



Intended Use

Diagen Haemiglobincyanide Standard is a stabilised and accurately standardised preparation of haemiglobincyanide. The haemoglobin value of this standard has been assessed in a WHO accredited laboratory by replicate determinations against the WHO International Haemiglobincyanide Standard 98/708 according to BS 3985:2003.

Summary and Principle

To determine the concentration of haemoglobin in blood samples by photometrical method, haemoglobin or oxyhaemoglobin must first be converted into the stable derivative haemiglobincyanide. During this process the haem iron (Fe^{2+}) is oxidised to give methhaem iron (Fe^{3+}) and bound to a cyanide radical. Alkaline Drabkin's solution made from Diagen Drabkin's Capsules (CFDS630) is hypotonic and lyses red cells, therefore when blood is added to the solution, haemiglobincyanide is formed.

Difficulties associated with the estimation of haemoglobin colourmetrically are based mainly on preparation and calibration. It is desirable to have standards which are both able to calibrate a given instrument and also to serve as control and daily check on possible sources of error.

Reagent

Haemiglobincyanide Standard (WHO Cert.) 25 ampoules
A haemiglobincyanide solution manufactured from lysed bovine red cells and Drabkin's reagent, diluted to provide a known haemoglobin value. The reagent is provided in sealed ampoules and is ready for use. **For the certified value, please refer to the product label.**

Directions for opening

The ampoule should be left to equilibrate to room temperature before use. To prevent loss of contents and avoid cuts, all solution should be in the main body and care should be taken when breaking off the top. Any material left in the ampoule after first use may be reused for up to 8 hours, if covered with an airtight seal and stored at 2-8°C prior to use. All open ampoules should be discarded at the end of the working day.

Warnings and Precautions

Diagen Haemiglobincyanide Standard is manufactured using material of bovine origin and therefore has the potential to be hazardous. Please take adequate precautions to minimise risk as the user by following good laboratory practice. Consult the Haemiglobincyanide Standard SDS (available on request) for further information on any actions that need to be taken prior, during or after use. **This preparation is not for administration to humans.**

Collection of Blood Samples

Venous blood is collected into tubes containing solid anticoagulants, such as EDTA or heparin.

Capillary Blood is obtained directly from the finger into a clean, dry pipette and tested immediately. If capillary blood is used, exercise care to avoid coagulation.

Procedure

Materials Provided

Materials needed for haemoglobin estimation shown below:

Cat. No.

CIHS520 – Haemiglobincyanide Standard (25 x 10 mL).

Materials and equipment required, but not provided:

1. Spectrophotometer (reading at 540 nm) and associated cuvettes.
2. A 250 ml beaker and stirring rod.
3. Pipettes delivering between 20 μL and 4 mL.
4. Diagen Drabkin's Capsules (CFDS630).
5. Distilled water.

Technique

1. Mix the blood samples (by gentle inversion) immediately before pipetting from them.
2. Measure exactly 4mL of Drabkin's solution into a clean test tube.
3. Pipette 20 μL of blood and expel it into the test tube containing the Drabkin's solution.
4. Mix carefully by inversion.
5. Allow to stand for 15 to 20 minutes, by which time the reaction will be complete.
6. Transfer the solution into a cuvette.

Use of standard solution

1. Set instrument to read at 540 nm.
2. Insert the cuvette containing the standard solution.
3. Note the optical density reading.
4. Compare the value obtained to that stated on the product label.
5. This reading may be used for internal quality control of spectrophotometers, photometers and blood cell counters; or to validate preparations of haemiglobincyanide.

Interpretation

The normal ranges for the concentration of haemoglobin in blood are:

Men: 13.5 – 18.0 g/dL.
Women: 11.5 – 16.5 g/dL.

Stability and Storage

The solution, stored in darkness at 2 - 8°C, is stable for 5 years. It is advisable to discard any standard which has been removed from the ampoule after use. Under no circumstances should standard be returned to the ampoule. **Do not freeze and thaw this material.**

Packaging

25 x 10 mL ampoules.

References

1. WHO BS98.1886.
2. Van Kampen E.J. and Zijlstra (1961) Clin. Chem. Acta. 6, 538.
3. Munkley, R.M. and Stuart, J. (1970) J. Clin. Path. 23, 190.
4. Young, D.S., Pestaner, L.C. and Gibberman (1975), V., *Clin. Chem., Vol. 21*, p. 316 D
5. Drabkin, D.L. and Austin, J. (1932) J. Biol. Chem. 98, 719.

Key guide to symbols

REF	Manufacturers catalogue number.	i	Consult instructions for use.
LOT	Manufacturers batch number.	Recon.	Requires reconstitution.
IVD	For <i>in vitro</i> diagnostic use only.	Hourglass	Product expiry date.
Biohazard	Biological risks.	Refrigerator	Store refrigerated between 2 - 8°C.

Manufacturer.

Diagnostic Reagents Ltd.
Thame
Oxon, OX9 3NY
UK
Tel: +44(0)1844 212426
Email: sales@diagen.co.uk
Website: www.diagen.co.uk

Diagnostic Reagents Limited is a BS EN ISO13485:2016 certified company