In the previous Oenobook, Anchor® VIN 13 was revisited. While this very popular white wine yeast has many positive attributes, one shouldn’t simply use the same yeast for all fermentations. Compared to Anchor VIN 13, Anchor WE 372 belongs completely on the other end of the yeast spectrum. If one were to match boxing personas with the above mentioned wine yeasts, I’d liken Mike Tyson with Anchor VIN 13 and Muhammad Ali with Anchor WE 372. All never quite had the same raw power as Iron Mike, but in the ring his deadly precision and finesse was unsurpassed.

One of the most appealing attributes of Anchor WE 372 is its moderate fermentation rate. A slower fermentation allows a longer period during which predominantly favourable tannins and other aroma compounds can be liberated from the grape skins. The need for nutrients during fermentation can also be described as “average to low”. This could partially be linked to the less than vigorous fermentation that is characteristic of Anchor WE 372.

Anchor WE 372 is probably most famous for the aromatic and supple red wines that can be made with it. A winemaker once described this yeast as “the graceful old lady”. He not only referred to the easy going fermentations, but also to the delicate and complex aromas he gets when fermenting red musts with it. Another winemaker told us that Anchor WE 372 not only brings out the best in his red grapes, but that it also expresses “terroir”.

In general, it is agreed that Anchor WE 372 is an excellent all-rounder when it comes to red grape fermentations. In Cabernet sauvignon and Syrah it produces red berry and floral aromas, whereas red berry (strawberry, cherry and raspberry) and blackberry aromas are produced in Merlot. In Figure 1, you will see aroma profiles of Merlot wines made with various wine yeasts and with Anchor WE 372. Red berry and blackberry aromas were the highest where Anchor WE 372 was used. Other cultivars that also do well with Anchor WE 372 are Pinot noir, Tempranillo and Cabernet franc.

This precision and finesse is why Anchor WE 372 has enjoyed such a loyal following over the years. It is a well-established fact that there are numerous red wine yeast available to winemakers. So one might ask “What makes Anchor WE 372 such a special red wine yeast?”

First off, let’s do some revision on some of the basic characteristics of Anchor WE 372, which is a product of the yeast selection program of ARC Infruitec-Nietvoorbij (Stellenbosch, South Africa). Table 1 shows some of this yeast’s characteristics.

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Selected strain of Saccharomyces cerevisiae</td>
</tr>
<tr>
<td>Fermentation rate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Optimum temperature range</td>
<td>18 - 20 °C / 64 °F - 82 °F</td>
</tr>
<tr>
<td>Osmotolerance</td>
<td>24.5 °Brix, 13.2 °Baumé</td>
</tr>
<tr>
<td>Alcohol tolerance at 20 °C</td>
<td>15 %</td>
</tr>
<tr>
<td>Foaming capacity</td>
<td>Low</td>
</tr>
<tr>
<td>Glycerol production</td>
<td>10 - 12 g/l</td>
</tr>
<tr>
<td>Volatile acidity production</td>
<td>Generally lower than 0.3 g/l</td>
</tr>
<tr>
<td>Succinic acid formation</td>
<td>May produce up to 1 g/l in high pH musts (&gt; 3.5)</td>
</tr>
<tr>
<td>Sulfur dioxide production</td>
<td>None to very low</td>
</tr>
<tr>
<td>Nitrogen demand</td>
<td>Average</td>
</tr>
<tr>
<td>Killer activity</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Table 1. Characteristics of Anchor WE 372

Another very handy trait of Anchor WE 372 is compatibility with MLF. If you are planning on doing co-inoculation this coming harvest, why not try a combination of Anchor WE 372 and our Anchor Co-inoculant? The benefits are numerous, including MLF that finishes sooner and enhanced aroma profile.

If you’re planning on making some semi-sweet white wine this coming harvest, Anchor WE 372 is a very good option. Its cold tolerance is 16 °C and if you lower the temperature down to 10 °C, fermentation is easily slowed down.

Clearly Anchor WE 372 has a lot going for it. But don’t just take my word for it, have a look at what these winemakers had to say about Anchor WE 372.

Juan SLABBERT, Stellenbosch Hills, South Africa
“I’ve been using WE 372 on a wide range of cultivars for 10 years and I always experience complete and effective fermentations, even at low dosages. This yeast can withstand relatively high fermentation temperatures and is not prone to VA or H2S production.”

Chris ALBRECHT, Bouchard Finlayson, South Africa
“WE 372 is a strong yeast that fares very well with the cultivars that I use. The aroma profile that WE 372 offers fits exactly with our style of wine. I use minimal yeast food and have never had a stuck ferment with WE 372 before. If I could only pick one yeast, it would undoubtedly be WE 372.”

Armand LACOMME, Allesverloren, South Africa
“WE 372 is a very popular white wine yeast. It has a good balance of fruit and is the best yeast I have used.”
Oenobrands is proud to present you the new Anchor Co-Inoculant Bacteria 3.2

Six years ago, Anchor Yeast was the first to introduce the world to a blend of two bacteria species for malolactic fermentation, specifically developed for co-inoculation. As with the Anchor Co-Inoculant Bacteria, the new Anchor Co-Inoculant Bacteria 3.2 culture is based on three successful concepts:

- A blend of two different genera of lactic acid bacteria, Oenococcus oeni and Lactobacillus plantarum
- A culture specifically developed for co-inoculation
- The aroma contribution of L. plantarum

WHY A BLEND OF O. OENI AND L. PLANTARUM?

<table>
<thead>
<tr>
<th>Oenococcus oeni</th>
<th>Lactobacillus plantarum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best adapted to surviving under challenging must and wine conditions (ethanol, SO₂, pH)</td>
<td>More adapted to lower alcohol conditions</td>
</tr>
<tr>
<td>Robust strains that complete MLF under must and wine conditions</td>
<td>Survive and contribute up to 8% alcohol</td>
</tr>
<tr>
<td>Less complex enzymatic profile</td>
<td>Complex enzymatic profile</td>
</tr>
<tr>
<td>Less contribution to aroma profile</td>
<td>More complex and intense contribution to aroma profile</td>
</tr>
<tr>
<td>Heterofermentative: need to select low VA producing strain</td>
<td>Homofermentative: NO volatile acidity production</td>
</tr>
</tbody>
</table>

WHY CO-INOCULATION?

- Shorter total fermentation duration; wine immediately available for racking, fining and SO₂
- More efficient MLF in difficult wines
- More complex, better structured and more integrated wines
- Less time for yeast to produce inhibitory compounds; medium chain fatty acids and ethanol
- Reduced SO₂ usage required
- Reduced window for microbial spoilage
- Lower final volatile acidity (VA) concentrations
- Significantly higher aroma compound concentrations and more fruit driven aroma profile
- Produces wines with lower diacetyl concentrations and less brettaroma characteristics
- Fermentation heat favors bacterial growth

WHY L. PLANTARUM?

Research has shown L. plantarum species to be more diverse in terms of their contribution to the wine aroma profile, compared to that of O. oeni. With the Anchor Co-Inoculant Bacteria for higher pH red wines, we succeeded in selecting a L. plantarum strain that increased the freshness and fruit intensity profile, especially the red berry profile, due to its enzymatic abilities. Similarly, with the new Anchor Co-Inoculant Bacteria 3.2, we selected a combination of bacteria that would be able to increase the roundness and fullness of lower pH wines, to reduce green/herbaceous characters, as well as the astringency of the wine. Similarly in red wines, we found the aroma profile to be more centred on the darker fruit profile, whilst decreasing the harsh characters of the wine and softening the flavor profile.

The Anchor Co-Inoculant Bacteria 3.2 was developed at the Institute for Wine Biotechnology (Stellenbosch University, South Africa) for the completion of malolactic fermentation, with the inclusion of a revolutionary L. plantarum strain able to ferment and contribute to aroma in a low pH must. During the development of the product, technical characteristics for the blend were established. Also included in the screening process is the absence of the ability of the bacteria strains to produce biogenic amines. The L. plantarum strain, specifically selected for aroma enhancement at a lower pH, possesses the ability to increase the fullness of the flavour profile and mouthfeel and reduce astringency. This is done by enhancing the darker fruit aroma profile in red wine and decreasing green characters in red and white wine.

We have extended the range of our bacteria portfolio in order to bring you all the benefits of co-inoculation, combined with the unique ability of the new Anchor Co-Inoculant Bacteria 3.2 to improve low pH wines by softening the flavour profile and reducing the harshness of the wines.

**Figure 1.** The Anchor Co-Inoculant Bacteria 3.2 produces wines that are more aromatic, red fruit, dark fruit and dried fruit intensity, while producing less reductive characteristics (compared to a commercial O. oeni culture) (Tempranillo, Spain).

**Figure 2.** The Anchor Co-Inoculant Bacteria 3.2 produces wines that are less astringent and bitter, but provide a longer finish and higher overall quality (compared to a commercial O. oeni culture) (Tempranillo, Spain).

**KEY ATTRIBUTES OF THE ANCHOR YEAST BACTERIA PORTFOLIO**

<table>
<thead>
<tr>
<th>Positioning</th>
<th>ANCHOR CO-INOCULANT BACTERIA</th>
<th>ANCHOR CO-INOCULANT BACTERIA 3.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced aroma profile in high pH red wines during malolactic fermentation</td>
<td>Enhanced sensory profile in low pH white and red wines during malolactic fermentation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Oenococcus oeni / Lactobacillus plantarum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origin</td>
<td>Stellenbosch University, South Africa</td>
</tr>
<tr>
<td>Optimum temperature</td>
<td>15-28 ºC</td>
</tr>
<tr>
<td>Alcohol tolerance</td>
<td>20-28 ºC</td>
</tr>
<tr>
<td>SO₂ tolerance</td>
<td>15.5 %</td>
</tr>
<tr>
<td>Dosage</td>
<td>Total SO₂ at inoculation &lt; 50 ppm</td>
</tr>
<tr>
<td>pH</td>
<td>1 g/L N</td>
</tr>
<tr>
<td>AROMA ATTRIBUTES</td>
<td>More fruit intensity</td>
</tr>
<tr>
<td></td>
<td>More red berry aroma characteristics</td>
</tr>
<tr>
<td></td>
<td>Enhanced spicy notes</td>
</tr>
<tr>
<td></td>
<td>Enhanced aroma intensity</td>
</tr>
</tbody>
</table>

Enhanced mouthfeel
Decrease in green characters
Reduced astringency
Enhanced dark fruit aromas
Fermivin®

PRESENTATION OF THE FERMIVIN® RANGE

The Fermivin® range includes yeast strains selected for many applications: to achieve rapid and complete fermentations; for red, white, rosé or sparkling wines; for the revelation of thiols, terpenes, fruity, floral and mineral aromas; for the production of wines for early release or to be aged; or to restart stuck fermentations.

### PRODUCT NAMES

<table>
<thead>
<tr>
<th>PRODUCT NAMES</th>
<th>TYPE OF WINE</th>
<th>WHITE</th>
<th>RED</th>
<th>ROSÉ</th>
<th>SPARKLING (2º FERMENTATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS2</td>
<td>Suitable for primary and secondary fermentation</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>SM102</td>
<td>For delicate, light and aromatic white wines</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>VB1</td>
<td>The ideal yeast for Riesling</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3C</td>
<td>For round fruity Chardonnay type wines</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS28</td>
<td>For aromatic and crisp Sauvignon blanc type wines</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>JB3</td>
<td>For aromatic white and rosé wines</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A82</td>
<td>For intensively aromatic white and rosé wines</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4F9</td>
<td>For aromatic white and rosé wines that have a long finish</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>LVCB</td>
<td>For mineral fresh aromatic white wines</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E73</td>
<td>For early release fruity red wines</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF6</td>
<td>For fruity and elegant red wines</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XL</td>
<td>For fruity smooth red and rosé wines</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MT48</td>
<td>For fruity spicy red wines</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VR5</td>
<td>For red wines to be aged</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A33</td>
<td>For structured red wines</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7013</td>
<td>For fast and complete fermentations, respecting the typical features of each grape variety and terroir</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>PDM</td>
<td>Multipurpose yeast for safe fermentations</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Champion</td>
<td>The best fructophilic yeast for restarting stuck fermentations</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

### FEATURES

- **LS2**
  - Classic sparkling wines
  - Varietal and terroir typicities

- **SM102**
  - Synthesis of ethyl esters of fatty acids
  - Floral, fruity, mouthfeel

- **VB1**
  - Clear and elegant wines with fresh aromas
  - Floral, musk, lime, apple, mineral

- **3C**
  - High production of polysaccharides and β-damascenone
  - Citrus, acacia, well balanced

- **TS28**
  - Important release of thiols
  - Boxwood, gooseberry, mineral (stone, flint)

- **JB3**
  - High production of acetate esters of higher alcohols
  - White flowers, rose, pineapple

- **A82**
  - High production of ethyl and acetate esters
  - Very fruity, candy, banana

- **4F9**
  - Thiol converter
  - Volume and esters

- **LVCB**
  - Production of ethyl esters, thiols and terpenes
  - Citrus, peach, apricot, tropical fruits, minerality

- **E73**
  - Cryophilic
  - High production of fermentation esters
  - Very fruity (berries and stone fruits) with freshness

- **PF6**
  - High production of polysaccharides
  - Release aromatic C13 compounds
  - Bright red fruits, subtle earthy notes, spices, smooth tannins

- **XL**
  - High adsorption of tannins decreasing wine tannicity
  - Soft tannins, harmonious, red fruits

- **MT48**
  - High production of glycerol
  - Red fruits, plum, floral, spices and smooth body

- **VR5**
  - High extraction of polyphenols, favors color stability
  - Red and black fruits, jam, spices, full-bodied

- **A33**
  - Enhances polyphenols content
  - Complex aromas of fruits, chocolate, tobacco, well-balanced

- **7013**
  - Fast and complete fermentations, high ethanol conversion
  - Varietal and terroir typicities

- **PDM**
  - Secure fermentations
  - Varietal and terroir typicities

- **Champion**
  - Fructophilic
  - High alcohol tolerance
  - No aroma contribution

Available in formulation In-Line Ready

« For each strain one performance »: each strain has been selected to answer a specific need from the wine industry. Oenobrands evaluated, tested and validated each yeast with its partner institutes to highlight the unique feature of each strain and to provide winemakers with well defined solutions to their needs. Thus each yeast strain is promoted for a unique characteristic (cryophilic, revealing thiol aromas, producing high esters, releasing polysaccharides, etc.).

We have reviewed our application data sheets to make this characteristic much more visible and complete with the aim of giving clear direct information to winemakers and to help them in the production of a specific type of wine.

In the following table, we summarize the main feature specific to each Fermivin strain, the type of winemaking and aroma profiles they produce.
**NEW SOLUTIONS FOR REDS, WHITES AND ROSÉS**

**FOUR YEAST STRAINS TO PRODUCE 4 DIFFERENT STYLES OF ROSÉ WINES.**

Within Fermivin range, we recommend 4 yeast strains adapted to different rosé winemaking processes (Figure below) and styles:

- **Fermivin AR2** for the fermentation of clear and cold musts from direct grape pressing and the elaboration of intensely aromatic rosé wines, very fruity with AMYLIC aromas (candy, banana flavors) due to ethyl esters of fatty acids.
- **Fermivin 4F9** for the fermentation of cold musts obtained after skin contact to get aromatic THIOL style rosé wines that have a long finish, with grapefruit, stone fruits and tropical fruits flavors.
- **Fermivin JB3** for the fermentation of cold musts obtained after skin contact to get ESTER style rosé wines with ethyl esters aromas (white flowers, rose, pineapple) or fusel alcohols and their acetate esters.
- **Fermivin XL** for the fermentation in maceration followed by bleeding and the elaboration of fruity smooth rosé wines with RED BERRY flavors.

**THREE NEW STRAINS SELECTED FOR RED WINES.**

**Fermivin PF6**

Fermivin PF6 favors the release of C13-compounds which contributes to red wine aroma: berry and fresh fruit aromas. It has very low ability to adsorb anthocyanins ensuring ageing potential and therefore contributes to the color of light red wines as Pinot noir. It ferments well at low temperatures so it is therefore suitable for cold soaking.

**Fermivin MT48**

Fermivin MT48 gives round, expressive wines with soft tannins and complex aromatic hints. It is suitable for wine aimed for low to average ageing times. It produces high concentrations of glycerol and brings a rounder mouthfeel in finished wines.

**Fermivin A33**

Fermivin A33 is especially suitable for producing wines for barrel ageing. It promotes polyphenol extraction and stabilizes anthocyanins as pyroanthocyanins. It has a very high alcohol tolerance and thus can complete fermentations even with high alcohol content.

**TWO NEW STRAINS SELECTED FOR WHITE WINES.**

**Fermivin 3C**

Fermivin 3C produces high-end, very round wines that have a long finish on the palate. Its aromatic impact is marked by a high β-damascenone production, which enhances fruity and floral aromas. It releases large quantities of yeast polysaccharides, making it ideal for barrel fermentation and ageing on lees.

**Fermivin TS28**

Fermivin TS28 optimizes the release of thiol-type aroma precursors: boxwood, gooseberry, mineral (stone, flint) and helps achieve roundness and balanced mouthfeel. As a result of its β-ylace activity, it is very effective at bringing out varietal aromas, especially 3MH and 4MMP.

---

**Figure 1.** Analysis of the color and astringency indexes of Pinot noir wines made using Fermivin PF6 (Burgundy - France).

**Figure 2.** Results of three series of tests by the IFV of Bordeaux on Merlot and Cabernet sauvignon wines.

**Figure 3.** Analysis of the color and astringency indexes of Pinot noir wines made using Fermivin A33 (Bordeaux - France).

**Figure 4.** Yeast polysaccharides concentration in Chardonnay wines fermented using Fermivin 3C (Rhône Valley - France).

**Figure 5.** Thiol analyses (ng/l) of Sauvignon blanc wines obtained with Fermivin TS28 (Lone Valley - France).
Since 2013, yeast addition has never been so simple. In-Line Ready®: a tested, proven and now PATENTED technology!

Quick / Easy / Innovative / Reliable

An advanced winemaking solution from Oenobrands and Silverson

Based on the observation that a simple error during the yeast addition phase may be significantly detrimental to winery productivity and wine quality, our technical team pursued solutions to modernize this stage of the process. Three years of research and testing enabled Oenobrands and Silverson to launch In-Line® Ready in 2013: this dual technology for the yeast addition phase consists of a high-shear solid-liquid mixer and dry yeasts whose formulation and production method have been adapted to the direct-addition conditions applied by the machine.

The yeasts produced with the innovative In-Line Ready technology are subjected to high shear forces through the Silverson FMY45 mixer, resulting in their instant dispersal, hydration and consequent activation. Oenobrands has demonstrated that the direct inoculation of yeasts should go hand in hand with suitable activation technology to avoid risk of low cellular multiplication and bad yeast implantation that would lead to extended lag phase.

In-Line Ready fermentation kinetics
✓ In-Line Ready lag phase vs Control lag phase
✓ In-Line Ready AF speed vs Control AF speed

In-Line Ready yeast growth during fermentation
✓ Yeast cell counts before inoculation and every 24 hours for 3 days.
✓ On average, no change during the lag phase before the yeast begins to grow; after 72 hours the yeast population is bigger with In-Line Ready technology than in the control tank.

In-Line Ready technology enables the production of high-quality aromatic wines
Aroma analysis has been carried out through many comparative tests with the same yeast strain, applied in the traditional way and with In-Line Ready technology. The analytical data have shown slightly higher production of esters from fermentation with In-Line Ready yeasts.

Must oxygenation
In trials conducted in 2015 using the Silverson FMY45 equipment, oxygenation of must was carried out prior to yeast addition, resulting in increased cellular multiplication with greater viability and consequently shorter lag phases compared with the control tanks.

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Prize for TECHNOLOGICAL INNOVATION at ENOMAG 2013, Zaragoza - Spain
Honored by a PRIZE OF INNOVATION for the “CHALLENGE LUCIO MASTROBERARDINO” during the 50th edition of the SimI, Milano - Italia
VINCOEURS 2014 “INNOVATION”, Montpellier - France
**DECICATED WINEMAKING AIDS**

The Oenobrands range of winemaking fermentation aids is based on highly specific yeast fractions produced with the strictest quality standards.

Our range includes nutrients that target yeast growth, viability and performance, as well as a fermentation media enhancer and cure for wine taints.

**PRODUCT SELECTION TABLE**

<table>
<thead>
<tr>
<th>NEED TO...</th>
<th>NATUferm</th>
<th>MAXAferm</th>
<th>EXTRAferm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support yeast growth</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Reduce lag phase</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Enhance yeast viability</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Promote ester aroma production</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Avoid H2S production</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Adsorb undesirable compounds</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
</tbody>
</table>

**NITROGEN MANAGEMENT IN FERMENTATION**

Yeast nitrogen requirements depend on the yeast strain and increase with:
- high sugar content,
- turbidity below 60 NTU,
- temperature below 16 °C,
- infection of grapes by fungi such as Botrytis cinerea.

Also when Yeast Assimilable Nitrogen (YAN) is below 150 mg/l, there is an increased risk of reduction and stuck fermentation.

YAN is the sum of free amino acids and inorganic (ammonia and ammonium) nitrogen that can be assimilated by yeasts during alcoholic fermentation.

FAN (Free Assimilable Nitrogen) corresponds to the sum of free amino acids. Our FAN calculation below excludes Proline, as this amino acid (abundant in grape musts) is not metabolized by yeast under anaerobic conditions.

**TAILORED YEAST NUTRITION**

The table below provides an indication of each product contribution to YAN and FAN.

<table>
<thead>
<tr>
<th>AT A DOSE OF 20 g/hl</th>
<th>NATUferm</th>
<th>MAXAferm</th>
<th>EXTRAferm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to YAN</td>
<td>5 ppm</td>
<td>17 ppm</td>
<td>negligible</td>
</tr>
<tr>
<td>Contribution to FAN</td>
<td>5 ppm</td>
<td>1 ppm</td>
<td>negligible</td>
</tr>
</tbody>
</table>

Oenobrands formulates its products with primary grown yeast, dried with selected technologies. Special care is taken to production of micro-granulated products that do not clump. Their complete suspension is obtained within a few seconds.

**Extraferm** stands out for its high efficiency in the adsorption of wine contaminants, while retaining all the organoleptic qualities and the flavor of the treated wine. This ability is due to the exclusive HALO (High Adsorption Low Odor) process used to produce Extraferm yeast hulls. This unique production process allows Extraferm to be highly specific in adhering to undesirable contaminants without affecting wine aroma. This makes Extraferm the best solution for eliminating undesirable compounds without adulterating the organoleptic qualities of the treated wine or introducing yeast-like odors.

**Need to enhance aroma production?**

**Natuferm** is a yeast nutrient made from 100% autolyzed yeast rich in organic nitrogen. Its high concentration of free amino acids promotes the production of aromatic fermentation esters and increases yeast viability towards the end of alcoholic fermentation.

Recommended dose: 20 to 30 g/hl to be added during the first third of alcoholic fermentation (density > 1060).

**Need to optimize your fermentations?**

**Maxaferm** is a complete yeast nutrient based on yeast hulls, diammonium phosphate and thiamine. It provides the nutrients required for yeast multiplication, improves yeast alcohol tolerance and also yeast viability until the final phase of fermentation.

Recommended dose: sequential addition of 20 g/hl at the start of fermentation (12-24 hours after yeast addition), followed by 20 to 40 g/hl at mid-fermentation to optimize the product’s effectiveness.

**Need to adsorb undesirable compounds from musts & wines?**

**Extraferm** consists 100% of highly adsorbent and odorless yeast hulls. It improves fermentation conditions by removing from musts and wines yeast toxic compounds such as fatty acids, pesticides, ochratoxin (OTA) and phthalates. By adsorbing wine contaminants such as anisoles (TCA, TBA, PCA, TecA etc.), Extraferm binds unpleasant smells and tastes, thereby restoring wine quality.

Recommended dose: 20 to 40 g/hl to be added from mid-fermentation towards the end of alcoholic fermentation.
Phthalates are derivatives of phthalic acid, used as a plasticizer in most PVC products. Wines prepared, handled or transported in contact with plastic materials (coating tanks, hoses, pump body, seals, BIB, etc.) are likely to be contaminated. The presence of ethanol favors the migration of phthalates into wine. A survey initiated in 2011 revealed that 50% of French wines are contaminated with dibutyl phthalates, sometimes up to 800 µg/l.

Phthalates are only one of the many undesirable compounds against which Extraferm has proven to be effective. The list of unwanted compounds that can be removed from wines by Extraferm includes saturated fatty acids, chloro- and bromo-anisoles, and ochratoxin A.

EASE OF USE AND ABILITY OF EXTRAFERM TO SETTLE FAST

A treatment with Extraferm is easy to set up, efficient and quick. Extraferm yeast hulls disperse quickly due to their unique microgranulated formulation. Extraferm is known for its fast settling once the wine has been treated. It allows a fast and efficient racking of treated wine. 45 minutes only after the addition of 40 g/hl of Extraferm, the turbidity of a treated white wine decreased by 33%. The turbidity after 24 hours settling is similar to that of control wine. Therefore, treated wine can be racked and processed further very quickly.

Figure 1. Adsorption of the dibutyl phthalate (µg/l) following the addition of the two successive dosages of Extraferm.

Figure 2. Turbidity in a white wine treated with 40 g/hl Extraferm and another yeast hulls.
Claristar® is an inhibitor of potassium hydrogenotartrate crystallization for white, rosé and red wines, with long-lasting effects. This purified solution of specific mannoproteins extracted from Saccharomyces cerevisiae contains the fraction with the highest Tartrate Stability Index (TSI), meaning the highest effectiveness on tartrate stability.

Since its launch in 2007, we evaluate approximately 250 million liters of wines treated with Claristar equivalent to 332 million of Claristar treated bottles of wine released in the market around the globe.

Claristar presents the additional combined benefits of preserving wine aroma, color and natural acidity. The use of Claristar for tartrate stabilization thus helps winemakers trade their wines over longer periods whilst maintaining a fresher aromatic profile.

92% of Claristar customers can testify that the use of Claristar allows a good preservation of natural acidity, an increased aroma expression, a sensation of smoothness on the palate and an improved aromatic freshness during wine storage and ageing period.

Many winemakers worldwide already benefit from the use of Claristar and can testify to its added value. This innovative liquid ingredient is easily used by following the simple application recommendations.

We are happy to share the confidence and trust of Claristar customers. Over the last 8 years, as well as seeing the increase of the number of winemakers using Claristar, the satisfaction of those users has been visible because of the usage repetition by winemakers. So far we estimate that more than 65% of Claristar customers have been using the product for more than 4-5 years.

Users describe it best and 98% of them described Claristar as easy-to-use, fast, precise and gentle on wines. The reason is that the liquid formulation facilitates an instant stabilizing effect allowing a perfect homogenization and filtration close to the addition.

Oenobrands, expert in oenological applications of mannoproteins, has a continuous objective to always improve the knowledge on its products and that is why we have worked closely with laboratories and partners in order to supply an analytical method accompanying Claristar (Würdig-Montagnani test based on Checkstab equipment). This method is being continuously improved thanks to our partnership with the equipment supplier (Delta Acque) who has introduced new calculations tools to allow direct translation of Checkstab data into a Claristar dose.

The analysis accompanying Claristar usage is based on successive conductivity measurements. The aim of this analysis is to provide you with the exact dosage of Claristar needed to stabilize your specific red, white or rosé wine. The result of this analysis will inform you whether the wine is suitable for Claristar addition, as well as the correct dosage at which you will achieve tartrate stability.
How to make your sparkling wines perfect

Final touch® POP is a unique mannoprotein-based solution, specially formulated to improve the quality of sparkling wines. Final touch POP noticeably enhances the organoleptic qualities and preserves the elegance, freshness and balance of the wine over time.

The immediate and lasting effects found on sparkling wines are:
- Softness
- Best expression and aromatic persistence
- Greater freshness, elegance and organoleptic balance
- Better effervescence.

Moreover, the use of Final touch POP can extend the potential commercial shelf life. The positive effects of Final touch POP are visible at a dose rate of between 10 to 40 ml/hl, with its addition after the second fermentation: immediately before bottling (Charmat method), or to the dosage of liqueur added after disgorging (Traditional method).

How to make your white and rosé wines perfect

Final touch® TONIC is a selected mannoprotein-based solution, extracted from a specific strain of Saccharomyces cerevisiae to protect the aromatic freshness of white and rosé wines. Final touch TONIC preserves the quality of white and rosé wines as they age as it contains mannoproteins selected for their powerful reducing and protective colloid properties.

The immediate and lasting effects found on white and rosé wines are:
- Greater freshness and less oxidative aroma
- Better aromatic intensity and punchier taste
- More finesse and organoleptic qualities.

Moreover, the use of Final touch TONIC prevents premature ageing of the wines aromas and can extend the potential commercial shelf life of the wines. The positive effects of Final touch TONIC are visible at a dose rate of between 20 to 50 ml/hl, with its addition immediately before bottling.
EXTRAFERM® AND FERMIVIN® CHAMPION
THE BEST PAIRING TO RESTART A STUCK FERMENTATION

Even in the case of a highly controlled vinification, fermentation may become stuck and must be restarted quickly to prevent sensory deviations and contaminations. Combined use of Extraferm® yeast hulls with the fructophilic yeast Fermivin® CHAMPION is the most efficient solution for any type of stuck fermentation. The variety of factors that can cause a stuck fermentation makes it difficult to foresee. The occurrence of stuck fermentations increases in musts with one or several of the following characteristics: low turbidity, high sugar concentration, low assimilable nitrogen content, late anti-botrytis treatment or from a known difficult-to-ferment grape cultivar. Deficient control of the winemaking process, non use of a selected yeast or bad nutrient management can increase the risk of having a stuck ferment. By using Extraferm yeast hulls together with Fermivin CHAMPION yeast strain (formerly Fermichamp®), selected by the French Institute of Agricultural Research [INRA] in Narbonne), Oenobrands provides the best curative solution to be applied according to the protocol described here.

DETOXIFICATION OF MUST USING EXTRAFERM YEAST HULLS
During fermentation, the yeasts produce various toxic components such as ethanol, carbon dioxide and saturated fatty acids (C6, C8, C10) that result in an inhibition of the transport of sugars. The purpose of detoxification is to remove those components from the fermenting must in order to achieve more favorable conditions for yeast growth. Yeast hulls are also a source of nutrients and « survival factors » for yeasts, such as ergosterols and long-chain unsaturated fatty acids. These chemical compounds increase the viability of restarting yeasts until fermentation is complete.

The unique production process « HALO » (High Adsorption Law Odor) developed by Oenobrands, enables Extraferm yeast hulls to reach a maximum capacity of adsorption of undesirable compounds without transmitting any odor or flavor to the treated wine.

Thanks to its exclusive drying technology, Extraferm does not form lumps. The suspension of the product is complete in just a few seconds. This makes it easy to use, saves time and provides homogenous distribution in the wine to be treated.

FERMIVIN CHAMPION, THE FRUCTOPHILIC YEAST TO RESTART FERMENTATIONS
Even after detoxification, a stuck must remains hostile to yeast development as it contains high quantities of ethanol and low nitrogen content. In addition, the ratio of fermentable sugars in the must is modified during fermentation. Although grapes contain glucose and fructose in equal quantities, glucose is preferentially fermented, so the fructose/glucose ratio increase continuously throughout fermentation. With most yeast strains, fructose accounts for ≈ 85% of residual sugars in stuck fermentations. Therefore, in light of the specific conditions of a stuck wine, a restarting yeast strain with high alcohol tolerance, low nitrogen requirements and the ability to ferment fructose is needed. These characteristics are inherent to Fermivin CHAMPION, a unique yeast due to its fructophilic phenotype.

TO RESTART A STUCK FERMENTATION (100 HL)

DAY 1
DETOXIFICATION OF THE STUCK WINE
1. Cool if necessary the tank down to 15-20 °C
2. Add SO2: 4-6 g/hl
   “If Total SO2 > 150 mg/l: add Delvozyme® (lysozyme)
   at 15-25 g/hl with 2 g/hl SO2
3. Treat with Extraferm: 3-4 kg
4. Let settle and rack after 24 hours

DAY 2
REHYDRATION OF FERMIVIN CHAMPION
1. Dilute 1.5 kg sugar into 50 l water at 38 °C
2. Add 3 kg Fermivin CHAMPION to this solution
3. Leave to swell for 50 minutes

DAY 2
PREPARATION OF THE RESTARTING INOCULUM
Add to the suspension of Fermivin CHAMPION rehydrated:
1. Water: 70 l (at room temperature)
2. 12 kg sugar and 50 l stuck wine and mix in
3. Maxaferm®: 70 g
4. Let it cool down to 20-25 °C
5. Wait until the density reaches 1005 (maximum 24 hours)

DAY 3 AND 4
ACCLIMATIZATION OF THE RESTARTING INOCULUM
STEP 1: add to the inoculum
Stuck wine: 140 l
Water: 70 l (room temperature)
Sugar: 25 kg
Maxaferm: 180 g
Wait for +/- 24 hours (or density = 995)

STEP 2: add to the inoculum
Stuck wine: 450 l
Water: 50 l (room temp.)
Sugar: 25 kg
Maxaferm: 400 g
Wait for +/- 24 hours (or density = 995)

Add the acclimatized inoculum to the tank containing the wine stuck previously detoxified and racked.
A protocol for the fermentation of high sugar must to produce smooth fruity red wines
(Syrah, Cabernet sauvignon, Pinot noir, Merlot, Tempranillo)

CRUSHING

**ENZYME:**
For extraction of color and polyphenols from grape skins

**RAPIDASE EXTRA COLOR**

- 3 g/100 kg

FERMENTATION

**YEAST:**
To enhance red berries (strawberry, raspberry and cherry), black berries (blackberry and blackcurrant) and spicy aromas in red wines.
- **S**accharomyces cerevisiae hybrid
- **H**igh ethanol tolerance (16.5 % vol.)
- **L**ow nutrient demand
- **L**ow/no SO₂ production

**ANCHOR® NT 50**

- 20–25 g/hl
- Fermentation temp.: 14-28 °C

**BACTERIA:**
- Co-Inoculation for Malolactic Fermentation
- For additional aroma complexity

**ANCHOR® CO-INOCULANT**

- 1 g/hl
- Strict temperature control: 20–25 °C
- Continuous monitoring of sugar concentrations; glucose and fructose
- For must at pH 3.4–4.0

**FERMENTATION MANAGEMENT**

**COMPLETE YEAST NUTRIENT:**
To provide the nutrients required for yeast growth and viability until the final phase of fermentation

**MAXAERM®**

- Addition half the dosage 12-24 hours after the yeast and the other half midway through fermentation
- 20–40 g/hl

**YEAST HULLS:**
To remove toxic fatty acids and achieve fermentation

**EXTRAFLOR®**

- Addition at 2/3 of fermentation
- 20–30 g/hl

**ANCHOR WINE YEAST**

The Leading New World Wine Yeast Brand

anchorwineyeast.com
newworldwinemaker.com
During 2015 harvest VITEC, a research institute in the Priorat, Spain, conducted new red winemaking tests with Rapidase® Extra Color. Oenobrands asked VITEC team to confirm the previous data (2014 vintage) on the impact of our maceration enzyme on the preservation of the acidity in wine and the parameters linked to color and polyphenols.

EXPERIMENTAL APPROACH

Cabernet sauvignon and Syrah grapes, harvested at optimum ripeness in the Priorat region, were destemmed, crushed and introduced into 50 kg tanks.

Must analysis: degree Brix, potential alcohol content, nitrogen content, pH, total acidity, organic acids, IPT, total and free anthocyanins.

Conditions for fermentation and maceration:
- Fermin® VRS yeast, at 25 g/hl
- Rapidase Extra Color at 3 g/hl
- Total SG, levels below 50 mg/l
- Two daily pumping over, constant temperature of 24 °C
- Drawing off after five and ten days
- Free run and press wines were kept separately and analysed for pH, total tartaric acidity value, organic acids, total polyphenols index (TPI), total and free anthocyanins.

RESULTS

The results obtained confirmed previous experiments reported in Oenobook n°5. As for the acidity, we have once again seen the positive effect of the maceration enzyme Rapidase Extra Color. The total tartaric acidity value of drained and press wines is higher in enzyme-treated than in control wines (Figure 1), and than of the initial must at the beginning of maceration. Similar results were obtained with Syrah grapes, Figure 2 presents the acidity data of drain wines, results in press wines were similar.

Rapidase Extra Color confirmed once more its strong ability to extract more color compared to the control wines for both grape varieties and maceration times. The difference increased with longer maceration times (Figure 3).

The differences in color intensity highlight the increased extraction with longer maceration times (Figure 4). In control wines, color intensity tends to decrease with long maceration times whereas it does increase when grapes are treated with Rapidase Extra Color.

A very similar result can be observed when looking at Total Polyphenol Index in drain and press wines. A longer maceration time with Rapidase Extra Color reinforces polyphenol solubilization into the drain fraction (Figure 5). As more polyphenols are extracted from grape skins, there are less left to extract into press wines as can be seen in Figure 6.

CONCLUSIONS

This test campaign performed by VITEC on Cabernet Sauvignon and Syrah grapes showed, once more, the superior extraction achieved when using Rapidase Extra Color and for maceration time longer than 5 days. Differences between test and enzyme treated samples, already visible after five days of maceration, are accentuated with longer maceration times, resulting in qualitative advantage for the wine itself.

The enhanced extraction could be measured when looking at anthocyanin, color and total polyphenols, indicating that enzyme-treated wines are more colored, more stable and structured.

VITEC work confirmed again that Rapidase Extra Color gives wines with higher total tartaric acidity and lower pH. This factor also plays an important role on color quality and on the global wine quality as well as its conservation during ageing and storage.
OENOTOOLS: THE REFERENCE CALCULATION TOOLS FOR WORLD WINEMAKERS!

1. WITH OUR EXCLUSIVE SMARTPHONE APP CALCULATE IN A FEW SECONDS:

- SO₂ ADDITIONS
- DESULPHURING
- UNIT CONVERSIONS
- TAILOR-MADE PRODUCT DOSES SPECIFIC ADDITIONS OF SUGAR AND ETHANOL
- ACIDIFICATION AND DE-ACIDIFICATION
- STRIPPING OF O₂ OR CO₂ REMOVAL
- FERMENTATION NEEDS FOR SKIN CONTACT, MUST SETTLING OR WINE COOLING
- TANK VOLUME

AND MANY MORE!

2. THE I-PAD OENOTOOLS BLENDS APPLICATION TO ASSIST YOU IN BLENDING SESSION: HIGHLY INTUITIVE AND EASY-TO-USE TO EASE BLENDING DECISIONS

- Assists the tasting session by calculating test tube volume,
- Extrapolates instantly volumes used for tasting with volumes available in the cellar,
- Instantly calculates likely analytical parameters of wine batches created during the blending session,
- Calculates the remaining available volume of each wine batch, and the volume of the blend created.

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