

Glucose

Testing for blood glucose levels can easily be done using two methods:

Method 1: glucose oxidase and peroxidase

Method 2: hexokinase and glucose-6-phosphate dehydrogenase

Method 1

Test principle: Enzymatic colorimetric



This method is based on the work of Trinder, published in 1969. Glucose is oxidized by glucose oxidase (GOD) to gluconolactone in the presence of atmospheric oxygen. The resulting hydrogen peroxide can be used to oxidize an indicator in the presence of POD. Here, H₂O₂ oxidizes 4-aminoantipyrine and phenol to a quinoneimine dye in the presence of peroxidase (POD). The color intensity of the red dye is directly proportional to the glucose concentration and can be measured photometrically at 512 nm.

Proposed reagent composition

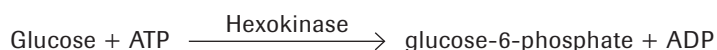
Composition	Concentration	Catalog Number
Buffer (K-phosphate, pH 7.5)	200 mmol/l	
Glucose oxidase (GOD)	>11 kU/l	11 485 938 103
Peroxidase (POD)	>0.02 kU/l	11 378 783 103
4-Aminoantipyrine	1.0 mmol/l	10 073 474 103
Phenol	11 mmol/l	
Detergent, preservative		

Method 2 →

Products are for further processing only.

Method 2

Test principle: UV test



Hexokinase (HK) catalyzes the phosphorylation of glucose by ATP to form glucose-6-phosphate and ADP. Following the reaction, a second enzyme, glucose-6-phosphate dehydrogenase (G6PDH) is used to catalyze oxidation of

glucose-6-phosphate by NADP⁺ to form NADPH. The concentration of the NADPH formed is directly proportional to the glucose concentration. It is determined by measuring the increase in absorbance at 340 nm.

Proposed reagent composition

approximately 3+1 formulation

Reagent 1

Composition	Concentration	Catalog Number
Buffer (MES, pH 6.0)	5 mmol/l	04 808 177 103
ATP	>4.5 mmol/l	10 000 116 103
NADP	>7.0 mmol/l	10 004 669 103
Detergent, preservative		

Reagent 2

Composition	Concentration	Catalog Number
Buffer (HEPES, pH 8.0)	200 mmol/l	10 172 944 103
Mg ²⁺	4 mmol/l	
Hexokinase (HK)	>18 kU/l	11 119 796 103
G-6-PDH	>18 kU/l	11 293 206 103
Detergent, preservative		

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