

DELTASTILL

PRODUCT CODE: DG-DSTIL

FOOD GRADE PRODUCT

DESCRIPTION

DELTASTILL is a purified enzyme complex system produced by the controlled fermentation of *GRAS microrganisms*. The main enzyme activities consist of *Alpha Amylase*, *Glucoamylase* and *beta-Glucanase*.

PHYSICAL FORM

Dark brown, cloudy liquid, somewhat viscous and free from precipitate.

INGREDIENTS

Alpha Amylase enzyme concentrate
Glucoamylase (Amyloglucosidase)
Beta Glucanase enzyme concentrate
Stabilizers

SPECIFICATION

All analytical methods available on request.

Activity

Glucoamylase	DU/ml	:	160 (-5% +15%)
Alpha Amylase	U/ml	:	3,400 (-5%+15%)
Beta Glucanase	BGU/ml	:	190 (-5%+15%)

Physical

Specific Gravity	:	1.17 g/ml typical
pH	:	5.7 typical

Heavy Metals

Meets FCC specifications for food grade enzymes

Total heavy metals	:	<40 ppm
Lead	:	<10 ppm
Arsenic	:	<3 ppm

Microbiological

T.V.C.	:	<50,000/ml
Coliforms	:	<30 CPU/ml
Salmonella	:	absent in 25g
E coli	:	absent in 25g
Yeast & Moulds	:	<200/ml
TE	:	<30/ml

APPLICATION

DELTASTILL is used in the distilling industry where it is ideally suited to barley/malt mashes.

DOSE RATE

Our recommended enzyme dose rate is 1-1.5 kg/tonne grain. The actual dose rate depends on the quality of the raw materials and the amount of malt which has been replaced by barley. Therefore, it is always advisable to do preliminary laboratory trials to determine optimum dose rates.

DELTASTILL should be added at the beginning of the mashing process.

For a single stand mash the optimal temperature for this enzyme blend is 65 °C

ACTIVITY PROFILE

The alpha amylase activity of **DELTASTILL** has an optimum pH of 6.0 and starch liquefaction occurs over the pH range of 5.5-7.5 under brewing conditions. The alpha amylase is extremely stable over a pH range of 5.0-9.0. The alpha amylase has an optimum temperature of 85°C with extended stability over the range 40°C-90°C.

The beta glucanase activity has an optimum pH of 5.0 and is stable over a pH range of 3.5-7.0. The beta glucanase has an optimum temperature of 70°C and is stable over a temperature range of 40°C-75°C.

The Glucoamylase activity has an optimal pH of 5-7.

The optimal temperature for this enzyme is 60°C with stability up to 75 °C

STORAGE/SHELF LIFE

At temperatures of <20°C **DELTASTILL** will maintain the declared activity for at least 12 months. At lower temperatures the shelf life is considerably improved.

PACKAGING

Standard packaging for **DELTASTILL** is in 25kg drums, 5kg and 1kg containers

Issue No:	Summary of changes made from previous version:	Actioned by:	Authorised by:
4	Change of logo	Chui Choo Tan	Michael Watson