



**Product Specification Sheet**

**ULTRA-FERM**

**Product Information**

Product Description	Enzyme preparation for food use containing amyloglucosidase derived from a selected strain of <i>Aspergillus niger</i>
Product Number	WLN4100
Country of origin	China
Application Market	Potable Alcohol/Spirits Saccharification of liquefied starch
Appearance	liquid (appearance may vary from batch to batch)
Standardized activity	$\geq 36000$ AGI/g
Status	<ul style="list-style-type: none"><li>- Non GMO production strain</li><li>- Kosher Approved</li><li>- Halal Approved</li><li>- Food intolerance info available on request</li></ul>

**Regulatory information**

The product complies with general specifications for food enzyme preparations as published by JECFA, FCC and in French “Arrete auxiliaires technologiques du 19 octobre 2006” and with FDA current GMP standards (21 CFR 110)

**Composition**

Carrier	sucrose 10.0%
Stabilizing agent	sodium benzoate and potassium sorbate (total <5 g/kg)

**Chemical properties**

pH	3.5-5.0
Heavy Metals	<30 ppm (as Pb)
Lead	< 5 ppm
Arsenic	<3 ppm
Cadmium	<0.5 ppm
Mercury	<0.5 ppm

**Microbiological properties**


Total Plate Count	<5x10 <sup>4</sup>
Coliforms	< 30 CFU per g
Escherichia coli	absent in 25g
Salmonella	absent in 25g
Staphylococcus aureus	absent in 1g
Sulphate reducers	<30 CFU per g
Anti bacterial activity	absent by test
Mycotoxins	absent by test

**Stability data**

- Recommended storage temperature is 4-8 C
- When stored in recommended condition, the activity loss will be less than 5% within 12 months



## White Labs Fermentation Enzymes

Made with technology from **DSM** 

### Safety and Handling

Please refer to the Materials Safety Data Sheet available on request

### Contact

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## APPLICATION DATA SHEET

# ULTRA-FERM

### Amyloglucosidase for ethanol or dry beer production

#### PRODUCT DESCRIPTION

ULTRA-FERM is a liquid amyloglucosidase (highly concentrated) from selected classical strain of *Aspergillus niger*.

#### ETHANOL PRODUCTION

After starch liquefaction by alpha-amylase, dextrins are hydrolysed in glucose by amyloglucosidase, before alcoholic fermentation. Ethanol production is faster and yield is higher. The recommended saccharification temperature is 60°C.

A suitable substrate for saccharification is a liquefied starch with a dextrose equivalent (DE) between 10 and 20. A higher DE than 20 might reduce the saccharification efficiency. The concentration of the substrate will also influence the saccharification efficiency. A concentration of 20-25% is a general practice.

ULTRA-FERM dosage, for given reaction time, depends on the amount of glucose requested. It is usually recommended to add 400 ml per ton of starch for a fast hydrolysis. Possible pH range of use is from 3.5 to 5.5 with optimal between 4.0 and 5.3. Optimal temperature is 60°C. Amyloglucosidase activity is completely destroyed when the saccharified liquor is held at 85°C for 10 minutes. As an example: a yield of 94% glucose can be obtained after 40 hours with 36000 AGI per kg dry matter; after 72 hours with 17000 AGI/kg and after 85 hours with 13000 AGI/kg, at pH 4.5 with temperature 60°C.

#### BEER PRODUCTION

Brewers often want to produce light beers or dietetic beers. In these cases the brewer wants a controlled or complete hydrolysis of starch and dextrins to fermentable glucose. Traditional brewing methods permit only 75 to 80% hydrolysis of starch present in the grain raw material. ULTRA-FERM amyloglucosidase permits total hydrolysis of dextrins to fermentable glucose, from all types of starch.

In the brewhouse, the recommended application dosage of ULTRA-FERM is 0.8 to 3.2L per ton of starch. It can be added at the beginning of the mash-in. In the fermenter, the recommended application dosage is 1.5 to 2.5 milliliters per hectolitre of beer, applied as the fermenter is being filled.

ULTRA-FERM optimal pH is between 3.5 and 5.5. Temperature should not exceed 60°C. Amyloglucosidase activity is completely destroyed when the wort is held at 85°C for 10 minutes.