



## Product Specification Sheet

# CLARITY-FERM

### Product Information

**Product Description** Enzyme preparation for food use containing proline-specific endo-protease derived from a selected self-cloned strain of *Aspergillus niger*

**Product Number** WLN4000

**Application market** Beer: Improves the colloidal stability of beer

**Appearance** liquid (appearance may vary from batch to batch)

**Standardized activity**  $\geq 5$  PPU/g

**Status**

- The production strain is improved by biotechnological techniques and contains multiple copies of a gene naturally present in the strain
- Kosher approved
- Halal approved
- Allergen statement available on request

### 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  $\geq 45$  %

### Chemical properties

**pH** 3.8 - 4.2  
**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  
**Coliforms** < 30 CFU per g  
***Escherichia coli*** absent in 25 g  
**Salmonella** absent in 25 g  
***Staphylococcus aureus*** absent in 1 g  
**Sulphate reducers** < 30 CFU per g  
**Anti bacterial activity** absent by test  
**Mycotoxins** absent by test  
**Yeasts** < 10 per g  
**Moulds** < 10 per g

### Stability data

Recommended storage temperature 4 - 8°C

When stored in recommended condition, the activity loss will be less than 5% within 18 months.



## White Labs Fermentation Enzymes

Made with Brewers Clarex™ by **DSM** 

### Safety and Handling

Please refer to the Materials Safety Data Sheet available on request

### Contact

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## APPLICATION DATA SHEET

# CLARITY-FERM

**A highly specific endo-protease to prevent chill haze in beer**

### PRODUCT DESCRIPTION

CLARITY-FERM is a product containing a highly specific endo-protease which only cleaves polypeptides at the carboxyl end of the amino acid proline. It is standardized at a minimum of 1 PPU per gram.

### FUNCTION

Chill haze in beer results from the precipitation of complexed polyphenols and proteins during cold storage. The nature of this precipitation has been shown to be the result of hydrogen bonding between the polyphenols and the proline-rich fraction of particular polypeptides. This haze develops over time and, initially, is reversible (haze disappears when the temperature of the beer increases). As the hydrogen bonding becomes stronger this chill haze can become permanent.

CLARITY-FERM will prevent the precipitation of complexed polyphenols and proteins by hydrolyzing the sensitive (haze-active) polypeptides in the region where such hydrogen bonding occurs. The specificity of the enzyme ensures that no other beer parameters are affected.

### APPLICATION

CLARITY-FERM can be used with all kinds of malts and other raw materials.

CLARITY-FERM is added to cooled wort at the beginning of fermentation.

The required dose rate is determined by:

- The percentage of barley malt, raw barley and/or wheat of the total grist composition;
- The specific gravity (Plato) of the wort at the beginning of fermentation;
- The shelf-life required (months).

Note: There is no requirement to treat any adjuncts derived from maize grits or rice with CLARITY-FERM.

### Recommended Dose Rates of CLARITY-FERM\*

Raw Material (by extract)	Product Shelf-Life Requirement	
	6 – 12 months	>12 months
100% malted barley	6 ml/BBL	10 ml/BBL
≤60% malted barley	3 ml/BBL	6 ml/BBL

\*Recommended dose rates based on a 12°P wort. Increase dosage proportionally with increasing wort gravity.