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## Product Information

### Protease S, from *Pyrococcus furiosus*, recombinant

Product Number **P 6361**  
Storage Temperature 2–8 °C

#### Product Description

Protease S is a recombinant, 42,906 Da (amino acid composition), hyperthermostable, serine endoprotease that is expressed in a *Bacillus* species carrying a plasmid that contains a copy of the *Pyrococcus furiosus* protease gene.<sup>1</sup> It is a broad specificity protease capable of digesting native and denatured proteins. Protease S is active from 40 to 110 °C, with the optimal temperature range of 85 to 95 °C. The optimal pH range is 6.0 to 8.0 and the pI of the protein is 4.0.

Protease S retains activity with organic solvents and denaturants. After exposure to 6.4 M urea and 50% acetonitrile for 1 hour at 95 °C and pH 7.0, the enzyme retains 70% and 90%, respectively, of its activity. More than 50% of its activity is observed when incubated at 95 °C and pH 7.0 for 24 hours in the presence of 1% SDS.<sup>1</sup> Protease S is inhibited by PMSF.

This preparation is homogenous by SDS-PAGE (apparent molecular weight of 45 kDa) and no other proteases are detected.

The product is supplied as a solution containing approximately 100 units per ml of 25 mM Tris-HCl, pH 7.6, and 40% ethanol.

Unit Definition: One unit will hydrolyze 1.0 μmole of N-succinyl-Ala-Ala-Pro-Phe p-nitroanilide per minute at 95 °C and pH 7.0.

#### Precautions and Disclaimer

This product is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Storage/Stability

The product is shipped on wet ice and should be stored at 2–8 °C. It is extremely thermostable, retaining 80% of its activity after 3 hours at 95 °C and pH 7.0.

#### References

1. Asada, K. et al., Molecular Cloning of the Genes Coding for Hyperthermostable Serine Proteases from Hyperthermophilic Archaeobacteria and its Functional Expression in *Bacillus subtilis*, poster presentation at the International Congress on Extremophiles, Yokohama, Japan (1998).

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