# **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  $\geq 5 \text{ PPU/g}$ 

Status

- The production strain is improved by biotechnological techniques and contains

multiple copies of a gene naturally present in the strain

Kosher approvedHalal 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

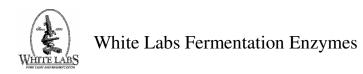
### Microbiological properties

Total plate count < 5 \* 104 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.



Made with Brewers Clarex<sup>TM</sup> by **DSM** 

### **Safety and Handling**

Please refer to the Materials Safety Data Sheet available on request

Contact White Labs, Inc. www.whitelabs.com info@whitelabs.com

Laboratory and Administrative Offices	R&D Laboratory	Sales & Customer Service
7564 Trade Street	2001 Second Street	5455 Spine Road
San Diego, CA 92121	Suite 2	Mezzanine East
USA	Davis, CA 95618	Boulder, CO, 80301
Tel: (858) 693-3441	USA	USA
Fax: (858) 693-1026	Tel: (530) 756-2879	Tel: (888) 5-YEAST-5 (US & Canada)
	Fax: (530) 756-2870	(303) 530-0469 (International)
		Fax: (888) 693-1026 (US & Canada)
		(303) 530-3816 (International)

#### 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\***

#### Product Shelf-Life Requirement

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

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