



α -AMYLASE (Thermostable) (*Bacillus* sp.) (Lot 161202a)

E-BSTAA

04/19

(EC 3.2.1.1) alpha-amylase; 4-alpha-D-glucan glucanohydrolase

CAZy Family: GH13

CAS: 9000-90-2/9000-85-5

PROPERTIES

1. ELECTROPHORETIC PURITY:

- Major band (pI = 7.4) and minor band (PI = 6.5) on isoelectric focusing
- Single major band on SDS-gel electrophoresis (MW = 58,000)

2. SPECIFIC ACTIVITY:

170 U/mg protein (on Ceralpha Reagent) at pH 6.5 and 40°C

One Unit of α -amylase activity is defined as the amount of enzyme required to release one μ mole of *p*-nitrophenol from blocked *p*-nitrophenyl-maltoheptaoside per minute (in the presence of excess α -glucosidase) at pH 6.5 and 40°C.

3. SPECIFICITY:

Hydrolysis of α -1,4 glucosidic linkages in linear α -1,4 glucan (e.g. amylose regions in starch).

5. PHYSICOCHEMICAL PROPERTIES:

Recommended conditions of use are at pH 5.0-7.5 at up to 100°C

pH Optima: 5.0

pH Stability: 5.0-9.0 (> 75% control activity after 24 h at 4°C)

Temperature Optima: 100°C (10 min reaction)

Temperature Stability: up to 100°C (> 65% control activity after 60 min incubation at temperature)

6. STORAGE CONDITIONS:

The enzyme is supplied as a solution containing 50% glycerol and 0.02% (w/v) sodium azide and should be stored below -10°C.

7. SPECIAL CONSIDERATIONS:

The stability of the enzyme is significantly enhanced in the presence of calcium chloride. Figure 1 below shows a comparison between thermostable α -amylase (E-BSTAA) and heat stable α -amylase (Novozymes I20 L) in the presence or absence of calcium chloride at pH 5.0 and 7.0.

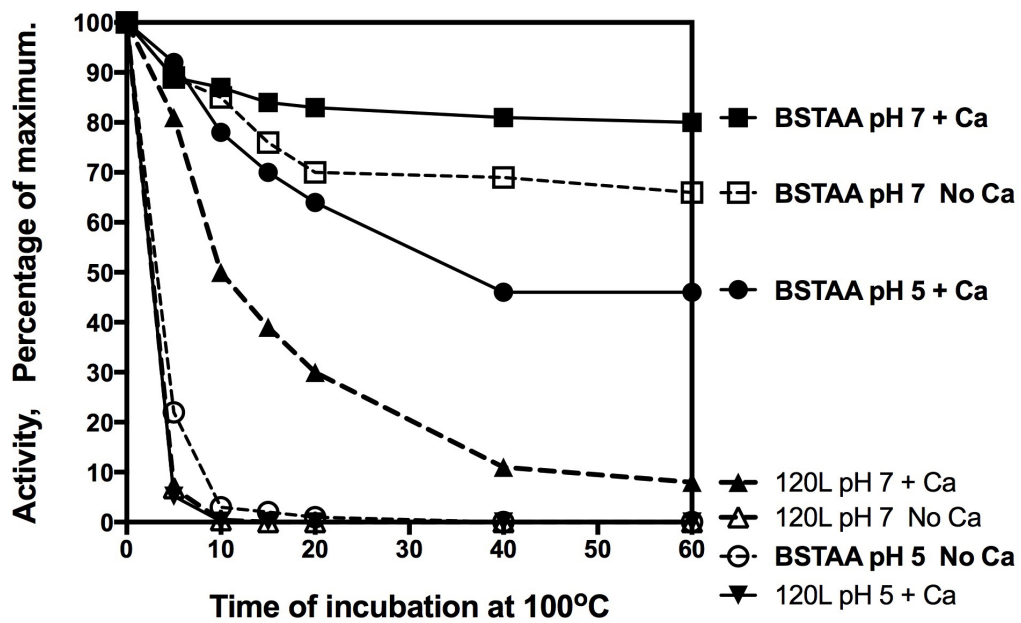


Figure 1. Thermostable α -amylase (E-BSTAA) and heat stable α -amylase (Novozymes 120 L) in the presence or absence of 5 mM calcium chloride at pH 5.0 (100 mM sodium acetate) and 7.0 (50 mM MOPS buffer).

8. REFERENCES:

McCleary, B.V., Charmier, M.J. & McKie, V.A. (2019). Measurement of Starch: Critical Evaluation of Current Methodology. *Starch*, 71(1-2), 1800146.