

## D-Alanine aminotransferase (EC 2.6.1.21), *Bacillus subtilis*

### Catalogue number:

AE00141, 2500 U (35 mg)

### Description

D-Alanine aminotransferase (EC 2.6.1.21) is purified from a recombinant *E. coli* strain. Alanine aminotransferase, formerly known as L-glutamic-pyruvic transaminase, is a pyridoxal phosphate-dependent enzyme present in serum and in various bodily tissues, mainly in the liver. This enzyme catalyses the transfer of an amino group from alanine to  $\alpha$ -ketoglutarate, thus forming pyruvate and glutamate. Alanine aminotransferase is commonly used as a way of screening for liver problems. In fact, its levels significantly elevated often suggest the existence of viral hepatitis, liver damage or bile duct problems. Following damage to these cells, the enzyme is released into the blood where the level can be measured. The enzyme is provided in 3.2 M ammonium sulphate. Swirl the enzyme mix immediately prior to use.

### Purity

Alanine aminotransferase has been determined to be >95% pure, according to SDS polyacrylamide gel electrophoresis (PAGE) followed by Coomassie Blue staining (Figure 1).

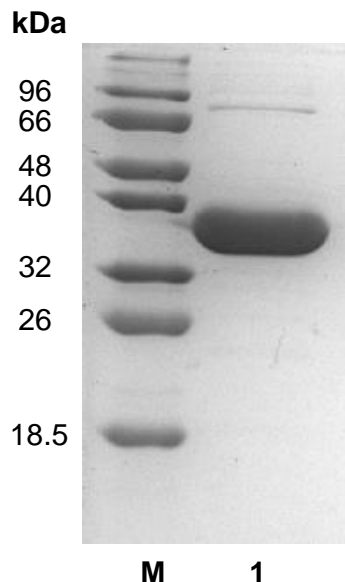


Figure 1. SDS-PAGE analysis of *B. subtilis* D-alanine aminotransferase. Electrophoresis was performed using a 12% polyacrylamide gel. Lane M, molecular weight marker; Lane 1, purified D-Alanine aminotransferase (33 kDa).

### Storage temperature

D-Alanine aminotransferase should be stored at 2 °C to 8 °C.

### Temperature and pH optimum

The optimum pH and temperature are 7.5 and 25 °C, respectively.

### Specific activity

72 U/mg; 1440 U/ml.

### Unit definition

One unit is defined as the amount of enzyme required to produce 1  $\mu$ mol of NAD<sup>+</sup> from NADH in a reaction mixture containing 45 mM Potassium phosphate, pH 7.5, 980 mM DL-Alanine, 12.4 mM  $\alpha$ -ketoglutaric acid, 0.21 mM NADH and 6 U/ml of L-lactate dehydrogenase, at 25 °C.

### Substrate specificity

Under the reaction conditions specified the enzyme does not present any other detectable enzymatic activities.

### Reference

Saier MH Jr, Jenkins WT. (1967). Alanine aminotransferase: purification and properties. *J Biol Chem*, 242(1):91-100.

### Certificate of Analysis

Test	Criteria	Result
Protein purity	Purity in line with the stated value	Meets specification
Protein concentration	Concentration in line with the stated value	Meets specification
Catalytic activity	Activity in line with the stated value	Meets specification
Blank assay variability	Absorbance values with less than 10% of variability	Meets specification

Approved by:



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