



Product Information

Penicillinase from *Bacillus cereus*

Product Number **P 0389**
Storage Temperature 2 - 8 °C

EC 3.5.2.6
CAS# 9001-74-5
Synonyms: Cephalosporinase; β -Lactamase II;
 β -Lactamase I; Penicillin amido- β -lactam hydrolase

Product Description

Penicillinases and cephalosporinases are defined as a group of enzymes with varying specificity for hydrolysis of β -lactam compounds. Penicillinase is a mixture of two types of β -lactamases, β -lactamase I and II. Both enzymes are described as metalloenzymes or serine-enzymes. Penicillinase from *Bacillus cereus* is a constitutive periplasmic enzyme with an observed K_M of 60 μ M (benzylpenicillin) and molecular weight of 28 kDa.

The product is supplied as a lyophilized powder containing 10% protein (Biuret) with phosphate and citrate buffer salts.

Specific activity:
1,500-3,000 units/mg protein (benzylpenicillin),
10-30 units/mg protein (cephaloridine)

Unit definition: One unit will hydrolyze 1.0 μ mole of benzylpenicillin per minute at pH 7.0 at 25 °C.

The activity of the enzyme is measured in International Units (I.U.) using benzylpenicillin as the substrate. One International Unit (I.U.) is equivalent to 600 Levy units, 75 Pollock units, or approximately 70,000 kinetic Kersey units. One International Unit (I.U.) equals 1 Sigma unit.

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.

Preparation Instructions

The product is soluble (10 mg/ml) in 0.1 M Tris HCl, pH 7.0, containing 0.1% BSA. The solution can be filtered through a 0.2 μ m, low protein-binding membrane.

Storage/Stability

It is recommended to store the product desiccated at 2 - 8 °C. The product as supplied is stable for 2 years when stored properly. The product is stable in solution for at least three weeks at 2 - 8 °C.

References

1. Thatcher, D. R., β -Lactamase (*Bacillus cereus*). Meth. Enzymol., **43**, 640-652 (1975).
2. Davies, R. B., and Abraham, E. P., Separation, purification and properties of beta-lactamase I and beta-lactamase II from *Bacillus cereus* 569/H/9. Biochem. J., **143**, 115-127 (1974).
3. Heckler, T.G., and Day, R.A., *Bacillus cereus* 569/H penicillinase serine-44 acylation by diazotized 6-aminopenicillanic acid. Biochim. Biophys. Acta, **745**, 292-300 (1983).
4. Myers, J.L., and Shaw, R.W., Production, purification and spectral properties of metal-dependent beta-lactamases of *Bacillus cereus*. Biochim. Biophys. Acta, **995**, 264-272 (1989).

NDH/ALF/MAM 6/03

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