

# GF Chitosanase

## Chitosanase

Chitosanase is a powdered chitosanase preparation made by submerged fermentation of a selected strain of the bacterium *Bacillus* sp. The enzyme catalyzes the breakdown of chitosan, a partially or completely de-acetylated derivative of chitin ( $\beta$ -1,4 homopolymer of N-acetyl glucosamine).

### ◆ General Description

- 1) Preparation: The product is prepared from the culture broth of *Bacillus* sp. through a series of purification steps.
- 2) Catalysis: The product catalyzes the breakdown of chitosan into chitobiose, chitotriose and higher oligosaccharides. The relative amounts of reaction products formed depend on the reaction conditions.
- 3) Characteristics
  - . Molecular weight: 45,000Da estimated by SDS-PAGE
  - . Mode of action: Endo-cleavage type.
  - . Optimum pH: pH range of 4.5 to 6.0.
  - . pH stability: Stable in pH range of 4.5 to 8.0.
  - . Optimum temperature: 60°C.
  - . Temperature stability: More than 90% activity remains after 24 hr incubation at 40°C.
  - . Substrate specificity: Shows high activities against chitosan substrates which are de-acetylated by 40 to 100%.
  - . Reaction products: Mainly produces oligosaccharides ranging from chitotriose to chitooctaose from chitosan.

#### ◆ **Product Specification**

- 1) Activity: Chitosanase ..... 35,000U/g.
- 2) Shape: White or light yellow colored, freeze-dried powder.
- 3) Arsenic: Less than 4ppm.
- 4) Heavy metals: Less than 10ppm (as Pb).
- 5) Coli-form bacteria: Less than 30 colony-forming units(CFU) per gram.
- 6) Samonella: Negative.

#### ◆ **Activity Determination**

- The standard activity is determined by modified Schales method. One unit(U) is defined as the amount of enzyme that releases one  $\mu$ mole of reducing sugar (measured as D-glucosamine equivalents) from chitosan per minute at pH 5.0 at 48°C. A detailed description of the method is available on request.

#### ◆ **Applications**

- Chitosanase can be used for hydrolyzing chitosan(degree of de-acetylatin: 40 ~ 100%). Especially, it can be used for the production of chitosan oligosaccharides from chitosan, which have a variety of biological activities such as immuno-stimulating activity, anti-tumor activity, anti-microbial activity, etc.

#### ◆ **Condition of Storage**

- The product should be stored in a cool, dry environment with temperatures below 4°C.