

## Native Microorganism Phosphoenolpyruvate carboxylase

Cat. No. DIA-212

Lot. No. (See product label)

### Introduction

**Description** Phosphoenolpyruvate carboxylase is an enzyme in the family of carboxy-lyases found in plants and some bacteria that catalyzes the addition of bicarbonate ( $\text{HCO}_3^-$ ) to phosphoenolpyruvate (PEP) to form the four-carbon compound oxaloacetate and inorganic phosphate:  $\text{PEP} + \text{HCO}_3^- \rightarrow \text{oxaloacetate} + \text{Pi}$ . This reaction is used for carbon fixation in CAM (crassulacean acid metabolism) and  $\text{C}_4$  organisms, as well as to regulate flux through the citric acid cycle (also known as Krebs or TCA cycle) in bacteria and plants. The enzyme structure and its two step catalytic, irreversible mechanism have been well studied. PEP carboxylase is highly regulated, both by phosphorylation and allostery.

**Applications** This enzyme is useful for enzymatic determination of carbon dioxide when coupled with malate dehydrogenase in clinical analysis.

**Synonyms** PEP carboxylase; PEPCase; PEPC; EC 4.1.1.31; Phosphoenolpyruvate carboxylase; PDB ID: 3ZGE

### Product Information

<b>Source</b>	Microorganism
<b>Appearance</b>	White amorphous powder, lyophilized
<b>EC Number</b>	EC 4.1.1.31
<b>CAS No.</b>	9067-77-0
<b>Molecular Weight</b>	approx. 390 kDa (by gel filtration)
<b>Activity</b>	Gradelll 5.0U/mg-solid or more
<b>Contaminants</b>	Lactate dehydrogenase < $1.0 \times 10^{-3}\%$ Pyruvate kinase < 0.5%
<b>Isoelectric point</b>	$6.0 \pm 0.1$
<b>pH Stability</b>	pH 5.0-8.0 (25°C, 24hr)
<b>Optimum pH</b>	7.5-8.0
<b>Thermal stability</b>	below 40°C (pH 7.0, 15min)
<b>Optimum temperature</b>	60°C
<b>Michaelis Constant</b>	$1.9 \times 10^{-4}\text{M}$ (Phosphoenolpyruvate)
<b>Structure</b>	4 Subunits (M.W.100,000) per mole of enzyme
<b>Stabilizers</b>	BSA, sugar alcohols

### Storage and Shipping Information

**Stability** Stable at -20°C for at least one year

