

Acid Phosphatase, Enzyme Activity

Catalog	Unit
TBP0050-500MG	500 mg
TBP0050-1G	1 g

Product Details

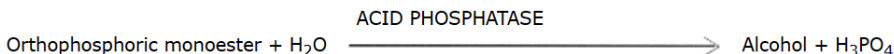
Form: Freeze-dried powder

Solubility: Soluble in distilled water or dilute buffer

Stability: Stable when stored at -20°C

Activity: 10-20 U/mg solid

Protein: 95%



Unit Definition

The amount of enzyme which liberates one micromole p-nitrophenyl per minute at 37°C and pH 4.8.

Assay Method

The rate of the reaction is determined by measuring the increase in absorbance at 405 nm resulting from the release of p-nitrophenol from p-nitrophenyl phosphate.

Applications

Acid phosphatase (EC 3.1.3.2) is widely distributed in nature in plants, animals and microorganisms. Potatoes, wheat germ, milk and bovine prostate gland are generally used as sources for commercial quantities of this enzyme. One of the most concentrated sources of acid phosphatase is the human prostate gland. Clinically, serum acid phosphatase levels are used for diagnosis of prostatic cancer.

Reagents

- 0.1 M NaOH.
- Buffer/Substrate Solution (0.05 M sodium citrate buffer, pH 4.8, with 5.5 mM p-nitrophenyl phosphate).
- Acid phosphatase (enzyme) solution. Dissolve in 0.05 M sodium citrate buffer, pH 4.8 to prepare a concentration of 1 mg/ml. Dilute as required. Must be prepared fresh prior to assay.

Procedure

- Set the water bath at 37°C.
- Into a two test tubes pipette the following reagents in the amounts indicated: TEST BLANK

Buffer/Substrate solution	1.0 ml	1.0 ml
Diluted enzyme	0.2 ml	-----
0.1 M NaOH	-----	1.0 ml
- Mix and incubate test tube in water bath for 30 minutes at 37°C.
- Add the following to each test tube and mix:

0.1 M NaOH	1.0 ml	-----
Diluted enzyme	-----	0.2 ml
- Measure increase in absorbance at 405 nm using spectrophotometer against blank.
- Calculate the $\Delta E_{405\text{nm}/\text{min}}$

Calculation

$$\text{Activity (U/mg)} = \frac{(\Delta E_{405\text{nm}/\text{min}})(\text{Total Vol.})(\text{Enz. Diln.})}{(18.5)(\text{Enz. Vol.})(\text{mg Enz./ml})}$$

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