Manual
Procedure

MEDICHEM MIDDLE EAST
Clinical Chemistry Reagents
Liquid Stable Reagents

Cat. No. 12462 R 4 x 250 ml
For 400 tests

Hemoglobin

Sodium Dodecyl Sulfate (SDS), Colorimetric method

Liquid Reagent

Test Principle

Hemoglobin (oxyhemoglobin, methemoglobin, carboxyhemoglobin) is converted to methemoglobin by Sodium Dodecyl Sulfate, according to the following reactions:

Hemoglobin —*Sodium Dodecyl Sulfate*→ Methemoglobin

Concentrations in the test

Reagent R		
Sodium Dodecyl Sulfate	0.5	mol/L
Phosphoric acid	0.3	mol/L
Detergent		

Stability of reagent

Reagent : *liquid, ready to use.*
The reagent is stable up to expiry date given on the label when stored at +20 ➔ +25 °C.

Note: Don't use if the reagent becomes colored or cloudy.

Specimen collection and handling

1. Use whole blood with EDTA as an anticoagulant.
2. Oxalate, citrate, or heparin may also be used as anticoagulants.
3. Capillary or venous blood may be collected and used before clotting occurs.
4. Whole blood mixed well with an anticoagulant is stable for 1 week at 20 – 25 °C.

Quality control

Meditrol Hb1 Cat. No. 15251
Meditrol Hb2 Cat. No. 15261

Procedure

Wavelength	Hg 546 nm (520 – 560 nm)
Spectrophotometer	540 nm
Cuvettes	1 cm light path
Temperature	20 – 25 °C
Measurement	against reagent blank
Reaction	end point

Assay

	Blank	Semi macro	Macro
Sample	---	10 µl	20 µl
Reagent	2.5 ml	2.5 ml	5.0 ml
Mix well, incubate for 5 min. at 20 – 25 °C, Read the absorbance (A). The final color is stable for 1 hour.			

Calculation

Calculation using Factor:

$Conc._{Hemoglobin}$ (g/dl) = A_{sample} X Factor

Factor = 45

Calculation using Standard:

$$Conc._{Hemoglobin}\ (g/dl) = \frac{A_{Sample}}{A_{STD.}} \times Conc._{STD.}\ (g/dl)$$

Linearity

Up to 21 g/dl (13 mmol/L).
If the result exceeds 21 g/dl, repeat the test using diluted sample(1+1) with sodium chloride solution (0.9 %) and multiply the result by 2.

Interference

A review by Young et al reveals the numerous drugs that exert an in vitro effect on blood hemoglobin values.[3]

Precaution

Avoid reagent exposure to direct light.

Reference range

1	d.	15.2 – 23.5	g/dl
2 – 6	d.	15.0 – 24.0	g/dl
14 – 23	d.	12.7 – 18.7	g/dl
24 – 37	d.	10.3 – 17.9	g/dl
40 – 50	d.	9.0 – 16.6	g/dl
2 – 2.5	mth.	9.2 – 15.0	g/dl
3 – 3.5	mth.	9.6 – 12.8	g/dl
5 – 7	mth.	10.1 – 12.9	g/dl
8 – 10	mth.	10.5 – 12.9	g/dl
11 – 13.5	mth.	10.7 – 13.1	g/dl
1.5 – 3	yr.	10.8 – 12.8	g/dl
5	yr.	11.1 – 14.3	g/dl
10	yr.	11.9 – 14.7	g/dl
12	yr	11.8 – 15.0	g/dl
15	yr.	12.8 – 16.8	g/dl
Adults	women	12.3 – 15.3	g/dl
	men	14.0 – 17.5	g/dl

References

1. Tietz N.W Fundamentals of clinical chemistry ,2nd ed , W.B. Sounders Co, Philadelphia p. 411.1976.
2. Henry R.F.et al Principles and Technics in clinical chemistry 2nd Ed,Harper & Row Hagerstown,MD,pp.1128:1135,1974.
3. Young, DS., Effects of Drugs on Clinical Laboratory Tests, fifth edition 2000, AACC Press, Washington, D.C.

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