Real-Time and Highly Accurate Enumeration of Individual Bacteria and Somatic Cells in Raw Milk

The BactoCount IBC-M is a semi-automated instrument that uses a proprietary process based on flow cytometry (FCM) for the rapid and highly accurate enumeration of individual bacteria and somatic cells in raw milk.

The rapid test for bacteria and somatic cells makes it an ideal and unique solution for any processing plant or laboratory involved in the quality assessment of milk.

**BENTLEY BACTOCOUNT IBC-M TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Type of Samples</th>
<th>Milk of typical composition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL BACTERIA APPLICATION</strong></td>
<td>2000 to 10+ million individual bacteria/ml</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Range (μL) &amp; Specifications</td>
</tr>
<tr>
<td>10-50, Sr ≤ 0.07 log</td>
<td></td>
</tr>
<tr>
<td>51-100, Sr ≤ 0.06 log</td>
<td></td>
</tr>
<tr>
<td>101-300, Sr ≤ 0.05 log</td>
<td></td>
</tr>
<tr>
<td>&gt;300, Sr ≤ 0.03 log</td>
<td></td>
</tr>
<tr>
<td>Reproducibility</td>
<td>10-50, Sr ≤ 0.14 log</td>
</tr>
<tr>
<td>51-100, Sr ≤ 0.12 log</td>
<td></td>
</tr>
<tr>
<td>101-300, Sr ≤ 0.10 log</td>
<td></td>
</tr>
<tr>
<td>&gt;300, Sr ≤ 0.06 log</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>Sy,x ≤ 0.30 log (ISO 4833, IDF 1008:1991 or AOAC 986.33)</td>
</tr>
<tr>
<td>Cow: Sy,x = 0.167 (AIA)</td>
<td></td>
</tr>
<tr>
<td>Sheep: Sy,x = 0.245 (AIA)</td>
<td></td>
</tr>
<tr>
<td>Buffalo: Sy,x = 0.201 (AIA)</td>
<td></td>
</tr>
<tr>
<td>SOMATIC CELLS APPLICATIONS</td>
<td></td>
</tr>
<tr>
<td>Measuring range:</td>
<td>0-10 000 000 somatic cell/ml</td>
</tr>
<tr>
<td>Carry-Over:</td>
<td>≤ 1.0% (typically below 0.5%)</td>
</tr>
<tr>
<td>Repeatability (CV):</td>
<td>SCC @ 500 000 cells/ml ≤ 2.0%</td>
</tr>
<tr>
<td></td>
<td>SCC @ 300 000 cells/ml ≤ 2.5%</td>
</tr>
<tr>
<td></td>
<td>SCC @ 100 000 cells/ml ≤ 3.5%</td>
</tr>
<tr>
<td>Speed</td>
<td>Analyzing time: ≤ 1 minute</td>
</tr>
<tr>
<td></td>
<td>Prep time: 15 seconds</td>
</tr>
<tr>
<td></td>
<td>Incubation time 1’ (scc)/10’ (ibc)</td>
</tr>
<tr>
<td>Undiluted Work Factor</td>
<td>10 – 100</td>
</tr>
<tr>
<td>Power Supply</td>
<td>115/220 VAC</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Width: 58.0 cm</td>
</tr>
<tr>
<td></td>
<td>Depth: 47.0 cm</td>
</tr>
<tr>
<td></td>
<td>Height: 38.0 cm</td>
</tr>
<tr>
<td></td>
<td>Weight: 30.0 kg</td>
</tr>
<tr>
<td>Sample Temperature</td>
<td>4 – 42° C</td>
</tr>
</tbody>
</table>

**SERVICE AND SUPPORT**

Delivering a superior level of customer support has always been a top priority at Bentley Instruments. We understand the importance of making sure your laboratory is producing results, 24 hours a day, seven days a week.

Our experienced team of support staff provides onsite training, installation and support, as well as Internet-based remote control support to help you maintain the highest level of productivity.

* Specifications are subject to change without notice.*
Bentley BactoCount IBC- M Technology

The BactoCount IBC- M consists of three main modules:

- **Computer:** A powerful external computer allows the IBC- M to run and monitor the instrument at all times. Diagnostic features have been integrated in the software to warn the operator if the instrument is not functioning properly. All the analysis and histogram data is saved in a database and can be recalled at any time.
- **Incubator:** Incubation is performed in single-sample holders placed on a heater plate next to the analyzer. The milk and incubation reagents are dispensed in the sample holder and subjected to mechanical, chemical and heat treatments. During the incubation, the interfering components are removed and the bacteria DNA is labeled with a fluorescent marker. The incubation time of each sample is monitored automatically by the software and the operator is prompted to analyze the sample after completion of the incubation period.
- **Counter:** The flow cytometer includes a powerful solid state laser, flow cell, microscope, narrow band filter, and a highly sensitive photomultiplier. The principle of operation is described on the next page. The counting assembly is highly sensitive and can be used to measure the concentration of bacteria in milk.

EVALUATED BY THE AIA (IT), CECALEIT (FR) REFERENCE LABORATORIES AND THE MRI MAX RUBNER-INSTITUT (DE)

The BactoCount IBC- M is based on the well-proven and worldwide-recognized technology of the IBC- S0-I50 models, which have been approved as an alternative method to the ISO 4833/IDF 100B:1991 standards for the rapid and accurate determination of the hygienic quality of cow, sheep, and buffalo raw milk for payment purposes. The BactoCount method is now a standard in the Dairy Industry with several hundred units used worldwide by milk payment laboratories, dairy plants and National Reference Laboratories.

**Applications and Value**

- **Segregation of the milk as a function of its quality**
- **Real-time detection of milk silo contamination before unloading**
- **Real-time detection of milk tanker contamination**
- **Enable dairies to comply with EU Commission Regulation (EC) n° 1662/2006 laying down specific hygiene rules for food of animal origin (total flora < 100,000 cfu/ml, SCC < 400,000 cells/ml)**
- **Real-time detection of milk tanker contamination before unloading**
- **Real-time detection of milk silo contamination before processing**
- **Segregation of the milk as a function of its quality**
- **Improve end-products consistency**
- **Fast Return on Investment**

**Features and Benefits**

- Proprietary robust flow cytometer built on well-proven technology
- Versatile: Bacteria and somatic cells enumeration on the same platform
- Highly Accurate: Can be used as an alternative method to the ISO 4833/AOAC 986.33 (Total Flora) and ISO 13366-1 (somatic cells) standards
- Rapid: Results available in 1' (somatic cells) and 10' (bacteria)
- Excellent instrument standardization and quality control with the IBC lyophilized bacteria standard
- Instrument pre-calibrated with a universal conversion equation
- Extensive Internet remote control capabilities
- Easy-to-use, low-maintenance design: Low cost of ownership

**Equipment and Value**

- Milk payment, screening and segregation
- Enable dairies to comply with EU Commission Regulation (EC) n° 1662/2006 laying down specific hygiene rules for food of animal origin (total flora < 100,000 cfu/ml, SCC < 400,000 cells/ml)
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**Technology**

**BactoCount IBC- M**

**COMPREHENSIVE DIAGNOSTICS**

Designed as an Internet appliance, the instrument supports a long line of diagnostics variables, providing lab managers with a level of insight into the operation of the instrument not previously available.

Equipped with the proper Internet connection, the instrument can even send an e-mail to a remote monitor, i.e., managers’ home e-mails, cell phones, etc., or simply cell home to the manufacturer.

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