

## Product Information

### PGO Enzyme Preparation

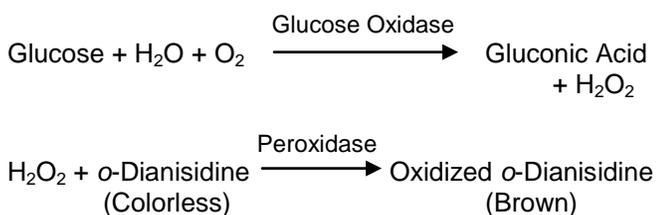
Catalog Number **P7119**  
Storage Temperature 2–8 °C

## TECHNICAL BULLETIN

### Product Description

The PGO Enzyme Preparation is intended for the quantitative, enzymatic determination of glucose in aqueous solutions such as serum. The reactions are normally monitored at 425–475 nm utilizing *o*-dianisidine as a colorimetric substrate.

The procedure is based upon the following coupled enzymatic reactions:<sup>1-5</sup>



The intensity of the brown color measured at 425–475 nm is proportional to the original glucose concentration.

This product has been used in a wood starch analysis protocol.<sup>6</sup> This product has been utilized in model studies of diabetes,<sup>7,8</sup> and in a study of stored energy reserves of the frogs *Pseudacris crucifer* and *Pseudacris triseriata*.<sup>9</sup>

### Components

Each capsule contains 500 units of glucose oxidase (*Aspergillus niger*), 100 purpurogallin units of peroxidase (horseradish), and buffer salts.

### Precautions and Disclaimer

This product is for Research Use Only. Not for Use in Diagnostic Procedures. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

### Preparation Instructions

The PGO Enzyme Preparation Solution is produced by adding the contents of 1 PGO Enzyme Preparation capsule to 100 mL of water in an amber bottle. Invert bottle several times with gentle shaking to dissolve.

The *o*-Dianisidine Solution is prepared by dissolving 50 mg of *o*-dianisidine dihydrochloride (e.g. Catalog Number D3252) in 20 mL of water.

The PGO Enzyme Reaction Solution is made by mixing 100 mL of the PGO Enzyme Preparation Solution and 1.6 mL of the *o*-Dianisidine Solution. Mix by inverting several times or with mild shaking.

Prepare a glucose standard of 0.05 mg/mL in water.

### Storage/Stability

The PGO Enzyme Preparation capsules are expected to remain active for at least two years when stored at 2–8 °C.

Store the PGO Enzyme Preparation Solution at 2–8 °C. The solution remains active for up to 1 month unless turbidity develops, and for at least 6 months at –20 °C.

The *o*-Dianisidine Solution remains active for for 3 months at 2–8 °C.

The PGO Enzyme Reaction Solution remains active for up to 1 month at 2–8 °C unless turbidity or color forms.

### Procedure

The glucose-containing sample is added to the PGO Enzyme Reaction Solution. The reaction proceeds to completion in ~30 minutes at 37 °C. The final absorbance is proportional to the glucose concentration. A distinct advantage of this procedure is that precise timing is not necessary.

1. Label three or more tubes or cuvettes as follows: Blank, Standard, Test 1, Test 2, etc.
2. Add 0.5 mL of water to the Blank tube. Add 0.5 mL of a 0.05 mg/mL of glucose standard solution to the Standard tube. Add 0.5 mL of sample to each tube marked 'Test'. (Typically, serum samples should be diluted 20-fold.)
3. To each tube add 5.0 mL of the PGO Enzyme Reaction Solution and mix each tube thoroughly.
4. Incubate all tubes at 37 °C for 30±5 minutes or at room temperature (18–26 °C) for 45 minutes.  
Note: Avoid exposure to direct sunlight or bright daylight.
5. At the end of incubation period, remove all tubes from water bath. Read the absorbance (A) of the Standard and Tests, using the Blank as the reference at 425–475 nm.  
Note: Readings should be completed within 30 minutes.

### Calculations

The glucose concentration of the sample is determined as follows:

Sample Glucose Concentration (mg/mL) =

$$\frac{\text{Absorbance (Test)} \times \text{Dilution of sample} \times 0.05 \text{ mg/mL}}{\text{Absorbance (Standard)}}$$

### References

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4. Keilin, D., and Hartree, E.F., Specificity of glucose oxidase (notatin). *Biochem. J.*, **50(3)**, 331-341 (1952).
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