Viniflora® Oenos 2.0
Product Information
Version: 3 PI GLOB EN 02-11-2016

Description
Viniflora® Oenos 2.0 is a freeze-dried pure culture of Oenococcus oeni. It is a heterofermentative malolactic bacteria which has been selected to ensure a fast and safe malolactic fermentation when inoculated directly into wine. It has an excellent allround tolerance towards pH, alcohol, temperature and SO₂.

Culture composition:
Oenococcus oeni.

Material No: 712473
Color: Off-white to slightly brown
Size 5X25000 L
Format: FD-DVS
Type Pouch(es) in box
Form: Freezedried

Storage
-18 °C / 0 °F

Shelf life
When stored according to recommendation the product has a shelf life of 24 months.
At +5°C (41°F) the shelf life is at least 6 months.

Application
This culture has been selected for its overall outstanding performance and capability to perform a fast and safe malolactic fermentation in most red and white wines. Among the features are:

• Direct inoculation into wine
• High numbers of active cells which ensure a quick start of fermentation
• High level of microbiological purity
• Low production of volatile acidity
• Excellent all round tolerance towards pH, alcohol, temperature and SO₂
• Does not produce biogenic amines*

*During malolactic fermentation, indigenous bacteria produce biogenic amines from amino acids. This strain of malolactic bacteria has been selected using state-of-the-art techniques in screening, analyses or production to deliver malolactic cultures unable to produce the following biogenic amines: histamine, tyramine, putrescine, phenylethylamine, isoamylamine, cadaverine.

For further information about biogenic amines in wines and how to avoid them please consult the OIV code of good vitivinicultural practices to minimize biogenic amines: http://www.oiv.int/oiv/info/enguidesoiv#biogenic
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Directions for use
Viniflora® freeze-dried cultures are adapted for direct inoculation into wine. No rehydration or reactivation is required.

1. Remove the pouch from the freezer 15 min. before use and place at room temperature. Make sure that the dosage complies with the amount of wine to be inoculated.

2. Open the pouch and add the granulated culture directly to wine. The culture can be dissolved in a smaller volume first and added to the total volume right after, if required. Make sure that the culture is completely dissolved in the wine.

Technical Data

Oenos 2.0 degraded the total amount of malic acid (1.7 g/L) in 11 days, compared to Oenos, which finished the fermentation in 13 days.

![Graph showing the degradation of malic acid in South African Merlot, 2014 with pH 3.5 and 15.6% ethanol (v/v) with data points for Viniflora Oenos and Viniflora Oenos 2.0.]
Physiological data

<table>
<thead>
<tr>
<th>Inoculation temperature range</th>
<th>15-25°C (59-77°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH minimum*</td>
<td>3.2</td>
</tr>
<tr>
<td>Total SO₂, max. at inoculation*</td>
<td>40 ppm</td>
</tr>
<tr>
<td>Alcohol maximum*</td>
<td>15 % vol</td>
</tr>
</tbody>
</table>

* note that these inhibitory factors are antagonistic towards each other. The individual tolerances are valid only if other conditions are favourable. Check level of SO₂ produced by the yeast used for primary fermentation and be aware of level of free SO₂.

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.

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/wine

Technical support

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

In accordance with the legislation in the European Union* Viniflora® Oenos 2.0 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® Oenos 2.0 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.


Allergen Information

<table>
<thead>
<tr>
<th>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</th>
<th>Present as an ingredient in the product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals containing gluten* and products thereof</td>
<td>No</td>
</tr>
<tr>
<td>Crustaceans and products thereof</td>
<td>No</td>
</tr>
<tr>
<td>Eggs and products thereof</td>
<td>No</td>
</tr>
<tr>
<td>Fish and products thereof</td>
<td>No</td>
</tr>
<tr>
<td>Peanuts and products thereof</td>
<td>No</td>
</tr>
<tr>
<td>Soybeans and products thereof</td>
<td>No</td>
</tr>
<tr>
<td>Milk and products thereof (including lactose)</td>
<td>No</td>
</tr>
<tr>
<td>Nuts* and products thereof</td>
<td>No</td>
</tr>
</tbody>
</table>

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 at concentrations of more than 10 mg/kg or 10 mg/litre expressed as SO₂ | 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