



## custom enzymes

### **CUSTOM E MALT PLUS**

**Multiple enzyme components for maximising malt extraction**

**Custom Enzyme blend for wort extraction yield**

**CUSTOM E MALT-PLUS** is a food grade mashing enzymes formulation containing the selective activities of Alpha-Amylase; Neutral Protease and  $\beta$ -Glucanases. This product has been specially designed for the brew house malting process. It has been developed to improve the wort extraction yield when protein gels, un-liquefied starch,  $\beta$ -Glucans and Pentosans are involved.

#### **Advantages of CUSTOM E MALT – PLUS:**

**CUSTOM E MALT - PLUS** offers the use of significant level adjuncts used along with barley, or any situation where the malt level is inadequate or inconsistent to give complete hydrolysis of the starch, protein, and glucans components in the mash.

1. Alpha amylase catalyzes the hydrolysis of glycosidic linkages of the starch and other polysaccharides containing three or more 1, 4- $\alpha$ -linked D-glucose units.
2. Blend of Natural proteases, the metallo-endopeptidase, catalyzes endo - hydrolysis of proteins and the peptides.
3. The  $\beta$ -Glucanases catalyzes the hydrolysis of  $\beta$ -D-Glucans.
4. Optimal extract composition and yield
5. Good wort filtration, separation, run-off time
6. No  $\beta$ -glucans or starch haze in extract.
7. Optimal total and free  $\alpha$ -amino nitrogen level

#### **Application instructions:**

- An efficient milling operation provides grist with intact hulls for good drainage after mashing, yet with the endosperm sufficiently crushed to allow full conversion to extract
- Grist is mashed with conventional brewing liquor at a liquor-to-grist ratio of 3:1 up to 5:1 at a temperature of 45 - 55 C (113 - 131 F)
- **CUSTOM E MALT - PLUS** may be added during mashing, at a rate of 2.0-2.5 Kg per ton of barley (unmalted adjunct solids)
- A proteolytic stand of 20 - 90 minutes is required, depending on degree of malt modification and weight of unmalted cereals

- A temperature is raised to 63 - 65 C (145 – 149 F) at a rate of 10 degrees per minute and held for approximately 1 hour to allow for starch gelatinization and saccharification. This is followed by raising the temperature to 70 – 80 C (158 - 176 F) to complete liquefaction. Wort separation may then proceed

**Dosing:**

**CUSTOM E MALT - PLUS** 2.0 to 2.5 Kg/MT of barley (unmalted adjunct solids).

**Product Characteristics:**

- Powder form
- Appearance Light to Dark Tan color

**Packaging:**

**CUSTOM E MALT- PLUS** is available in 25 kg bag and can be packed as per the customer's request.

**Storage and Handling Precautions:**

Store it in a cool and dry place and shaded place away from direct sunlight. Enzyme dust may cause sensitization and irritation when inhaled in some individuals. Prolonged contact with product should be avoided. In case of spillage or contact with eyes or skin, rinse the affected area promptly with plenty of clean water. Wear suitable safety gear and clothing.