

OPTIMASE® PR 40E

Granular High-Alkaline Protease

DESCRIPTION

OPTIMASE® PR 40E enzyme is a granular protease product derived from a genetically modified strain of *Bacillus subtilis* which has been engineered to give superior proteolytic performance in the neutral to high-alkaline pH range.

The OPTIMASE® PR 40E protease is produced using a proprietary granulation technology from DuPont. This technology produces a highly uniform, virtually dust-free granule which has excellent stability and solubility.

The OPTIMASE® PR 40E protease is highly effective for removal of protein-based soils such as blood, grass, and milk residues from soiled surfaces. Chelating agents and oxidative materials such as chlorine should be avoided when using the OPTIMASE® PR 40E protease.

PRODUCT CHARACTERISTICS

Activity:	38,000 Minimum GSU/kg*
Appearance:	Tan to white granules
Bulk Density:	0.80 - 1.00 kg/l
Granule size:	0.30-0.85 mm.

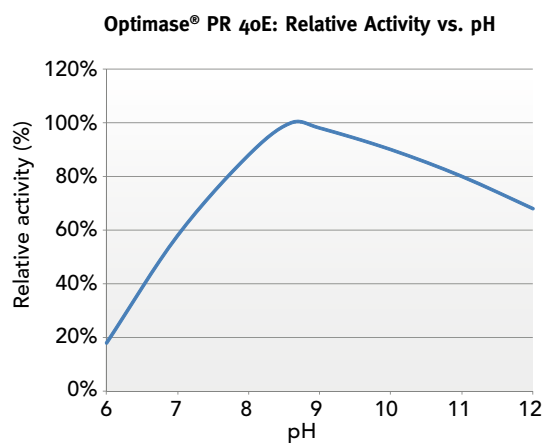
(*The activity of the OPTIMASE® PR 40E enzyme is expressed in Genencor Subtilisin Units/kilogram (GSU/kg) against an internal standard using a peptide substrate. A detailed assay method is available upon request.

BIOCHEMICAL PARAMETERS

Enzyme type:	Subtilisin, bacterial serine endopeptidase
EC/UB#:	3.4.21.62
CAS#:	9014-01-1
Molecular weight:	28 kDa
IEP:	9.4
Activators/cofactors:	Calcium ions

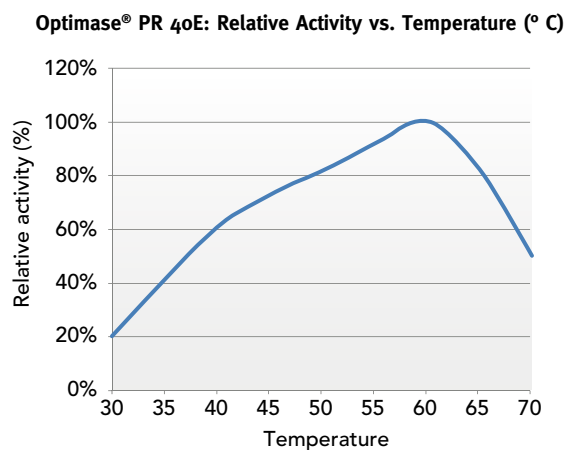
pH DEPENDENCY

The OPTIMASE® PR 40E protease is active over a range of pH values from 7.0 to 12.0, with an optimum performance at pH 8.6. The exact pH optimum will depend on process variables, including temperature, time, substrate concentration, and substrate composition.



TEMPERATURE DEPENDENCY

The OPTIMASE® PR 40E protease is effective in the temperature range of 35°C (95°F) to 65°C (150°F), with an optimum performance at 60°C (140°F). The exact temperature optimum will depend on process variables, including pH, time, substrate concentration, and substrate composition.



DOSAGE

The determination of the required dosage of OPTIMASE® PR 40E protease should be based upon actual applications conditions including factors such as pH, temperature, reaction time, substrate composition, and substrate concentration. Small-scale tests should be performed to determine the appropriate dosage of OPTIMASE® PR 40E protease.

PACKAGING AND STORAGE

OPTIMASE® PR 40E enzyme is available in various standard package sizes. Please contact DuPont for detailed information.

OPTIMASE® PR 40E will meet the declared activity of 38,000 GSU/kg upon arrival at the customer's plant. Store OPTIMASE® PR 40E enzyme at refrigerated temperatures (20° C or lower) to assure extended shelf life. Detailed storage and stability information is available upon request.

REGULATORY STATUS

OPTIMASE® PR 40E enzyme is an industrial grade enzyme preparation.

SAFETY & ENZYME HANDLING

Inhalation of enzyme dust and mists should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. For detailed handling information, please refer to the appropriate Material Safety Data Sheet, the Enzyme Technical Association (ETA) handbook "Working Safely With Enzymes", and the Association of Manufacturers and Formulators of Enzyme Products (AMFEP) handbook "Guide to the Safe Handling of Microbial Enzyme Preparations". All are available from DuPont.

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