



SpringArom®



## TO PRESERVE WINES FRESHNESS AND AROMA

### Description:

Aromatic white and rosé wines that are intended to be consumed shortly after bottling are very successful among new wine consumers for their freshness and their aromatic intensity. To preserve these characteristics, the wine maker is bound to find new solutions to **warn oxidation risks**.

Fermentis® developed **SpringArom®**, an inactivated yeast possessing an important reduction power thanks to its **high natural reduced glutathione content, an antioxidant tripeptide contained in yeast** that prevents, along with its synthesis intermediates (Cysteine and Gamma-glutamylcysteine), oxidation reactions and avoids organoleptic ageing.

### Properties:

**SpringArom®** combines the effects of glutathione with those of inactivated yeasts.

- **Antioxidant effect (quinone trap):**
  - Color protection against browning
  - Preservation of aromatic molecules notably thiols
- **Nutrition side effect:** Richness in organic nitrogen for optimum fermentation security in association or not with DAP
- **Organoleptic improvement:** Freshness and fat mouth feel.
- **E2U™**



- **SpringArom®** has a micro granulated form making its dispersion better and securing its use. It's the reason why the product is certified E2U™.

### Applications:

**SpringArom®** is particularly adapted

- For the elaboration of **expressive and well balanced white and rosé wines**
- For **white and rosé wines from varieties rich in oxidable polyphenols, subjected to color browning**
- **To thiol rich varieties** (Sauvignon, Petit and Gros Manseng, Cabernet Sauvignon, Merlot)
- To young red & rosé wines intended to be fresh & fruity



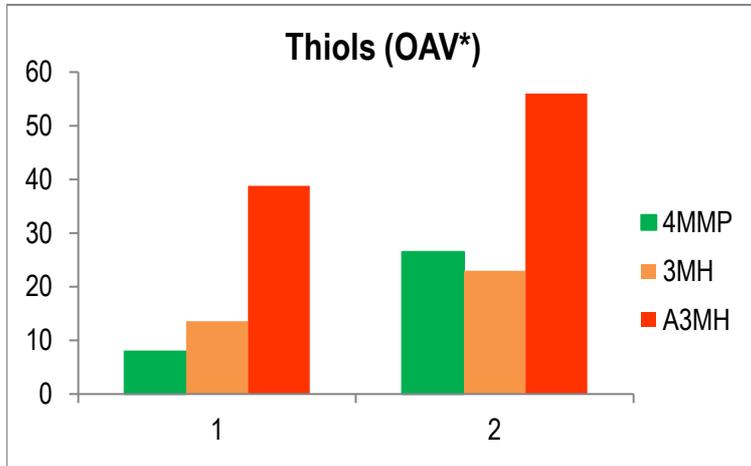
THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



## Comparative trials:

Sauvignon Blanc must, 12.6%vol./vol., 2013.

Fermentis<sup>®</sup> protocol with SpringArom<sup>®</sup> and ViniLiquid (2) vs Ammonium sulphate (1).



The supply of 30g/hl of SpringArom<sup>®</sup> at the beginning of fermentation impressively helped preserving the aromas (thiols) of Sauvignon Blanc in comparison with sole ammonium sulphate addition.

A net increase of volume in mouth was felt as well as a much more complexity in the aromatic profile.

\*OAV: Odor Active Value (Concentration/Perception threshold)

## Dosage:

Add 20 to 30 g/hl in the must **immediately after pressing or settling and just before the inoculation of yeasts** to benefit from its support elements. We recommend to systematically proceeding to an ageing on lees with stirring when SpringArom<sup>®</sup> is used.

SpringArom<sup>®</sup> cannot replace a real fermentation aid.

In case of musts highly deficient in nitrogen, it is recommended to add DAP as well as SpringFerm<sup>™</sup> in appropriate dosages (refer to SpringFerm<sup>™</sup> technical data sheet).

## Composition:

In g%g of product (indicative values)

|  |                 |
|--|-----------------|
| Dry matter                             | >94%            |
| Proteic matter                         | 53-63%          |
| <b>Of which glutathione equivalent</b> | <b>&gt;1.5%</b> |
| Total carbohydrates                    | 24-28%          |
| Lipids                                 | 4-8%            |
| Minerals                               | 4-8%            |

## Packaging:

Carton of 10 under-vacuum sachets of 1Kg each (Full box net weight: 10 kg)

Carton of 1 vacuum-packed box of 10 Kg (Full box net weight: 10 kg)

25 kg sealed paper bags with polyethylene liner

## Guarantee:

Fermentis<sup>®</sup> guarantees an optimum storage of this product during 3 years in its original packaging at a temperature of maximum 20°C and in a dry place.

Fermentis<sup>®</sup> guarantees the product complies with the International Oenological Codex until its Best Before End Date in the storage conditions mentioned above. All our products are also fully authorized per TTB 27 CFR 24.246 prior to and during fermentation.

**Fermentis<sup>®</sup> fermentation aids and functional products are exclusively produced from natural yeast products. The Know-how of the Lesaffre group guarantees end users, high performing products as required by modern oenological applications.**

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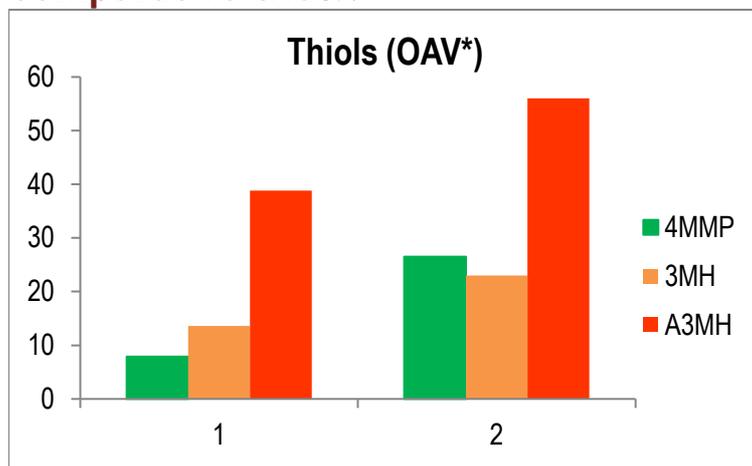
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# SpringCell™ Color



## FOR STABLE COLOR & SMOOTHNESS

### Description:

SpringCell™ Color has been specifically developed to act on the **intensity and the stability** of color as well as on the **roundness** of red wines on the long term. It contains **much more polysaccharides** than basic inactivated yeast. SpringCell™ Color has proven its qualitative impact on **primeur red wines** as well as on **high quality long-ageing red wines**.

### Properties:

#### COLOR

- **Increase of the color intensity:** thanks to a better composition in tannins and anthocyanins of the wine after treatment (increase of the OD520 & OD280 and of the quantity of anthocyanins)
- **Stabilization of color:** The polysaccharides help the stabilization of the tannin-anthocyanin complexes and allow the reduction of the free anthocyanins rate.

#### SAVOR

- Significant softening of the most astringent tannins thanks to the coating action of the polysaccharides on the green tannins (decrease of the gelatin rate)

#### NUTRITION, side effect

- Supply of organic nitrogen during the fermentation under the form of amino acids which are quickly assimilated by the yeast.
- Supply of survival factors (ergosterols, fatty acids) to guarantee the end of fermentation thanks to its composition in SpringCell™ yeast cell hulls.

#### E2U™



- SpringCell™ Color has a **micro granulated form** making its dispersion better and securing its use. It's the reason why the product is certified E2U™.

### Applications:

SpringCell™ Color is suitable for:

- The elaboration of **intense and round red wines**
- **Long maceration musts or musts that have undergone a too strong extraction** (softening of green tannins)
- Wines processed with **thermo vinifications**
- Wines from **highly tannic and colored cultivars**
- Musts **poor in anthocyanins**

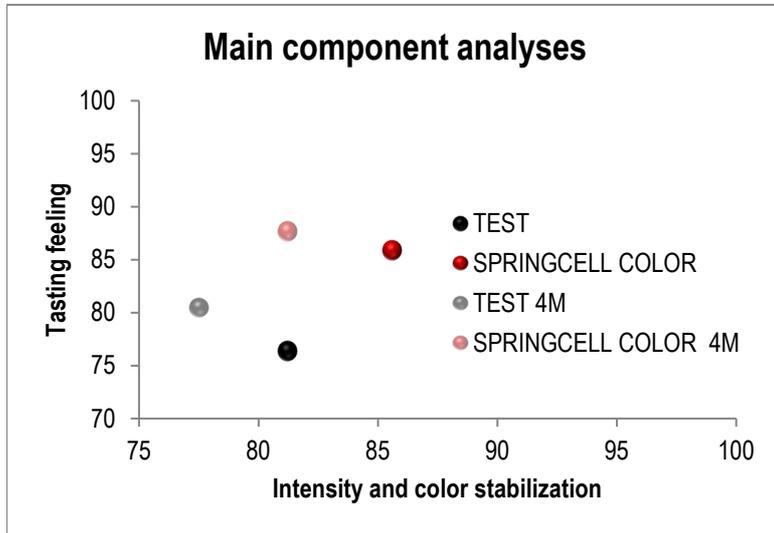


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## Study results:

of the effect of 30g/hl of SpringCell™ Color added before yeast inoculation on polyphenol complexes of a 2011 Argentinian Malbec through a main component analysis: SpringCell™ Color helped preserving color intensity and stabilization while enhancing mouthfeel during ageing.



**4M:** after 4 months ageing

**Visual component: Color intensity, quality and stabilization**  
Combination of Color intensity, Color Hue (related to color quality), IPT (related to color intensity and stability), Molar ratio tannins anthocyanins, (related, with IPT, to color stabilization), Tannins-Anthocyanins, (related to color stability).

**Taste component: Body, Smoothness and Tonicity**  
Combination of Alcohol (related to body and smoothness), Total Extract, (mainly related to body), Ethanol index (strongly related to smoothness), Tannic power (related to tonicity), IPT (Phenolic richness related to body and tonicity).

## Dosage:

20 to 30g/hl of SpringCell™ Color must be incorporated just before the inoculation of yeasts to play its functional role as well as its role of support element, diluted in ten times its volume of wine or water.

**Warning:** SpringCell™ Color contains yeast hulls subjected to usage legal limit of 40g/hl according to the European legislation and 3lbs/1000gal according to US (TTB) legislation, that must be taken into account for eventual extra supplies.

In case of difficult fermentation, SpringCell™ yeast hulls can also be added within 10-20g/hl between third and mid-fermentation (density 1,050-1,040). For all other usage, contact Fermentis.

Think of checking eventual limits applicable in your country while taking into account your own product usage conditions.

## Composition: in g%g of product (indicative values)

|                |        |                                    |               |
|----------------|--------|------------------------------------|---------------|
| Dry matter     | < 94%  | Total carbohydrates                | 42-46%        |
| Total nitrogen | 4-6%   | <b>Among which polysaccharides</b> | <b>39-43%</b> |
| Lipids         | 11-15% | Mineral matters                    | 4-8%          |

## Packaging:

Carton of 20 vacuum-packed sachets of 500g each (Full box net weight: 10 kg)

Carton of 1 vacuum-packed box of 10 Kg (Full box net weight: 10 kg)

## Guarantee:

Because it contains yeast cell walls, **SpringCell™ Color** is vacuum packed to avoid any organoleptic deviations due to oxidation. Fermentis® guarantees an optimum storage of this product during 3 years in its original packaging at a temperature of maximum 20°C and in a dry place.

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## SpringCell™ Color G2



### FOR ENHANCED POLYPHENOL AND ORGANOLEPTIC PROFILES

#### Description:

SpringCell™ Color G2 is an optimization of the SpringCell™ Color. Based on pure inactivated yeast from *Saccharomyces cerevisiae* particularly rich in polysaccharides, it improves the action of the SpringCell™ Color on the intensity and the stability of the polyphenolic profile of red wines.

SpringCell™ Color G2 brings a better quality of the wine structure (especially tannins) consequently improving the organoleptic profile of full bodied medium to long ageing premium reds.

#### Properties:

##### POLYPHENOLIC PROFILE

- Increased polyphenol content: SpringCell™ Color G2 significantly increases the color intensity and the final content in tannins of the wine after treatment (increase of the OD520 & OD280)
- Increased polyphenol stability: The effect of SpringCell™ Color G2 polysaccharides is strengthened to help the stabilization of the tannin-anthocyanin complexes and allow the reduction of the free anthocyanins rate. G2 brings another dimension as well to the stability through the induction of the production of tannins that are much more polymerized.

##### ORGANOLEPTIC PROFILE

- SpringCell™ Color G2 largely contributes to the softening of the most astringent tannins thanks to the increase of their polymerization degree and to the coating action of the polysaccharides (decrease of the tannic power and increase of the ethanol index).

##### NUTRITION, side effect

- Supply of vitamins and of organic nitrogen during the fermentation under the form of amino acids which are quickly assimilated by the yeast.
- Supply of insoluble elements and survival factors (ergosterols, fatty acids) to help yeast vigor all along the fermentation.

##### E2U™



- SpringCell™ Color G2 has a micro granulated form making its dispersion better and securing its use. It's the reason why the product is certified E2U™.

#### Applications:

SpringCell™ Color G2 is suitable for:

- The elaboration of intense and round medium to long ageing red wines
- Long maceration musts or musts that have undergone a too strong extraction (softening of green tannins)
- Wines from highly tannic and colored cultivars
- Wines with already experienced unstable color

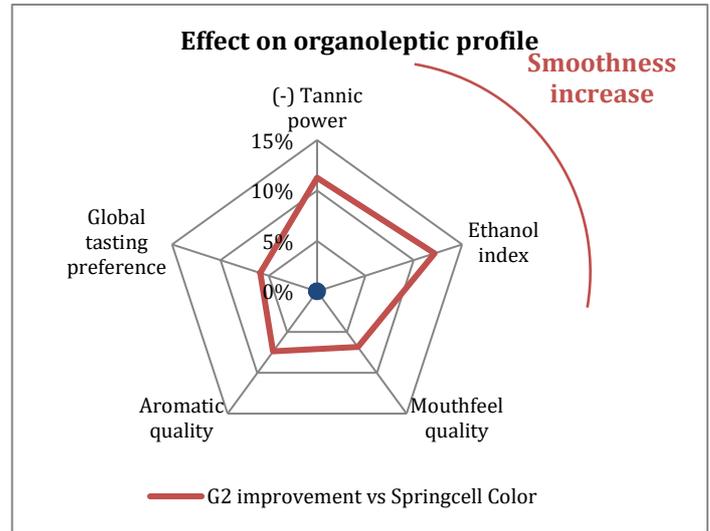
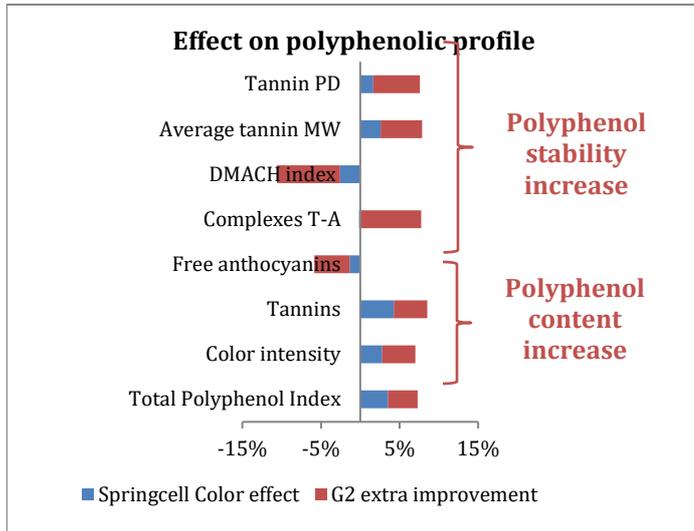


THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



## Study results:

Average effect after 6.5 months of ageing of 30g/hl of SpringCell™ Color and G2 added before yeast inoculation on polyphenol and organoleptic profiles of Argentinian Malbec and Cabernet Sauvignon from 3 different microvinifications (2012, 2013 and 2015):



PD: Polymerization Degree, MW: Molecular Weight, T-A: Tannin-Anthocyanin, (-) Tannic power: Opposite value of the tannic power

## Dosage:

20 to 30g/hl of SpringCell™ Color G2 must be incorporated just before the inoculation of yeasts to play its functional role as well as its role of support element, diluted in ten times its volume of wine or water.

## Composition: in g%g of product (indicative values)

|                     |              |
|---------------------|--------------|
| Dry matter          | > 94%        |
| Total nitrogen      | 7.5 - 8.8%   |
| Total carbohydrates | 28.0 - 34.0% |
| Lipids              | 4.0 - 8.0%   |
| Mineral matters     | 4.0 - 8.0%   |

## Packaging:

Carton of 20 vacuum-packed sachets of 500g each (Full box net weight: 10 kg)

## Guarantee:

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SpringCell™ Color has been specifically developed to act on the **intensity and the stability** of color as well as on the **roundness** of red wines on the long term. It contains **much more polysaccharides** than basic inactivated yeast. SpringCell™ Color has proven its qualitative impact on **primeur red wines** as well as on **high quality long-ageing red wines**.

### Properties:

#### COLOR

- **Increase of the color intensity:** thanks to a better composition in tannins and anthocyanins of the wine after treatment (increase of the OD520 & OD280 and of the quantity of anthocyanins)
- **Stabilization of color:** The polysaccharides help the stabilization of the tannin-anthocyanin complexes and allow the reduction of the free anthocyanins rate.

#### SAVOR

- Significant softening of the most astringent tannins thanks to the coating action of the polysaccharides on the green tannins (decrease of the gelatin rate)

#### NUTRITION, side effect

- Supply of organic nitrogen during the fermentation under the form of amino acids which are quickly assimilated by the yeast.
- Supply of survival factors (ergosterols, fatty acids) to guarantee the end of fermentation thanks to its composition in SpringCell™ yeast cell hulls.

### Applications:

SpringCell™ Color is suitable for:

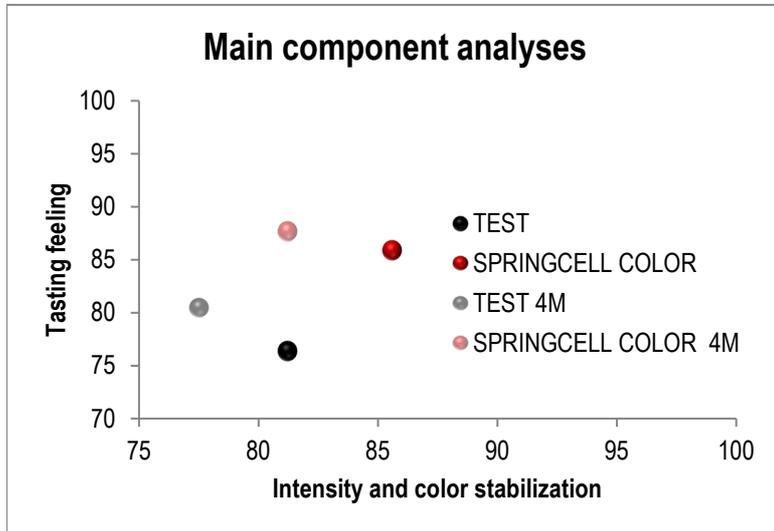
- The elaboration of **intense and round red wines**
- **Long maceration musts or musts that have undergone a too strong extraction** (softening of green tannins)
- Wines processed with **thermo vinifications**
- Wines from **highly tannic and colored cultivars**
- Musts **poor in anthocyanins**





## Study results:

of the effect of 30g/hl of SpringCell™ Color added before yeast inoculation on polyphenol complexes of a 2011 Argentinian Malbec through a main component analysis:  
SpringCell™ Color helped preserving color intensity and stabilization while enhancing mouthfeel during ageing.



**4M:** after 4 months ageing

### Visual component: Color intensity, quality and stabilization

Combination of Color intensity, Color Hue (related to color quality), IPT (related to color intensity and stability), Molar ratio tannins anthocyanins, (related, with IPT, to color stabilization), Tannins-Anthocyanins, (related to color stability).

### Taste component: Body, Smoothness and Tanicity

Combination of Alcohol (related to body and smoothness), Total Extract, (mainly related to body), Ethanol index (strongly related to smoothness), Tannic power (related to tanicity), IPT (Phenolic richness related to body and tanicity).

## Dosage:

20 to 30g/hl of SpringCell™ Color must be incorporated just before the inoculation of yeasts to play its functional role as well as its role of support element, diluted in ten times its volume of wine or water.

**Warning:** SpringCell™ Color contains yeast hulls subjected to usage legal limit of 40g/hl according to the European legislation and 3lbs/1000gal according to US (TTB) legislation, that must be taken into account for eventual extra supplies.

In case of difficult fermentation, SpringCell™ yeast hulls can also be added within 10-20g/hl between third and mid-fermentation (density 1,050-1,040). For all other usage, contact Fermentis.

Think of checking eventual limits applicable in your country while taking into account your own product usage conditions.

## Composition: in g%g of product (indicative values)

|                |        |                                    |               |
|----------------|--------|------------------------------------|---------------|
| Dry matter     | < 94%  | Total carbohydrates                | 42-46%        |
| Total nitrogen | 4-6%   | <i>Among which polysaccharides</i> | <b>39-43%</b> |
| Lipids         | 11-15% | Mineral matters                    | 4-8%          |

## Packaging:

Carton of 20 vacuum-packed sachets of 500g each (Full box net weight: 10 kg)

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THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



# SpringCell™ Manno



THE BEST OF LEES FOR THE BALANCE, THE RICHNESS AND THE STABILITY OF YOUR WINE

## Description:

The wine industry demands round & smooth wines that can be made available to the market quickly. Fermentis has developed **SpringCell™ Manno**, a **yeast product very rich in polysaccharides** (glucans & soluble mannoproteins) that represent the **noblest part of the lees**.

## Properties:

### CONTRIBUTION IN ROUNDNESS & VOLUME

- SpringCell™ Manno contains highly soluble mannoproteins non linked to  $\beta$ -glucans whose efficiency is instant in the wine. These polysaccharides finely act on the volume and body sensation usually brought during an ageing on lees.

### DECREASE OF THE ASTRINGENCY

- Polysaccharides combine themselves with the most astringent tannins to attenuate the hardness and bring roundness to the wine.

### RED COLOR STABILIZATION

- Yeast polysaccharides allow a long-lasting stabilization of the tannin-anthocyanins complexes.

### WINE STABILIZATION

- SpringCell™ Manno brings wine more richness in protective colloids (mannoproteins). At the rates at which they are present in the wine, these polysaccharides can level wine oxidation/reduction changes during ageing as well as possibly prevent the crystallization of tartaric acid salts.

### PREVENTION OF OFF-FLAVORS

- SpringCell™ Manno can substitute itself for fine lees, thus avoiding the formation of reductive notes generated by the latter ( $H_2S$ ) during the ageing period. This substitution also prevents the development of any undesirable microorganism contained in the natural lees.

### E2U™



- SpringCell™ Manno has a **micro granulated form** making its dispersion better and securing its use. **It's the reason why the product is certified E2U™.**

## Applications:

- For **light** wines with **poor roundness**.
- For red wines from tannic and deeply colored cultivars.
- For **any type of wine** in addition to fine lees.



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



## Dosage:

Addition of **SpringCell™ Manno** is recommended at the beginning of ageing.

**Red wines:** 20-40 g/hl

**White wines:** 10-30 g/hl

Dissolve **SpringCell™ Manno** in a minimum of water.

## Warnings:

This product is not totally soluble.

SpringCell™ Manno yeast hulls are subjected to usage limit of 40g/hl according to the European legislation and 3lbs/1000gal according to US (TTB) legislation.

## Composition: in g%g of product (indicative values)

|                        |          |
|------------------------|----------|
| Dry matter:            | < 94%    |
| Total nitrogen:        | 1.4-3.0% |
| Total Polysaccharides: | 42-56%   |
| Mineral matters        | 2.5-5.5% |

## Packaging:

Carton of 16 vacuum-packed sachets of 500g each (Full box net weight: 8kg)

Carton of 1 vacuum-packed box of 10 Kg (Full box net weight: 10 kg)

## Guarantee:

Because it contains yeast cell hulls, **SpringCell™ Manno** is vacuum packed to avoid any organoleptic deviation due to oxidation. Fermentis® guarantees an optimum storage of this product during 3 years in its original packaging at a temperature of maximum 20°C and in a dry place.

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- For red wines from tannic and deeply colored cultivars.
- For **any type of wine in addition to fine lees**.



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## Composition: in g%g of product (indicative values)

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| Dry matter:            | < 94%    |
| Total nitrogen:        | 1.4-3.0% |
| Total Polysaccharides: | 42-56%   |
| Mineral matters        | 2.5-5.5% |

## Packaging:

Carton of 16 vacuum-packed sachets of 500g each (Full box net weight: 8kg)

Carton of 1 vacuum-packed box of 10 Kg (Full box net weight: 10 kg)

## Guarantee:

Because it contains yeast cell hulls, **SpringCell™ Manno** is vacuum packed to avoid any organoleptic deviation due to oxidation. Fermentis® guarantees an optimum storage of this product during 3 years in its original packaging at a temperature of maximum 20°C and in a dry place.

Fermentis® guarantees the product complies with the International Oenological Codex until its Best Before End Date in the storage conditions mentioned above. All our products are also fully authorized per TTB 27 CFR 24.246 prior to and during fermentation. Dosage limits may apply. Please contact your product specialist for more information.

**Fermentis® fermentation aids and functional products are exclusively produced from natural yeast products. The Know-how of the Lesaffre group guarantees end users, high performing products as required by modern oenological applications.**





## Spring'Finer™



### A PERFECT FINING AGENT PRODUCED FROM YEAST

#### Description:

The modern oenology must adapt to **new demands on consumers safety**, notably on the presence of allergenic substances in the oenological products used by winemakers. As a consequence, current usage of products derived from eggs and milk as protein fining agents, especially egg albumen and casein, is particularly controlled and can be subjected to a specific labeling according to the European regulation (EU) n°579/2012.

In this scope, **Fermentis**, in collaboration with the company Sofralab, developed a **unique industrial process allowing the extraction and the preservation of native proteins from a specifically selected *Saccharomyces cerevisiae* yeast strain whose fining capabilities are remarkable.**

**Exclusively from yeast origin, the yeast protein extract Spring'Finer™ is allergen free and can be considered as the sole fining agent totally integrated in wine elaboration.**

#### Properties:

##### WINE CLARIFICATION

- Contrary to yeast extracts coming from yeast autolysis process at high amino acids and small peptides content, Spring'Finer™ contains high molecular weight proteins (>15kDa) whose clarifying capabilities towards cloudy particles and colloids present in the wines are totally similar to other protein fining agents.

##### ASTRINGENCY AND BITTERNESS DECREASE

- Spring'Finer™ specifically precipitates the most astringent and bitter tannins while preserving wine structure, thus decreasing their harshness and improving their organoleptic quality.

##### STABILIZATION TOWARDS OXIDATION

- Spring'Finer™ removes oxidable polyphenols, thus contributes to stabilize treated wines against browning.

##### NO PROTEIN DESTABILIZATION

- Even if Spring'Finer™ is based on yeast proteins, it doesn't provoke any protein destabilization of the wines.

##### LIMITED LOSS OF WINE

- After fining stage, the lees obtained using Spring'Finer™ are thick and compact, thus allowing decreasing the loss of racked wine and enhancing its added value.

##### E2U™



Spring'Finer™ is a **totally soluble** product and has a **micro granulated form making its dispersion better and securing its use**. It **doesn't need any treatment prior to its use** as pH adjustments or others...



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



## Applications:

- For **Premium red and white wines, notably aged in barrels**, to refine them before bottling
- For **strongly pressed must and wines**, in order to remove the most astringent tannins

## Dosage and usage:

**Musts:** 5 -20 g/hl (legal limit 30g/hl)

**Red wines:** 5-15 g/hl (legal limit 60g/hl)

**White and rosé wines:** 1-5 g/hl (legal limit 30g/hl)

Pour **Spring'Finer™** in **10 times its weight of water** (never in wine) at **10-20°C maximum**. Wait for complete dispersion, stir and incorporate the obtained solution directly into the wine through an adequate connector. Homogenize the wine through a pumping over without aeration.

**Warning:** Yeast protein extracts are subjected to usage limit of 30 to 60g/hl according to the European legislation. See here above mentioned limits.

## Composition:

Yeast Protein Extract. NON-GMO and NON-ALLERGEN.

## Packaging:

Carton of 24 vacuum-packed sachets of 125g each (Full box net weight: 3 kg)

## Guarantee:

**Spring'Finer™** is a highly hygroscopic product. Fermentis® guarantees the products organoleptic properties by vacuum packing the product.

Fermentis® guarantees an optimum storage of this product during 3 years in its original packaging at a temperature of maximum 20°C and in a dry place.

Fermentis® guarantees the product complies with the International Oenological Codex until its Best Before End Date in the storage conditions mentioned above. All our products are also fully authorized per TTB 27 CFR 24.246 prior to and during fermentation.

**Fermentis® fermentation aids and functional products are exclusively produced from natural yeast products. The Know-how of the Lesaffre group guarantees end users, high performing products as required by modern oenological applications.**

The data contained in this technical sheet are the exact transcription of our knowledge of the product at the time of revision. They are the exclusive property of Fermentis®-Division of S.I.Lesaffre. It is of the user responsibility to make sure that the usage of this particular product complies with the legislation.

