Product Information

α-Amylase from Bacillus sp.

Catalog Number A6814
Storage Temperature 2–8 °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. amylobiofaciens
- B. licheniformis
- B. stearothermophilus
- B. subtilis
- B. megaterium
- B. circulan

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 form 7 and a metal-ion bound form. 8,9

The product is a dry powder containing ≥1.0% protein, with the balance partially hydrolyzed starch.

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

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

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; and HEPES, pH 8). 10

References

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