

# Native Microorganism Phosphoenolpyruvate carboxylase

## Product Information

|                                 |   |
|---------------------------------|---|
| <b>Cat#</b>                     | DIA-212   |
| <b>Similar</b>                  | PEPC  |
| <b>Source</b>                   | Microorganism   |
| <b>Description</b>              | 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. |
| <b>Activity</b>                 | Grade III 5.0U/mg-solid or more   |
| <b>CAS No.</b>                  | 9067-77-0   |
| <b>Isoelectric point</b>        | $6.0 \pm 0.1$   |
| <b>Synonyms</b>                 | PEP carboxylase; PEPCase; PEPC; EC 4.1.1.31; Phosphoenolpyruvate carboxylase; PDB ID: 3ZGE  |
| <b>Enzyme Commission Number</b> | EC 4.1.1.31   |
| <b>pH Stability</b>             | pH 5.0-8.0 (25°C, 24hr)   |
| <b>Michaelis Constant</b>       | $1.9 \times 10^{-5} \text{M}$ (Phosphoenolpyruvate)   |
| <b>Optimum pH</b>               | 7.5-8.0   |
| <b>Optimum temperature</b>      | 60°C  |

## Native Microorganism Phosphoenolpyruvate carboxylase

|                          |  |
|--------------------------|--|
| <b>Thermal stability</b> | below 40°C (pH 7.0, 15min)   |
| <b>Stability</b>         | Stable at -20°C for at least one year  |
| <b>Stabilizers</b>       | BSA, sugar alcohols  |
| <b>Contaminants</b>      | Lactate dehydrogenase < 1.0×10 <sup>-3</sup> % Pyruvate kinase < 0.5%  |
| <b>Abbr</b>              | PEPC (Microorganism)   |
| <b>Alias</b>             | PEPCase; PEPC  |
| <b>Applications</b>      | This enzyme is useful for enzymatic determination of carbon dioxide when coupled with malate dehydrogenase in clinical analysis. |
| <b>Appearance</b>        | White amorphous powder, lyophilized  |
| <b>Structure</b>         | 4 Subunits (M.W.100,000) per mole of enzyme  |
| <b>Molecular Weight</b>  | approx. 390 kDa (by gel filtration)  |