



# FERMAID C™

**Fermaid C™ is a blended complex yeast nutrient suitable for the alcoholic fermentation of apple juice.**

## ORIGIN AND APPLICATION

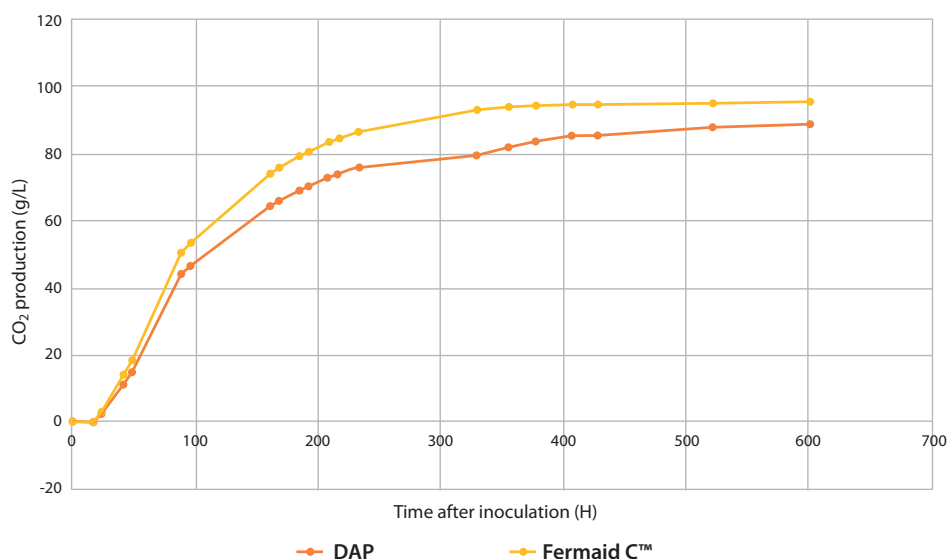
In all alcohol fermentations yeast growth must occur before alcoholic fermentation can begin. In most applications, the usual inoculation rate is 30 grams per hectoliter (300 ppm or 2.5 pounds/1,000 gallons) which results in an initial cell concentration of 3 to 4 million viable yeast cells per milliliter of juice. Under normal conditions for virtually all types of fermentation media the cell population will increase to 100 to 150 million viable yeast cells/milliliter before growth stops and alcohol fermentation takes over.

**Fermaid C™** helps this maximum yeast cell density get through to the stationary phase and complete alcohol fermentation as quickly and as efficiently as possible, especially under limiting available nitrogen conditions. By neglecting to follow a proper nutrition and aeration strategy, the time to complete fermentations can drag out and may take days and even weeks to complete. Sluggish fermentations occupy much needed tank space for prolonged periods and, more importantly, they create conditions that allow the proliferation of wild yeasts and bacteria.



Healthy yeast fermentation will take preferential priority over a bacterial spoilage growth and will have a reduced SO<sub>2</sub> requirement. To facilitate the efficient and rapid finish to the fermentation, **Fermaid C™** supplements a series of important nutrients and bio-factors. They are:

- Mineral enriched specific yeast derivatives
- Di-Ammonium phosphate
- Thiamine, niacin, folic acid and calcium pantothenate



**Cider fermentation - CO<sub>2</sub> production during fermentation with DAP versus Fermaid C™ with equivalent YAN (200 gr sugar, pH 3.6, initial YAN 50 ppm) Nutrient addition at t=0.**

**Fermaid C™** ensures an efficient and complete cider fermentations  
- the more CO<sub>2</sub> produced, the more active the fermentation.



## ORIGIN AND APPLICATION (cont'd)

During the stationary phase of the fermentation, a yeast cell benefits from consuming nitrogen to maintain a healthy metabolism. Under limiting yeast assimilable nitrogen (YAN) conditions below 125 mg/L, fermentation may become very sluggish and can even cease. In addition, nitrogen utilization at a lower pH is less efficient. Fermenting yeast readily use the balance of yeast assimilable nitrogen from the alpha amino acids contributed by the inactive yeast and from the di-ammonium phosphate (DAP). This balanced available nitrogen, as in **Fermaid C™**, has been demonstrated to be more effective on fermentation kinetics than DAP supplements alone. The cell uses the phosphorus in the di-ammonium phosphate for ATP and phospholipids.

## Importance of vitamins and minerals for yeast vitality

Magnesium is an important enzyme co-factor and helps yeast develop alcohol tolerance (G. Walker 2000). Thiamine, niacin, folic acid and calcium pantothenate (C. Edwards 2001) are important bio factors for good growth and fermentation. Thiamine deficiencies can result in poor growth, increased hydrogen sulfide production, as well as higher levels of acetic and pyruvic acids. Pantothenate deficiencies result in increased levels of volatile acidity. Under the anaerobic environment of cider fermentations, the yeast cannot synthesize niacin.

Under conditions of restricted oxygen, ergosterol production by the yeast is virtually non-existent; yet, it is an important growth regulator. It also improves the alcohol tolerance of the yeast. In fermenting must, inactivated yeast absorb natural inhibitors and supply lipids and sterols. The cell wall portion of the yeast contains significant amounts of polysaccharides including chitin, which increases the yeast cell surface area in the must and thus reduces the level of natural inhibitors.

### In nutrient deficient juice or must

When YAN is below 125 mg/L, optimal fermentation kinetics are obtained by supplementation of an additional 100 – 200 mg/L YAN, which corresponds to 50 – 100 g/hL of DAP. Although fermentation kinetics are favorable, the cider can be bitter and harsh. In these cases supplementation of DAP with 25g/hL of **Fermaid C™** will result in improved mouthfeel, balance and cider quality.

## INSTRUCTIONS FOR USE

For cider applications, the recommended dose is 30-50 g/hL.

It is recommended to split the **Fermaid C™** addition; half at yeast inoculation and again at 1/3rd sugar depletion, especially for juice limited in available nitrogen and high sugars.

## PACKAGING AND STORAGE

- Available in 2.5 kg box
- Store in a cool (below 25° C) and dry environment

***No UREA is used at any stage in the production of Fermaid C™.***

The information herein is true and accurate to the best of our knowledge; however, this data sheet is not to be considered as a guarantee, expressed or implied, or as a condition of sale of this product.

WINE  
YEASTSWINE  
BACTERIANUTRIENTS  
/PROTECTORSSPECIFIC  
INACTIVATED YEASTS

ENZYMES



CHITOSAN

VINEYARD  
SOLUTIONS

LALLEMAND OENOLOGY

Original by culture