

The wide variety of selected natural yeast reflects biodiversity, yet this biodiversity is still underexploited despite the large number of species and subspecies (other than *Saccharomyces cerevisiae*) that are present in the grape must. During spontaneous fermentation, the microbial population dynamics result in a succession of enzyme activity that undoubtedly contribute, positively or negatively, to the aromatic complexity and diversity of wine. Thanks to the Lallemant R & D research program, the use of the non-conventional yeast strains such as *Torulaspora delbrueckii* used in sequential inoculation with a *Saccharomyces cerevisiae*, is now possible and opens up new possibilities for winemakers.

## ORIGIN AND APPLICATION

**BIODIVA™ – to enhance aroma and mouthfeel complexity in white and red wines.**

BIODIVA™ is a pure culture of *Torulaspora delbrueckii*, selected for its properties to enhance wine aromatic and mouthfeel complexity. Used in sequential inoculation with a compatible selected *Saccharomyces cerevisiae* yeast studied and recommended by Lallemant, BIODIVA™ will help control development of the wines aromatic complexity by favouring the perception of certain esters without overwhelming the wines.

Due to its low volatile acid production and its tolerance to osmotic shock, BIODIVA™ is particularly adapted for fermenting late harvest and ice wines.

Highly recommended for Chardonnay, Semillon and dessert style / botrytised wines. Has also been used on Pinot Noir and Shiraz with success.

## MICROBIAL AND OENOLOGICAL PROPERTIES

- Species: *Torulaspora delbrueckii*
- Fermentation Temperature: >16°C. The temperature of the juice, must be greater than 16°C at inoculation for fermentation to start.
- Lag phase is moderate, unless temperature of juice/must is below 16°C.
- When used for fermenting high Baume sweet wine, usage of GoFerm Protect is recommended to protect against osmotic shock.
- Volatile acidity production: very low.
- Very good compatibility with malolactic fermentation
- To be used in sequential inoculation with a suitably paired *Saccharomyces cerevisiae*. Refer to page 3 for a list of recommended *S. cerevisiae* yeast strains to pair with BIODIVA™

## INSTRUCTION FOR USE

### TO BE USED IN SEQUENTIAL INOCULATION AS FOLLOWS

\*Before inoculation, make sure that the free SO<sub>2</sub> level is lower than 15mg/L and the temperature of the juice /must is greater than 16°C.

#### 1st Inoculation: BIODIVA™

Inoculate at 25g/hL: Rehydrate the yeast in 10 times its weight of water at 30°C. After 15 minutes, stir gently. To help the rehydrated yeast acclimatise to the cooler juice temperature and avoid cold shock, slowly combine an equal amount of juice with the yeast rehydration solution (this step may need to be repeated), until the yeast suspension is within 10°C of the juice to be inoculated. Total rehydration time should not exceed 45 minutes. Allow the ferment to proceed until the Baume has reduced by approximately 2°Be, and then over-seed with a suitably paired *S. cerevisiae* strain (2nd inoculation)

#### 2nd Inoculation: *Saccharomyces cerevisiae* – Refer to Page 3 for a list of suitably paired *S. cerevisiae* yeast

After a density drop of approximately 2 Baume, proceed to the second inoculation with 25g/hL of one of the recommended *S. cerevisiae* yeast. Follow the classical rehydration, acclimatisation and handling protocol for *S. cerevisiae*.

## STORAGE

All Active Dried Yeast should be stored dry, best practice between 4-12°C and the vacuum packaging should remain intact.

## COMPATIBLE SACCHAROMYCES CEREVISIAE STRAINS

The final sensory outcome of BIODIVA™ is the contribution of both the non-conventional yeast and the paired *Saccharomyces cerevisiae* strain. Lallemand have extensively researched and trialled many combinations of *T. delbreuckii* and *S. cerevisiae*. We have found that there are compatible and also incompatible yeast strains, the definitions of which are:

**In-compatible** – Incompatible yeast strains have been defined as the paired *S. cerevisiae* yeast strains that do not have desirable fermentation kinetics. This could be due to numerous reasons such as amensalism, where the metabolites of one strain are inhibitory to another, or due to competition, where both strains use the same substrates which can result in a mutually detrimental interaction.

**Compatible** yeast strains are defined as the paired *S. cerevisiae* strains that have desirable fermentation kinetics and desirable organoleptic outcomes.

Lallemand have investigated numerous strains, but not all those in the portfolio. Hence if you have a particular yeast strain you would like to use, please conduct a trial. Alternatively contact Lallemand Australia, as we may have feedback, not yet added to this list.

Compatible <i>Saccharomyces cerevisiae</i> strains to be paired with BIODIVA™		
Yeast	Suggested Varieties	Sensory contribution
Enoferm BDX	<b>Red Varieties</b> such as Cabernet Sauvignon, Merlot, Shiraz, Tempranillo	Enhances varietal character, mouth-feel and contributes to colour stability.
Lalvin ICV D254	<b>Red varieties</b> and Chardonnay	Enhanced mouth-feel due to the production of polysaccharides. In chardonnay produces nutty aromas and creamy mouth-feel.
Lalvin QA23	<b>White varieties</b> such as Chardonnay, Semillon, Pinot Gris, Viognier	Enhances Varietal characters. High terpene and thiol releaser.
Lalvin RC212	<b>Pinot Noir and light red varieties</b>	Enhances varietal character and contributes structure and spiciness to Pinot Noir Wines
Lalvin Rhone 2056	<b>White and Red varieties</b>	Enhances varietal character and contributes to colour stability
Uvaferm 43	<b>White and Red varieties</b>	A neutral yeast strain often chosen for its fructophilicity and wide fermentation parameters.

Please refer to the Lallemand Oenology Portfolio for more detailed descriptions and environmental parameters of the above-mentioned yeast strains. Alternatively contact a Lallemand Representative for a Technical data sheet.