

C-CHIP

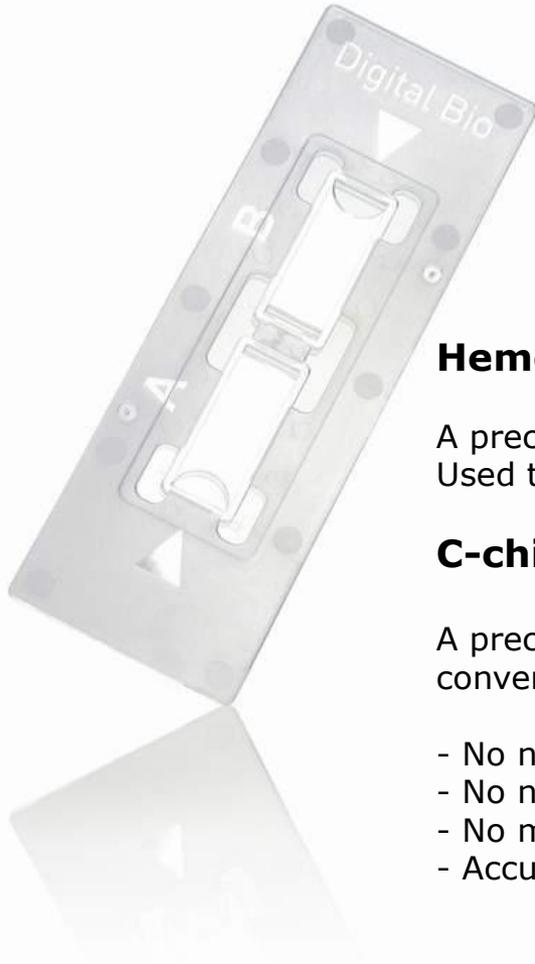
**The World's First
True Disposable Hemocytometer**





- ◆ **What is C-chip™?**
- ◆ **Areas of applications**
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What is C-chip™?



Hemocytometer is,

A precision measuring instrument made of special optical glass.
Used to count cells or other particles in suspensions under the microscope.

C-chip™ is,

A precision disposable plastic hemocytometer, developed to solve the problems of conventional glass hemocytometer.

- No need to coverslip
- No need to wash for reuse
- No more contact to hazardous materials (e.g., AIDS patient blood, urine)
- Accurate and reliable

Areas of applications



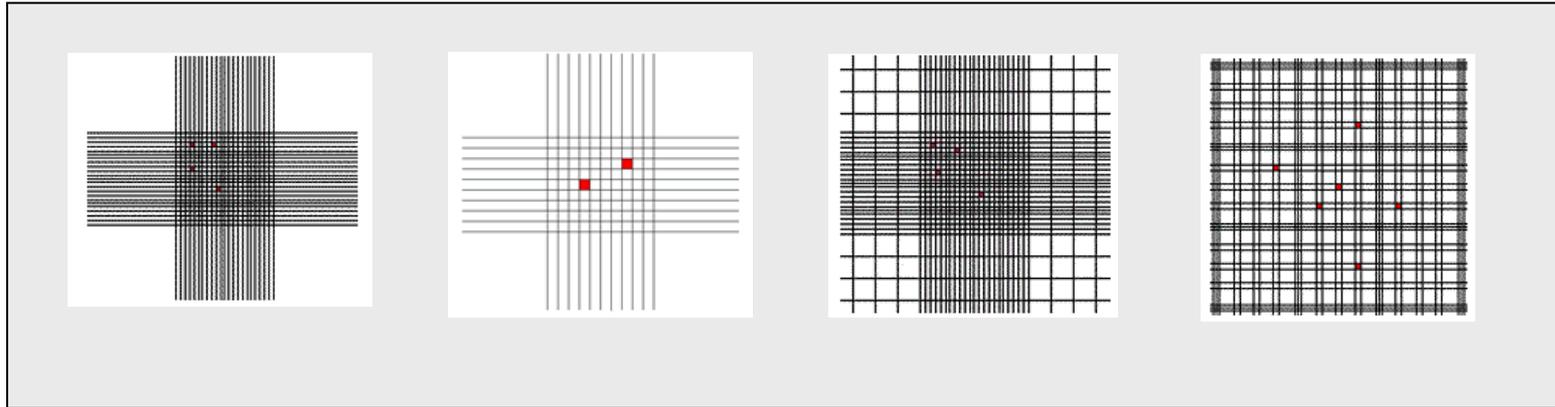
Main Application:

Blood analysis (Hematology): Blood cell counting

Cell culture: Cell concentration measurement / Cell viability

Microbiology: Bacterial & Fungus spores counting

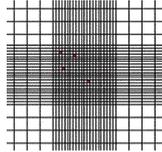
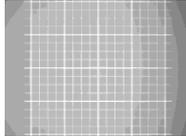
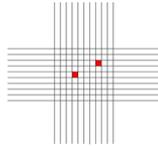
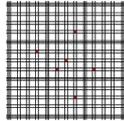
IVF, IUI: Sperm counting



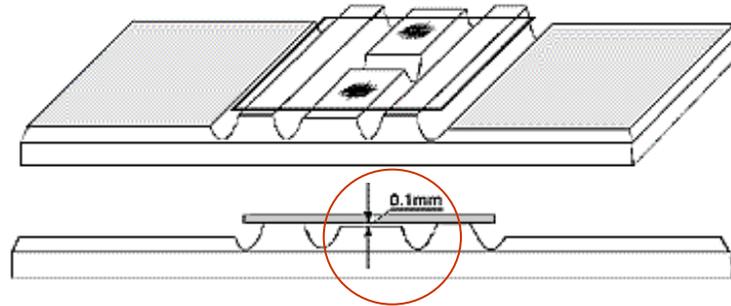
Classification by Grid Pattern



There are about 10 different glass hemocytometer models with different grid pattern. Most popular grid pattern is Neubauer Improved (NI) grid (around 90%)

Neubauer Improved	0.1 mm	0.05 mm	
Fuchs Rosenthal	0.2 mm	0.05 mm	
Semen counting Chamber	0.01 mm	0.1 mm	
Bürker Turker	0.1 mm	0.05 mm	

Classification by Chamber Depth



Chamber Depth of hemocytometer :

- 1) The distance between coverslip and hemocytometer
- 2) Defines the volume of counting
- 3) Consistent depth is the most important factor for counting accuracy
- 4) Different chamber depth have been used for different application

100 μm : Mammalian cell counting. Most popular

200 μm : Counting of rare cells (e.g., CSF)

10 ~ 20 μm : Counting of small cells (e.g., bacteria and yeast)



Models

No.	Grid	Depth
DHC-N01	Neubauer Improved	100 μm
DHC-N02	Neubauer	100 μm
DHC-F01	Fuchs Rosenthal	200 μm
DHC-S01	Semen Test	10 μm
DHC-S02	No grid for CASA	10 μm
DHC-B01	Burker	100 μm
DHC-B02	Burker Turk	100 μm
DHC-T01	Thoma	100 μm
DHC-T02	Thoma New	100 μm
DHC-M01	Malassez	200 μm
DHC-P01	Petroff Hauser	10 μm

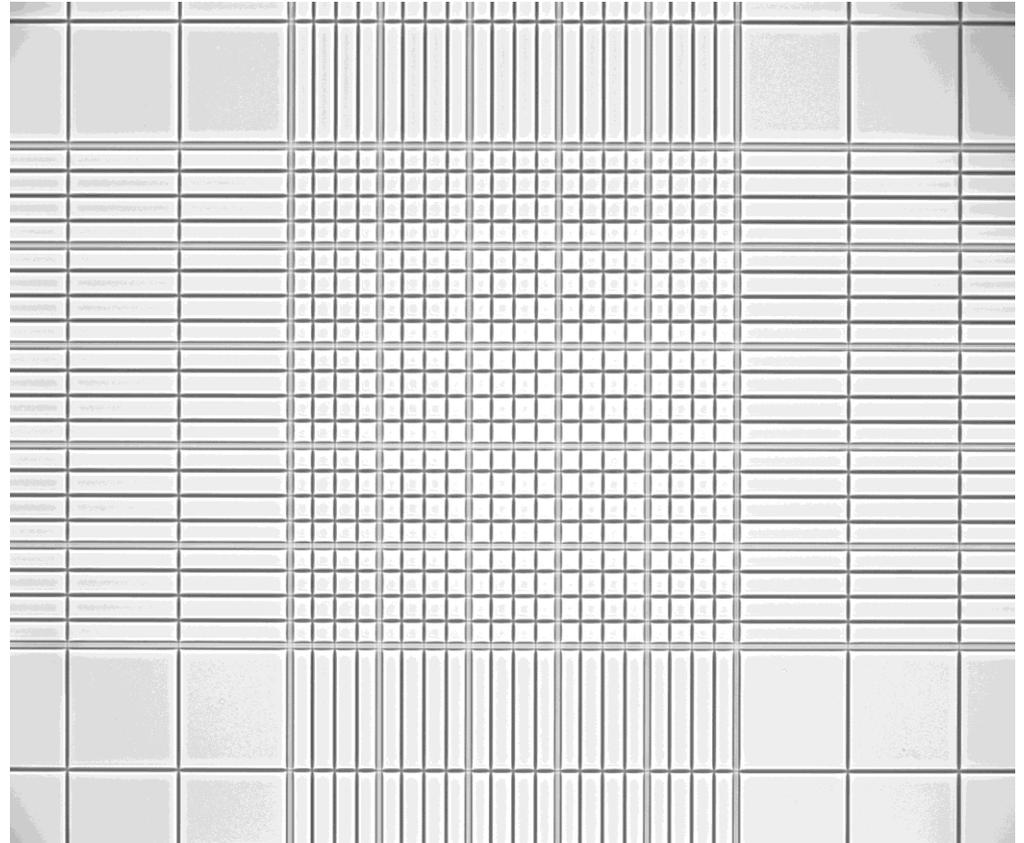


Image of C-chip grid pattern (Neubauer Improved)

How to use C-chip™ ?



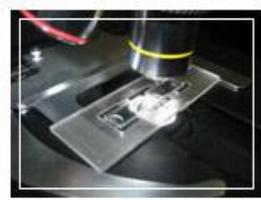
Just drop and Count!



DROP

&

COUNT



C-chip™ Advantages



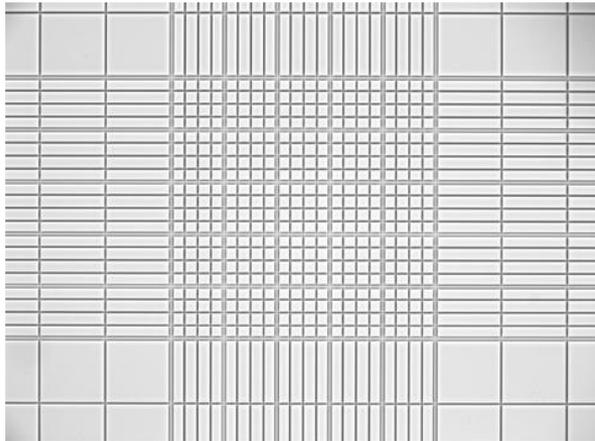
- ✓ **Does not need coverslips**
- ✓ **Eliminates the need of washing and reuse**
- ✓ **Reduced exposures to infectious samples and hazardous samples**
- ✓ **Guaranteed repeatability and reliability**
- ✓ **Bright grid pattern**
- ✓ **Quartz grade optical plastic**
- ✓ **Sturdy and strong**

Technical Data (1)

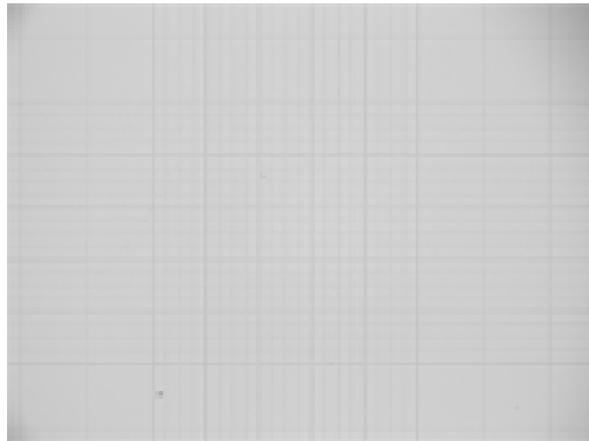


The grid pattern of C-chip™ and glass hemocytometer (microscope image, 100 X magnification)

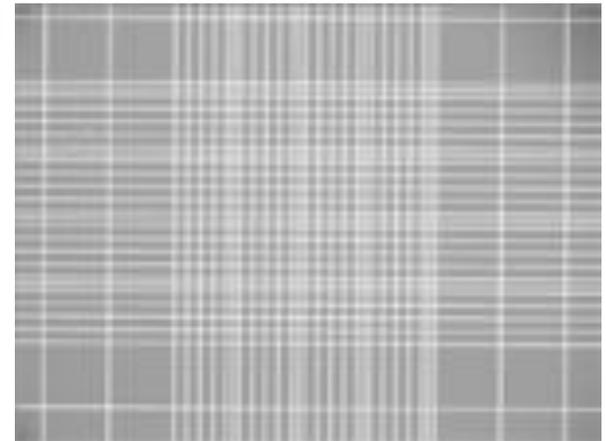
C-chip™



Glass Hemocytometer
(standard model)

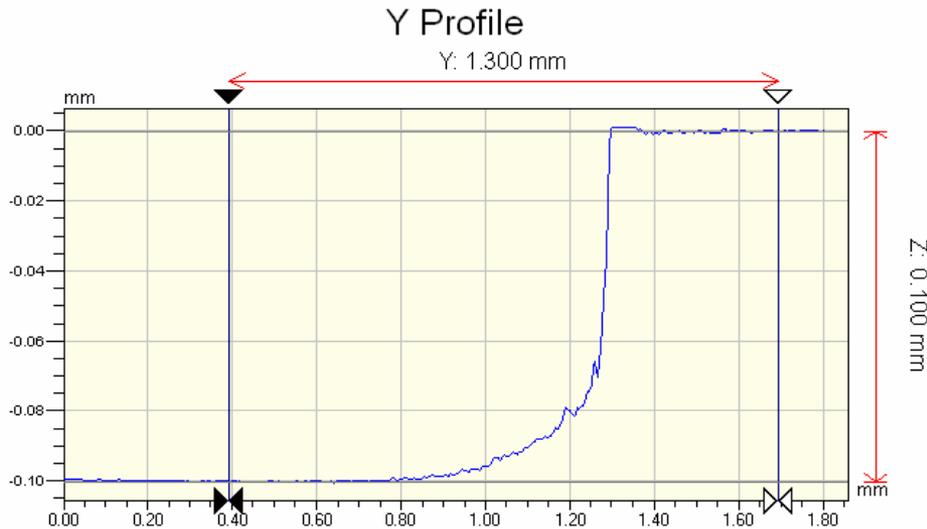


Glass Hemocytometer
(Bright line model)





Accurate and Consistent Chamber Depth of C-chip™

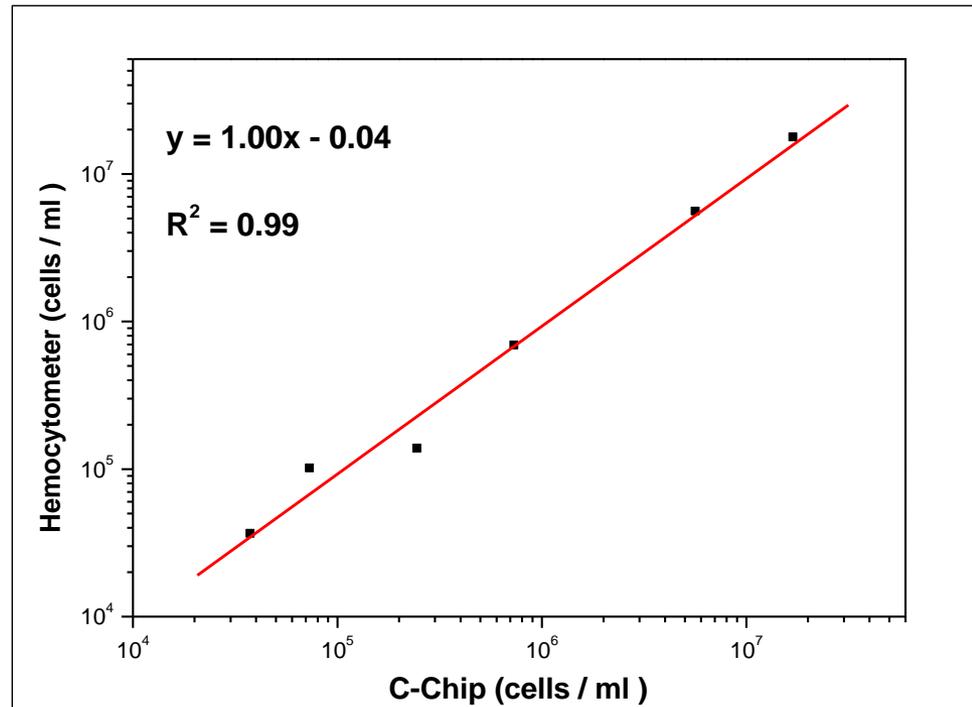


The chamber depth of C-chip™ was measured by interferometry surface profiling technology, indicates chamber depth is exactly 0.100 mm

Guaranteed CV of mass produced C-chip™ < 5%



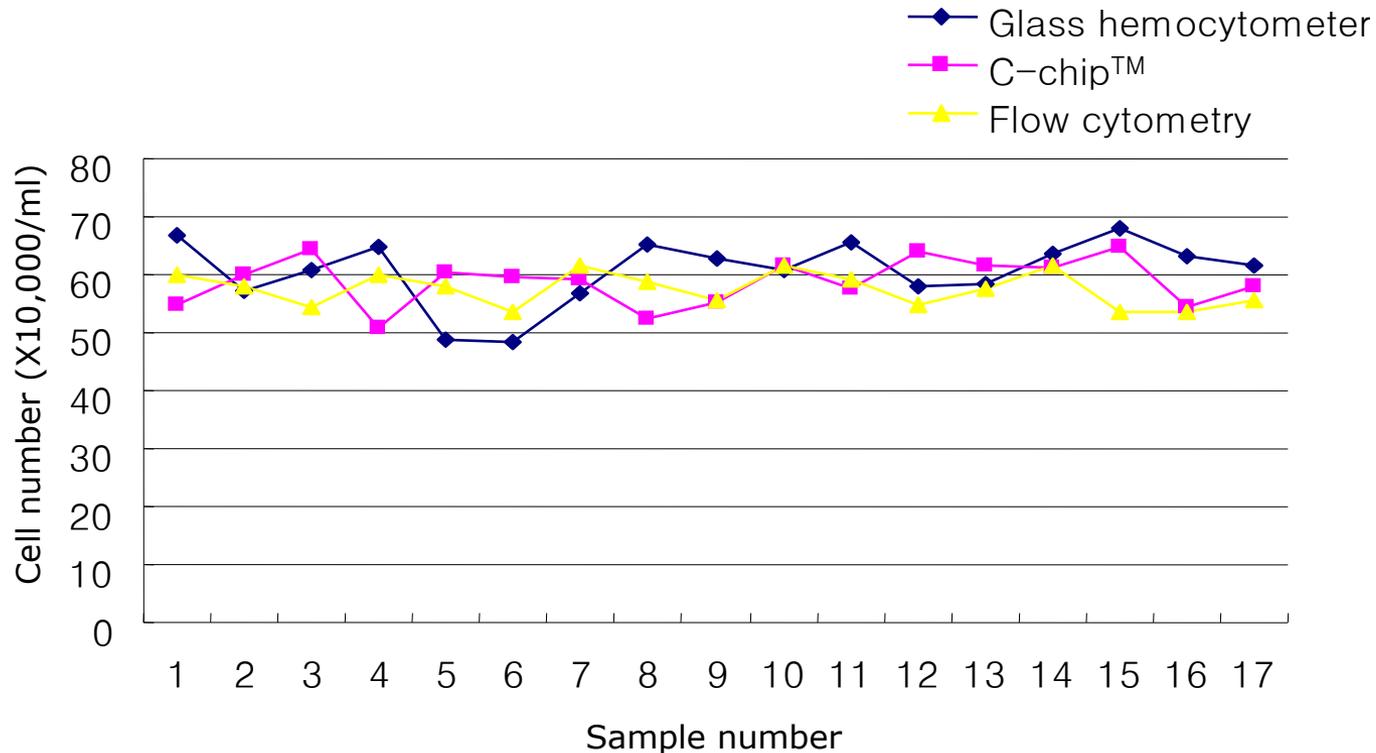
Comparison of cell counting result (C-chip™ and glass hemocytometer)



Same cell samples were diluted and counted using C-chip™ and glass hemocytometer (n=50). The result shows an excellent correlation between C-chip™ and glass hemocytometer.



Comparison of cell counting result (C-chip, glass hemocytometer, flow cytometry)



Same cell samples were divided into 17 samples and counted using glass hemocytometer, C-chip™, and flow cytometry each. The standard deviation of each counting methods were 5.58 (glass), 4.18 (C-chip™), and 2.87 (flow cytometry). A little higher standard deviation of manual counting methods considered to be originated from the error of eye counting, not from product itself.

Feedback from Customers (1)



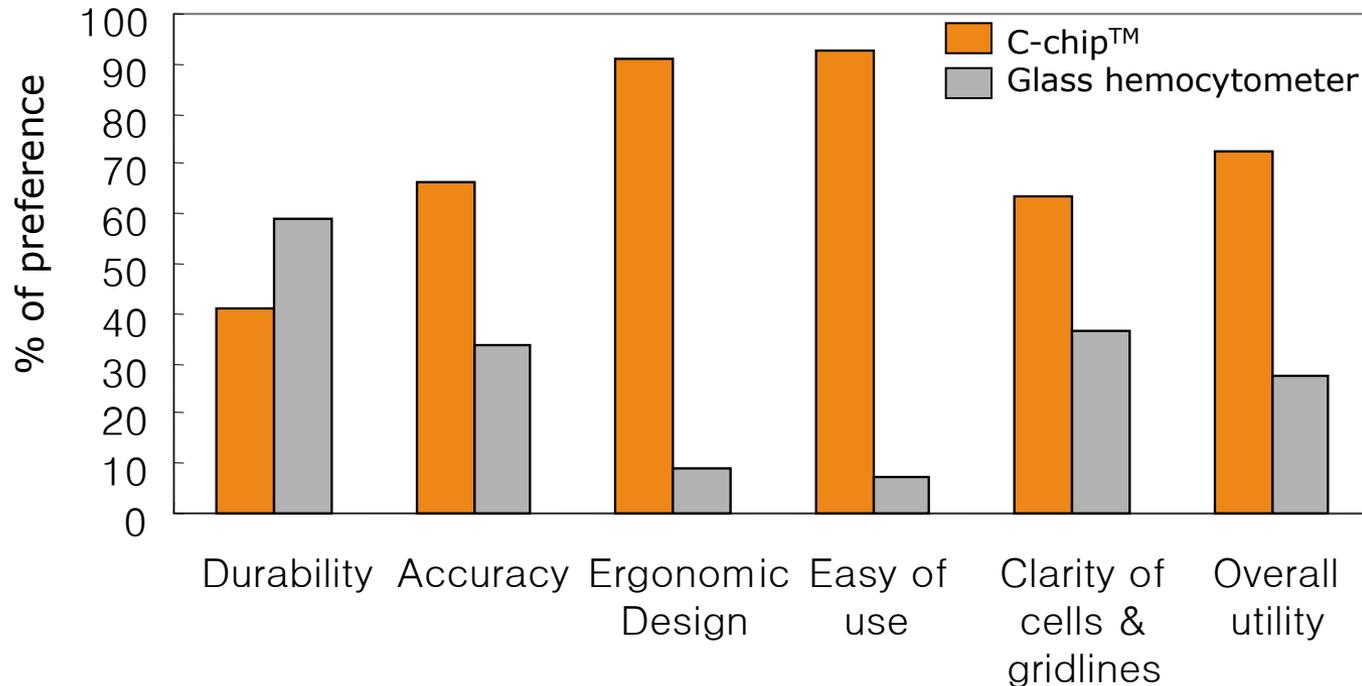
- ❖ **The visibility is superior to glass. I love them. (Nucleonics Inc., USA)**
- ❖ **Perhaps in a clinical setting where the samples are of unknown origin and could be potential infectious then a product like this would be very user friendly. (Nucleonics Inc., USA)**
- ❖ **I love the idea of this. I think it is more accurate than a hemacytometer and you don't need to keep cleaning it. or worry about breaking the coverslip or scratching the hemacytometer. (Roche, USA)**
- ❖ **Found the C-Chip™ so easy and convenient to use. (Centocor R&D, Inc., USA)**
- ❖ **Provide along with other cell culture products, utility for infectious samples is always a plus. (Durableigh Services, USA)**
- ❖ **good and easy to use. (McGill University, Canada)**
- ❖ **I think this is a great product. This will also be perfect for level III laboratory use as a) we are not supposed to use glass and b) we will be able to safely dispose of the entire hemacytometer and we don't have to physically touch the hemacytometer to clean it. (McMaster University, Canada)**
- ❖ **The design is wonderful. (National Research Council, Canada)**
- ❖ **Very good for counting radioactive cells without the danger of spilling radioactivity everywhere (glass hemacytometer, microscope, sink...) (CR-CHUM, Canada)**
- ❖ **Easy to use I like it. (Ste Justine Hospital, Canada)**
- ❖ **Tell more people about it, I didn't know it existed before seeing it in this display. (Ste-Justine Hospital, Canada)**
- ❖ **It's new, I like it. (Université de Montréal, Canada)**
- ❖ **I was very excited to receive my free samples of the C-Chip™. I will start using them right away. (Schering-Plough Research Institute, USA)**

Feedback from Customers (2)



Customers responded as follows to the survey questions:

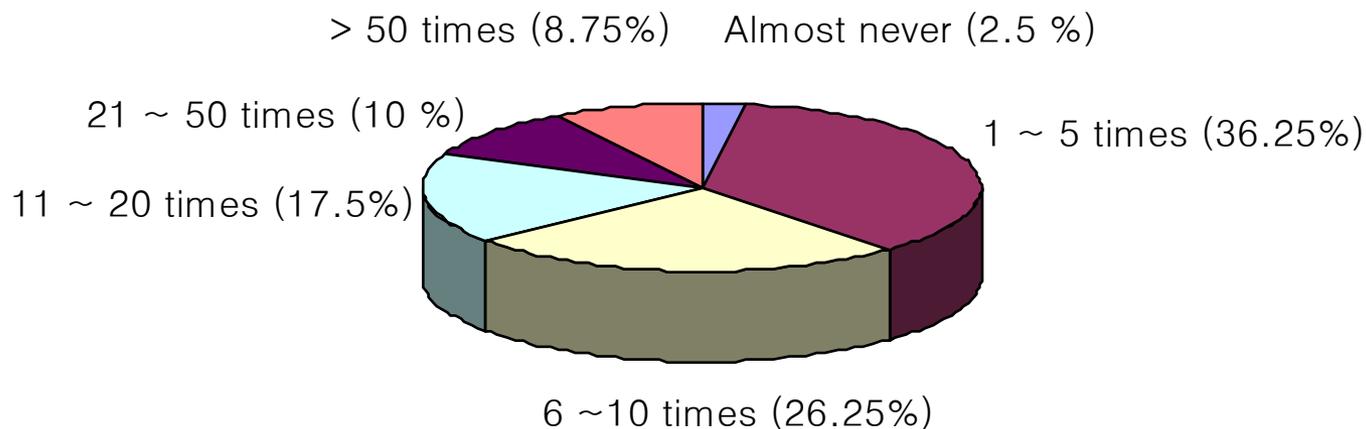
“Upon comparison to a conventional glass hemocytometer which do you prefer for?”



Hemocytometer Market



Estimated hemocytometer usage frequency (per week per person)



Ref: Invitrogen & Digital Bio Co-Survey Result (2005)



C-chip™

The Cell Counting Standard

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