**HAYEM’S SOLUTION**

In vitro diagnostic medical device

Solution for manual counting of erythrocytes in microscopy

**INSTRUCTIONS FOR USE**

**REF**

Product code: HY-OT-100 (100 mL)  HY-OT-500 (500 mL)  HY-OT-1L (1000 mL)

**Introduction**

BioGnost's Hayem's solution is used in routine manual counting of erythrocytes. It is important to correctly prepare and dilute the sample of blood in the specified volume during every counting method. Basic advantages of Hayem's solution (compared to other solutions for erythrocyte counting) are isotonicity (no hemolysis occurs), fixation (erythrocytes do not lose their shape, no autolysis occurs, so counting may be conducted a few hours after blood dilution). Hayem's solution also prevents agglutination and has a longer shelf life.

**Product description**

- **HAYEM’S SOLUTION** – isotonic solution for manual counting of erythrocytes.

**Testing sample**

- Uncoagulated venous or capillary blood

**Other necessary preparations:**

- Neubauer or Bürker-Türk’s hemocytometer
- RBC pipette
- Cover glass

**Preparation**

**RBC pipette filling**

Draw blood into the RBC pipette to the 0.5 mark, then draw Hayem's solution to the 101 mark. Dilution is 1/200. Carefully stir the blood sample and Hayem's solution. Use the preparation within a few hours.

**Filling the hemocytometer**

Discard the first two drops and then fill the hemocytometer.

**Counting under the microscope**

Counting is carried out under the microscope with a 10x magnifying factor lens. It is necessary to lower the condenser and move the front lens outwards. Count the erythrocytes in the center part of the hemocytometer. Four diagonal fields are most commonly counted (64 squares). For more precision, count one peripheral field (total of 80 squares).

**Result**

**Calculation of red blood cells**

One side of a square is 1/20 mm in length; depth is 1/10 mm (after positioning the cover glass). Calculate the mean value of erythrocytes per square and then number of erythrocytes in 1 mm$^3$ of blood. Do not omit the dilution factor; multiply the result with 200.

The results are expressed as a mean value of double counting.

**Normal erythrocyte values**

- Females: $3.86 - 5.08 \times 10^{12}$/L
- Males: $4.34 - 5.72 \times 10^{12}$/L

**Preparing the sample and diagnostics**

Use only appropriate instruments for collecting and preparing the samples. Process the samples with modern technology and mark them clearly. Follow the manufacturer's instructions for handling. In order to avoid mistakes, the staining procedure and diagnostics should only be conducted by authorized and qualified personnel. Use only microscope according to standards of the medical diagnostic laboratory.

**Safety at work and environmental protection**

Handle the product in accordance with safety at work and environmental protection guidelines. Used solutions and out of date solutions should be disposed of as special waste in accordance with national guidelines. Reagents used in this procedure could pose danger to human health. Tested tissue specimens are potentially infectious. Necessary safety measures for protecting human health should be taken in accordance with good laboratory practice. Act in accordance with signs and warnings notices printed on the product's label, as well as in BioGnost's material safety data sheet.

**Storing, stability and expiry date**

Keep Hayem's solution in a tightly closed original package at a temperature of +15 to +25 °C. Do not freeze and avoid exposing to direct sunlight. Date of manufacture and expiry date are printed on the product's label.
References