Phosphoglucose Isomerase (PGI)

From yeast
D-Glucose-6-phosphate ketol-isomerase, *EC 5.3.1.9*

**Cat. No.** 10 127 396 001 2 mg (1 ml)
**Cat. No.** 10 128 139 001 10 mg (1 ml)

1. **What this Product Does**

**Contents**
Suspension in 3.2 M ammonium sulfate solution, pH approx. 6

**Storage and Stability**
Stable at +2 to +8°C until the expiration date printed on the label.

**Application**
Isomerization of ketoses to aldoses

**Product Characteristics**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equilibrium constant</td>
<td>0.298 (pH 8.0; +30°C). The equilibrium slightly favors glucose-6-phosphate (G6P) formation.</td>
</tr>
<tr>
<td>Substrate specificity and K_m</td>
<td>Phosphoglucose isomerase (PGI) is specific for G6P (K_m = 0.7 mM) and fructose-6-phosphate (F6P).</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>145,000</td>
</tr>
<tr>
<td>pH optimum</td>
<td>7.0-7.6</td>
</tr>
<tr>
<td>Inhibitor</td>
<td>Pyridoxal-5'-phosphate</td>
</tr>
<tr>
<td>Approx. specific activity</td>
<td>350 U/mg at +25°C with F6P as substrate.</td>
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<tr>
<td>Contaminants</td>
<td>&lt; 0.01% F6P-K, GR, 6-PGDH and PGIuM each &lt; 0.2% β-fructosidase.</td>
</tr>
</tbody>
</table>

2. **How to Use this Product**

2.1 **Before You Begin**

**Technical Tips**
- In reactions involving PGI and G6P-DH, avoid using phosphate buffer, since phosphate concentrations >0.1 M greatly inhibit G6P-DH. Suitable buffers are triethanolamine and glycyglycine.
- High concentrations of glucose may interfere with assays of fructose (since both are substrates for HK). Glucose may be removed from samples with glucose oxidase.

**Regulatory Disclaimer**
For life science research only. Not for use in diagnostic procedures.

**Disclaimer of License**
For patent license limitations for individual products please refer to: List of biochemical reagent products

3. **Additional Information on this Product**

**Quality Control**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Equilibrium</th>
</tr>
</thead>
<tbody>
<tr>
<td>fructose-6-phosphate</td>
<td>G6P + NAD(P)⁺ → glucose-6-phosphate + G6P-DH gluconate-6-phosphate + fructose-6-phosphate → NAD(P)H + H⁺</td>
</tr>
</tbody>
</table>

**Unit definition**
One unit (U) phosphoglucose isomerase will produce 1 μmol of glucose-6-phosphate from fructose-6-phosphate in 1 min at +25°C and pH 7.6 (triethanolamine buffer). The above assay produces 1 μmol of NAD(P)H per μmol of glucose-6-phosphate formed.

**References**

4. **Supplementary Information**

**Changes to previous version**
Editorial changes.

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