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Product Information

Chitinase from Trichoderma viride

Lyophilized powder, ≥600 units/g solid

C8241

Product Description

Enzyme Commission (EC) Number: 3.2.1.14

Synonym: $(1 \rightarrow 4)$ -2-acetamido-2-deoxy- β -D-glucan glycanohydrolase

Chitinases are enzymes that catalyze the degradation of chitin. They have been detected in many organisms, including bacteria, fungi, plants, invertebrates, and vertebrates.^{1,2} Chitinases are broadly classified as endo- and exochitinases. Endochitinase activity is defined as random cleavage at internal points in the chitin chain. Exochitinase activity is defined as progressive action, starting at the non-reducing end of chitin, with the release of chitobiose or *N*-acetyl-glucosamine units.^{2,3} *N*-acetyl- β -glucosaminidase and chitobiosidase are considered exochitinases.² The combination of endochitinases and exochitinases results in a synergistic increase in the chitinolytic activity.⁴

The chitinolytic enzymes from *Trichoderma viride* are a mixture of extracellular chitinolytic enzymes,¹ which exhibit exo- and endochitinase activities. The major activity was found to be *N*-acetyl- β -glucosaminidase. The profile of *T. viride* chitinolytic enzymes is similar to that of *T. harzianum*.⁵ These activities can be detected after separation by polyacrylamide gel electrophoresis using an agarose overlay containing fluorescent substrates.^{2,5}

Several theses⁷ and dissertations⁸⁻¹⁰ have cited use of product C8241 in their research.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Product

Specific Activity: \geq 600 units per g solid

Chitinase Unit Definition: One unit will release 1.0 mg of *N*-acetyl-D-glucosamine from chitin per hour at pH 6.0 at 25 °C.

 $\textit{N}\mbox{-}Acetyl\mbox{-}\beta\mbox{-}glucosaminidase Unit Definition: One unit will release 1.0 <math display="inline">\mu g$ of 4-nitrophenol from 4-nitrophenyl $\textit{N}\mbox{-}Acetyl\mbox{-}\beta\mbox{-}D\mbox{-}glucosaminide per minute at pH 6.1 at 40 °C.^6$

The activities of chitobiosidase and of N-acetyl- β -glucosaminidase (NAGase) are determined for each lot. The results are reported on the Certificate of Analysis for each specific lot.

Storage/Stability

The product ships on cooler packs ('wet ice'). The product, as supplied, is stable for 2 years at -20 °C. A solution in 50 mM phosphate buffer, pH 6.1, is stable for at least 5 weeks at 2-8 °C.

Preparation Instructions

The product is soluble in phosphate buffer (pH 6.1) at 1 mg/mL, yielding a clear to faint hazy, tan solution.

One publication reports preparation of stock solutions of this product at 20 mg/mL, in 20 mM sodium phosphate buffer (pH 7).¹¹ Another publication reports preparation of stock solutions of this product at 20 mg/mL, in a buffer of 20 mM sodium citrate with 1 M sorbitol (pH 5.8).¹² We have not tested either condition ourselves.



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