

Microbiological analysis of food samples

Discover the AES CHEMUNEX solutions

for food microbiology...

...from sample collection to final results!



Sample collection



SAMPL'AIR® AIR SAMPLER

ISO 14698-1 VALIDATED PERFORMANCE
HIGH COLLECTION EFFICIENCY

The highest performance air sampler.

Collection over 99% of microorganisms (Whyte et al., 2007).

Proven efficiency even for smallest particles.

Validated performance (ISO 14698-1) by the Health Protection Agency (HPA, UK).

- High accuracy and reproducibility.
- Secured sampling.
- Electronic speed and flowrate auto control.
- Battery load indicator and secured cycle (start not allowed if battery load not sufficient to complete a cycle).
- Individually tested with its grid installed, comes with a control certificate.
- Sterilisable stainless steel sampling grid.
- PC/printer connection (optional).



The combination of Sampl'air® sampler with AES CHEMUNEX Malt Agar leads to much better results, especially for *Aspergillus* spp.

Dilution



DILUMAT® S GRAVIMETRIC DILUTER

DILUTION STANDARDISATION
AUTOMATED ROTATING ARM
CLEAR UNDERSTANDING AND EASE-OF-USE

The Dilumat® secures and standardises the sample dilution and enables the laboratory to save time and money by fully automating the first step of the microbiological analysis.

Accurate, stable and fast, Dilumat® S is a fully automated gravimetric diluter that provides enhanced performance to routine microbiology in total compliance with your highest Quality Assurance criteria.



- Automated arm for maximum convenience of use with a laminar flow bench.
- Intuitive display and keyboard provide clear understanding and ease-of-use for every lab technician whatever language they speak.
- Fully open access to the bag to avoid contact between Dilumat® S and sample greatly reduces risk of contamination.



Dilumat® 4 with LIMS connection and 4 pumps option.

Blending Homogenisation



SMASHER® BLENDER/HOMOGENEISER

SHORTEST BLENDING TIME (15 TO 30 SEC)
REMOVABLE PADDLES/ EASY TO CLEAN
LOWEST NOISE LEVEL

High efficiency & speed

Smasher® crushes the sample in record time and then automatically adjusts the speed to ensure a perfect homogenisation of the enrichment broth.

Intelligent

No jam in case of hard or voluminous sample, Smasher® automatically returns to its starting position from where it will resume the task, without operator intervention.

Comfortable use

- Fast and efficient cleaning and disinfection, paddles can be easily removed without any tool.
- Leak proof chamber with integrated waste drawer.
- Can be tilted back at 45° for improved access.
- Lowest noise level.



Study about the blending efficiency (AFSSA – France)

“The results obtained from 150 samples for each condition showed that the Smasher tested at 15 and 30 seconds blending times made it possible to obtain results similar to those of the compared blender tested at a 60 second blending time. The statistical analyses made showed that the differences between the three blending times were not significant.”

The dilution solution



YOUR DILUTION SOLUTION FOR THE MICROBIOLOGICAL ANALYSIS

PRODUCTIVITY >>> PROFITABILITY >>> QUALITY >>>
SECURITY >>> TOTAL TRACEABILITY

Your media preparation becomes automated, in full safety and at the best cost!

Combining a gravimetric diluter Dilumat® and an autopreparator Masterclave®, you benefit from a volume of 9, 28 or 60 litres of fresh diluent with guaranteed fertility and sterility!

Example of perfect dilution in food microbial analysis:

Masterclave® 528 (28 litres) for buffered peptone water, combined with a broth pouch Dilubag® (3 or 5 litres) of half Fraser.



Dilubag® and disposable dilutube® tubing



AES CHEMUNEX dilution and blending bags have been especially designed to offer high performance at a low cost!

Available, with lateral or full page filter and without filter.

Culture media preparation



MASTERCLAVE® AUTOPREPARATORS

STERILITY – FERTILITY - REPRODUCIBILITY - SAFETY

Prepare the highest-quality culture media automatically with the Masterclave®

- High quality and fertility of culture media (agar or broth)
- Continuous stirring and core temperature probe traceable to national standards.
- Safety of use.
- Accurate core temperature monitoring.
- Large magnetic stirrer for excellent culture medium homogenization.
- Easy opening and easy closing lid.



- Automatic closing of the safety cover above 80°C.
- Saved cycle parameters.
- 40 programs for standard or complex media.
- Optional printer for full traceability.
- Compatible with the Labguard®/eviSENSE® monitoring system.

Dispensing into Petri dishes



APS® ONE CULTURE MEDIA DISPENSING SYSTEM FOR PETRI DISHES

540 PLATES (10 LITRES OF AGAR) OR 800 PLATES (14 LITRES OF AGAR)

As a result of **30 years of experience** in manufacturing ready-to-use culture media plates, AES CHEMUNEX has developed the **most advanced automated pourer stacker** specifically for the needs of microbiology laboratories.

Compact and easy-to-use

- High capacity carousel, Loading the columns of the carousel is simple as the nominal height facilitates easy stacking. Extreme compact size for its capacity.
- Ingenious ink jet printer mounting saves place on the bench.

Performance

- 2 carousels available: 540 plates and 800 plates.
- The patented shuttle ensures a high degree of reliability and quality.
- Integrated plate cooling system.

High quality sterile plates

The system provides high-quality, sterile plates, minimising the risk of contamination with the machine's easy-to-clean, smooth surfaces. The risk of contamination of sterile distributed media is reduced as the opening of each plate is limited to 4 s per petri dish when pouring. Its pouring quality allows smooth, level media in the Petri dishes without any wave effect.

Communication & traceability

- Pictogram-led display very simple to follow.
- Ethernet and USB port.

Automated filling of tubes, bottles and plates



PM05 AUTOMATED PRECISION DISPENSER

MANUAL OR AUTOMATIC OPERATION

TRACEABILITY WITH THE PRINTING OF ALL PARAMETERS
IDEAL FOR SEMI-AUTOMATED POUR PLATE APPLICATION

For the manual or automated dispensing of broth, agar (in plates, tubes, bottles..).

- “Standby” mode for continuous recirculation to avoid the refrigeration of the agar in the tube.
- Traceability: print-out of all dispensing parameters complies with GLP (optional printer).
- Precision +/- 0.1 ml for doses up to 20 ml.
- Automatic calibration.
- Secured and user-friendly.
- 20 programs with parameters alphanumeric display.



XY500 ROBOTIC MODULE

OPTIMISE THE PRODUCTIVITY OF YOUR LAB WITH THE XY500 ROBOTIC MODULE FOR TUBES AND FLASKS
500 TUBE CAPACITY

- Automated dispensing in tubes, flasks, impedance cells.
- Rapid, secured and customised programming.

Ready-to-use broth pouches



DILUBAG®

AVAILABLE IN 3 OR 5 LITRES (13 OR 22 DILUTIONS OF 225 ML)

- Buffered peptone water, Fraser 1/2, (further diluents upon request).
- Ready-to-use.
- ISO 11 133-1 and ISO 11 133-2 compliant.
- Storage at room temperature.
- Traceability: removable label available for every dilution.
- High flowrate connector Diluplug®
- Dilusafe stand for 1 ou 2 Dilubag®
- Full range of broths available: Buffered peptone water, Buffered peptone water with tween, Fraser 1/2, Nutrient broth, LT100, double concentration buffered peptone water, Tryptone salt, TSB, modified TSB.

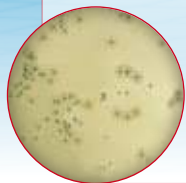
Inoculation

A2PS 320



AUTOMATED PETRI DISH FILLING SYSTEM WITH SAMPLE SHAKER FOR AUTOMATED POUR PLATE APPLICATION

Chromogenic culture media



ISO 16140
VALIDATION

ALOA®

DETECTION OF *LISTERIA* SPP AND *LISTERIA MONOCYTOGENES* & ENUMERATION OF *LISTERIA MONOCYTOGENES* IN FOOD AND ENVIRONMENTAL SAMPLES.

ALOA® is the ISO 11290 mandatory test.

ALOA® One Day (screening), ALOA® Count (enumeration) and ALOA® Confirmation are ISO 16140 validated.

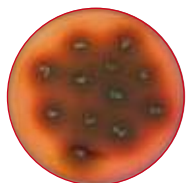


ISO 16140
VALIDATION

ALOA® CONFIRMATION

CONFIRMATION OF *LISTERIA MONOCYTOGENES*

From one single typical colony up to 6 confirmations per plate simple and cost effective.

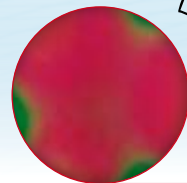


ISO 16140
VALIDATION

CONFIRMATION OF *LISTERIA* SPP

2 methods:

- 5-hour protocol: Subculture one presumptive colony and use the *Listeria* spp confirmation strip.
- 24-hour protocol: Cost effective method. Inoculation by prick on Palcam plate.



ISO 16140
VALIDATION

SMS® SIMPLE METHOD SALMONELLA

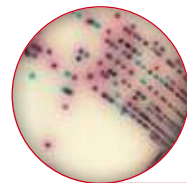
ISO 16140 VALIDATION
RELEASE OF NEGATIVE SAMPLES WITHIN 48H
THE MOST USED METHOD IN FRANCE

SMS® is a simple (1 bag, 1 plate) and rapid (results within 48h) alternative method, cost effective with no need of specific equipment.

Easy reading:

Clear indication of the presence of *Salmonella* is given by the change of colour of the gel from green to red.

2 confirmation methods: 5h +/-1h or 24h +/- 2h protocols.



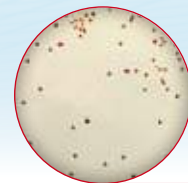
ASAP®

SPECIFIC DETECTION OF *SALMONELLA*

Chromogenic culture medium allowing the isolation of almost all the *Salmonella* (lactose+, H₂S-...).

Its high specificity enables you to avoid numerous confirmations.

Easy reading, compliant with NF EN ISO 6579, (V08-013), NF U 47-100.



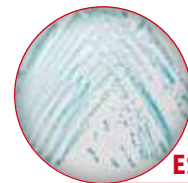
CASA®

DETECTION AND ENUMERATION OF *CAMPYLOBACTER*

CASA® is a specific culture medium for the detection and enumeration of thermotolerant *Campylobacter*:

- in foodstuffs samples,
- in specimen from patients.

On the CASA® agar, *Campylobacter* appear as red colonies in 24 - 48 hours. Other flora are inhibited by high selective reagents.



ESIA®

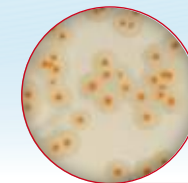
COMPREHENSIVE METHOD FROM ENRICHMENT (ESSB BROTH) TO DETECTION (ESIA AGAR) OF *CRONOBACTER SAKAZAKII*

AES CHEMUNEX has developed the ESIA agar for *Cronobacter sakazakii* (*Enterobacter sakazakii*) in food samples, especially in milk powders.

ESIA agar allows *Cronobacter sakazakii* detection within 24 hours.

Typical blue colonies are easy to read.

ESSB broth has been designed to ensure optimal growth of *Cronobacter sakazakii*, inhibiting background flora.



ISO 16140
VALIDATION

BACARA®

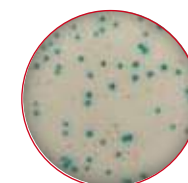
CHROMOGENIC MEDIUM FOR *BACILLUS CEREUS* ENUMERATION
PROTOCOL 1 BAG, 1 PLATE

High selectivity: no background flora.

No confirmation needed.

Incubation 24 hours at 30°C.

Easy reading: orange colonies with typical halo.



ISO 16140
VALIDATION

REBECCA®

THE ONLY CHROMOGENIC MEDIUM THAT CAN ENUMERATE *E. COLI* AND *ENTEROBACTERIA* ON THE SAME PLATE

Chromogenic medium for enumeration of *enterobacteria* and/or *E.coli*.

ISO 16140 Validation for *E.coli/enterobacteria* criteria.

No pre-incubation either confirmation needed.

Incubation 24 hours at 37°C (one single temperature incubation).

Ready-to-use diluents.

Rapid microbiological analyzers – batches release in real time



FLOW CYTOMETERS

- RELEASE YOUR PRODUCTS WITHIN 24 HOURS
- REDUCE QUARANTINE TIME
- THE FASTEST RESPONSE TO CONTAMINATION INCIDENTS
- DECREASE STORAGE COSTS SIGNIFICANTLY
- AVOID PRODUCTION STOPS
- IMPROVE YOUR WORKING CAPITAL REQUIREMENTS

3 levels of automation:

BACTIFLOW® :

Semi-automated analyser for 10 to 20 analysis /day.

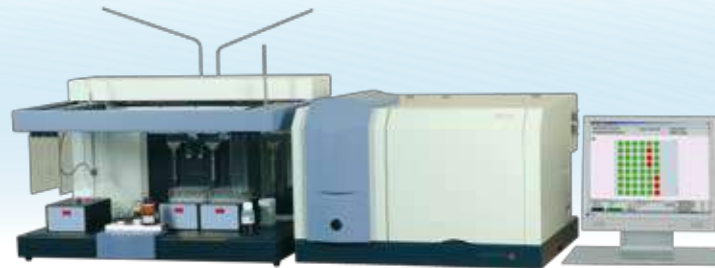
BACTIFLOW® ALS :

Fully automated analyser for 20 to 100 analysis/day.

D-COUNT® :

Fully automated system with high analytical throughput.

The CHEMUNEX rapid microbiology analysers add value to every step of your process thanks to applications especially developed for industrial microbiology needs.



FRUIT JUICES, SOFT DRINKS, FRUITS-VEGETABLES PREPARATIONS, FRUIT CONCENTRATES

- Detection & quantification of total viable count, yeasts and moulds in soft drinks, fruit juices, smoothies and fruit preparations.
- Direct count of total viable count in process water.



MILK & FERMENTED MILK PRODUCTS

Presence / absence test in less than 90 minutes:

- Yeasts in fermented milk products.
- UHT milks sterility testing.
- Desserts sterility testing.
- Enterobacteriaceae.
- Total viable count in fruit preparations.

Direct count within a few minutes only:

- Total viable count in milk.
- Total viable count in process water.



RAW MEAT AND MEAT PRODUCTS

IMMEDIATE & STANDARDIZED MICROBIOLOGICAL ANALYSIS OF RAW MEAT A MEAT PRODUCTS

- Direct enumeration of total viable count within 90 min.
- 2 levels of automation available: 23 or 48 samples simultaneously.
- Validated performance (BAV Institut Offenburg, Germany) tested on more than 1,000 samples.

Foodborne pathogens detection by Real time PCR



ADIAFOOD REAL TIME PCR KITS FOR THE DETECTION OF FOOD PATHOGENS

LISTERIA MONOCYTOGENES WITHIN 21H (ISO 16140 VALIDATED)

SALMONELLA WITHIN 19H (ISO 16140 VALIDATED)

CAMPYLOBACTER

E. COLI O157:H7...

- Detection of *Listeria monocytogenes* in 21h with the Listerboost enrichment broth.
- Detection time reduced by 25% compared with the real time PCR conventional tests.

Pathogen	Enrichment	PCR	Results
<i>Listeria monocytogenes</i>	18 h	3 h	< 24h
<i>Listeria spp</i>	18 h		
<i>Salmonella</i>	16 h		
<i>E. coli</i> O157 and <i>E. coli</i> O157:H7	18 h		
<i>Salmonella</i> & <i>E.coli</i> O157:H7 in raw meat	8 h		

Also available: *Campylobacter* (detection and quantification) and *Staphylococcus aureus*.

The Adiafood kits are robust and ready-to use kits, specially developed for the food sample analysis.

Automatic colonies counting



**EC2®
AUTOMATIC COLONY COUNTER**

THE COLOUR COLONY COUNTER THAT SAVES BENCH SPACE AND MONEY!

Automated counter provides accurate colonies counting at an affordable price

EasyCount 2® requires less than one second per plate, standardises the counting and lets you save up to 90% laboratory time!

- Fully automatic & rapid counting: results within ± 1 sec per plate
- Live, full colour on-screen images with counted colonies control
- Ideal for pour plates and spiral plates
- Plate image zoom available
- Semi automatic counting available, colonies can be individually selected using the PC mouse
- Automatic colony separation gives accurate results, choose whether to perform a whole plate or sector count
- Digital colour video camera
- Selectable top and base illumination, upper and lower LED arrays with darkfield and brightfield
- User-friendly and interactive software
- Plug & Play installation through USB connectivity

Optimise the analysis management



LABELMASTER® 2

**INCREASE LABORATORY EFFICIENCY
CUT LABOUR TIME FOR PLATES IDENTIFICATION & SORTING BY 30%
ENHANCE MICROBIOLOGICAL ANALYSIS TRACEABILITY
SECURE RESULTS AND AVOID MISTAKES DUE TO HANDWRITING
HELP YOUR LABORATORY FACE ITS GROWING NEEDS**

Automatically prepare complete stacks of Petri dishes according to sample specific analysis.

Automatically identify the plate at every step of the analysis including reading.

Avoid the tedious handwriting task and/or manual sticking labels on plates.

Labelmaster 2 affixes labels on the side of the Plates base, not on the lid nor under the plate! No confusion possible and easy reading of colonies.

Upon sample reception, Labelmaster® 2 prepares stacks of Petri dishes and labels them with barcode and analysis information according to the sample analytical parameters received from customer's LIMS. Plates stacks are presented on a convenient conveyor for an easy picking by laboratory technicians.



Monitoring and traceability



eviSENSE® / LABGUARD® MONITORING AND TRACEABILITY SYSTEMS

TEMPERATURES AND ENVIRONMENTAL PARAMETERS

AES CHEMUNEX offers a complete monitoring and traceability solution including software, hardware and services to guarantee an effective and smooth operation no matter how complex the monitored installation.

- Secure your samples.
- Monitor storage and transport conditions.
- Prove the Quality of your procedures.
- Simplify audits and accreditations.
- Comply to standards and guides EN ISO 17025 - EN ISO 15 189 - ISO 7218 - EN 12 830 -GMP - GLP.



A complete range:

- Sensors (temperature, humidity, CO₂, etc.).
- Transmitters (radio, Ethernet, BUS), repeaters, receivers.
- Data-loggers.
- Software :eviSENSE® Express - eviSENSE® Pro - eviSENSE® Elit.
- WEB hosting.
- Services : Calibration, adjusting, mapping.



TomProbe® temperature and/or humidity data logger; optional assembly for autoclave monitoring.

TomKey® Temperature data logger with integrated display and USB port.



Our Customers Speak

Coca-Cola Midi Uses Chemunex Technology to Control Product Quality



Ms. Sophie Verdier, QA Coca-Cola Midi (F)

Sophie VERDIER: “The D-Count is used in our quality control laboratory to test fruit juice ingredients used in Coca-Cola drinks produced in Europe. Due to the acceleration of the logistic process and the generalization of transport in tankers, it became essential to **reduce analysis time from 5 days to 1 day.**”

Publix Super Markets: A big Smasher’s Fan



Josh Fonsworth, MS, is the Quality Control Manager for the Atlanta and Lakeland Bakery Plants for Publix Super Markets, Inc.

Josh Fonsworth: «I’m a big fan of the quality of Smasher’s construction and durability. **It’s a quality product, easy to use and very user friendly.**»

When we saw it we knew right away that it was perfect, we had to have it...

We were also surprised by how quiet Smasher is.»

Eckes Granini: Detection of Beverage Spoiling Microorganisms with D-Count



Elke Karches, QA Manager, Eckes Granini Germany

Elke KARCHES: “Following an extensive market study, Eckes Granini has decided to implement the AES CHEMUNEX rapid method to combine a **growing amount of sample analysis with the highest reliability.**”

“... a **time saving of 5 days** could be achieved...”

CVPA Contract Laboratory: Save 3 hours per day!



M. Perrin Laboratory Manager of the CVPA Contract Laboratory

M. Perrin: “The amount of analysed samples is growing by about 20% per year.

The Labelmaster enables us to face this growth and let us save about 3 hours per day. We use about 1 000 plates per day. The Labelmaster provides standardised and reliable analysis preparation. **It is a very good investment.”**

Cargill Texturizing Solutions: High performance & low noise level!



Thierry Salvayre, Control Laboratory Manager Cargill Texturizing Solutions

Thierry Salvayre: “Our microbiology laboratory has chosen **the Smasher® blenders for their very low noise level, ensuring a comfortable use** and avoiding us using earing protection.

Our choice criteria were also the **automatically adjustable mixing speed**, allowing good sample dispersion, and the **easy cleaning and disinfection.**

Then the **ergonomic and innovating design of the Smasher®** was the last argument which helped us to make our decision.”

Jean Brient Group: Dilumat® S reduces the cost of the analysis



Mrs Ruffien Laboratory Manager Jean Brient Group

“In our control laboratory, we analyse around 40 samples a day. They come from our various types of processed pork products, black puddings, roast pork, ham, pâté, etc. We also carry out environmental analyses. Previously, for the sample dilution stage, we used to use a manual method with ready-to-use glass broth bottles.

The disadvantages of this method lay in dealing with the glass: the possibility of breakage, the volume of the glass, and the cost of waste disposal. What’s more, it took up a great deal of time, and the operation was very tedious (repetitive movements). Preparing the reagents (bottles) also used to be very time-consuming, compared with the ready-to-use bags, which also save us storage space and time spent putting them away.

We were won over to the Dilumat® S

because of its convenience, its performance (for example, the dilution accuracy), the time it saves us - and above all, the end cost of the analysis using the Dilumat® S was very attractive. **We found it very easy to get used to it - we were up and running on our own right from Day 1. We’re very satisfied with the Dilumat® S:** it takes up very little bench space, it’s simple to use (we use it with Dilubag® diluent bags) and program, and its automatic arm makes it very user-friendly.

It saves us a very appreciable amount of time, as the fully automatic dilution lets us do ‘other things’ at the same time. This has enabled us to reorganize things in the laboratory more efficiently.”

AES CHEMUNEX France
(Headquarters)
Rue Maryse Bastié
Ker Lann CS17219
F-35172 Bruz cedex
Tel.: +33 (0) 2 2350 1212
Fax: +33 (0) 2 2350 1200
contact@aeschemunex.com

AES CHEMUNEX, INC USA
1 Corporate Drive
Cranbury NJ 08512
Tel.: +1 609 235 9272
Fax: +1 609 235 9298
info@aeschemunex.com

AES CHEMUNEX UK
Endeavour House
3rd floor • London
Stansted Airport
Essex • CM24 1SJ
Tel.: +44 (0)1279 666 356
Fax: +44 (0)1279 666 357
info@aeschemunex.co.uk

AES CHEMUNEX Germany
Wilhelmstraße 49
D-74918 Angelbachtal
Tel.: +49(0)7265 9179 10
Fax: +49(0)7265 9179 15
info@aeschemunex.de

AES CHEMUNEX Spain
Pol. Ind. Santa Margarida II
C/ Albert Einstein, 44
08223 TERRASSA (Barcelona)
Tel.: +34 93 785 36 27
Fax: +34 93 784 72 63
info@aeschemunex.es

AES CHEMUNEX Italy
Via Panà, 56/b
35027 NOVENTA PADOVANA (PD)
Tel.: +39 049 87 05 804
Fax: +39 049 87 09 691
info@aeschemunex.it

EXPERIENCE CANNOT BE COPIED!



c o n t e n t s

Sample Collection	page 2
Dilution	page 2
Blending & Homogenisation	page 2
The Dilution Solution	page 2
Culture Media Preparation	page 3
Dispensing into Petri Dishes	page 3
Automated filling of Tubes, Bottles & Plates	page 3
Ready-to-use Diluents	page 4
Inoculation	page 4
Chomogenic Culture Media	page 4
Rapid Microbiological Analyzers	page 5
Foodborne Pathogens detection by Real-time PCR	page 5
Automatic Colonies Counting	page 6
Optimise the Analysis management	page 6
Monitoring & Traceability	page 6

AES 
CHEMUNEX
Your partner...
from sample collection to results
...in microbiology