

Food & Beverage safety

With our microbiological
quality control solutions



Millipore®

Preparation, Separation,
Filtration & Monitoring Products

The Life Science business
of Merck operates as
MilliporeSigma in the
U.S. and Canada.

We are Leaders

in Food and Beverage Safety

Your work is essential to bringing safe food and beverages to the world's table.

Our Life Science business combines world-class products and services, innovative capabilities, and exceptional talent to create a global leader in the Life Science industry.



As a leading provider in Life Science, we address the needs of industries where consumer safety is a significant concern.



We have a comprehensive portfolio offering high-quality solutions across the entire safety testing workflow.



We provide reliable, interconnected services and swift solutions specifically tailored to the needs of the food and beverage industry.



Learn more about food and beverage testing:

[SigmaAldrich.com/
FoodTestingHero](https://SigmaAldrich.com/FoodTestingHero)



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Leading expertise in microbiology

A long history of innovations and milestones

1885

Merck KGaA, Darmstadt, Germany holds the 1st culture media patent

1970

1st "closed system sterility test" using membrane filtration – Steritest®



1979

First portable microbial air sampler RCS™ Standard

2000

Launch of MAS-100 Eco®, a specially designed air sampler for the food industry



2002

Launch of world's 1st Lateral Flow Tests (Singlepath® Campylobacter, Duopath® Verotoxins (STEC))

2010

- Acquisition of Millipore Corporation
- 1st rapid, non-destructive, compendial detection system (Milliflex® Quantum)

1955

1st filter membrane for use in microbiology

1990's

Pioneer of Chromogenic culture media

2004

1st rapid filtration-based detection system – Milliflex® Rapid

1950

Dust-reduced culture media granulation process

1980

Low-binding filtration membranes (Durapore®)

2003

- 1st room temperature stable prepared media
- 1st all-in-one swab

2015

- MAS air sampler family extension with 5 new instruments
- IsoBag® rapid transfer bag to introduce material into isolator
- **2015 Acquisition of Sigma-Aldrich Corporation**
- EZ-Fit™ filtration units for Bioburden Testing of Liquid Samples

2020

Merck KGaA, Darmstadt, Germany approves Cultured Meat as an Innovation Center

2021

Val@M™ online validation platform

2022

- MAS-100® ATMOS system for compressed gas sampling for environmental monitoring
- DCM Halal-certified – compliant high-quality culture media for hygiene monitoring in halal- and/or kosher-certified production areas
- M-Trace® Software - your Digital QC companion for sterility testing and other regulated processes for trusted & efficient data recording!
- ReadyStream® system to prepare and dispense up to 100 L of pre-heated culture media on demand

2016

- DiluCult® gravimetric dilutor instrument designed for automatic dilution of food testing samples
- Dehydrated Culture Media (DCM) QC release under ISO 17025 accreditation

2014

Launch of the Steritest® Symbio pumps (ISL, FLEX, LFH), peristaltic pump for closed sterility tests



2018

- PyroMAT® system for *in vitro* testing of pyrogens
- ReadyPlate™ 55 ready-to-use 55 mm agar plates
- 2018 to 2023 Steritest® NEO membrane filtration system with consecutive waves
- Milliflex® OASIS for water and bioburden testing



2024

2024 Wild Type creates cultivated salmon with food-grade basal media from MilliporeSigma



Photo credit Wild Type

2011

Acquisition of heipha™ and Hycon®, the microbiology business from Biotest AG

2017

- **Acquisition of BioControl Systems, Inc. to strengthen position in food safety testing**
- 2017 MC-Media Pads® for enumeration and detection of microbial contamination

2023

- DCM Kosher-certified
- Milliflex® Rapid 2.0



F&B Production Workflow

1



RAW MATERIAL QC

2



PREPARATION & PROCESSING

2

3

Environmental Monitoring & Hygiene Control

Wide range of products to monitor: air, surface and water.



Air samplers (air and gas, MAS-compressed100®).



ATP Monitoring (MVP ICON®).



Swab cloths & sponges for collecting environmental monitoring samples (eMcollect).



Contact plates, dip slides, swabs for microbial testing of flat and curved surfaces.



Allergen-Indicator Protein Test (FLASH®).

1

2

4

Sample Preparation

Sample preparation, culture media for enrichment.



Enrichment Media wide offer: DCM, RTU, Readytube® and Readybag®.



On-Demand Enrichment Media (ReadyStream®).



Automatic gravimetric dilutors (DiluCult®).



Paddle homogenizer (ESH).



Detection of Somatic Coliphages (VIRALPREP® kit).

Services: Application, validation (Val@M™)

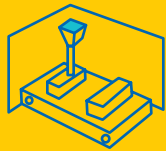


Food



Beverages

3



FILL & PACKAGING

4

FINISHED
PRODUCTS QC

1

2

3

4

Quality Indicators

Conventional culture media, alternative method and state of the art product range in filtration.



Rapid enumeration (MC-Media Pad®).



Wide family of media: Dehydrated or Ready-to-use solids: plates, tubes and bottles (GranuCult®).



Manifold, membrane dispenser, funnels, rapid detection system (EZ Family).

1

2

4

Pathogen Testing

Traditional and rapid testing solutions.



Wide family of media: Dehydrated or Ready-to-use solids: plates, tubes and bottles. (GranuCult®).



Real-Time PCR Analysis (Assurance® GDS) Automation optional (PipetMax®).



Certified reference materials (Vitroids™ & LENTICULE®).



Lateral Flow Tests (SinglePath®, VIP Gold®).



ELISA test (Transia® PLATE). Fully automated option (Gemini®).



Quantitative counting (SimPlate®).

, training (Learn@M), maintenance & repair.

Microbiology Enrichment & cultivation

Dehydrated Culture Media

Granulated and powdered media for all demands



GranuCult® Media

Superior granulated culture media, developed with more than 100 years of experience:

- Reduce dust inhalation of hazardous media components
- Quick and uniform dissolution in water
- Minimal component separation and clumping
- High batch-to-batch reproducibility
- Fully regulatory compliant to international standards (e.g. ISO, FDA-BAM, etc.)
- Prolonged shelf life of up to five years
- High number of test strains ensuring highest performance standards
- Extensive QC testing



NutriSelect® Media

Powdered high-quality and cost-efficient culture media, all made from selected raw materials:

- A vast range of media to choose from
- Many applications, from academic research to industry standard
- Novel media formulations, e.g. non- animal derived alternatives (Vegitone line), synthetically defined media, chromogenic media ChromoSelect and new Millichrome® lines

EcoCult® Media

Our new EcoCult® powdered culture media line

- Compliance to major regulatory standards ISO, FDA-BAM, EP or USP
- Eco-friendly packaging, ideal for high demands (5 and 10 KG pack sizes)
- Clear labeling and Certificate of Analysis to check compliance at a glance
- Reliable and accurate quality in powder format



This product is sustainable.
(new packaging)



Choose among these quality tiers:

	Quality control level	NutriSelect®	GranuCult®	EcoCult®
Prime	Full Compliance spectrum Quality control adhering to ISO, FDA-BAM, EP, USP standards, and ISO 17025 accreditation	13 products available	Over 70 products available	6 products available
Plus	Standard industry QC Quality control meeting industry standards, Quality assurance compliant with ISO 9001	Over 350 products available	Over 200 products available	
Basic	Basic QC testing Basic quality control, Quality assurance compliant with ISO 9001	Over 80 products available		



Learn More
SigmaAldrich.com/DCM

Halal and kosher dehydrated culture media

Our new range of compliant high-quality media for hygiene monitoring and microbiological QC testing

- Meeting the needs of halal-certified manufacturers
- Free of non-halal and non-kosher contamination
- Certified annually by Halal Quality Control (HQC) according to JAKIM MS and MUI halal standards
- Certified annually by KF kosher and Fidelity kosher
- Compliant with ISO, EP, USP, JP, and FDA-BAM standards (if designated "prime")



Learn More
SigmaAldrich.com/culture-media-halal



More Information

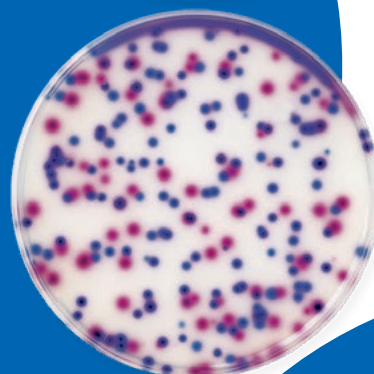
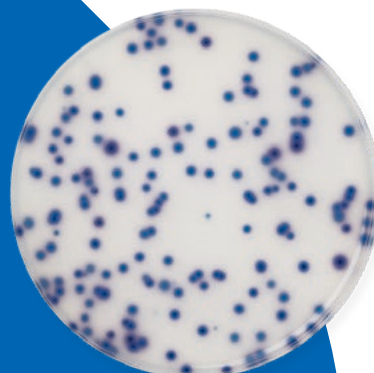
Chromocult® Coliform Agar

The original medium described in the revised EN ISO 9308-1:2014:Chromocult® Coliform Agar to be used to detect and enumerate *E. coli* and coliform bacteria in water

- Fully regulatory compliant to ISO 9308-1:2014
- Improved formulation to reduce growth of background flora
- Approved by US-EPA as alternative method for drinking water testing
- Approved by AOAC-PTM as alternative method for testing of processed foods
- **Rapid method:** results visible within 24 hours
- No need for autoclaving
- Contains Tergitol7® to inhibit gram-positive bacteria
- Shelf life of 5 years
- Clear detection of coliforms and *E. coli*, even in the presence of a high level of accompanying flora



Learn More
SigmaAldrich.com/Chromogenic



*Supplement addition recommended.

Sterikon® Plus Bioindicator

Bioindicator for Autoclave Control. Confirm the efficacy of your autoclave sterilization process with Sterikon®, fully compliant with USP <1229>, consisting of ampoules that contain everything required: nutrient broth, sugar, pH indicator and *Geobacillus stearothermophilus* ATCC 7953 spores.

- Reliable and reproducible results: Fully compliant with USP <1229>
- Rapid method: results in just 24 hours.
- Easy to use: Simply autoclave, incubate and read result

Order number **1102740001**



Learn More
SigmaAldrich.com/Sterikon



Bactident® Oxidase

Designed to detect cytochrome oxidase positive microorganisms in a test sample or grown culture.

Bactident® Oxidase test strips are used to detect cultured microorganisms which can catalyze cytochrome c substrate through a color change reaction.

In the presence of molecular oxygen, the cytochrome oxidase/cytochrome c system can reduce all the available organic substances in the environment reagent with the formation of condensation molecule indophenol blue.

Order number **1001810002**



Learn More
SigmaAldrich.com/bactident



Anaerobic solutions

In many industries, including F&B, it is often necessary to create an anaerobic environment to facilitate the growth of anaerobes, microaerophiles, and capnophiles such as *Clostridium*, *Campylobacter*, or *Lactobacillus*.

Cultivating these organisms requires the generation and maintenance of appropriate environmental conditions



Learn More
SigmaAldrich.com/anaerocult



Anaerobic jar

2.5 L jar designed to support an oxygen free or oxygen depleted environment. The anaerobic jar is to be used together with Cat.No. 1.07040.0001 Petri dish rack (for up to 12 Petri dishes).

- Used for cultivation of anaerobic and microaerophilic microorganisms in defined atmospheric conditions
- Consists of two functional parts: a lid and a base
- Manufactured using high-quality materials, ensuring that it is leak-proof and that the lid always fits properly synthetically defined media, chromogenic media (ChromoSelect line)

Order number **1136810001**

Anaerocult® Reagent Mixture

The Anaerocult® reagent mixture react with water to chemically bind all or part of the atmospheric oxygen (O_2) in a given volume of air (anaerobic jar or special incubation bag), while simultaneously releasing carbon dioxide (CO_2).

- The resulting growth environment is rich in carbon dioxide and either devoid of oxygen (anaerobic) or oxygen deficient (microaerobic/capneic). We have a range of cost-efficient Anaerocult® products to fit your microbiology needs
- The Anaerocult® A system is used for the anaerobic incubation
- Our Anaerocult® C system is used specifically for the incubation of microaerophiles and capnophiles
- Anaerocult® P system is used for anaerobic incubation of single petri dishes

Find order numbers at

SigmaAldrich.com/anaerocult



Anaerotest® Strips

Anaerotest® strips are designed to indicate an anaerobic atmosphere via a color change on the test strip reaction zone. An anaerobic atmosphere favors the growth of anaerobic *bacteria*, and this strip can indicate the absence/presence of oxygen in the environment.

Order number **1323710001**

sample preparation solutions

DiluCult™ & DiluCult™ 2 Gravimetric Dilutor

The DiluCult™: a simple and flexible instrument for precise dilution that can be tailored to your needs. This instrument has a maximum weight of 3kg

- Automate repetitive workflow steps
- Reduce hands-on time & error rates
- 3 distribution and dilution modes
- Digital display
- Removable collection tray
- For dilution and dispensing
- Available in 3kg and 5kg pooling samples
- DiluCult™ 2 instrument is ideal for pooling samples



Enrichment Sample Homogenizer (ESH)

Automatic homogenization of food samples with enrichment media

- Quick homogenization of large samples
- **Accurate:** Adjustable speed, time, and blending strength
- **Easy to use:** Simple cleaning procedures and a user-friendly interface
- Removable, autoclavable paddles



Learn More
SigmaAldrich.com/ESH



THE REVOLUTION IN MEDIA PREPARATION

**600 L
OF MEDIA**
in 2 cardboard
boxes



Rethink how you prepare
& dispense media
with the revolutionary
ReadyStream® system



**Only 20 min to
obtain 100 L
culture media**
ready for
immediate dispensing



**Limited manual
work required**
in clean and
healthy work
environment



**Light and
compact bags**
can be easily carried
through bag and
stored in warehouse



**Minimal water
and energy
consumption**
as well as waste
generation



No autoclaving
and cleaning of lab
equipment needed



Dispensing of
pre-heated media
as needed

Enhancing sustainability and operational Efficiency

**Classic media kitchen complete workflow
for processing 100 L media**



15 hours



905 L



50,2 kWh

**ReadyStream® complete workflow
for processing 100 L media**



2 hours



102 L



1,6 kWh

To access full study performed by
an independent external food testing lab
SigmaAldrich.com/readystream-bav-study



choose your future lab setup

FROM 3 OPTIONS

2

In-Line Connection - Connect it to any dilutor!

- Convenient connection to 1 or 2 dilutors at the same time
- Suited for small sample sizes, e.g., 25 g
- No change of connections required
- Addition of supplements possible



1

Standard ReadyStream® Setup - High Volume Users

- Simple setup, easy to install
- Can be used for any sample size but in particular suited for large sample sizes and dispensing volumes e.g., 3375 mL



3

Flex Connect - For separated media kitchen and sample prep locations

- Enhanced flexibility thanks to quick connection/disconnection
- Prepare media and dispense it independently from instrument location
- Pre-filling of several bottles and temporary storage or delivery at different dilutor positions possible
- In particular suited for small sample sizes
- Addition of supplements possible

pathogen detection solutions

Assurance® GDS system

Innovative genetic detection for Food Pathogens. Combining advanced technologies: molecular qPCR and immunomagnetic separation (IMS) using the GDS PickPen® IMS device.

- Method validated by AOAC, Health Canada, and AFNOR, MicroVal (ISO 16140) for a wide range of both food and environmental samples
- Enhanced sensitivity with upfront IMS
- Simultaneous analysis of multiple pathogens at once
- Results in as few as 8 or 10 hours depending on the sample size
- Internal control in each amplification tube for confidence
- Optional automated sample preparation

Test for key foodborne pathogens, including *Salmonella*, *Listeria* spp., *Listeria monocytogenes*, *Cronobacter*, *E. coli* O157:H7 (EHEC), and Shiga toxin-producing *E. coli* (STEC)

3 SIMPLE STEPS



Sample Enrichment (6.5-48h)



PickPen® IMS Sample prep (approx. 20 min)



PCR Analysis (80 min)



The Value of Immuno Separation (IMS) as part of qPCR

When paired with the powerful analytical capabilities of qPCR, PickPen® IMS technology produces a variety of additional advantages for the Assurance® GDS system:

- PickPen® device captures pathogens on the particles and physically removes them from the sample enrichment reducing the impact of potential background PCR inhibitors
- IMS concentrates the target pathogen allowing for the analysis of much larger test portions than standard PCR dilution protocols (1,000 µL vs. 5 µL) improving accuracy



Learn More
SigmaAldrich.com/GDS



ELISA test for detection for Pathogenic *bacteria*.

TRANSIA® ELISA Tests & Plates

Our TRANSIA® AG (Enzyme ImmunoAssay) and TRANSIA® PLATE incorporate proven antibody-antigen “sandwich” assay technology for the detection of foodborne pathogens in both product and environmental samples.

- Labor saving single-step enrichment in Demi-Fraser Broth for all samples
- Validated to provide results in 48 hours for both environmental surfaces and food samples
- Breakaway wells allow you to use only the number of tests required for your samples, helping to reduce waste and keep testing costs low
- Available in convenient 96, 504 or 960 test kits
- 3rd party validations for a wide array of both food and environmental samples
- Internal control in each amplification tube
- 3rd party validations for a wide array of both food and environmental samples



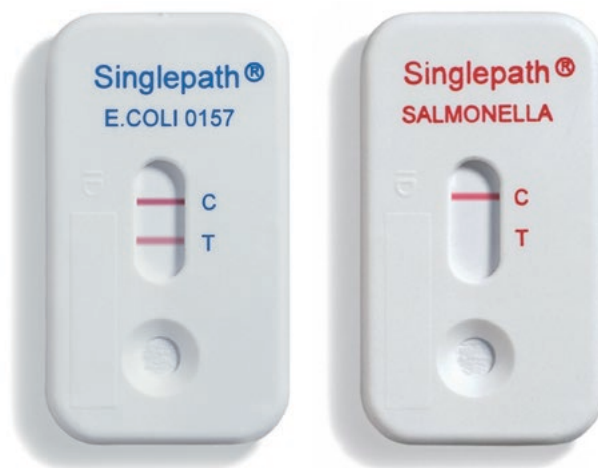
Learn More
SigmaAldrich.com/TRANSIA



Singlepath® Lateral Flow Test

Single-step visual lateral flow immunoassay test with maximum convenience approved by AOAC-PTM.

- Fast: Results within 20-30 minutes post incubation
- Clear positive and negative outcomes.
- Cost-effective: rapid tests reduce operational expenses
- Sensitive: detection limit equivalent to the reference method (validation studies)



Lateral flow method for *Salmonella*, *E.coli* O157, *Listeria monocytogenes*, *Campylobacter*

VIP® Gold Lateral Flow Test

Our VIP® Gold (Visual Immuno Precipitate) single-step visual lateral flow immunoassay tests are designed to be used with our enrichment media, like mEHEC for food and environmental pathogen detection.

Validated as AOAC OMA and PTM methods

- Convenience and ease with detachable kit format
- 2 x 10 test format facilitating sample transfer and result recording
- Simple, easy to read lines provide unambiguous results
- Simple protocols requiring minimal handling.
- No additional capital equipment such as sreaders, washers, etc

Lateral Flow Tests for *Listeria*, EHEC and *Salmonella*



Learn more at
SigmaAldrich.com/LFT

convenient Microbiological Testing solutions

SimPlate® Device

Fast Quantitative Method for: Total Plate Count, Yeast & Mold, Coliforms/*E. coli*, Campylobacter, Enterobacteriaceae

SimPlate® device delivers accurate results with visual reading for positive and negative outcomes, eliminating subjective interpretation.

- **Reduce Costs:** Compared to standard culture media. No complicated media preparation required
- **Simplify Procedures:** Easy-to-Read Results, Less Interference, Single Plate Results
- **Validated:** Accredited by regulatory bodies
- **Convenience:** Requires less dilutions max count of 700 CFU



Beginning incubation



Incubation complete

After incubation, wells that are positive will exhibit color change from the background color. Simply count the number of positive wells, refer to the SimPlate® Conversion Table and arrive at the number of organisms in the sample.



Learn More
SigmaAldrich.com/quality-indicators

MC-Media Pad®

Our MC-Media Pad® convenient culture media tests for rapid counting of coliforms, *E. coli*, aerobic bacteria, and yeasts.

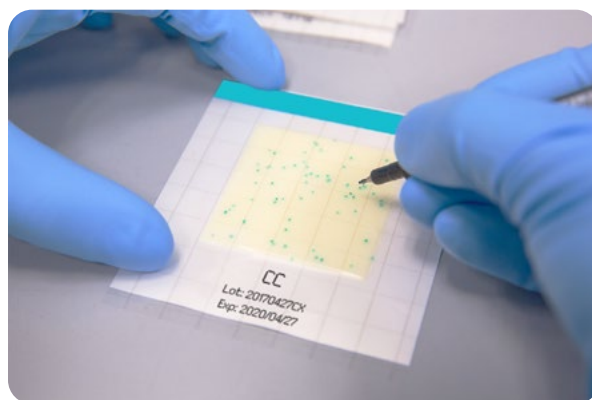
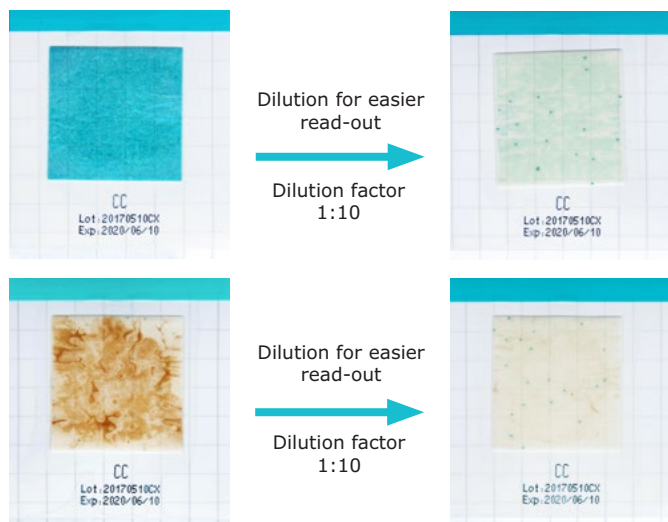
Validations: AOAC-PTM, AOAC-OMA, ISO 16140 and is quality controlled with strain selection according to ISO 11133

Our MC-Media Pad® are designed for indicator organism testing and hygiene monitoring in food and beverage production. The pads are saturated with growth media and chromogenic substrates for specific detection, allowing faster results and improved read-outs.

- Reduces waste and saves space
- Shelf-life up to 36 months
- Improve your inventory management
- Quick and reliable results
- Simplify workflow
- No spreading device required



Learn More
SigmaAldrich.com/quality-indicators



Readybag® Pouches

Pouches with granulated culture media provide fast, flexible, cost efficient pathogen testing

With single-use Readybag® pouches:

- No weighing
- No autoclaving
- No supplement handling
- No additional space or equipment required

The Readybag® pouches series is available for different sample sizes and includes:

- Salmonella (Buffered Peptone Water) for 125 g and 375 g food samples
- Listeria (Half Fraser Broth) for 25 g and 125 g food samples



Learn More
SigmaAldrich.com/Readybag

ReadyCult® Coliforms

Our fast, convenient, and cost-effective tests for detection of total coliforms and *E. coli* in water.

- Supplied in ready-to-use, irradiated snap pack format
- **No media preparation required:** simply add medium, incubate and read results
- Result interpretation by easy-to-read color formation, no color comparator cards needed
- Results within 18 to 24 hours (Traditional methods 3-4 days)
- US-EPA approved; internationally validated and recognized



Learn More
SigmaAldrich.com/Readycult

Media Bags

Make your life easier with the wide range of enrichment and dilution media bags

- Available in 5 liters: each bag allows up to 22 dilutions (225 mL)
- Available in 3.375 liters for Buffered Peptone Water (BPW) to simplify the preparation of 375 g samples
- Available in 3 liters: less weight and easier to handle
- Easy to store and ready to use
- Suitable for large volumes
- Reduced weight and lower transport costs
- Ideal for use with Dilucult™ Automated Diluter
- New packages available: 55 x 5 L for BPW and Half Fraser and 55 x 3.375 L for BPW



Save technician time for higher added-value tasks



Work with confidence, knowing that your enrichment media will be ready to go when you are

Range of Products*

Media	Catalog number	International Standard	Package
Buffered Peptone water	0120214-2x5L	ISO 6579, ISO 6887, ISO 11290-2	2x5 L
Buffered Peptone water	0120214-4x3L	ISO 6579, ISO 6887, ISO 11290-2	4x3L
Buffered Peptone water	0120214-55X3.375L	ISO 6579, ISO 6887, ISO 11290-2	55x3.375 L
Buffered Peptone water	0120214-55X5L	ISO 6579, ISO 6887, ISO 11290-2	55x5 L
Half Fraser	0120216-2x5L	ISO 11290	2x5 L
Half Fraser	0120216-4x3L	ISO 11290	4x3L
Half Fraser	0120216-55X5L	ISO 11290	55x5 L
Peptone salt solution (Maximum recovery diluent)	0120635-4X3L	ISO 6887 and ISO 8199	4x3 L
mEHEC	0120569-2x5L	Assurance® GDS Enrichment broth (<i>Salmonella</i> , <i>E.coli</i> O157: H7 and STEC)	2x5 L

* Some products may not be available in all countries. Please check with your local sales rep or distributor for details.

Membrane Filtration Solutions

EZ-Fit® Manifold

Manifold for universal laboratory filtration

- **Optimize your workflow:** can accommodate different filtration heads, Quick-fit connections for the vacuum tubing, Low height for ease of use in laminar flow hoods
- **Design eliminates sources of contamination:** Components can be removed without using any tools for efficient cleaning and autoclaving



EZ-STREAM® PUMP

Vacuum filtration pump benefits:

- High-performance flow rate
- No handling of liquid waste
- Compact size
- Noise reduction design
- Smooth design, easy to decontaminate
- Maintenance-free technology



Learn More
SigmaAldrich.com/EZ



EZ-Fit® Filtration Units

Ready-to-use filtration units for microbial enumeration.

- Designed for optimal microbial recovery: prevents leakages and liquid sample from by-passing
- Conform to international standards (EP/ USP/ISO standards) and comply with water testing regulations
- The transparent funnel allows you to see when filtration is complete from any angle
- For larger volume samples, 250 mL funnels are the ideal choice



Microfil® System

The Microfil® filtration system is a simple and reliable solution for routine testing of raw materials, beverages and water for microbiological contamination.

- No Preparation
- No Washing
- No Autoclaving
- No Clamps
- No Breakage
- No Filter Wrinkling
- No sample By-Pass

This cost-effective system uses pre-sterilized, ready-to-use funnels and membranes on a filtration support



S-Pak® & EZ-Pak® membranes

Sterile membranes ideal for microbiological analysis of filterable products.

- Our S-Pak® filters are individually packed and easy to use with gloved hands
- For high volume applications, our EZ-Pak® membranes come in a band with 150 filters for easy loading with our EZ-Pak® Dispenser Curve



EZ-Pak® Curve

The latest generation automatic membrane dispenser.

- High-speed sterile membrane dispensing
- No-touch operation: move your hand toward the sensor
- One-handed membrane transfer



EZ-Fluo™ System

Rapid Fluorescence Detection System.

- Rapid technology capable of providing results in 1/3 of the time required using traditional techniques
- Flexible approach based on standard membrane filtration
- Non-destructive method, compatible with any ID technique
- Compact hardware, fits easily on any laboratory bench



Culture Media Liquid Ampoules

Our liquid ampoules are available in convenient, 2 mL plastic ampoules, avoiding the waste and spoilage associated with bulk packaged media.

- Brettanomyces Selective Broth (BSM)
- m-Green Yeast and Mold Broth
- PRY (Preservative Resistant Yeast) Broth
- Orange Serum Broth
- Wallerstein Nutrient (WLN) Broth
- Yeast and Mold Selective Broth
- Wallerstein Differential (WLD) Broth
- de Man, Rogosa and Sharpe (MRS) Broth
- Pseudomonas Selective Broth
- m-FC Broth
- m-ColiBlue24 Broth
- m-Endo Total Coliform Broth



Use with EZ-Fit®
funnels and
Monitor 55-Plus™
to speed and efficiency
for your
routine analysis

ReadyPlate™ 55 Agar Plate

Convenient, ready-to-use culture media plates. The ReadyPlate™ 55 plate offers easy membrane handling through high fill level, ready-to-use 55 mm agar plates.

- Easy, reproducible membrane filter placement, avoiding bubbles, as a result of the high-level filling of the agar plate
- Enhanced flexibility through storage at room temperature and 6 to 9 months shelf life
- Compliant with EN ISO 11133:2014 and individual culture media standards
- Released through ISO 17025 accredited QC lab for reduced incoming quality control tests



Learn More
SigmaAldrich.com/EZ

Hygiene Monitoring solutions

Envirocheck® Dip Slides

Envirocheck® Dip Slides provide semi-quantitative detection of microorganisms on surfaces and in liquids. The flexible paddles, coated with relevant nutrient media, allow for sampling on all surface types.

After sampling and incubation, two parameters can be determined in one easy step.

- Flexible: Easy to use, with a pliable paddle allowing sampling in difficult to access areas
- Safe: Protected against contamination in plastic tube
- Economical: Testing in-house provides an efficient, low-cost alternative to independent test lab services
- Easy Interpretation



HY-RiSE® Test Strips

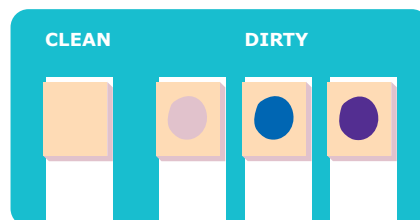
Color Hygiene Test Strips allow for rapid, qualitative determination of surface cleanliness and hand hygiene. It is also suitable for use in testing C.I.P. (Clean in Place) rinse water for contamination.

Measurements made with this test strip can provide early warning of possible contamination on specific surface areas allowing immediate corrective action.

- Test results are available in 4–5 minutes require no equipment
- Results are presented as a color change on the test strip



Learn More
SigmaAldrich.com/Hygiene-Monitoring



FLASH® Swab

FLASH® is a total protein visual test that rapidly detects protein residues left on food contact surfaces after cleaning, allowing verification of adequate removal of protein residues, including allergens on surfaces, reducing the risk of cross-contamination between products.

- Ready-to-use device: Colorimetric Assay, no equipment needed
- Detects total protein including “Big 9” food allergens
- Rapid pass / fail result within 10 minutes
- Detects down to 20 µg total protein
- Simple online training available 24/7 with certification for audit compliance



3 Step Process. Simple.



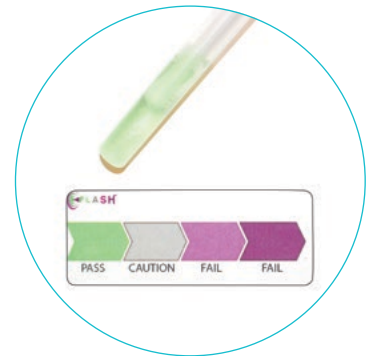
SWAB

Sample a 4 x 4 inch
(10 x 10 cm) surface



ACTIVATE

Activate swab and
shake for 5 seconds



READ

Use chart to interpret result
(Pass, Caution or Fail)

eMcollect

Swab cloths and sponges for collecting environmental monitoring samples in accordance with ISO 17604 and ISO 18593 standards

Capable of sampling microorganisms even in the presence of traces of disinfectant on the sampling surface.

Cloth swabs collection:

- Cloths are blue with a compliant size of 34 x 16 cm (544 cm²), featuring a honeycombed structure for effective surface sample collection.
- **Different options available:** With neutralizing agent to monitor the cleaning effectiveness even in presence of residual disinfectants, or simply cloth with Buffered Peptone Water (BPW), water, or dry.
- Bags are easy to reseal and can be closed with a twist closure or with an adhesive label.
- All bags can be used directly in a homogenizer



Sponges products collection:

- Sponges are made of premium quality cellulose. Sponge size measure 8x4 cm with thickness of 1.2 to 1.6 cm.
- **Different options available:** With neutralizing agent to monitor the cleaning effectiveness even in presence of residual disinfectants, or simply sponges with BPW.
- Sponges with sticks are also available to access hard-to-reach sampling areas. The design features piercings, making it easy to detach the sponge from the stick.
- Bags are easy to reseal with an adhesive label.
- All bags can be used directly in a homogenizer



Speak to a Specialist About
Our New Sampling Solutions.
[Click here.](#)



MVP ICON® ATP Luminometer

**Surface Cleaning Validation System using Bioluminescence (ATP).
The MVP ICON® is a device capable of detecting ATP, a molecule
found in all viable cells and in most biological materials.**

Unlike traditional methods that only detect the presence of microorganisms, the MVP ICON® also reveals the presence of organic residues on surfaces or in water (CIP).

- Superior ATP swab design with best-in-class sample release
- Room-temperature stable swabs are ready for immediate use

- Flexible testing options that complement existing workflows
- Perform instrument calibrations and verifications onsite, anytime
- Easily track failure rates, retest compliance and monitor overall program effectiveness



Learn More
SigmaAldrich.com/Hygiene-Monitoring

With an intuitive dashboard software for data management, it allows for quick trend reports, HACCP analysis, and calibration graphs, speeding up corrective action if needed.

Audits are made easy by using the Dashboard's print-and-present HACCP reports such as instrument calibration and verification history, test point frequency, and other key measurements that help you demonstrate an in-control process.



PASS

Green = Clean

For measurements below 2.5 Zones

PASS

Orange = Caution

For measurements of 2.5 – 2.9 Zones

FAIL

Red = Dirty

For measurements of 3.0 Zones and higher

The MVP ICON® sampling swab ensures accurate detection and sample collection. The swab tip is not involved in activation and the design ensures uniform sample release.

MAS-100 Eco® Air Sampler

The Economic Choice

The portable **MAS-100 Eco®** sampler is the basic version of the **MAS-100®** range. It is used for microbiological air monitoring in the hygienic production of food and cosmetics, as well as in the maintenance of ventilation and air-conditioning systems (HVAC). The **MAS-100 Eco®** sampler is the lightest of the models and particularly easy to handle.

As an open system the **MAS-100 Eco®** sampler works with a broad variety of agar media in 90 mm Petri dishes and other plate formats.

- Easy cleaning with industry standard disinfectants
- Compatible with different nutrient plates, e.g., ready-to-use 90 mm standard plates, and (with optional adapters) 55 mm contact or Growth Direct™ plates
- Active volume flow control
- Calibration with **MAS-100 Regulus®** digital anemometer
- Easy exchange of rechargeable batteries

Order number **1092270001**



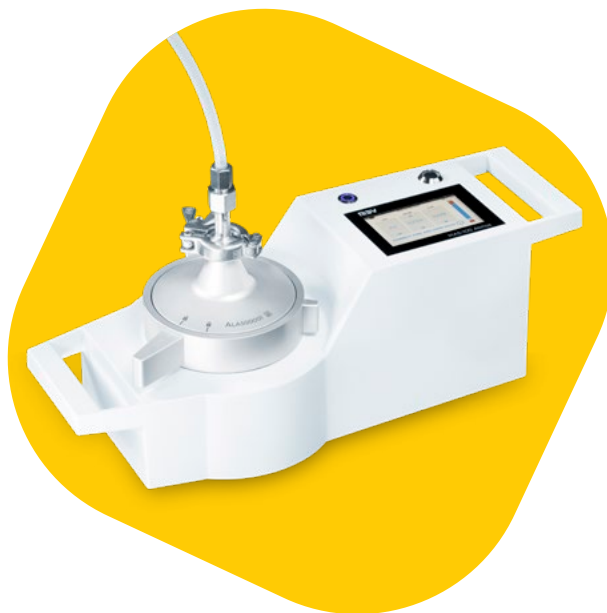
MAS-100 Atmos®

Microbial compressed gas sampler

The instrument is designed to collect microorganisms in compressed gases by gentle but direct impaction onto agar. The impaction is performed under pressure to prevent any harm to microorganisms caused by fast dynamic decompression. The impaction speed at a default flow rate of 100 LPM is identical to all other MAS-100® air samplers and provides a nominal d50 of 1.1 µm.

Automatic detection of pressure and a mass flow sensor ensure secure, accurate sampling of compressed gases. Four gas types (Ar, N₂, air and CO₂) are pre-programmed and easily accessible. The instrument is also designed to operate at lower pressure. This new level of automation minimizes risk and makes sampling compressed gas much easier.

- Easy to handle
- Automated flow rate regulation and decompression avoids human errors
- Validated accuracy of gas amounts for selectable gas types and pressure range
- 21 CFR Part 11 compliant software



Find out more about our latest innovation:
SigmaAldrich.com/mas-atmos



Technical Specifications

Parameter	MAS-100 Eco® sampler
Size: Body / Perforated lid	Ø 109 x 110 mm (w. handle) / Ø 109 x 32 mm
Weight: Body / Perforated lid	1.4 kg incl. perforated lid / 0.19 kg
Material: Body / Perforated lid	Anodized aluminum / anodized aluminum
Flow rate	100 liters per minute (LPM) ±4%
Flow regulation	Electronically
Default perforated lid	400 holes with Ø 0.7 mm (D50 value of 1.6 µm; impaction speed 11 m/s @100 LPM)
Sample volumes	1 to 1000 liters (pre-set: 10, 20, 100, 250 and 500 L)
Sample modes	Standard single sample, start delay configurable from 1 to 60 min
Batteries	2 x rechargeable NiMH cells (1.2 V/4.5 Ah)
Battery capacity	Approx. 3 h (= 18.000 L)
Operating conditions	5 °C to 40 °C non-condensing up to 2000 m above sea level
Tripod mounting	Optional

Certified Reference Microorganisms

The Simple Way to Ensure Accurate Results, Every Time

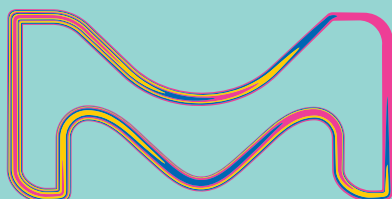
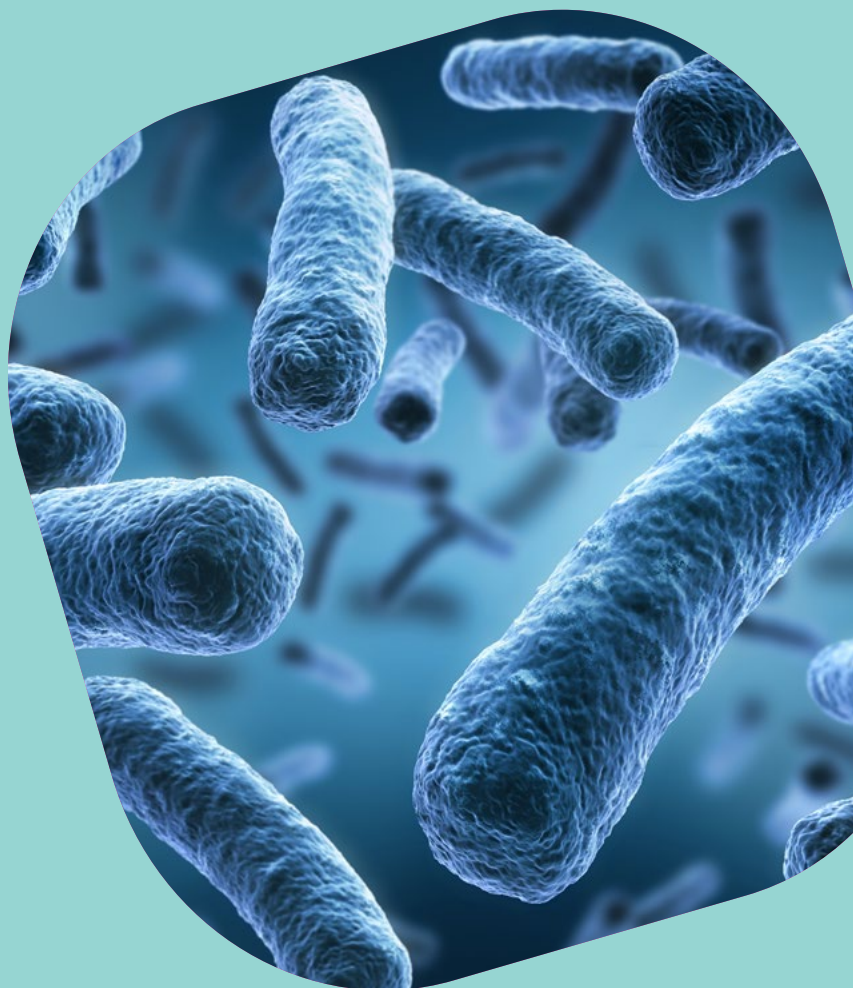
Vitroids™ and LENTICULE® Discs

Vitroids™ and LENTICULE® Discs Certified Reference Materials help make your growth promotion tests quick, convenient and consistent. Provided as a ready-to-use disc, in convenient CFU levels (15-80 CFU), there is virtually no prep needed: simply place the disc onto your media of choice, rehydrate for 10 minutes, and streak. It's as simple as that!

Produced in accordance to ISO 17025 and 17034, you can be assured of accuracy, traceability and homogeneity.

Validations: AOAC and Microval.

- Ready to use, defined CFU & standard deviation (ISO 14025)
- Flexibility
- Save time
- Cost saving
- Sustainable
- Ease-of use

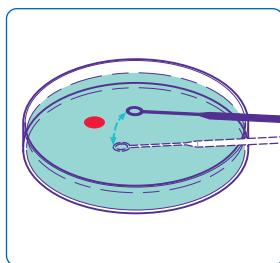


Millipore®

Preparation, Separation,
Filtration & Monitoring Products

Using Vitroids™ and Lenticule® discs:

- More accuracy
- Save time & costs
- Easy handling
- No stock culture maintenance
- Less documentation



Tap and tip onto culture plate or into buffer or liquid media. **Wait 10 minutes!** Streak out, pour it or filter it



Enumerate the colony forming units after 18-24 hours

 Choosing Vitroids™ and LENTICULE® discs not only simplifies your media testing workflow but also supports a lower carbon footprint, making it a smart choice for more sustainable practices now and for the future.

Selected Strains*

Cat. No.	Description	CFU	Strain	Equivalent Strains
VT000322	<i>Staphylococcus aureus</i>	15-80	CECT® 239	WDCM 00032, ATCC™ 6538, NCTC 10788
VT000262	<i>Pseudomonas aeruginosa</i>	15-80	CECT® 111	WDCM 00026, ATCC™ 9027, NCTC 12924
VT000032	<i>Bacillus subtilis</i>	15-80	CECT® 193	WDCM 00003, ATCC™ 6633, NCTC 10400
VT000542	<i>Candida albicans</i>	15-80	CECT® 1394	WDCM 00054, ATCC™ 10231, NCPF 3179
VT000532	<i>Aspergillus brasiliensis</i>	15-80	CECT® 2574	WDCM 00053, ATCC™ 16404, NCPF 2275
VT000122	<i>Escherichia coli</i>	15-80	CECT® 516	WDCM 00012, ATCC™ 8739, NCTC 12923
VT000312	<i>Salmonella enterica</i> serovar Typhimurium	15-80	CECT® 5494	WDCM 00031, ATCC™ 14028, NCTC 12023
VT000292	<i>Salmonella enterica</i> serovar Abony	15-80	CECT® 545	WDCM 00029, NCTC 6017
VT000082	<i>Clostridium sporogenes</i>	15-80	CECT® 485	WDCM 00008, ATCC™ 19404, NCTC 532

*Table is not all-inclusive

The strains listed above are applicable to:

- USP <51> Antimicrobial Effectiveness Testing
- USP <61> Microbiological Examination of Nonsterile Products – Microbial Enumeration Tests
- USP <62> Microbiological Examination of Nonsterile Products – Tests for Specified Microorganisms
- USP <71> Sterility Tests

*ATCC is a trade mark of American Type Culture Collection



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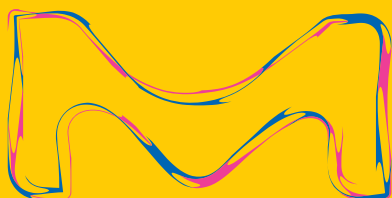


The perfect Recipe

- ✓ Quality Control
- ✓ Microbial Testing
- ✓ Your Dedication to Safety



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unrivalled experience in supporting your scientific advancements.

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