



**Product Specification Sheet**

**OPTI-MASH**

**Product Information**

Product description	Enzyme preparation for food use containing thermostable bacterial alpha-amylase derived from a selected strain of <i>Bacillus licheniformis</i>
Product number	WLN4300
Country of origin	China
Application market	Beer: Starch liquefaction
Appearance	creamish to tan liquid (product color may vary from batch to batch)
Standardised activity	≥ 7400 TAU/g
Status	<ul style="list-style-type: none"><li>- Identity preserved (non GMO strain and raw materials)</li><li>- Halal approved</li><li>- Allergen statement 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 "Arrêté auxiliaires technologiques du 19 octobre 2006" and with FDA current GMP standards (21 CFR 110).

**Composition**

Carrier	glycerol ≥ 15 %
Stabilising agent	potassium sorbate (< 5 g/kg)

**Chemical properties**

pH	5.5 - 7.0
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	< 5 * 10 <sup>4</sup> CFU per g
Sulphate reducers	< 30 CFU per g
Coliforms	< 30 CFU per g
Salmonella	absent in 25 g
<i>Escherichia coli</i>	absent in 25 g
<i>Staphylococcus aureus</i>	absent in 1 g
Anti bacterial activity	absent by test
Mycotoxins	absent by test


**Stability data**

Recommended storage temperature 4 - 8°C

When stored in recommended condition, the shelflife is 1 year after production. Hereafter a re-assay is advisable.



## 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

# OPTI-MASH

<b>Classical thermostable alpha-amylase for starch liquefaction of brewing adjuncts</b>
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### PRODUCT DESCRIPTION

OPTI-MASH is a liquid thermostable alpha-amylase from a classical strain of *Bacillus licheniformis*.

### FUNCTION

Different adjuncts such as maize, rice, wheat, and sorghum are used in brewing. The starch of these grains can have gelatinization temperature greater than 76-78 °C, the temperature at which different amylases from barley are inactivated. In addition, the milling of adjuncts and malt results in different sizes of flour and grist particles, the largest of which may not be completely solubilized below this temperature. OPTI-MASH alpha-amylase ensures starch liquefaction when using adjuncts in the mash bill. Extract yield is improved and the risk of starch retrogradation is prevented.

OPTI-MASH alpha-amylase can be used for starch liquefaction with all types of adjuncts that are used in the brewhouse. No pH adjustment or stabilization of enzyme with calcium ions is required, although the addition of Ca(OH)<sub>2</sub> to obtain a pH of 6.5 will ensure maximum efficiency.

### APPLICATION

If malt is used to liquefy the starch in the cereal cooker, then also add OPTI-MASH at 5.5-7 Liters per ton of adjunct. If no malt is used, with adjuncts such as maize, rice, wheat, or sorghum, OPTI-MASH should be used at 7.5-10 Liters per ton of adjunct.

It is recommended to dilute OPTI-MASH in brewing water prior to use to facilitate mixing in the adjunct cooker. OPTI-MASH must be added at the beginning of adjunct cooking. It will be inactivated during the kettle boil.