Glucose

A very fast enzymatic assay for ß-D-glucose in plasma, serum or whole blood (via Analox collection systems).

Bulletin Reference	TB – USA – Glucose – GMRD-002A – V.02
Order Code(s)	GMRD-002A
Reagent Kit Size(s)	250 ml (360 analyzer cycles)
Instruments	All GM7, GM9 and GL5 Series analyzers
Samples	Plasma, serum, whole blood (intact or lysed, collected in Analox tubes or capillaries), C.S.F., urine
Sample Volume	10 µl (variable 3.5 - 25 µl)
Analysis Time	20 seconds
Linearity	30.0 mmol/L (540 mg/dl) for 10 µl samples; 50.0 mmol/L (900 mg/dl) for 5 µl samples
Detection Limit	ca. 0.55 mmol/L (ca. 10 mg/dl)
Precision (Within Run)	C.V. of 1.0 % @ 5 mmol/L (plasma) C.V. of 1.4 % @ 10 mmol/L (plasma) C.V. of 0.85 % @ 12 mmol/L (whole blood)
Accuracy	i) Method comparison vs Hexokinase: y(Analox) = 0.985x – 0.14 mmol/L, r = 0.999, n = 156 ii) Method comparison vs Beckman: y(Analox) = 1.005x – 0.07 mmol/L, r = 0.999, n = 123 iii) Method comparison vs YSI: y(Analox) = 1.008x – 0.01 mmol/L, r = 0.999, n = 97
Reagent Stability	Shelf-life unopened: 18 months stored at 0 - 5°C.
Note	Glucose standards at 2.5, 5.0, 8.0, 25.0, 30.0 and 50.0 mmol/L are available to order as required. An extensive range of specifically formulated systems for whole blood collection and preservation are also available.

Principle

In the presence of molecular oxygen, β-D-glucose is oxidised by the enzyme glucose oxidase (GOD) to gluconic acid and hydrogen peroxide,

$$\beta\text{-D-Glucose} + O_2 \xrightarrow{\textit{Glucose Oxidase (GOD)}} \text{D-Gluconic acid} + H_2O_2$$

Under the conditions of the assay, the rate of oxygen consumption is directly proportional to glucose concentration.