HARDY DIAGNOSTICS

sartorius stedim biotech

# Monitoring the quality of beverages, water and foods...


turning science into solutions

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# ... is fast and reliable with Biosart® 100 Monitors and Media

**Microbiological Quality Control with Biosart® 100 Monitors increases efficiency and saves time**
The detection of microbial contamination in sample liquids such as final product, incoming inspection or during in-process testing plays a significant role in the quality assurance process. The requirements for a practical microbiological test method are that it permits quantitative and reproducible detection of trace contamination and that it can be performed efficiently and economically under routine conditions. These requirements are fulfilled optimally by the membrane filtration method. The use of ready-to-use disposable units simplifies the testing procedure and prevent cross-contamination of samples.

Biosart® 100 Monitors have been specifically designed for the detection and enumeration of microorganisms in beverages, water, pharmaceuticals, cosmetics, foods and other liquids. These sterile disposables with an incorporated membrane filter and cellulose pad are ready-to-use. After filtration, just remove the 100 ml funnel to convert the Monitor into a petri dish eliminating the need for membrane manipulation. Culture media for wetting the pad are available in individually sterilized, convenient plastic ampoules. Biosart® 100 Monitors are ready-to-use filter units designed to be placed onto the bases of a vacuum manifold, eliminating the cleaning and sterilization required of reusable funnels.

**High Flow membranes**
Biosart® 100 Monitors are also available with the new 0.45 µm High Flow membranes. The special pore structure allows shorter filtration times due to 30% higher flow rates.

**Compliance with International Standards**
The membrane filtration method is worldwide accepted and the preferred method of choice for the analysis of microbial contamination in liquid samples. Biosart® 100 Monitors and Media are in compliance with the membrane filtration procedures referenced in the:

- European drinking water directive (Council Directive 98/83/EC on the quality of water)
- Standard Methods for the Examination of Water and Waste Water, 20th edition
- U.S. Environmental Protection Agency, 600/8-78-017.
- ISO Standard's microbiological methods, such as ISO 7704, ISO 9308-1, EN 12780, ISO 8199
- WHO Guidelines for Drinking Water Quality, 1997
- International Pharmacopoeia, such as the current editions of the USP and EP

The quality management system of Sartorius Stedim Biotech meets the requirements of the International Standard ISO 9001. For quality assurance all materials are selected carefully in accordance with current regulations and recommendations, such as the FDA CFR's and applicable current Good Manufacturing Practices.

Sartorius certification

sartorius

Sartorius AG certifies that the cellulose nitrate membrane filters contained in Biosart® 100 Monitor

Order No. 16401-47-07--ACK Lot No. 0205003VS

has been manufactured for use in the bacteriological analysis of potable waters, waste and natural waters and other liquids in accordance with procedures referenced in Standard Methods (recent edition) and laboratory standards for equipment and materials set forth by the U.S. Environmental Protection Agency.

- The Membrane Filters are 47mm in diameter, white and gridded.
- Bacterial recovery testing has shown that the grid lines do not enhance or inhibit the growth of bacteria.
- Recovery rates of total and fecal coliform bacteria indicate that there is no influence on bacterial growth and development due to chemical extractables.
- The sterilization process did not enhance or inhibit subsequent growth of microorganisms.

| Specifications | Acceptable limits |
|---|---|
| Pore size | 0.2µm* |
| Flow rate | >12.9ml / cm² • min • bar |
| Thickness | 115–145µm |
| Wetting time | <10 seconds |
| **Biological Properties** | |
| Bacterial Retention (0.2µm) | LRV >7* |
| Sterility | Units have been irradiated to a Safety Assurance Level (SAL) of $10^{-6}$ |

* Standard bacteria Brevundimonas diminuta

Each lot is tested by Sartorius Stedim Biotech for accordance with established specifications before release, and each box includes a lot certificate.

**Biosart® 100 Monitors**

**Specifications**

| | |
|---|---|
| Housing | Polystyrene |
| Membrane filter | Cellulose nitrate (cellulose ester): choice of white, green or grey, with grid;<br>Regenerated cellulose: white; can be used as documentation |
| Plug and adapter | Polyethylene |
| Pad | Cellulose |
| Capacity | 100 ml, 10 ml graduations |
| Pore size | 0.2 µm, 0.45 µm or 0.8 µm |
| Filter diameter | 47 mm |
| Filtration area | 14.5 $cm^2$ |
| Max. operating pressure | Vacuum only |
| Outlet | 6.5 × 1.5 mm |
| Lot certificates | Recovery rate, sterility and specifications |

**Easy work flow – reliable results**

1 | Pour the sample

2 | Apply vacuum and filter the sample

3 | Add the Biosart® 100 Nutrient Media

# Combisart® – The sterile vented filter station

The Sartorius Stedim Biotech Combisart® system enables the user to select the optimal hardware and consumables for his needs in quality assurance. Combisart® features a modular design and field-proven standard.

**Description**
At the heart of the Combisart® system is a high-grade stainless steel manifold or individual system designed to accommodate all types of filter holders and funnels. The low height of the manifold ports is particularly advantageous for working on a clean bench. The single base support 16840 is screwed into the inlet thread of each filter station. The Biosart® 100 adapter 16414 ensures that the Monitors are positioned perfectly, minimizing the risk of contamination during filtration. For low number of samples, we recommend the use of the 1-branch manifold 16844 or the individual base 16841 on the top of a suction flask. For large number of samples, we recommend the 3- or 6-branch manifolds.

**Sterilization**
The system is compliant with ISO 8199 with regards to the sterilization methods of the equipment described in the "General Guide to enumeration of micro-organisms by culture". Since the most reliable sterilization method is autoclaving, the Combisart® design offers a unique advantage for this method. The base support of the filter station can be simply unscrewed from each workstation and autoclaved. This method increases reliability and saves sterilization capacity.

**Sterile venting**
A special feature of the Combisart® manifold are the stainless steel three-way valves (taps). They allow the vacuum for each filter holder to be individually controlled and each filter station to be sterilely vented. This rules out secondary contamination of the underside of the filter.

**Maximum Flexibility**
The screwable base support 16840 features additional advantages you will benefit from:

- You can pour out a non-filterable sample from each unit
- Filtration equally easy for left- or right-handed users in your laboratory, because funnels can be positioned to suit the individual user

Some of the advantages you will benefit from when using the Combisart® System:

**Safe & reliable**

- Sterile venting of each membrane after filtration
- Sterilization acc. to ISO 8199
- Special polished stainless steel surfaces allow easy cleaning & rinsing
- Low height is advantageous for working on a clean bench

**Saves time**

- Filtration of 3 or 6 samples in parallel
- Easy pouring out of non-filterable samples
- Equally easy for right- and left-handed users

**Economical**

- Maximum flexibility due to different set-ups
- Space-saving in the autoclave
- Stainless steel 304 – long lifecycle

**Combisart®**

**Specifications**

| | |
|---|---|
| Stainless steel quality | High-grade stainless steel: B.S. 304S31 \| AISI 304 |
| Dimensions in mm (L \| H \| D) | 3-branch manifold: 435 \| 103 \| 120<br>6-branch manifold: 910 \| 103 \| 120 |
| Max. operating pressure | Vacuum only |
| Sterilization | by autoclaving (max. 134°C),<br>by dry heat (max. 180°C),<br>by flaming,<br>by other methods acc. to ISO 8199 |
| Outlet spouts (individual base) | 10 mm outside diameter |
| Inlets (branches only) | Female threads, TR 20×2 |
| Outlet (branches only) | Hose nipple, DN 10 |

**Poster overleaf**

4 | Close the outlet

5 | Remove the funnel

6 | Incubate the petri dish

# Ordering Information

**Superior performance**
– High flow rate
– High total throughput

**Safe & reliable**
– Sterile or individually, sterile packaged
– Consistently recovery
– Membranes meet ISO 7704
– Membranes available in various colors
– Without any hydrophobic adhesive areas

**Economical**
– Ready to connect and easy to use
– Minimal amount of equipment needed

**Biosart® 100 Monitors, 100 ml, 47 mm, individually packaged, sterile, 48 units**

| Pore size | Membrane filter Color \| Grid color | Order No. |
|---|---|---|
| 0.2 µm | Cellulose nitrate white \| black | 16401-47-07--ACK |
| 0.45 µm | Cellulose nitrate white \| black | 16401-47-06--ACK |
| 0.45 µm | Cellulose nitrate green \| dark green | 16402-47-06--ACK |
| 0.45 µm | Cellulose nitrate gray \| white* | 16403-47-06--ACK |

**Biosart® 100 Monitors, 100 ml, 47 mm, packaged in trays, sterile, 48 units**

| | | |
|---|---|---|
| 0.2 µm | Cellulose nitrate white \| black | 16401-47-07----K |
| 0.45 µm High Flow | Cellulose nitrate white \| black | 16401-47-H6----K |
| 0.45 µm | Cellulose nitrate white \| black | 16401-47-06----K |
| 0.45 µm | Cellulose nitrate green \| dark green | 16402-47-06----K |
| 0.45 µm | Cellulose nitrate gray \| white* | 16403-47-06----K |
| 0.8 µm | Cellulose nitrate gray \| white* | 16403-47-04----K |
| 0.45 µm | Regenerated cellulose white | 16404-47-06----K |

**Biosart® 100 Monitors, 100 ml, 47 mm, sterile, 48 units**

| | | |
|---|---|---|
| 0.45 µm High Flow | Cellulose nitrate white \| black | 16401-47-H6-V--K |
| 0.45 µm | Cellulose nitrate white \| black | 16401-47-06-V--K |
| 0.45 µm | Cellulose nitrate gray \| white* | 16403-47-06-V--K |
| 0.8 µm | Cellulose nitrate gray \| white* | 16403-47-04-V--K |

* Gray membranes after wetting black

**Safe & reliable**
– Presterilized media
– Certificate of quality for every batch
– In compliance with international standards
– Consistently recovery

**Economical**
– Ready-to-use
– Long shelf life

**Biosart® 100 Nutrient Media, 2.5 ml, individually, sterile packaged in ampoules, 50 units**

| Determination of | Media type | Order No. |
|---|---|---|
| Total count | Caso (acc. USP) | 16400-02----CA-K |
| Total count | R2A (acc. EP) | 16400-02----RA-K |
| Total count | TGE\|Total Count | 16400-02----TC-K |
| Total count | Total Count TTC | 16400-02----TZ-K |
| E. coli and coliforms | m Endo | 16400-02----EN-K |
| E. coli and coliforms | m FC | 16400-02----MF-K |
| E. coli and coliforms | Lauryl Sulfate \| Teepol | 16400-02----LS-K |
| E. coli and coliforms | Tergitol TTC | 16400-02----TT-K |
| Enterococci | KF Strep \| Azide | 16400-02----KF-K |
| Pseudomonas aeruginosa | Cetrimide | 16400-02----CE-K |
| Yeasts and molds | Sabouraud (acc. USP) | 16400-02----SB-K |
| Yeasts and molds | m Green yeast and mold \| Schaufus Pottinger | 16400-02----MG-K |
| Yeasts and molds | m Green yeast and mold selective | 16400-02----GS-K |
| Yeasts and molds and bacteria | WL Nutrient \| Wallerstein Nutrient | 16400-02----WN-K |
| Bacteria in fermentation processes | WL Differential \| Wallerstein Differential | 16400-02----WL-K |
| Yeasts and molds | Wort | 16400-02----WZ-K |
| Acid-tolerant microorganisms | Orange Serum | 16400-02----OS-K |

**Combisart® individual systems and multi-branch manifolds, made of high-grade stainless steel, without funnels and lids, to accommodate various funnel types**

| | |
|---|---|
| Combisart® individual base with frit (50 mm), stainless steel | 16841 |
| Combisart® 1-branch stainless steel manifold, without frit | 16844 |
| Combisart® 3-branch stainless steel manifold, without frits | 16842 |
| Combisart® 6-branch stainless steel manifold, without frits | 16843 |
| Combisart® base support with frit (50 mm), stainless steel | 16840 |

**Biosart® 100 Monitor Adapters and Membrane Lifter**

| Description | Adaptation | Order No. |
|---|---|---|
| Biosart® 100 Adapter, silicone | onto Sartorius Stedim Biotech stainless steel bases with frits e. g. 16840 | 16414 |
| Biosart® 100 Adapter, PP | onto 50 mm supports | 16415 |
| Biosart® 100 Adapter, PP | onto 56 mm supports and vacuum pumps | 16416 |
| Biosart® 100 Membrane Lifter, ABS | for easy transfer to agar | 16417 |

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# Biosart® 100 Monitors and Nutrient Media

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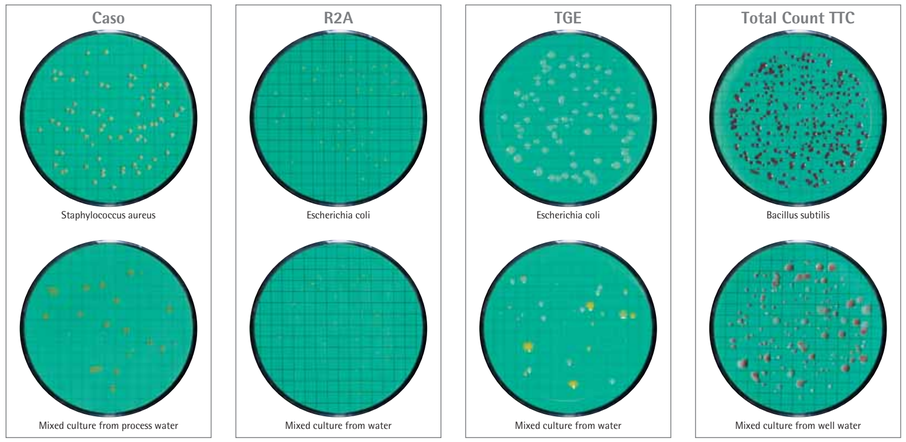
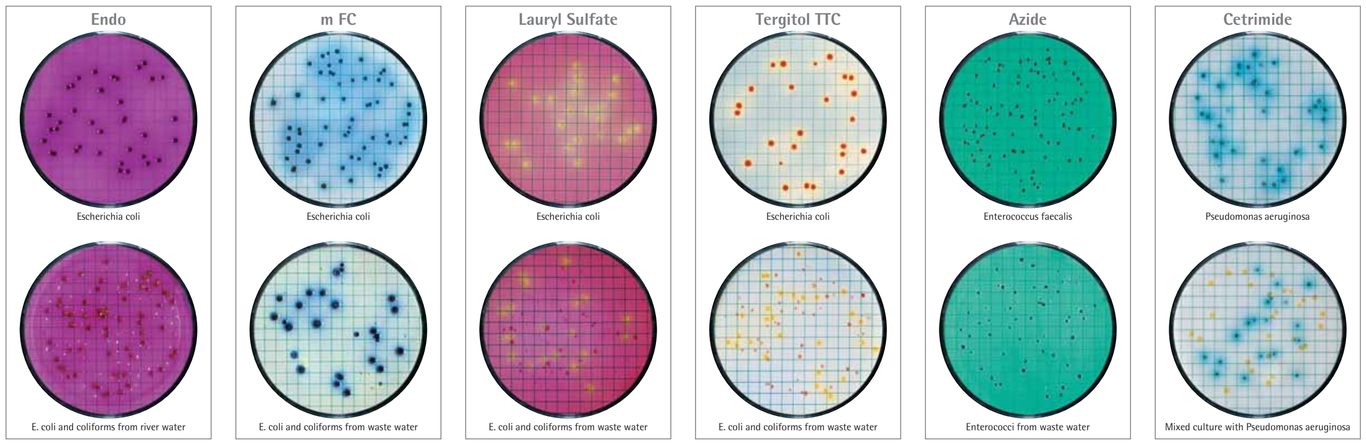
## Total colony count




## E. coli and coliforms, Enterobacteria



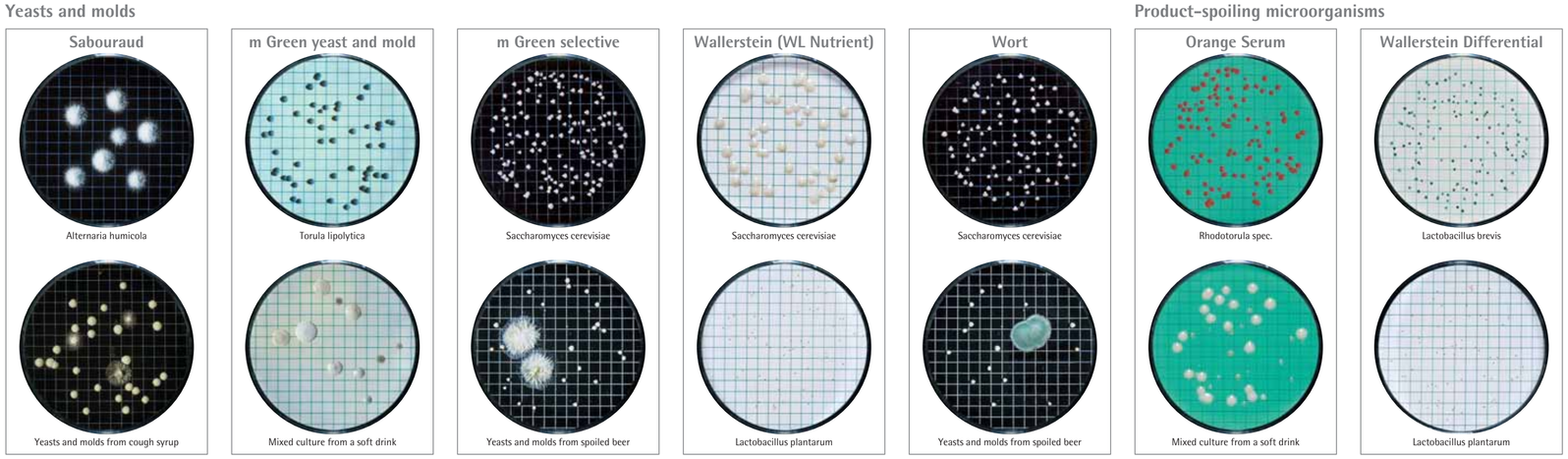

## Other faecal bacteria




## Non-faecal, pathogenic bacteria




## Yeasts and molds




## Product-spoiling microorganisms

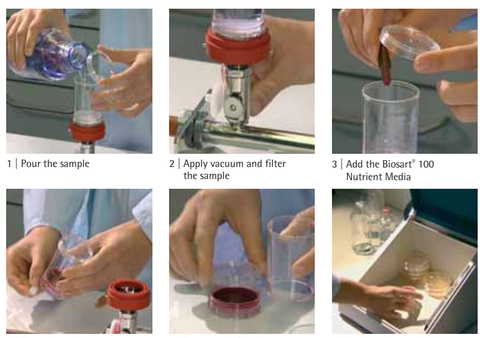



**Typical Application Examples**

| Product | Detection and enumeration of... | Biosart® 100 Nutrient Media Type |
|---|---|---|
| Beer | Lactobacilli and Pediococci and other beer spoiling organisms | Wallerstein Differential |
| | Total colony count | Total Count TTC |
| | Yeasts and molds | Wallerstein Nutrient, Wort |
| Foods | Acid-tolerant microorganisms | Orange Serum |
| | Enterobacteria, E. coli and coliforms | Endo, m FC, Teepol \| Lauryl Sulphate, Tergitol TTC |
| | Enterococci, Enterococcus faecalis | Azide \| KF Strep |
| | Pseudomonas aeruginosa | Cetrimide |
| | Total colony count | Caso, TGE \| Tryptone Glucose Extract |
| | Yeasts and molds | Wort |
| Fruit juice | Enterobacteria, E. coli and coliforms | Endo, Tergitol TTC* |
| | Oenococcus and other product spoiling organisms | Orange Serum, Wallerstein Differential |
| | Yeasts and molds | m Green yeast and mold \| Schaufus Pottinger, Wallerstein Nutrient |
| Milk | E. coli and coliforms | Endo |
| | Enterococci, Enterococcus faecalis | Azide \| KF Strep |
| Pharmaceuti-cals, WFI, raw materials and cosmetics | Enterococci, Enterococcus faecalis | Azide \| KF Strep |
| | Pseudomonas aeruginosa | Cetrimide |
| | Total colony count | Caso, R2A |
| | Yeasts and molds, Candida albicans | Sabouraud |
| Soft drinks, concentrates | Acid-tolerant microorganisms, Lactic-acid bacteria | Orange Serum, Wallerstein Differential |
| | Enterobacteria, E. coli and coliforms | Endo |
| | Total colony count | TGE \| Tryptone Glucose Extract, Total Count TTC |
| | Yeasts and molds | m Green yeast and mold \| Schaufus Pottinger, m Green yeast and mold selective, Wallerstein Nutrient, Wort |
| Sugar, sugar products | E. coli and coliforms | Endo |
| | Total colony count | Total Count TTC |
| | Yeasts and molds | m Green yeast and mold \| Schaufus Pottinger, m Green yeast and mold selective, Wort |
| Water (general quality), mineral water, natural water, waste water | Acid-tolerant microorganisms, Lactic-acid bacteria | Orange Serum |
| | Enterobacteria, E. coli and coliforms | Endo, m FC, Teepol \| Lauryl Sulphate, Tergitol TTC |
| | Enterococci, Enterococcus faecalis | Azide \| KF Strep |
| | Pseudomonas aeruginosa | Cetrimide |
| | Total colony count | Caso, R2A, TGE \| Tryptone Glucose Extract |
| | Yeasts and molds, Candida albicans | Sabouraud |
| Wine | Acetobacter | Orange Serum (by adding 5-8% ethanol) |
| | Acid-tolerant microorganisms, Lactic-acid bacteria | Orange Serum, Wallerstein Differential |
| | Yeasts and molds | m Green yeast and mold \| Schaufus Pottinger, Wallerstein Nutrient, Wort |

* These Biosart® 100 Media types are suitable for the determination of the mentioned microorganisms, although the media are not explicit declared in references.

**Easy work flow – reliable results**




**Remarks**
The pictures show typical appearance of the mentioned microorganisms. In particular cases, color and shape of the colonies could vary from the expected habitus. Further tests may be necessary to validate the result.

Sartorius Stedim Biotech shall not be liable for consequential and | or incidental damage sustained by any customer from the use of its products.

Biosart® 100 Nutrient Media are subject to continuous product improvement as part of our product development program to align our products with changing application requirements. For current specifications and lot release criteria please visit our homepage under: www.sartorius-stedim.com/BiosartMediaSearch.

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