
Determination of glucose in clinical samples

Introduction

Glucose levels in physiological fluids are increased in diabetes mellitus and in conditions of thyroid, pituitary or adrenal hyperactivity. Low levels are caused by insulin overdosage, insulin secreting tumours, hypoadrenalism and glucose malabsorption. The normal range in plasma (fasting) is 75-115mg/100ml.

Principle

The physiological fluid sample is added directly to a cuvette containing the reagent at room temperature (20-25 C), and the glucose concentration is read directly from the display or printed out. This makes it suitable technique for single assays.

Use of a spectrophotometer makes this analysis straightforward and feasible for use in non-laboratory environment.

Method

The reagent can be prepared ready for use or obtained as a kit (Randox Labs. UK)

Pipette 1 ml of reagent containing:

- Glucose oxidase kU/l
- Peroxidase 1.55 kU/l
- 4-aminophenazone 0.25 mmol/l
- Phenol 11 mmol/l
- Phosphate buffer 0.1mmol/l, pH 7.0

into each of 2 disposable cells (80-2004-53).



Libra S21/S22 operation

- Select Basic Modes (1)
- Select Concentration
- Select Wavelength= 500 press OK (F3)
- Enter Factor 324.1 press OK (F3)

Add 0.01ml of sample and 0.01ml water, for the blank analysis, respectively and mix.

After 25 minutes at 20-25°C:

- Insert blank and press green run key.
 - A single blank as above suffices for subsequent analyses in the same series.
- Insert sample and press green run key.

The analysis is linear over the range 2-500mg/100ml.

(For assays where there is no established concentration factor, calibration should be carried out using prepared standards.)

Print outs may be obtained by setting up the printer options in System Utilities and Preferences (3) prints results. This is automatic with autoprnt.

Additionally press . to print result if auto-print is off, or to re-print result if auto-print is on

The above procedure can be easily used with other instruments in the Libra range

Ordering Details

Libra S5	80-2115-00
Libra S11	80-2115-15
Libra S12	80-2115-10
Libra S21	80-2115-25
Libra S22	80-2115-20
Libra s32	80-2115-30

The reaction can be accelerated for increased sensitivity if warmed. For this purpose the Libra S21/S22 have the following accessories:

- 8 position water heated cell changer (80-2109-70) used with an external heating bath
- 6 position Peltier heated cell changer (80-2106-04) and Temperature Control Unit (80-2112-49)
- Single position water heated cell holder (80-2106-08) used with an external heating bath
- Single position electrical cell holder (80-2106-12), temperatures selectable from 25, 30 and 37°C
- Single position Peltier cell holder, temperatures selectable over the whole range from 20-49°C (80-2106-13).

The Sipper (80-2112-25) enables some automation of the analyses, and can be used together with a heated (not water heated) or non-heated single cell holder.