



## Product Information Sheet

# Protease BS-L

An *Enzyme Supplies* neutral endo-protease for the alcohol, bio-ethanol, brewing, and protein hydrolysis industries

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### INTRODUCTION

Protease BS-L is a neutral protease containing exclusively endo-peptidase activity. It is produced by fermentation of *Bacillus subtilis*.

- IUB-No. 3.4.24.28
- CAS-No. 9001-92-7

Protease BS-L hydrolyses high molecular weight protein into low molecular weight peptides. This product complies with the recommended specifications of the FAO/WHO joint expert committee on food additives (JECFA), and the food chemicals codex (FCC) for food-grade enzymes. The enzyme is not derived from a genetically modified strain of bacterium.

### ENZYME PROPERTIES

Protease BS-L has an optimum pH range of 6.5-8.0 (effective range 5.5-9.0). The enzyme has an optimum temperature range of 45°C to 60°C, with an effective range from 30°-65°C. The enzyme is inactivated rapidly at pH levels above 8.0 and temperatures above 60°C

### TYPICAL CHARACTERISTICS

Activity minimum 900PNU/g on a casein substrate  
Appearance – light brown liquid with a characteristic odour  
Bulk density 1.15g/ml  
Fully water soluble

## APPLICATION SCOPE

Protease BS-L can be used in a range of protein modification applications, but principally:

- Distillation/Biofuel: Protease BS-L acts to improve the separation of protein from starch (protein-starch matrix), thus improving the alcohol yield. The low molecular weight peptides formed do not sediment on the walls of the mash tun, fermenters or distilling equipment thus aiding cleaning regimes. Typical dose 300ml-500ml/tonne raw material.
- Brewing: Protease BS-L is used to supply the protease activity commonly missing in low quality barley/malt. The product is not inhibited by barley protease-inhibitors and therefore high values of  $\alpha$ -amino nitrogen can be achieved (dose rate 250-750ml/tonne raw material).
- Typical hydrolysis applications for Protease BS-L include wheat gluten, soya protein, gelatin, fish protein, milk proteins. Typical dose rate 0.05 – 0.1% of protein content.

## PACKAGING

Protease BS-L is available in bulk containers of 1,000Kg, 225Kg or 25Kg 'non-toxic' plastic barrels

## STORAGE STABILITY

To maintain optimum activity, Protease BS-L should be stored at moderate temperatures (below 25° C), in the original containers and with the lid closed. When stored at temperatures below 25°C, the activity loss will be less than 10% in 6 months. At temperatures below 10°C, the activity loss will be less than 10% in 2 years.

## SAFETY AND ENZYME HANDLING

Inhalation of aerosols from liquid enzymes should be avoided. Open in a well-ventilated environment. In case of contact with skin/eyes, promptly rinse with water for at least 15 minutes. Clean any spillages with low-pressure water hoses, avoiding the formation of aerosols. For more detailed information please refer to the Material Safety Data Sheet for this product.

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