

## 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→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.<sup>1,2</sup> 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.<sup>2,3</sup>

*N*-acetyl-β-glucosaminidase and chitobiosidase are considered exochitinases.<sup>2</sup> The combination of endochitinases and exochitinases results in a synergistic increase in the chitinolytic activity.<sup>4</sup>

The chitinolytic enzymes from *Trichoderma viride* are a mixture of extracellular chitinolytic enzymes,<sup>1</sup> 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*.<sup>5</sup> These activities can be detected after separation by polyacrylamide gel electrophoresis using an agarose overlay containing fluorescent substrates.<sup>2,5</sup>

Several theses<sup>7</sup> and dissertations<sup>8-10</sup> 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: ≥ 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.

*N*-Acetyl-β-glucosaminidase Unit Definition: One unit will release 1.0 μg of 4-nitrophenol from 4-nitrophenyl *N*-Acetyl-β-D-glucosaminide per minute at pH 6.1 at 40 °C.<sup>6</sup>

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).<sup>11</sup> 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).<sup>12</sup> We have not tested either condition ourselves.

## References

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