BacTrac 4300

Microbiological
Multi Monitoring System

Fast

Automated

Documented

SY-LAB

BacTrac® 4300

Foods Cosmetics Contract Laboratories

Electrically measuring microbial growth

Impedance analysis is an automated microbial culture process. The nutrient media and the liquefied product sample are incubated in a measuring cell and the impedance change of the fluid (the alternating current resistance) is monitored using pin electrodes.

Metabolic products that are created when the micro-organisms inside grow constantly change the resistance, thereby creating an equivalent microbial growth curve.

If this exceeds an application dependent threshold value, the measuring time recorded until then is set as the detection time and provides information on the contamination of the sample.

The Instrument BacTrac

The BacTrac 4300 is user friendly and is ideally suited to the challenges posed by long-term use.

Measuring positions with finished measurements are assessed and can be immediately re-assigned with new cells. The entire measuring cycle is automatic; the results are clearly displayed and can be used as a cornerstone for making a decision.

The BacTrac 4300 instrument holds up to 64 samples in two possible temperature zones ranging from 0°C to + 55°C. Up to 12 devices, i.e. 768 samples can be operated with the measurement software (PC).

The BacWin software monitors the signal development for all measurements and saves the results in a database where they can be sorted and evaluated.

The operating benefits

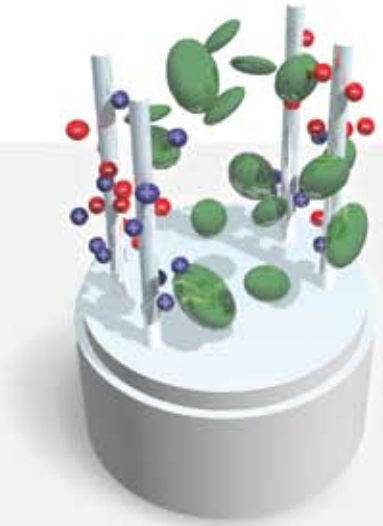
The microbiological quality of food is an essential parameter on which many decisions are based, such as the production parameters, product release, and the expiry date and is also important for the taste, improving production hygiene and the product's competitive edge.

Quick results, allowing rapid response. Automatic operation, increasing the capacity of the staff. Lower error rates.

The documentation can be printed out or forwarded. The data can be integrated into LIMS (SAP, Qualifax).

Adjusted to suit reference methods

Quantification of microbial growth using rapid impedance analysis is performed using calibrations established against the traditional agar plate methods. This ensures compatibility with the traditional reference method.



Using several measuring signals

The BacTrac system uses several components of the impedance in the medium (M value) and the electrodes (E value).

This ensures that the measuring system is accurate, stable and flexible, and can handle even media with a high salt content.

Microbes detectable

- Aerobic mesophilic bacteria
- Gram negative bacteria
- Enterobacteriaceae, Coliforms, E.coli
- Enterococci
- Bacillus cereus
- Anaerobic and aerobic spore formers
- Salmonella, Listeria
- Yeasts and Moulds

Applications

- Enumeration of total viable counts
- Sterility tests
- Detection and quantification of index- and indicator microbes
- Pathogen screening
- Environmental monitoring
- Activity tests
- Screening and characterization of antimicrobial compounds

Pre-filled measurement cells

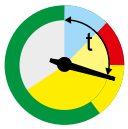
A wide selection of nutrient media in pre-filled disposable measurement cells allow the user to carry out a wide range of tests. Please refer to our measurement cell catalogue or visit our website for an overview of our pre-filled measurement cells.

Faster product release

In cases where there is a high bacterial count, it often only takes a few hours before the sample is detected. Most products can be released after only 8 to 12 hours, and measurements for the absence of bacteria generally take 14 to 24 hours.

Colour-coding

The current measuring position status is shown in the form of a pie chart. A blue segment is shown until the end of the warm up period.



If a micro-organism is detected within the red or yellow time segment, the current sector will be colour-coded accordingly. The result is then clear.

If nothing is detected and the green limit is reached, the chart remains green and the sample is classified as acceptable.

For simple visualisation of critical and/ or alert limits they can be easily aligned to the red/ yellow/ green colour code system.

Impedance cells for BacTrac and µ-Trac

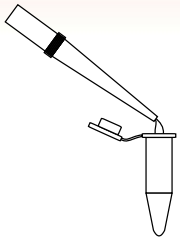
Pre-filled measuring cells are available ready to use for the big majority of impedance applications. TVC determinations as well as detection and enumeration of spoilaging microbes and the detection of pathogens are well covered by the product range of pre-filled disposable measuring cells available.

We are always open to develop new methods and applications.

Please refer to our measurement cell catalogue or visit our website for an overview of our pre-filled measurement cells.

RiboFlow™

Confirmation – rapid and simple



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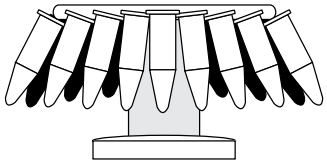
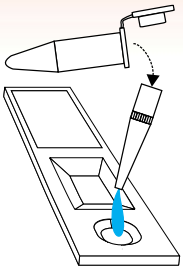
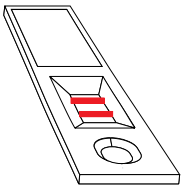


2. Centrifugation



3. Sample application



4. Result

Confirms pathogen results

The newly developed RiboFlow™ technology allows the highly specific molecular biological detection of, for instance, Salmonella in foodstuffs within only 15 to 20 minutes.

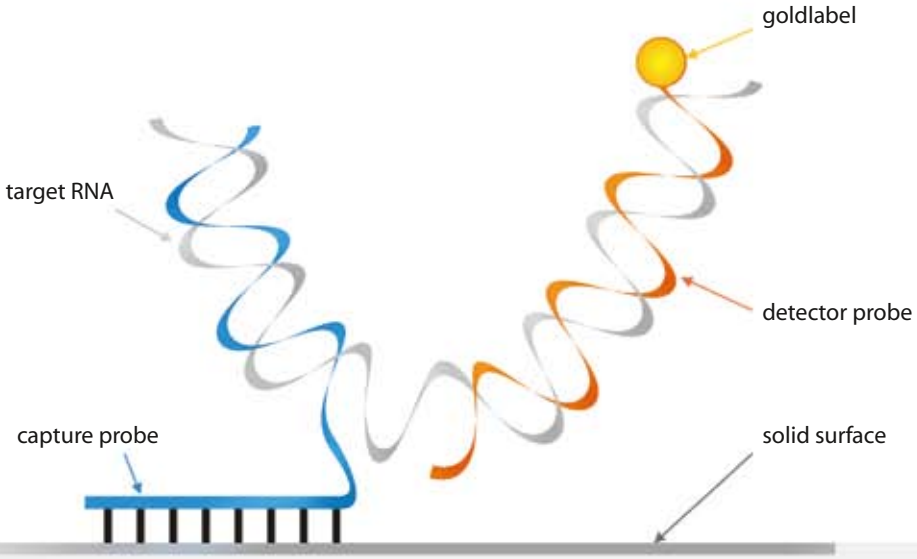
The RiboFlow™ test is simple to carry out, and the procedure can easily be used with a simple protocol in any laboratory without requiring special skills or expensive laboratory equipment. As RNA is quickly broken down in dead cells, the test only detects live bacteria.

RiboFlow™ – Applications

The RiboFlow™ test system is ideally suited for quickly confirming results from all BacTrac selective enrichment media and single colonies on selective agar plates.

We recommend the use of the RNAssay™ hybridisation test systems for rapid molecular biological confirmation from conventional enrichment media. RNAssay™ technology is based on the enzymatic colorimetric detection of the bacteria-specific RNA.

Molecular biological diagnostics doesn't get much easier or cost-effective than that!



No special sample preparation

- No equipment needed other than an Eppendorf centrifuge
- No expertise in molecularbiological methods needed

The benefits

- Highly sensitive – 1 bacteria per 25g sample can be easily detected
- High specificity – only the target organisms show a reaction
- Only living micro-organisms are detected, target RNA is quickly broken down in dead cells and will not be detected

VALIDACIÓN DEL SISTEMA DE MICROBIOLOGÍA RÁPIDA BACTRAC 4300 SEGÚN ISO 16140:2003

El sistema de microbiología rápida BacTrac 4300 de la firma SyLab ha alcanzado la validación AFNOR del método de impedancia según la ISO16140 para la detección de Enterobacterias.

Esta validación acredita el uso del sistema BacTrac 4300 como método cualitativo alternativo de análisis de enterobacterias en productos lácteos.

El estudio interlaboratorio se realizó en 2007 con la colaboración de 14 laboratorios que analizaron las muestras mediante el sistema BacTrac.

Se utilizaron muestras de leche pasteurizada contaminadas aritificialmente con E. coli a tres niveles que oscilaban entre 0 células/10ml y 300 células/10ml.

Para la siembra se utilizó el medio selectivo de SyLab BiMedia 144A específico para Enterobacterias, con especial sensiblidad para la detección de E. sakazakii

Los resultados obtenidos con el sistema BacTrac 4300 respecto al método de referencia fueron los siguientes:

Exactitud: 98%
Especificidad: 97%
Sensibilidad 98%

Estos datos permiten la conclusión que la variabilidad del método alternativo (BacTrac 4300) es equivalente al método de referencia de siembra en placa.

µ-Trac® 4200

The compact professional solution

The cost-effective introduction to in-house microbiology.
Safety and discretion even with small sample numbers.
Rapid status report for all hygiene-related microbes, including aerobic mesophiles and yeast / moulds.

Rapid results showing the goods are safe and documented reports show your customers that your products undergo careful quality controls. This means that uncertainty or delayed results are a thing of the past.

The µ-Trac 4200 is also a highly effective tool for detecting hygiene-relevant risks in production. The measurement technology used in µ-Trac is simple and efficient. Therefore automated analysis of the most common microbiological parameters at economic costs is made possible.

Pre-filled measurement cells are available as consumables. It is extremely simple to use. With the µ-Trac you can set up a microbiology laboratory with very little space. Results are available within hours and can be easily read and interpreted by a colour coded evaluation system.

The illustrated number of
3 measurement cells to enumerate for
3 different microbiological parameters
corresponds to the equivalent of the
staple of agar plates next to them.

Fast

Automated

Documented

TVC Enumeration	Gram negative Bacteria	Enterobacteriaceae, Coliforms, E.coli	Enterococci	Bacillus cereus	Salmonella, Listeria sp., coagulase pos. Staphylococci	aerobic und anaerobe Spore Formers	Yeasts and Moulds	
●	●	●	●	●	●	●	●	Mik, Milk Products, Infant Foods
●		●	●		●			Meat and Meat Products
●		●	●		●			Fish, Seafood
●		●		●	●		●	Convenient Food, Frozen Food, Delicacies
●		●			●		●	Sweets, Pastries
		●				●	●	Beverages, Vegetables, Fruits, Tinned Foods
●		●			●		●	Environmental Samples
●							●	Toiletries

Support

Our customers can be assured that we are constantly making developments in microbiological and molecular biological detection methods through our commitment to future-orientated research and development. Our application laboratory supports customers in their routine requirements and in developing new calibrations and carrying out method validations. We can also test your specific samples so that you are assured in advance and without any obligation that the method is suitable for your needs.

We also offer on-site service and remote training and servicing as well as regular servicing of the equipment and ongoing software and application development is available.

Helpdesk, equipment inspection, training

We offer a comprehensive service package to meet the requirements for food testing, which includes regular checks and recalibration, if necessary, of the equipment using calibrated measuring equipment in accordance with ISO and IFS standards, including the necessary documentation. All software updates and the hotline with an option for remote maintenance of the software are part of that package.

A training package tailored to meet your company's needs allows the efficient initial training or further training if new staff join the team. Take advantage of the expertise of our highly qualified staff on our sales team and in-house.

Validation and standardisation

In cooperation with national and international committees, we are involved in driving the standardisation of impedance applications. National standards are now already available in many countries. We are also committed to method validation in line with ISO 16140. Furthermore, we offer support for customers having special requirements, with in-house validations and also work in cooperation with external laboratory services of your choice.

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Microbiological Monitoring
fast and cost effective

µ-Trac 4200

F Foods

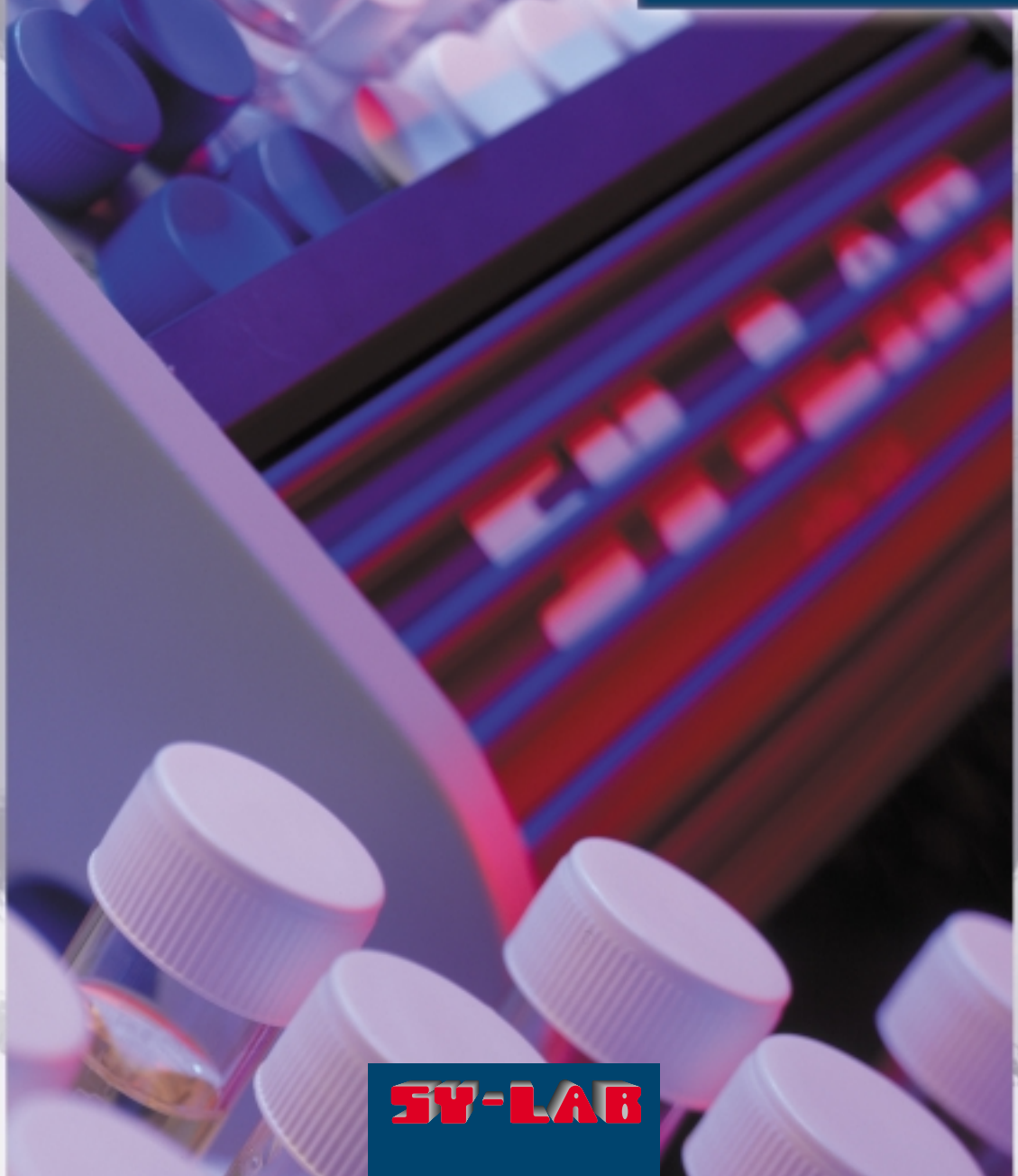
E Environmental Monitoring

C Cosmetics

P Pharmaceutics

B Biotechnology

S Sterilisation equipment



SY-LAB

µ-Trac 4200

Electrical Measurement

100 years ago G. N. Stewart reported on currents and their changes in proliferating micro-organism suspensions *).The measurement of conductivity and/or its reciprocal value, impedance, was born. Fifty years later the first commercially available system was built in the USA and approx. 2 years after that European companies began to build impedance analysers. After initial difficulties which lay partly in the undeveloped systems as well as in the sometimes problematic matrices, SY-LAB began to develop a superior system whose versatility and application range was not only far greater than existing devices but which also gained approval from the standards authorities (DIN 10115). This experience and market requirements for product hygiene led to the development of the µ-Trac. The µ-Trac is a compact system which, with capacity for 21 samples and an economical price tag, meets all those analytical needs which could previously only be met with very costly equipment. Prefilled measuring cells and a broad medium range avoids the need for a complicated, extensively-equipped micro-biological laboratory and still delivers automatic and well-documented results along with numerous savings

*) Stewart G., N. *The changes produced by the growth of bacteria in the molecular concentration and electrical conductivity of culture media;* The Journal of Experimental Medicine, Vol. IV, 235 - 247, 1899.

µ-Trac 4200
Microbiological analyser

Applications

Food and drinking water

- environmental monitoring (swabs, cleaning water incl. Index- and Indicator-organisms)
- TVC determination
- sterility tests
- shelf life investigations
- examination of Biofilms (non destructive method)

Cosmetic and pharmaceutical products

- TVC determinations
- environmental monitoring
- preservative efficacy testing
- inhibitor tests and bioassays
- sterility tests
- validation of sterility tests for antibiotic products

Packaging machines and sterilising systems

- evaluation of sterilisation techniques
- inactivation studies
- sterility tests

Detectable Micro-organisms

- aerobic mesophilic micro-organisms
- psychrotrophic micro-organisms
- thermophilic micro-organisms
- gram negative bacteria
- enterobacteria
- Coliforms
- E.coli
- aerobic spore formers
- yeasts and moulds

Bio-technology

- optimisation of growth media
- activity tests of starter cultures
- kinetic assays (growth kinetics)

Research

- strain characterisation
- metabolic investigations
- screening and characterisation of substances with antimicrobial activites
- toxicity and mutagenicity tests
- vitality studies

Powdered media for users
of unfilled sterile measuring cells

Early results

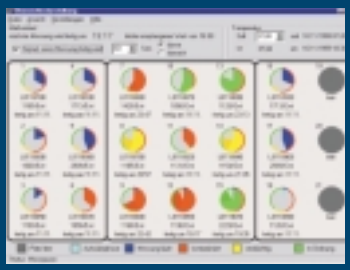
Many small companies in the food or cosmetics industries outsource their microbiological analyses because they lack an in-house laboratory and the necessary staff. The numbers of analyses required, which has been steadily increasing in recent years, along with the necessary delays due to transport and inadequate capacity of the different services and long waiting times for traditional plate results make it impossible to respond rapidly to cases of contamination. It is therefore often impractical to monitor production processes since products have already been delivered and consumed. The µ-Trac has indisputable benefits in this area. After a short sample preparation procedure, analysis is carried out directly on site. The classification of results is displayed automatically. Measures can be taken at an early stage of production and/or products can be released earlier for consumption.
This allows higher quality and a more flexible shipping strategy.

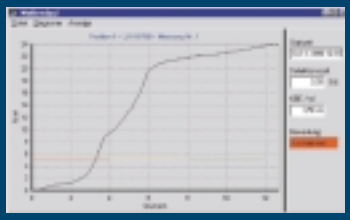
Taking Measurements

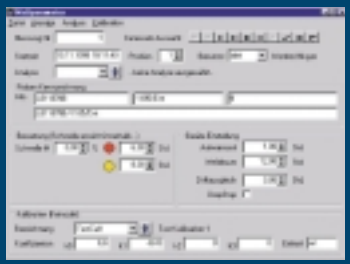
Sample preparation: Direct use of liquid samples or homogenised solid samples, Place measuring cells in incubator, enter sample description via laptop keyboard, the system does everything else. The measuring cell can either be filled with nutrient medium or can be ordered pre-filled.
The results are generally available within 24 h. More heavily contaminated products are detected after only a few hours.

Measuring cells filled with a
wide range of media

Result table







Examples from the software

Software

The user-friendly software is operated via the integrated laptop computer. The various measurement program displays give information on the measurement determined, the measurement process and the sample status. Exceeded thresholds are indicated in traffic light colours, and are therefore easily recognisable. Once set, measurement conditions or calibration curves are saved and can be referred to for processing individual samples. Extensive data processing options are integrated into the program, data can also be exported to other programs (e.g. MS Excel®, Lotus 1-2-3®), it is possible to connect to LIMS or Q-Software.

µ-Trac 4200

BacTrac 4100 - The classical impedance analyser with unrivaled flexibility.

Technical Data

µ-Trac 4200 - Microbiological analyser

Compact microbiological analyser for disposable measuring cells based on the impedance principle, direct and indirect measurement options.

Housing

Plastic covered metal structure, keyboard and incubator protected by a plastic rollerblind. Integrated support for Laptop PC.

Metal Block Thermostat

Aluminium incubator with apertures for measuring cells, base contact, total capacity 21 samples, temperature range variable between 0 to 56°C, simple to clean via self-sealing apertures, water cooling connector.

Test tubes

20ml disposable measuring cells (polystyrol) for direct measurement, sterile, empty or pre-filled with nutrient media, indirect test tubes with 7 ml inner vessel (polyethylene) for yeast/mould measurement, 4 electrodes in stainless steel, free-standing design.

Computer

Laptop with active matrix TFT display, technical data according to actual specification.

Software, Image Display, Data Output

Easy to operate user interface, runs under Windows 95, 98, 2000 or NT, continuous analysis, automated detection if a pre-set threshold value has been exceeded, quantitative and qualitative measurement, single position mode, memory for current and evaluation parameters, presentation of sample results with evaluation status in traffic light colours or curve format, transfer of results to LIMS or network, statistical functions.

Dimensions, Weight, Mains Voltage

400 x 440 x 535 mm (W x H x D), 20 kg
115 or 230 V (please specify with order)

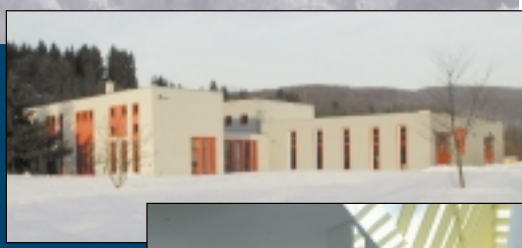
Accessories

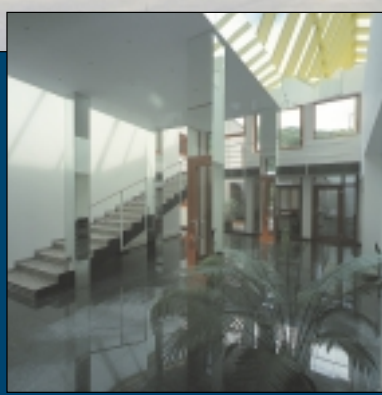
- Sample preparation rack for up to 21 x 20 ml sample vessels
- Sample preparation rack for up to 21 x 7ml sample vessels (inner vessels)
- Circulation cooler
- Laboratory homogeniser and sample bags
- Laboratory accessories (see list)
- Carrying case with casters
- Adapter for battery operation

Consumables

- Disposable measuring cells, sterile
- Disposable measuring cells, sterile, pre-filled with nutrient media (see separate list and/or visit our website)
- Yeast/mould indirect measuring cells (limited re-usability)
- Inner vessels for yeast/mould cells, disposable

Distributor:





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