

Safe Alcoholic Fermentation: Providing Complete Nutrition for the Yeast

► Why?

- To protect yeasts when introducing them into must with high risk factors.
- Balanced nutrition promotes yeast growth and optimizes the sensory impact of fermentation.
- Simply providing ammonia nitrogen and thiamine is not always enough for successful fermentation.

Key Points

WHEN SHOULD THE YEASTS BE NOURISHED?



- **NITROGEN DEFICIENCY.** Yeasts can develop and consume sugars only when they have a sufficient supply of nitrogen. Yeast available nitrogen (YAN) is made up of a combination of ammonia nitrogen and amino acids.



- **RISK OF SLUGGISH FERMENTATION.** Yeasts also require vitamins and minerals that are often not available in the must. Adding complete nutrients to prevent deficiencies can provide the balance to avoid problems.



- **TO OPTIMIZE AROMATIC EXPRESSION.** Nitrogen promotes the yeast's aromatic metabolism.

HOW DO I ENSURE RELIABLE FERMENTATIONS?



- **GO-FERM PROTECT®** – when used during rehydration – provides a source of micronutrients and survival factors.

FERMAID®

- **FERMAID O™** providing free amino acids (organic nitrogen) and vitamins
- **FERMAID A™** providing an enriched source of alpha amino nitrogen blended with inorganic nitrogen
- **FERMAID K™** providing key micronutrients, inorganic and alpha amino nitrogen



Yeast Protection and Nutrition Guidelines

Juice/Must* YAN	Yeast Rehydration	Start of AF	1/3 through AF
>200 mg/L	GO-FERM PROTECT® 30 g/hL (2,4 lb/1000 U.S. gallons)	FERMAID O™ 10-20 g/hL (0,8-1,7 lb/1000 U.S. gallons)	FERMAID O™ 10-20 g/hL (0,8-1,7 lb/1000 U.S. gallons)
125-200 mg/L	GO-FERM PROTECT® 30 g/hL (2,4 lb/1000 U.S. gallons)	FERMAID O™ 10-20 g/hL (0,8-1,7 lb/1000 U.S. gallons)	FERMAID A™ 10-30 g/hL (0,8-2,4 lb/1000 U.S. gallons)
<125 mg/L	GO-FERM PROTECT® 30 g/hL (2,4 lb/1000 U.S. gallons)	FERMAID A™ 10-30 g/hL (0,8-2,4 lb/1000 U.S. gallons)	FERMAID A™ 10-30 g/hL** (0,8-2,4 lb/1000 U.S. gallons)

* Although the initial levels of YAN in the juice or must help guide a nutrient strategy, avoid chasing YAN numbers through excessive nitrogen additions. Instead, consider the quality of the nitrogen (inorganic vs. organic), the balance and availability of micronutrients, the relative nitrogen demand of the selected yeast, the temperature and aeration management, as well as other good fermentation practices – all of which greatly impact the overall yeast health and resulting fermentation.

** If the YAN level of the juice or must is below 70 mg/L, add 25 g/hL of diammonium sulphate (DAP) with 30 g/hL of Fermaid® A around 1/3 through alcoholic fermentation (AF).

The above guidelines are based on an optimized protection and nutrition strategy. However, if you can only make one Fermaid® addition, add the total amount around 1/3 through AF.

How much Fermaid® should be added during fermentation?

- Use lower recommended dosages when fermentation conditions are considered good.
- Use higher recommended dosages when several key difficult conditions exist, such as:
 - <50 Nephelometric Turbidity Units (low NTU = highly clarified juice)
 - >14% potential alcohol
 - fermentation temperatures below 16°C or above 28°C.

Sluggish fermentation?

Add Nutrient VIT END™ when there is a slowdown around 2/3 through AF of less than 0,5 Baume or 1° Brix/day, except for slow fermenting yeasts or fermenting <12°C.

Fermaid K™ may be substituted for Fermaid A™. Both are used instead of Fermaid O™ to help boost YAN levels.