Viniflora® FrootZen™

Product Information

Version: 7 PI GLOB EN 10-18-2016

Description

Viniflora® FrootZen™ is a pure strain of yeast *Pichia kluyveri* strengthening the fruity characteristics of the wine. FrootZen™ can be used at several stages of the process as a pre-fermentation product (on harvested grapes, on crushed grapes, in the must). The culture is recommended to the make of white, rosé as well as red wines.
The product is delivered as highly concentrated frozen bags for a direct inoculation: It does not require re-hydration or acclimation.

Please note
This specialty wine yeast product is not intended to achieve alcoholic fermentation but to improve wine complexity. To achieve alcoholic fermentation in your must/wine, you will have to inoculate with a product based on *Saccharomyces cerevisiae* strain(s) at a later stage.

Culture composition:
Pichia kluyveri.

Material No:	714094	Color:	Off-white to slightly brown
Size	1X5000 L	Format:	F-DVS
Type	Bag(s) in box	Form:	Frozen liquid

Storage

< -45 °C / < -49 °F
(Avoid to store at -18°C/ -0.4°F)

Shelf life

Frozen yeast stored according to recommendation will have a shelf life of 12 months.

Dosage

It is recommended to use a 500 g bag in 50 hl (1320 US gallons).

Application

This specific and pure strain of *Pichia kluyveri* ensures a safe and reliable start to alcoholic fermentation in both white, rosé or red wines. It gives winemakers the opportunity to boost fruit flavours, optimising the conversion of soluble grape-derived fruit flavour precursors into volatile flavours, increasing the wines aroma intensity, spectrum and longevity.

FrootZen™ gives four simultaneous effects to wines:
- Increased fruit flavour intensity
- Larger spectrum of fruit flavours, giving wines additional complexity
- Lower volatile acidity
- Rounder mouth-feel

Depending on the winemaking style and variety, it is present until the ethanol concentration reaches approximately 5% (V/V). From there the culture slowly dies out and the alcoholic fermentation can be completed only by more alcohol tolerant species such as *Saccharomyces cerevisiae*.
Therefore, FrootZen™ inoculation has to be followed by a *Saccharomyces cerevisiae* inoculation to achieve a safe, smooth and fast alcoholic fermentation in wines.

Directions for use

1. Defrosting step: Open the freezer, take one box of Viniflora® FrootZen™ yeast. Open the box with gloves; remove the cap protection placed on top of the bag and place the bag in a bucket of lukewarm water (30°C) for 5 to 10 minutes. This step will help unstick the frozen block from the plastic bag.

2. Activation: Due to the unique production process the *Pichia kluyveri* yeast cells are already activated for inoculation into must. No further activation is required.

3. Direct inoculation: Cut the top of the bag containing the frozen liquid yeast from end to end with scissors. Pour the content (frozen block of yeast) into your tank. One bag contains enough yeast to inoculate 50 hl (5000 L; 1320 US gallons) of must. Note: Never place FrootZen(TM) bag in a -18°C freezer, follow carefully the instruction and move the product out of the -45°C freezer right before inoculation. As with any yeast or bacteria inoculated into grape juice or wine, SO_2 will reduce the culture population. Check sulfites before inoculation, limit SO_2 dosage to the minimum possible and always refer to the maximum level indicated for the product.

Technical Data

Fermentation characteristics

Flavors	Acidic balance	Mouth-feel	Other
Enhance fruit flavors (thiols, terpenes, esters) Very low volatile phenols Very low H_2S Ideal for fruity white, rosé and red wines	Low production of acetic acid	Medium production of polysaccharides	Low production of SO_2 Facilitate MLF Very early hydrolysis

Timing for inoculation
Depending the amount of time available for wine production and the desired effect, inoculation can be done following two protocols:

1. Simultaneous inoculation
Together with the *Saccharomyces cerevisiae*strain(s) of choice: this is recommended when time available at crush time is limited and/or the overall fermentation time needs to be kept the same. This will secure a mild 'wild effect' associated with a smooth start of the alcoholic fermentation.

2. Sequential inoculation
The yeast should be inoculated first, followed by the inoculation of the *Saccharomyces cerevisiae*strain(s) of choice. The yeast has to be inoculated first, and a lag phase has to be observed, which will depend on must temperature. Chr. Hansen recommends to inoculate the standard Saccharomyces yeast after a drop of 15-20 points at least in density or 5ºBrix. This leads to the inoculation of the yeast:
- 24 hours before *Saccharomyces cerevisiae* inoculation when temperature is high (red wine production)
- 48 hours before *Saccharomyces cerevisiae* inoculation when temperature is low (white wine production)

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Physiological data

Parameter	Value(s)	Comment
Temperature*		
Tolerance limits	10-28°C (50-82°F)	
Optimum	15-25°C (59-77°F)	
Total SO2 tolerance*	45 ppm at crush	(mg/l)
Alcohol tolerance*	6.0%	
Nitrogen requirements	medium	Check YAN before inoculation
Sugar to alcohol yield	16.8 g/ % vol	FrootZen™ will only consume sugars at the beginning of the AF process - at most, degrading 6° Brix or 25 points of specific gravity
Glycerol yield	5 - 8 g/l	Standard

** note that these inhibitory factors are antagonistic towards each other.*
The individual tolerances are valid only if other conditions are favourable.
Check level of SO_2 produced by the yeast used for primary fermentation and be aware of level of free SO_2.

Legislation

The product is intended for food use as an œnological product and complies with the current International Oenological Codex. Chr. Hansen´s cultures comply with the general requirements on food safety laid down in Regulation 178/2002/EC and with Council Regulation (EC) No 606/2009 of 10 July 2009, as amended.
The product is approved for use in organic wines (EU and NOP), a statement can be provided on demand.

The product is intended for food use.

Food Safety

No guarantee of food safety is implied or inferred should this product be used in applications other than those stated above. Should you wish to use this product in another application, please contact your Chr. Hansen representative for assistance.

Labeling

No labeling required, however please consult local legislation if in doubt.

Trademarks

Product names, names of concepts, logos, brands and other trademarks referred to in this document, whether or not appearing in large print, bold or with the ® or TM symbol are the property of Chr. Hansen A/S or used under license. Trademarks appearing in this document may not be registered in your country, even if they are marked with an ®.

Additional Information

Check the latest news on www.chr-hansen.com/food-cultures-and-enzymes/wine

Technical support

Chr. Hansen's Application and Product Development Laboratories and personnel are available if you need further information.

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GMO Information

In accordance with the legislation in the European Union* Viniflora® FrootZen™ does not contain GMOs and does not contain GM labeled raw materials**. In accordance with European legislation on labeling of final food products** we can inform that the use of Viniflora® FrootZen™ does not trigger a GM labeling of the final food product. Chr. Hansen's position on GMO can be found on: www.chr-hansen.com/About us/Policies and positions/Quality and product safety.

** Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms with later amendments, and repealing Council Directive 90/220/EEC.*
*** Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed with later amendments.*
Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labeling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms amending Directive 2001/18/EC, and with later amendments.

Allergen Information

List of common allergens in accordance with the US Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA) and EU Regulation 1169/2011/EC with later amendments	Present as an ingredient in the product
Cereals containing gluten* and products thereof	No
Crustaceans and products thereof	No
Eggs and products thereof	No
Fish and products thereof	No
Peanuts and products thereof	No
Soybeans and products thereof	No
Milk and products thereof (including lactose)	No
Nuts* and products thereof	No
List of allergens in accordance with EU Regulation 1169/2011/EC only	
Celery and products thereof	No
Mustard and products thereof	No
Sesame seeds and products thereof	No
Lupine and products thereof	No
Mollusks and products thereof	No
Sulphur dioxide and sulphites (added) at concentrations of more than 10 mg/kg or 10 mg/litre expressed as SO_2	No

** Please consult the EU Regulation 1169/2011 Annex II for a legal definition of common allergens, see European Union law at: www.eur-lex.europa.eu*