

Liquid Reagent – ready to use

GLUCOSE

GOD - PAP

Single Reagent

Diagnostic reagent for quantitative in vitro determination of glucose in human serum or plasma on photometric systems

REF Cont.

D95218B 1 x 1000 ml Single Reagent

D08220 4 x 250 ml Single Reagent

D00221 5 x 100 ml Single Reagent

Additionally offered:

D95223	1 x 3 ml	Glucose Standard	Diacal Auto
D98485	5 x 3 ml	Calibrator	Diacon N
D98481	12 x 5 ml	Control normal	Diacon P
D98482	12 x 5 ml	Control abnormal	

TEST PARAMETERS

Method: Colorimetric, Endpoint, Increasing Reaction, GOD - PAP.

Wavelength: 500 nm, Hg 546 nm

Temperature: 20-25°C or 37°C

Sample: Serum, heparinized or EDTA-plasma,

Linearity: up to 490 mg/dl (on Hitachi 911)

Sensitivity: The lower limit of detection is 1 mg/dl.

REAGENT COMPOSITION

COMPONENTS	CONCENTRATIONS
Phosphate Buffer, pH 7.5	250 mmol/L
Phenol	5 mmol/L
4-Aminoantipyrine	0.5 mmol/L
Glucose Oxidase	> 10 KU/L
Peroxidase	> 1 KU/L

REAGENT PREPARATION

The reagent is ready to use.

REAGENT STABILITY AND STORAGE

Conditions: protect from light
close immediately after use

Storage: at 2 - 8°C

Stability: up to the expiration date
do not freeze the reagent!

Note: The measurement is not influenced by occasionally occurring color changes, as long as the absorbance of the reagent is < 0.3 at 546 nm.

SAMPLE STABILITY AND STORAGE

Separate at the latest 1h after blood collection from cellular contents.

Stability after addition of a glycolytic inhibitor (Fluoride, monoiodacetate, mannose) [4]:

Stability: at 20 – 25 °C 2 days
at 4 – 8 °C 7 days

Stability in serum (separated from cellular contents, hemolysis free) without adding a glycolytic inhibitor [2,5]:

Stability: at 25 °C 8 hours
at 4 °C 72 hours

Discard contaminated specimens.

STANDARD

(has to be ordered separately)

Concentration: 100 mg/dl

Storage: 2 – 25°C

Stability: up to the expiration date

CLOSE IMMEDIATELY AFTER USE!

INTERFERING SUBSTANCES

no interference up to:

ascorbic acid	15 mg/dl
bilirubin	40 mg/dl
hemoglobin	200 mg/dl
triglycerides	2000 mg/dl

MANUAL TEST PROCEDURE

Bring reagents and samples to room temperature.

Pipette into test tubes	Blank	Std./Cal	Sample
Reagent	1000 µl	1000 µl	1000 µl
Sample	-	-	10 µl
Std./Cal.	-	10 µl	-

Mix. Incubate 10 min. at 37 °C or 20 min. at 20 - 25°C.
Measure absorbance of sample and std/cal within 60 minutes against the reagent blank.

CALCULATION (light path 1 cm)

$$\text{Glucose (mg/dl)} = \frac{\Delta A \text{ Sample}}{\Delta A \text{ Std./Cal}} \times \text{Conc. of Std./Cal (mg/dl)}$$

UNIT CONVERSION

$$\text{mg/dl} \times 0.05551 = \text{mmol/L}$$

REFERENCE RANGE * [1] (mg/dl)

Newborns:	
Cord blood	63 - 158
1 h	36 - 99
2 h	36 - 89
5 - 14 h	34 - 77
10 - 28 h	46 - 81
44 - 52 h	48 - 79
Children (fasting):	
1 - 6 years	74 - 127
7 - 19 years	70 - 106
Adults (fasting):	
serum / plasma	70 - 115

* It is recommended that each laboratory establishes its own normal range.

TEST PRINCIPLE

In the presence of glucose oxidase, glucose is oxidized to gluconic acid and hydrogen peroxide.

Hydrogen peroxide reacts, in the presence of peroxidase, with phenol and 4-aminoantipyrine to form a quinoneimine dye (Trinder's reaction) [3].

The intensity of the pink colour formed is proportional to the glucose concentration.

PERFORMANCE CHARACTERISTICS

LINEARITY

The assay is linear up to 490 mg/dl (on Hitachi 911). Above this concentration, dilute the sample with NaCl (9 g/L sodium chloride in water) and reassay multiplying the result by the dilution factor.

PRECISION (at 37°C)

Intra-assay n = 20	Mean [mg/dl]	SD [mg/dl]	CV [%]
Sample 1	64.2	1.12	1.74
Sample 2	122	1.57	4.41
Sample 3	296	4.41	1.49

Inter-assay n = 20	Mean [mg/dl]	SD [mg/dl]	CV [%]
Sample 1	92.5	1.10	1.19
Sample 2	121	1.02	2.01
Sample 3	292	2.01	0.69

METHOD COMPARISON

A comparison between Dialab Glucose (y) and a commercially available test (x) using 78 samples gave following results: $y = 1.00x + 1.00$ mg/dl; $r = 0.996$.

QUALITY CONTROL

All control sera with Glucose values determined by this method can be used.

We recommend:

REF

Cont.

D98481 12 x 5 ml **DIACON N** Assayed Control Serum Normal

D98482 12 x 5 ml **DIACON P** Assayed Control Serum Abnormal

CALIBRATION

The assay requires the use of a Glucose Standard or Calibrator.

We recommend:

REF

Cont.

D95223 1 x 3 ml **GLUCOSE STANDARD**

D98485 5 x 3 ml **DIACAL AUTO** Assayed Multi Calibration Serum

AUTOMATION

Special adaptations for automated analyzers can be made on request.

WARNINGS AND PRECAUTIONS

1. The reagent contains sodium azide (0.95 g/L) as preservative. Do not swallow! Avoid contact with skin and mucous membranes.
2. Take the necessary precautions for the use of laboratory reagents.

WASTE MANAGEMENT

Please refer to local legal requirements.

REFERENCES

1. Thomas L. Clinical Laboratory Diagnostics. 1st ed. Frankfurt: TH-Books Verlagsgesellschaft; 1998. p. 131-7.
2. Sacks DB. Carbohydrates. In: Burtis CA, Ashwood ER, editors. Tietz Textbook of Clinical Chemistry. 3rd ed. Philadelphia: W.B Saunders Company; 1999. p. 750-808.
3. Barham D, Trinder P. An improved color reagent for the determination of blood glucose by the oxidase system. Analyst 1972;97:142-5.
4. Guder WG, Zawta B et al. The quality of Diagnostic Samples. 1st ed. Darmstadt: GIT verlag; 2001;p.30-1.
5. Snacks DB, Bruns DE, Goldstein DE, Mac Laren NK, McDonald JM, Parrott M. Guidelines and recommendations for laboratory analysis in the diagnosis and management of diabetes mellitus. Clin Chemi 2002; 48:436-72.



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