

# BioFerm

Cell Analyzer for Saccharomyces,  
Pichia, Candida and more...



## BioFerm

Monitoring the quality of fungi cultures in production and research

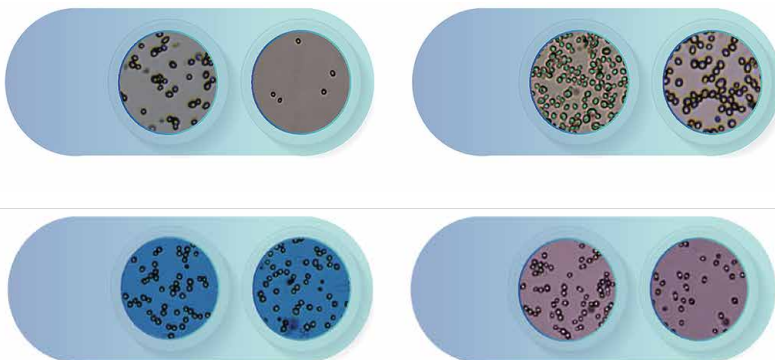
# Product Introduction

The Countstar® BioFerm automated fungi cell analyzer combines classical staining methods using Methylene blue or Safranin T with high-resolution imaging. Sophisticated image analysis algorithms deliver precise and accurate detection of viable and dead fungi cells, cell concentration, diameter and information about morphology and aggregation. The powerful data management system reliably saves results and images.



### ► Application Range:

BioFerm is capable of counting and analyzing various fungi in diameters ranging between 2  $\mu\text{m}$  and 180  $\mu\text{m}$ . In the biofuel and biopharma industry, BioFerm is used as a reliable tool for monitoring production processes.



Images of brewer's yeast *Saccharomyces cerevisiae*, acquired with the Countstar® BioFerm. Samples were taken from different beer manufacturing processes, partly stained with Methylene Blue (lower left) and Methylene Violet (lower right)

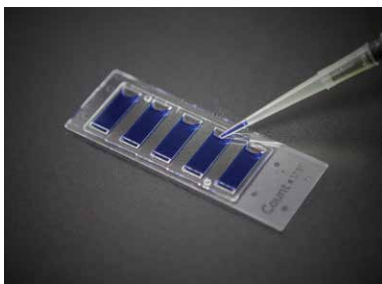


## The Countstar® Chamber Slide

A unique innovation, the Countstar® Chamber Slide analyzes 5 individual samples in a single sequence, assuring highly precise and accurate results while saving time and optimizing workflow. After samples are added to each chamber, the slide is placed in the instrument for analysis. In combination with our patented Countstar "Fixed Focus Technology", high-class lenses and cameras we provide images with a maximum amount of information.

### Slide Specifications

Material:	Polymethyl Methacrylate (PMMA)
Dimensions:	75 mm (w) x 25 mm (d) x 1.8 mm (h)
Chamber Depth:	190 ± 3 µm (only 1.6% deviation for high accuracy)
Chamber Volume	20 µL



Analyze up to 5 samples in a single sequence



Save up to 40% per test compared to competitors' slides



The Countstar® Chamber Slide Holder

## ▶ User Benefits:

### ✦ Providing comprehensive information about fungi

Data include concentration, viability, diameter, compactness, and aggregation rate.

### ✦ Our patented "Fixed Focus Technology"

There is no need at any time to adjust the focus of the Countstar BioFerm.

### ✦ The 5-megapixel color camera

Ensures contrast-rich and detailed visualization of the organisms.

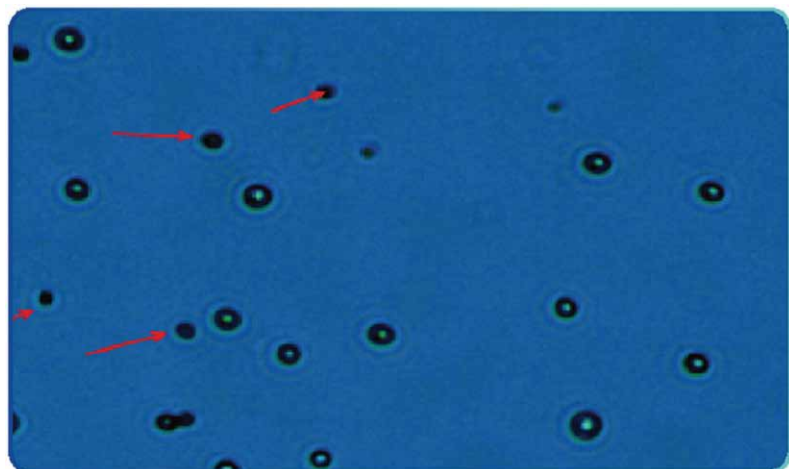
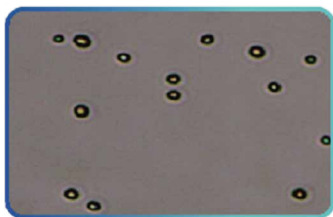
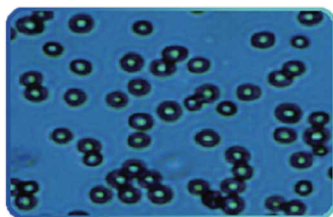
### ✦ Aggregation analysis

Allows for the analysis of budding activity and culture.

### ✦ Cost-efficient consumables

Five sample positions on a single Countstar Chamber Slide.

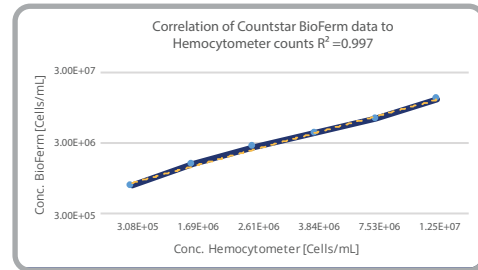
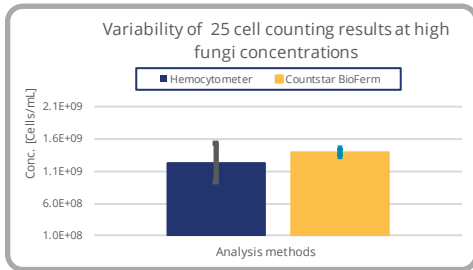
#### EXAMPLE IMAGES: *Saccharomyces cerevisiae*



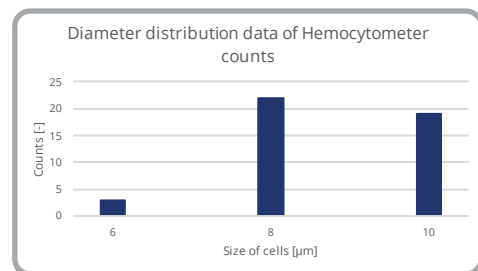
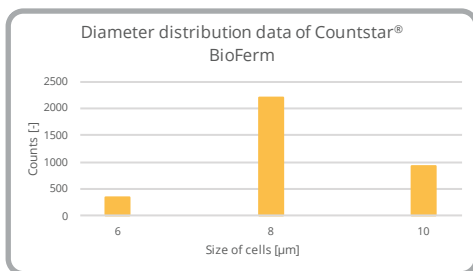
at different stages of a two-step fermentation process. Upper left: Section of a Countstar® BioFerm image showing the starter culture, stained by Methylene Blue (MB). Sample contains high cell density and cells are highly viable (mortality <5%). Lower left: Unstained sample from a freshly inoculated bioreactor; buds are clearly visible. Right: Sample taken at the late stage of the main fermentation, stained 1:1 by MB (mortality: 25%). Red arrows mark dead cells, which had incorporated the viability dye leading to a dark center of the cells.

## ► Performance data and comparisons:

### ✦ Comparability of measurement data

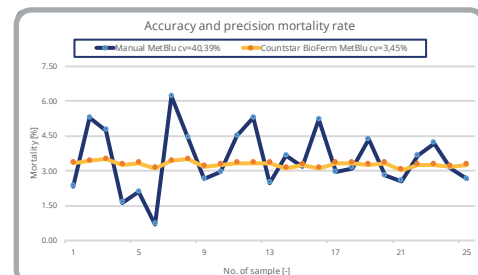
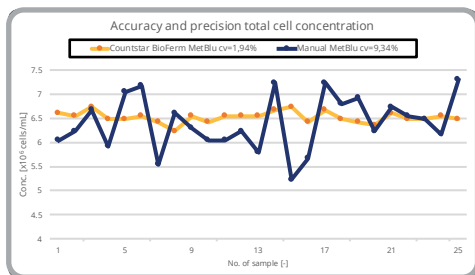


### ✦ Comparison of manual and automatic diameter distribution analysis

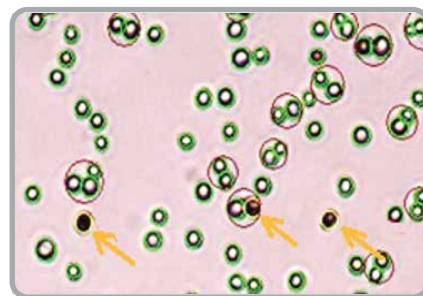
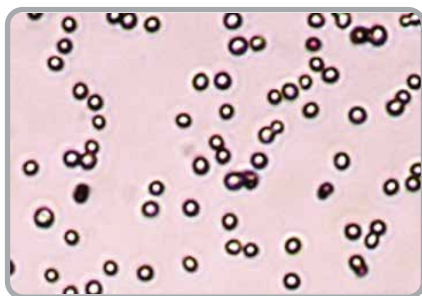


### ✦ Reproducibility of cell counting and mortality rate

25 aliquots of a diluted *Saccharomyces cerevisiae* sample containing a nominal concentration of  $6.6 \times 10^6$  cells /mL were analyzed in parallel by a Countstar® BioFerm and in a hemocytometer manually.



### ✦ Quality of acquired images by BioFerm



*Saccharomyces cerevisiae*, stained with Methylene Violet and subsequently analyzed with a Countstar® BioFerm system

**Left:** Section of an acquired image **Right:** Same section, cells labeled by the Countstar® BioFerm analysis algorithms. Viable cells are surrounded by green circles, stained (dead) cells marked by yellow circles (additionally indicated for this brochure with yellow arrows). Aggregated cells are surrounded by pink circles.

# BioFerm

## Ordering Information

Product Name	Product No.
BioFerm Cell Analyzer	SO010402
Countstar Chamber Slide (50 slides per box)	CO010101

## Technical Specifications

Data	Concentration, Mortality, Diameter, Aggregation Rate, Compactness
Measurement range	$5.0 \times 10^4 - 5.0 \times 10^7$ /ml
Size Range	2 - 180 $\mu$ m
Chamber Volume	20 $\mu$ l
Measurement Time	<20 Seconds
Result Format	JPEG/PDF/Excel spreadsheet
Throughput	5 Samples / Countstar Chamber Slide

Disclaimer: The information in this document is not guaranteed to be accurate. Countstar® systems are not approved for medical or IVD use.

