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ProductInformation

Glucose Oxidase
From *Aspergillus niger*

Product Number **G 7016**
Storage Temperature -0 °C

Product Description

EC Number: 1.1.3.4
CAS Number: 9001-37-0
Molecular Weight: 160 kDa (gel filtration)[1]
Isoelectric Point: 4.2[2]
Extinction coefficient: $E^{1\%}$ = 16.7 (280 nm)[3]

Glucose oxidase from *Aspergillus niger* is a dimer consisting of 2 equal subunits with a molecular weight of 80 kDa each. Each subunit contains one mole of flavin adenine dinulceotide and one mole of iron. The enzyme is a glycoprotein containing approximately 16% neutral sugar and 2% amino sugars.[1] The enzyme also contains 3 cysteine residues and 8 potential sites for N-linked glycosylation.[4]

Glucose oxidase is capable of oxidizing D-aldohexoses, monodeoxy-D-glucoses, and methyl-D-glucoses at varying rates. D-glucose, 2-deoxy-D-glucose, 4-O-methyl-D-glucoses, 6-deoxy-D-glucose, 4-deoxy-D-glucose, 3-deoxy-D-glucose and 3-O-methyl-D-glucose are oxidized at decreasing rates and in the order listed. The pH optimum for glucose oxidase is 5.5, while it has a broad activity range of pH 4-7.[2] Glucose oxidase is specific for β-D-glucose with a K_m of 33-110 mM.[5,6]

Glucose oxidase does not require any activators, but it is inhibited by Ag^{+}, Hg^{+2}, Cu^{+2}, phenylmercuric acetate and p-chloromercuribenzoate. It is not inhibited by the nonmetallic SH reagents: N-ethylmaleimide, iodoacetate, and iodoacetamide.[7]

Glucose oxidase can be utilized in the enzymatic determination of D-glucose in solution. As glucose oxidase oxidizes β-D-glucose to D-gluconolactate and hydrogen peroxide, horseradish peroxidase is often used as the coupling enzyme in glucose determinations. Although glucose oxidase is specific for β-D-glucose, solutions of D-glucose can be quantified as α-D-glucose will mutorotate to β-D-glucose as the β-D-glucose is consumed by the enzymatic reaction.[8]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This enzyme is soluble at 1 mg/ml in 50 mM sodium acetate buffer, pH 5.1, yielding a clear soluton.

References

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