Glucose Isomerase
from *Streptomyces murinus*

CAT No  C1686  Grade  ≥350 U/g  Application  Create high fructose level syrup in industry  Storage  2–8 °C

Product Name: Glucose Isomerase from *Streptomyces murinus* m1033
CAS Number: 9023-82-9
Formula:  \( \text{C}_{16} \text{H}_{22} \text{O}_{11} \)
Specific activity: ≥350 U/g
Isoelectrical point: 7.0 – 7.5
Optimal pH: 7.0 – 7.5
Optimal temperature: 60°C
Activators: Mg\(^{2+}\), 2-10 mM
Inhibitors: D-xylose ketol-isomerase, Sweetyme® IT Extra, Xylose isomerase, D-xylose isomerase; D-xylose ketoisomerase; D-xylose ketol-isomerase

**Suitability**

Glucose Isomerase is also called as D-xylose ketol-isomerase. This enzyme participates in pentose and glucuronate interconversions and fructose and mannose metabolism. The enzyme is used industrially to convert glucose to fructose in the manufacture of high-fructose corn syrup. It is sometimes referred to as "glucose isomerase".

In enzymology, a xylose isomerase (EC 5.3.1.5) is an enzyme that catalyzes the chemical reaction

\[
\text{D-xylose} \rightleftharpoons \text{D-xylulose}
\]

This enzyme belongs to the family of isomerases, specifically those intramolecular oxidoreductases interconverting aldoses and ketoses. The systematic name of this enzyme class is D-xylose aldose-ketose-isomerase. Other names in common use include D-xylose isomerase, D-xylulose ketoisomerase, and D-xylose ketol-isomerase.

Xylose isomerase enzymes exhibit a TIM barrel fold with the active site in the centre of the barrel and tetrameric quaternary structure.

Few anaerobic bacteria, fungi and plants express an intracellular metalloenzyme called D-xylose isomerase (XI). Most bacteria use the enzyme D-xylose isomerase to transform D-xylose to D-xylulose. D-XYlose isomerase (XI) converts the aldo-sugars xylose and glucose to their keto analogs xylulose and fructose.

Glucose isomerase produced from *Streptomyces murinus* was used for the isomerization of xylose and produce high-fructose corn syrup in the food industry to produce. Nova immoribilized this enzyme for large scale application for industry.

**Unit Definition**

one unit converts glucose to fructose at an initial rate of 1 μmole per min at standard analytical conditions

**Specification**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Specific activity</th>
<th>Appearance</th>
<th>Salmonella sp.</th>
<th>Heavy metals</th>
<th>Pb</th>
<th>E. coli</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≥350 U/g</td>
<td>Off-white to Brown</td>
<td>≤25 colonies/g</td>
<td>≤30 ppm</td>
<td>≤5 ppm</td>
<td>≤30 colonies/g</td>
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</tbody>
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