

Product Information

α -Amylase from *Bacillus sp.*

Catalog Number **A6814**

Storage Temperature -20 °C

CAS RN 9000-85-5

EC 3.2.1.1

Synonyms: 1,4- α -D-Glucan-glucanohydrolase

Product Description

α -Amylase breaks down starch into sugars, by hydrolysis of the α -(1,4) glucan linkages in polysaccharides of three or more α -(1,4) linked D-glucose units, without hydrolyzing the α -(1,6) bond. α -Amylase occurs in many natural sources, including animals and plants, but also notably in microorganisms, such as different *Bacillus* species:¹

- *B. amyloliquefaciens*
- *B. licheniformis*
- *B. stearothermophilus*
- *B. subtilis*
- *B. megaterium*
- *B. circulans*

α -Amylase from *Bacillus licheniformis* NCIB 6346 has been reported to maintain >98% of activity after 60 minutes at pH 6.2 at 85 °C.² Other α -amylases have been reported to maintain 100% of activity after storage for 1 hour at 91 °C.³ For routine experimental work, the natural substrates starch or glycogen can be replaced, to a limited extent, by low molecular weight compounds.⁴

Different molecular mass values of α -amylases from different strains of *Bacillus licheniformis* have been published:

NCIB 6346:² 62 kDa

44MB82-A:⁵ 58 kDa

MTCC 1483:⁶ 58 kDa

Crystal structures for α -amylase from *B. licheniformis* have been reported, in both a Ca²⁺-depleted form⁷ and a metal-ion bound form.^{8,9}

The pH range for activity of this product is 5.0-7.5, with an optimum pH range of 6.0-7.0. This product is stable from pH 5.0-10.0. The optimum temperature range is

65-75 °C. The effective temperature range is up to 90 °C.

The product is a dry powder containing \geq 1.0% protein (Lowry), with the balance partially hydrolyzed starch.

Precautions and Disclaimer

This product is 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.

Preparation Instructions

Sigma-Aldrich does not run a separate solubility test for this product. One publication reports preparation of stock solutions of this product at 5 mg/mL in various buffers (glycine-HCl, pH 3; sodium phosphate, pH 7; HEPES, pH 8).¹⁰

References

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GCY,MES,AJH,MAM,KK 08/21-1