C-Chip

INSTRUCTIONS

Disposable Hemocytometer

System Neubauer Improved

DHC-N01

NanoEntek

NanoEntek

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Unpacking

When you receive the C-Chip (DHC-N01) for the first time, you will find the following components in your package.

Disposable hemocytometer
Instruction manual

Safety Precautions

For analyzing hazardous or potential infectious materials:
- Take necessary precautions
- Handle with care
- Dispose in an appropriate way

Long exposure to solvents will cause the slide to warp.
Xylene and toluene based mounting media should be avoided.
Glycerol, gelatin, and other aqueous-based media are recommended.

Safety Symbols

The safety symbols on the C-Chip (DHC-N01) are intended to inform you of potential danger or a particular caution. Before use, please read and the consult the guide for the symbols and their meanings.

LOT	Batch code (Lot Number)		Use by
	Do not reuse		Manufacturer
	Consult instructions for use		

NOTE : The C-Chip (DHC-N01) is for **single use** only. **Do not reuse.** It should be used immediately after unsealing. The warranty on the C-Chip included in the conditions of supply is valid for 24 months from the date of manufacturing. The **expiration date** is indicated on the front side of outer box.

Introduction

The C-Chip (DHC-N01) is a disposable plastic hemocytometer used for manual cell counting. It consists of surface-patterned two enclosed chambers with two ports for sample injection (Fig. 2).

The DHC-N01 grid pattern is exactly same as the Neubauer Improved. It consists of 9 large squares, each measuring 1 x 1 mm, and the depth of the chamber is 0.1 mm. Each square has a total volume of 0.1 mm^3 or 10^{-4} cm^3 (Fig. 1).

The central square is divided into 25 small squares with triple lines and four corner squares are divided into 16 small squares.

※ Dotted line indicates the large square.

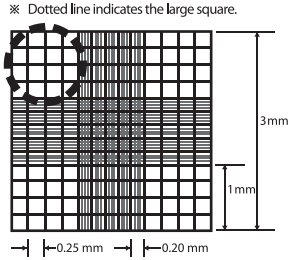

Figure 1 Grid pattern

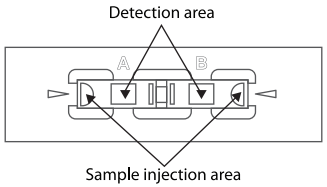

Figure 2 DHC-N01

Counting with C-Chip

A. General Methods

1. Mix the samples well.
2. Load 10 µL of sample into the sample injection area in Fig. 2, so that it fills the chamber by capillary action.
3. Count the cells under the microscope.

$$\text{Cells per mL} = \text{average count per square} \times \text{dilution factor} \times \text{volume factor}$$

B. Mammalian cell counting

1. Treat the cell samples with trypsin-EDTA.
2. Carefully remove the supernatant with a pipette tip without disturbing the pellet.
3. Add an appropriate volume of growth media or PBS to dilute to a final concentration of 5 x 10^3 cells/mL to 5 x 10^6 cells/mL.
4. Thoroughly re-suspend the cell pellet with a pipette
5. Check visually if there are any cell clumps or agglomerates.
6. Load 10 µL of sample into the sample injection area in Fig. 2.
7. Count the cells in 5 large squares.

$$\text{Cells per mL} = \frac{\text{cells in 5 large squares}}{5} \times \text{dilution factor} \times 10^4 \text{ (volume factor)}$$

C. Erythrocyte counting (1:200 dilution)

1. Dilute blood using accepted laboratory methods.
2. Load 10 µL of diluted sample into the sample injection area in Fig. 2.
3. Count the erythrocytes in the 5 small squares (four small corner squares and one small middle square) of the large center square.

$$\text{RBCs per mL} = \frac{\text{cells in 5 corner squares}}{5} \times 25 \times 200 \text{(dilution factor)} \times 10^4 \text{ (volumefactor)}$$

D. Leukocyte counting (1:20 dilution)

1. Dilute blood using accepted laboratory methods.
2. Load 10 µL of diluted sample into the sample injection area in Fig. 2.
3. Count the leukocytes in the 4 large corner squares.

$$\text{WBCs per mL} = \frac{\text{cells in 4 corner squares}}{4} \times 20 \text{ (dilution factor)} \times 10^4 \text{ (volumefactor)}$$

Trouble shooting

In case of poor visibility results,

Carefully load samples into the C-Chip in order to prevent the introduction of **air bubbles.**
Observe after removing the dust from samples.
Adjust the focus of the microscope.
Do not rub or touch the pattern.

C-Chip

INSTRUCTIONS

Grid pattern of Bürker
DHC-B01

Grid pattern of Bürker-Türk
DHC-B02

Grid parttern of Fuchs-Rosenthal
DHC-F01

Grid pattern of Malassez
DHC-M01

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Grid pattern of Bürker
DHC-B01

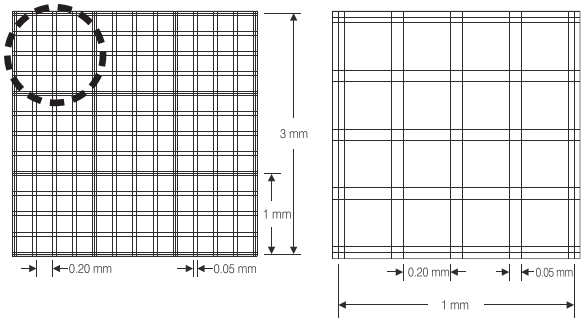
The C-Chip (DHC-B01) grid pattern is exactly same as the Bürker.
It consists of 9 large squares, each measuring 1 x1 mm, and the depth of the chamber is 0.1 mm. Each square has a total volume of 0.1 mm^3 or 10^{-4} cm^3.

The large squares are subdivided into 16 group squares with 0.2 mm sides.
The group squares correspond in size to the Neubauer grid,
but have no further subdivisions.

Loading volume = 10µL

Cells per mL =
average count per large square x dilution factor x 10^4 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-B01

Grid pattern of Bürker-Türk
DHC-B02

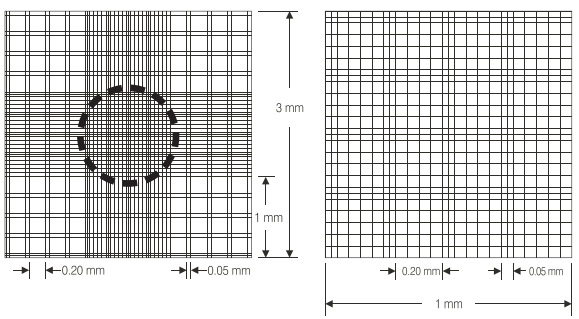
The C-Chip (DHC-B02) grid pattern is exactly same as the Bürker-Türk.
It consists of 9 large squares, each measuring 1 x 1 mm and the depth of the chamber is 0.1 mm.
Each square has a total volume of 0.1 mm^3 or 10^{-4} cm^3.

The large squares are subdivided into 16 group squares with 0.2 mm sides.
In the central large square, each group is subdivided into 16 mini squares with 0.05 mm sides (= 0.0025 mm^2).

Loading volume = 10µL

Cells per mL =
average count per large square x dilution factor x 10^4 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-B02

Grid parttern of Fuchs-Rosenthal
DHC-F01

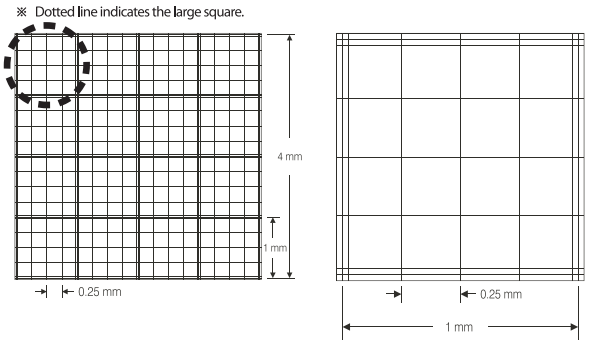
The C-Chip (DHC-F01) grid pattern is exactly the same as the Fuchs-Rosenthal.
It consists of 16 large squares orientated by triple lines, each measuring 1 x 1 mm, giving a total area 4 x 4 mm.

The depth of each chamber is 0.2 mm, giving a on large square with triple line has a volume of 0.2 µL, total volume for counting area of 3.2 µL (3.2 mm^3).

Loading volume = 20µL

Cells per mL =
average count per large square x dilution factor x 5000 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-F01

Grid pattern of Malassez
DHC-M01

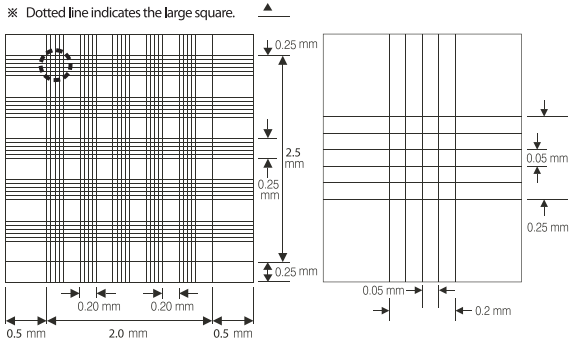
The C-Chip (DHC-M01) grid pattern is exactly same as the Malassez.
It consists of 25 large squares, each measuring 0.2 x 0.25 mm and the depth of the chamber is 0.2 mm. Each square has a total volume of 0.01 mm^3 or 10^{-5} cm^3.

The large squares are subdivided into 20 small squares with an area of 0.0025 mm^2.

Loading volume = 20µL

Cells per mL =
average count per large square x dilution factor x 10^5 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-M01