



Natt-Herricks-TIC® 1 : 200 (plus)

Prefilled Single Test for Microscopic Counting of RBCs and WBCs in Blood of Avian, Reptile and Fish species.

Product information for quantitative visual microscopic counting of erythrocytes and leukocytes in blood of avian, reptile and fish species [1, 2]. The information presented here applies exclusively to the reagent manufactured by us and cannot be extended to reagents from other manufacturers.

Principle

Microscopic counting of erythrocytes (RBCs) and leukocytes (WBCs) in a hemocytometer (Neubauer, Neubauer "improved"). Vials are filled with 995 µl Natt-Herricks Staining Solution. 5 µl blood are used as sample (dilution 1 : 200).

Reagents

Risks and Safety

Please observe the necessary precautions for use of laboratory reagents and body fluids. Applications should be performed by expert personnel only. Follow the national and laboratory internal guidelines for work safety and infection control. Wear suitable protective clothing and disposable gloves while handling.

It is important to ensure effective protection against infection according to laboratory guidelines. Use a capillary holder for volume capillaries.



For additional safety information please refer to the information on the label and the corresponding Safety Data Sheet (SDS).

The safety settings were made according to legal guidelines. If there are differences in the labeling or the safety information between the label and SDS, the details of the SDS are valid. Download by QR-Code or link: www.sds-id.com/100121-6

Contents / Main Components

004025-6010	1x 10 pcs Natt-Herricks TIC 1 : 200 (single tests) Packed in a sealed sachet without capillaries.
004025-6100	1x 100 pcs Natt-Herricks TIC 1 : 200 plus (single tests) Packed in styrofoam stand, incl. capillaries. 995 µl Natt-Herricks Solution, contains NaCl 3.88 g/l, Na ₂ SO ₄ 2.5 g/l, Phosphate Buffer, Formalin 37% 7.5 ml/l, C.I. 45535 0.1 g/l.

Refill Pack:

TIC-CP05	1x TIC 5 µl Capillary pack, containing: 1x 100 pcs End-to-end volume capillaries 5 µl 1x 100 pcs Chamber filling capillaries.
----------	---

Do not use capillaries that are not approved for this TIC test kit.

Additionally Required or Recommended Materials:

099920-0001 *	Capillary holder *
CC-NEUI *	Neubauer "improved" counting chamber *
	Microscope for use in biomedical laboratory

* Available from Bioanalytic GmbH

Specimen

Li-Heparin-, K₂- or K₃-EDTA blood or capillary blood. Process samples as soon as possible. EDTA can cause hemolysis in blood from turtles and some reptiles.

If sodium citrate solution or CITRISO [3] is used (e.g. for fish) consider the dilution in the calculation.

Reference Ranges

For species-specific reference ranges, please refer to the relevant literature.

Procedure

Using capillary pipettes

Fill a 5 µl end-to-end volume capillary bubble-free with blood from end to end. We recommend using a capillary holder for this (see: Additionally Required or Recommended Materials). Discard the first drop of capillary blood. Remove blood adhering to the outside with a lint-free tissue without sucking blood from the capillary. Place filled volume capillary into the opened vial, close and shake vigorously until all blood is flushed from the capillary. Leave capillary in the vial. Incubate for 2 ... 5 minutes at room temperature (18 ... 25 °C).

Shake the vial once more before loading the counting chamber. Fill the chamber filling capillary about a quarter to half its length by capillary action and seal the upper end with your finger (wear gloves). Touch the tilted capillary (narrow angle) against the edge of the cover slip and load the counting chamber. If required, allow the cells to sediment for max. 3 minutes in a humid chamber. Count RBCs and WBCs.

Using a automatic micropipette

Only appropriately trained laboratory staff should use this method!

Proceed as outlined above, but use an automatic micropipette instead capillaries to add 5 µl sample to the vial. Flush pipette tip sufficiently. Use a 10 ... 25 µl automatic micropipette to load the counting chamber.

Examination / Calculation

Erythrocytes (RBCs)

For microscopic counting, use phase-contrast optics or bright field (lowered condenser) at 400× magnification (40× objective).

Neubauer "improved" counting chamber:

Count the RBCs in 5 group squares (each contains 16 smallest squares). Go through the group squares diagonally from one corner to the other. In the border squares, count cells up to the center line.

$$\begin{aligned} \text{Total Cells count} \times \text{Dilution} / \text{Counting volume} &= \text{Cells} / \mu\text{l} \\ \text{Total RBC count} \times 200 / 0.02 &= \text{RBCs} / \mu\text{l Blood.} \\ \text{Total RBC count} \times 10'000 &= \text{RBCs} / \mu\text{l Blood.} \end{aligned}$$

Counting chamber Neubauer or Thoma:

Count the RBCs in 5 group squares (each contains 16 smallest squares). Use the four group squares in the corners and one in the center.

Calculation see above.

Leukocytes (WBCs)

For microscopic counting, use phase-contrast optics or bright field (lowered condenser) at 100× magnification (10× objective).

Neubauer or Neubauer improved Counting chamber:

Count the WBCs in the entire grid (9 large squares, 1 mm² each). If you use the Neubauer "improved" chamber, count cells up to the center line.

$$\begin{aligned} \text{Total Cells Count} \times \text{Dilution} / \text{Counting volume} &= \text{Cells} / \mu\text{l} \\ \text{Total WBC count} \times 200 / 0.9 &= \text{WBCs} / \mu\text{l Blood.} \\ \text{Total WBC count} \times 222 &= \text{WBCs} / \mu\text{l Blood.} \end{aligned}$$

Rough calculation:

$$(\text{Total WBC count} + 10\%) \times 200 \sim \text{WBCs} / \mu\text{l Blut.}$$



Notes

This product information exclusively relates to the reagent described in this leaflet. In particular, this product information cannot be applied to similar reagents from other manufacturers.

Periodically check for updates of this product information on our website.

Instruction for use

For professional use only.

To avoid errors, the use of qualified personnel is carried out. National guidelines for work safety and quality assurance must be followed.

The used equipment must comply with the state of technology and the laboratory requirements.

All samples and used tubes/vials must be marked clearly identifiable to exclude any confusion.

Support / Information service

For methodological and technical support, please contact us by eMail at support@bioanalytic.de or by fax (German, English).

Periodically check for updates of this product information on our website.

Waste Management

Please observe your national laws and regulations.

Used and expired solutions must be disposed of in accordance with your local regulations.

Inside the EU, national regulations apply that are based on the current, amended version of Council directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

Decontaminated packaging can be disposed of as household waste or recycled, unless otherwise specified.

Literature & Footnotes

Legends for the graphic symbols and tags used follow relevant norms or are available on our internet pages.

- [1] Natt, M.P. and C.A. Herrick, 1952. A new blood diluent for counting the erythrocytes and leucocytes of the chicken. Poult. Sci., 31: 735-738.
- [2] Campbell, Terry. W.: Avian Hematology and Cytology, 2nd ed. Iowa State University Press, Ames, IA 1995, Page 3 ... 5.
- [3] CITRISO-Anticoagulant see <http://bioanalytic.de/ivd-anticoagulants.en.html>. CITRISO is a patented Anticoagulant and can be adjusted to required osmolality.