

Microbiological Products

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See Inside!

- **NEW!** MI Media Ampules
- EPA Accepted Media and Methods
- M-ColiBlue® now approved for reporting of *E. coli* in wastewater!
- Comprehensive lab supplies for Membrane Filtration and other techniques
- Media for MPN, Presence-Absence, Dip Slides, Paddle Testers, and more!
- Sartorius stainless steel manifolds and funnels for membrane filtration



Be Right™



Complete Systems

To ensure that water quality is satisfactory for the protection of public health, you need simple, reliable, and rapid methods for detecting and enumerating microorganisms. Hach provides everything needed to detect contamination.

Prepared Media

Short-term monitoring need? Variable volume of testing? Large-scale project? Need to improve efficiency or consistency? Save time and money using Hach's prepared media. Hach offers over 30 media in Presence/Absence, Membrane Filtration, Most Probable Number, and other formats, providing these features:

- *Wide variety of choices: glass or plastic ampules, bottles, tubes, and plates*
- *Sterile with pre-measured volumes*
- *Efficient inventory control*
- *Simplified storage*

Certificate of Analysis

Upon request, Hach will provide a Certificate of Analysis for prepared microbiological media. This certificate guarantees that the medium is ready to use and meets certain specifications, such as volume, recovery, pH, and sterility. The expiration date is printed on each package.

Regulatory Reporting

Hach offers numerous methods that are approved for reporting results according to the Safe Drinking Water Act, Total Coliform Rule, Beach Act, NPDES monitoring, 40 CFR 121, and 21 CFR 211 (see page 229 for more info). Hach offers a wide variety of non-regulatory methods and media for monitoring microorganisms across a broad spectrum of industries.

Portable Labs

Hach offers Microbiological Environmental Laboratories (MELs) for performing microbiological analysis for every purpose: remote field-testing, emergency response, or for building a micro lab inside an existing analytical facility. Anytime or anywhere, these self-contained kits provide everything for your microbiology analysis needs. Choose the method, pick a MEL, order the media (ensures longest shelf-life) and your lab is on the way! See pages 238-240 for more information.

Dehydrated Media, Dilution Water, Chemicals, Reagents, and Supplies

For analysis from sample collection to clean up, Hach supports your lab with a broad offering of media choices, dilution water products, chemicals, reagents, and supplies. See the Microbiological Lab Supply Section, starting on page 241, for other items you will need for your lab.

Literature, Procedures, Technical Support, and Training

Hach provides illustrated step-by-step procedures for all testing protocols, including sampling, dilution, incubation, and analysis instructions. Each method includes necessary equipment, media, reagents and supplies for simplified ordering. Downloads of methods are also available at www.Hach.com (Click on "Download Documentation" then "Product Manuals and Technical References.").

Trouble deciding which test to run? Compliance with regulatory requirements? Interpreting results? Hach's Technical Support is only a phone call or e-mail away. 1-800-227-4224 or techhelp@hach.com

At our Loveland, CO facility, Hach offers complete, hands-on training in the most common microbiology methods. Hach's Regional Training Program travels to your area to offer training in microbiological monitoring and other types of analysis. Hach can also provide customized training at your location. For more details call 1-800-227-4224 or check out our website for more details www.hach.com (Click on "Technical Training.").

To obtain the publication "The Use of Indicator Organisms to Assess Public Safety," call to request Literature #7015, or visit www.hach.com

Quick Reference Guide for Regulatory Reporting

- Hach's ready-to-use media **eliminates measuring, mixing, and autoclaving steps** necessary to prepare dehydrated media.
- Glass ampules, plastic ampules, 100 mL bottles of m-ColiBlue24® and m-Endo, and agar plates afford **maximum shelf life and ease of use** for pre-measured and prepared media.
- Hach offers prepared media for MF, P-A, and MPN methods in a variety of formats. Microbiology chemicals and reagents, as well as dehydrated media are available along with instruments, apparatus, and labware for all your microbiological testing needs.

Drinking Water

Parameter	Method (Method)*	Citations	Hach Method	Packaging	Product Number
Coliform Bacteria, Total and <i>E. coli</i>	m-ColiBlue24 (MF)	40CFR 141.21 (f) (3) footnote (11)	8433	Glass Ampules, pk/20	2608420
				Plastic Ampules, pk/50	2608450
				100 mL Bottle, ea	2608442
Coliform Bacteria, Total	Lauryl Tryptose Broth (MPN; presumptive) and Brilliant Green Bile Broth (MPN; confirmed)	SM 18th 9221 A-B-C	8001	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	32215
Coliform Bacteria, Fecal	Lauryl Tryptose (MPN; presumptive) and EC (MPN; confirmed)	40CFR 141.21 (f) (5)	8001	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	1410415
Coliform Bacteria, <i>E. coli</i>	Lauryl Tryptose Broth (MPN presumptive) and EC w/MUG (MPN; confirmed)	40CFR 141.21 (f) (6) (i) SM 18th 9221 A-B-F	8001	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	2471515
Coliform Bacteria, Total	Lauryl Tryptose/Bromocresol Purple Medium (PA; presumptive)	40CFR 141.21 (f) (3) SM 18th 9221 D	10018	P/A Broth Disp Bottle pk/12	2323212
				P/A Broth Disp Bottle pk/50	2323250
	Brilliant Green Bile Broth Medium (PA; Confirmed)			MPN Tube, pk/15	32215
Coliform Bacteria, Fecal	EC Medium (PA; Confirmed)	40CFR 141.21 (f) (5) SM 18th 9221 D	10018	MPN Tube, pk/15	1410415
Coliform Bacteria, <i>E. coli</i>	EC Medium w/MUG (PA; confirmed)	40CFR 141.21 (f) (6) (i) SM 18th 9221 D	10018	MPN Tube, pk/15	2471515
Coliform Bacteria, Total	m-ENDO Broth (MF; presumptive)	SM 18th 9222 A, B	8074	Glass Ampules, pk/20	2373520
				Plastic Ampules, pk/50	2373550
				100 mL Bottle, ea	2373542
				Agar Plate, pk/15	2811615
				Confirm with Lauryl Tryptose and Brilliant Green Bile Broth	2101415
					32215
Heterotrophic Plate Count	Plate Count Agar (Pour plate)	SM 18th 9215 A, B	8074	Sterile agar in tube (two tests per tube) pk/20	2406720
Heterotrophic Plate Count	m-HPC (MF)	SM 18th 9215 A, D	8074	Plastic Ampules, pk/50	2812450
				Agar Plate, pk/15	2811415
Heterotrophic Plate Count	m-R2A (MF)	SM 18th 9215 A, D	8074	Plastic Ampules, pk/50	2812350
				Agar Plate, pk/15	2814215
				Sterile Agar in tube (two tests per tube) pk/6	2724106

*Prior to purchase of any microbiology media for reporting purposes, it is the customers' responsibility to check with his/her state EPA certification officer to see which method or methods are approved by customers' state. <http://www.epa.gov/safewater/faq/sco.html> lists state certification contacts for every state and also gives links to state laboratories certified for drinking water analyses. There are links for those states which have electronic lists of their "certified laboratories." This list is maintained by EPA. (Accuracy is the responsibility of the EPA.) States may have separate certification officers for drinking water and wastewater.



*m-Endo Broth,
2 mL Ampules
Prod. No. 2373550*



*m-Green
(Yeast and Mold),
2 mL Ampules
Prod. No. 2428350*

Prepared Media for Regulatory Reporting

Source and Ambient/Recreational Water

Parameter	Method (Method)*	Citations	Hach Method	Packaging	Product Number
Coliform Bacteria, <i>E. coli</i>	m-ColiBlue24 (MF)	40 CFR136.3	10029	Glass Ampules, pk/20	2608420
				Plastic Ampules, pk/50	2608450
				100 mL Bottle, ea	2608442
Coliform Bacteria, <i>E. coli</i>	Lauryl Tryptose Broth (MPN presumptive) and EC w/MUG (MPN; confirmed)	Federal Register V 68; #139 (7/21/2003)	8001A	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	2471515
Coliform Bacteria, <i>E. coli</i>	Lauryl Tryptose Broth (MPN; presumptive) and Brilliant Green Bile Broth (MPN; confirmed)	Federal Register V 68; #139 (7/21/2003)	8001A	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	32215
Coliform Bacteria, <i>E. coli</i>	Modified m-TEC Agar (MF: one-step confirmed)	Federal Register V 68; #139 (7/21/2003)	8074	Agar Plate, pk/15	2811815
Coliform Bacteria, <i>E. coli</i>	m-TEC Agar (MF: two-step confirmed)	Federal Register V 68; #139 (7/21/2003)	8367	Sterile agar in tube (two tests per tube) pk/6	2561106
Coliform Bacteria, Fecal	A1 Medium (MPN; confirmed)	40CFR 141.74 footnote (7)	8368	MPN Tube, pk/15	2560915
Coliform Bacteria, Fecal	Lauryl Tryptose (MPN; presumptive) and EC (MPN; confirmed)	Federal Register V 68; #139 (7/21/2003)	8001A	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	1410415
Coliform Bacteria, Fecal	mFC (MF: one-step confirmed) #139 (7/21/2003)	Federal Register V 68; #139 (7/21/2003)	8074	Glass Ampules, pk/20	2373220
				Plastic Ampules, pk/50	2373250
				Agar Plate, pk/15	2811515
				Agar Plate, bulk	2811501†
Coliform Bacteria, Total	mEndo (MF: one-step confirmed)	Federal Register V 68; #139 (7/21/2003)	8074	Glass Ampules, pk/20	2373520
				Plastic Ampules, pk/50	2373550
				Agar Plate, pk/15	2811615

†Minimum order of 75 plates required.



Wastewater and Biosolids

Parameter	Method (Method)*	Citations	Hach Method	Packaging	Product Number
Coliform Bacteria, <i>E. coli</i>	m-ColiBlue24 (MF)	Federal Register V 70, #136 (03/26/2007); SM9221D	10029	Glass Ampules, pk/20	2608420
				Plastic Ampules, pk/50	2608450
				100 mL Bottle, ea	2608442
Coliform Bacteria, Total	Lauryl Tryptose Broth (MPN; presumptive) and Brilliant Green Bile Broth (MPN; confirmed)	SM 18th 9221 B	8001A	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	32215
Coliform Bacteria, Fecal	Lauryl Tryptose Broth (MPN; presumptive) and EC Medium (MPN; confirmed)	SM 18th 9221 C, E	8001A	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	1410415
Coliform Bacteria, Fecal	m-FC Medium (MF; confirmed)	40CFR 141.21 (f) (5) SM 18th 9222 D	8074	Glass Ampules, pk/20	2373220
				Plastic Ampules, pk/50	2373250
				Agar Plate, pk/15	2811515
Coliform Bacteria, Fecal	m-FC Medium w/Rosalic Acid (MF; confirmed)	40CFR 141.21 (f) (6) (i) SM 18th 9221 D	8074	Glass Ampules, pk/20	2428520
				Plastic Ampules, pk/50	2428550
Coliform Bacteria, Fecal	A1 Medium (MPN; confirmed)	40CFR 141.74 footnote (7) SM 9221E	8368	MPN Tube, pk/15	2560915
Coliform Bacteria, Fecal (BioSolids)	Lauryl Tryptose (MPN; presumptive) and EC (MPN; confirmed)	Federal Register V 70, #136 (03/26/2007); SM9221D	10027	MPN Tube, pk/15	2101415
				MPN Tube, pk/15	1410415
Coliform Bacteria, Fecal (BioSolids)	A1 Medium (MPN; confirmed)	Federal Register V 70, #136 (03/26/2007); SM9221D	10028	MPN Tube, pk/15	2560915

*Prior to purchase of any microbiology media for reporting purposes, it is the customers' responsibility to check with his/her state EPA certification officer to see which method or methods are approved by customers' state. <http://www.epa.gov/safewater/faq/sco.html> lists state certification contacts for every state and also gives links to state laboratories certified for drinking water analyses. There are links for those states which have electronic lists of their "certified laboratories." This list is maintained by EPA. (Accuracy is the responsibility of the EPA.) States may have separate certification officers for drinking water and wastewater.

**The EPA has approved m-ColiBlue24 to support the NEW Rule at 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Wastewater and Sewage Sludge. Rule promulgation in wastewater occurred in March 2007. In support of this Rule, many States have begun to require reporting of *E. coli*.



Total and fecal coliforms, along with *E. coli*, are used as indicators of water contamination. Think of testing for these bacteria as simply validating the effectiveness of your disinfection system.

EPA, Standard Methods, Safe Drinking Water Act, Total Coliform Rule, Beach Act, NPDES, 40 CFR 121, 21 CFR 211, and others require some form of microbial testing. Hach has the expertise and product portfolio for your testing needs.

Membrane filtration (MF), Multiple Tube Fermentation (MTF), Most Probable Number (MPN), Presence-Absence (PA), Paddle testers, Biological Activity (BART)...whatever your testing preference, Hach has you covered.

Membrane Filtration

Membrane filtration is the most common laboratory technique for quantifying microbial presence. Though technique-sensitive, high school students can be taught proper MF technique in a single day. No technique is as accurate or precise as MF, and MF is infinitely scalable, from large manifold systems to fully portable units that can be run in the back of a truck.

Membrane filtration requires the following steps and products:

- *Sampling & Handling*
- *Filters & Funnels*
- *Membranes*
- *Petri Dishes*
- *Media*
- *Incubation & Enumeration*



Sampling & Handling

Sampling and sample handling are the beginning of good laboratory practices. Regardless of your methodology, you need sterile supplies to both collect and prepare your samples. Hach has a variety of vessels, Whirl-Paks®, and sterilization equipment, such as autoclaves and autoclave accessories.



Prod. No.	Description
2233199	Whirl-Pak® Sterile Bag Vol: 207 mL (7 oz), Dim (W x L): 9.5 cm x 18 cm, (3.75 x 7") 3.0 mil thick, pk/100
2075333	Whirl-Pak® Sterile Bag with Dechlorinating Agent 100 mL (4 oz), 4 pk of 25 bags
2634001	Sample Vial 120 mL with Thiosulfate and Custody Tie, 200/pk
2599112	Sterile Sampling Bottle with Dechlorinating Agent
2898600	Steam Autoclave
2112100	Inoculating Wire Loop 3" nichrome V wire, 25 gauge (0.018") with 3-mm diameter loop



Filters & Funnels

Choose from a vast array of membranes, funnels, petri dishes, and other lab supplies for membrane filtration. Whether you need field-ready monitors, autoclaveable funnels, or anything in between, Hach has what you need.

Disposable

Benefits of a disposable filter/funnel system include:

- *No autoclaving or washing*
- *Integrated membranes saves time and money*
- *Integrated Petri dish in the Sartorius Biosart 100 monitors saves time and money*
- *Appropriate for field use*
- *Adaptable for use with manifolds*



Millipore Microfil® System

- *Fast, reliable, and convenient*
- *No clamps or sealing mechanisms*
- *Integrated membrane*

<u>Prod. No.</u>	<u>Description</u>
2586300	Microfil Funnels, 100 mL, 150/pk
2508900	Microfil V Funnels, 100 mL, w/integral membrane, 24/pk
2586200	Millipore MicroFil Filter Assembly



Pall MicroFunnel™ System

- *Integrated sample container and filter funnel eliminates waste*
- *Ideal for field use*
- *Integrated membrane*

<u>Prod. No.</u>	<u>Description</u>
2619000	PALL MicroFunnel™ II Funnels, 50/pk
2831500	MicroFunnel™ LP Funnels, 50/pk
2831600	MicroFunnel single-place manifold



Sartorius Biosart® 100 Monitors

- *Innovative design offers sterile, disposable monitor that eliminates steps, saving time and money*
- *Integrated membrane and absorbant pad*
- *Integrated Petri dish*
- *Buy in individually sealed units or bulk*

<u>Prod. No.</u>	<u>Description</u>
2521101	48 units, 100 mL, Individually Packaged
2521100	48 units, Bulk Packaged
2521401	1-Branch Stainless Steel Manifold

Continued on next page.

Filters & Funnels *Continued*

Reusable

Funnels made from glass, polyphenylsulfone, or stainless steel can be autoclaved for multiple uses. Though the advantage of an integrated membrane filter (and Petri dish in the case of the Sartorius Biosart® 100) of the disposable funnel is lost, larger facilities will enjoy the cost benefits of a reusable funnel system.

BEST: Stainless Steel

- Sartorius Combisart® systems include funnels, manifolds, lids, valves, and all other components—true turn-key solution
- Longest life
- Minimal maintenance
- Superior resistance to chemicals, cleaning cycles, and physical abuse
- Complete systems include funnels, manifolds, lids, valves, and all other components—true turn-key solution

Prod. No.	Description
2519700	Combisart 1-place 500 mL Funnel/Manifold System
2519701	Combisart 3-place 500 mL Funnel/Manifold System
2519702	Combisart 6-place 500 mL Funnel/Manifold System

BETTER: Glass

- Longer life than plastic funnels • Autoclavable • Resistant to chemicals and harsh cleaning cycles

Prod. No.	Description
234000	Glass Filtration Apparatus

GOOD: Polyphenylsulfone

- Economical • Autoclavable • Rugged for field use

Prod. No.	Description
1352900	Magnetic Polyphenylsulfone Filter Holder, 47 mm
2254400	Polysulfone Filter Holder



Membranes

Samples must be filtered through a sterile membrane to collect organisms of interest. If using a funnel without an integrated membrane, see below for Hach's comprehensive line of membranes and membrane dispensing units.

Millipore EZ Pak System

- Millipore's dispensing system saves time
- Eliminates steps and limits contamination risk
- Great for high throughput labs

Prod. No.	Description
2916700	Millipore EZ Pak Dispenser
2916800	Millipore EZ Pak membranes; white, gridded, 0.45 µm pore size, 47 mm, pk/600 (4 x 150)



PALL GN-6 Metrical Membrane Filters

- Individually packaged and sterile
- Gridded design is perfect for enumeration
- Pore Size: 0.45 µm. Diameter: 47 mm

Prod. No.	Description
1353001	Individually packaged, gridded, sterile, pk/200
1353002	Individually packaged, gridded, sterile, pk/1000



Petri Dishes

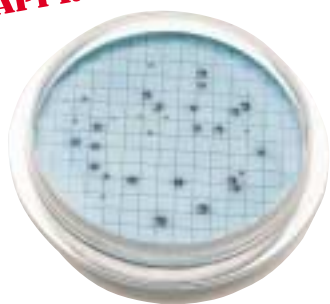
Petri dishes are the growth chambers and special care should be taken when selecting your Petri dish. Hach recommends Sartorius Petri dishes, pre-packaged with sterile glass fiber pads. Glass fiber pads offer much greater pH stability than do their paper pad counterparts. They are also much less chemically active than the paper pads.

Prod. No.	Description
1471799	Polystyrene Petri Dish, w/pad (PALL), 100/pk



Membrane Filtration

**EPA
APPROVED**



Media

EPA approved m-ColiBlue24 simultaneously detects total coliforms and *E. coli* in just 24 hours—no confirmation step necessary! And, with the lowest published false positive count, you can be confident in your results.

Prefer modified m-TEC, m-ENDO, or m-FC media? No problem! Hach manufactures these, as well...and in a variety of formats:

- Dehydrated media
- Prepared media broths in glass or plastic ampules
- Pre-poured plates

Hach manufactures a variety of media that complies with EPA and Standard Methods. Visit www.hach.com for more information.

Drinking Water

Prod. No.	Description
2608420	m-ColiBlue24® Broth Ampules; Glass, pk/20
2608450	m-ColiBlue24® Broth Ampules; Plastic, pk/50
2608442	m-ColiBlue24® Broth in 100 mL Bottle
2517150	MI Media Ampules; Plastic, pk/50
2373520	m-Endo Broth Ampules; Glass, pk/20
2373550	Total Coliform Bacteria, m-Endo Broth, 2 mL Plastic Ampules, pk/50
2811615	m-Endo Prep. Agar Plate, pk/15
2812450	m-ColiBlue24® Broth Ampules; Plastic; pk/50
2812350	R2A Broth Ampules; Plastic; pk/50

NEW!

Wastewater

Prod. No.	Description
2608420	m-ColiBlue24® Broth Ampules; Glass, pk/20
2608450	m-ColiBlue24® Broth Ampules; Plastic, pk/50
2373220	Fecal, Coliform Bacteria, mFC Glass Ampules, pk/20
2373250	m-FC Broth Ampules; Plastic; pk/50
2811515	m-FC Prep. Agar Plate, pk/15
2428520	m-FC/Rosolic Acid Broth Ampules; Glass, pk/20
2428550	m-FC/Rosolic Acid Broth Ampules; Glass, pk/50

Source, Ground, and Recreational Water

Prod. No.	Description
2608420	m-ColiBlue24® Broth Ampules; Glass, pk/20
2608450	m-ColiBlue24® Broth Ampules; Plastic, pk/50
2373220	Fecal, Coliform Bacteria, mFC Glass Ampules, pk/20
2811815	<i>E. coli</i> Coliform Bacteria, Modified m-TEC Agar Plate, pk/15
2561106	m-TEC Prep. Agar Tube, pk/6
2373520	m-Endo Broth Ampules; Glass, pk/20

Incubation & Enumeration

All samples, regardless of technique used for preparation, require incubation. Hach sells a comprehensive line of incubators for lab or field use. Hach sells a comprehensive line of Leica® microscopes to help your operators more easily enumerate the bacteria colonies. Visit www.hach.com for more information.

Prod. No.	Description
2619200	Model 153 Low-Profile Culture Incubator 110/120 Vac, 50/60 Hz
2569900	Portable Culture Incubator Power Source Options: 12 Vdc via vehicle cigarette lighter socket connection, 12 Vdc rechargeable battery
2281400	Dri-Bath Single Block Incubator (Block Included); 120 Vac, 50/60 Hz
2184300	UV, Long-Wave Lamp, 115 Vac, 60 Hz
2252100	Quebec Colony Counter, 110 Vac, 60 Hz
2945050	Leica DM500 microscope with Plan Achromatic Objectives



Hach recognizes that not all facilities require the rigor of membrane filtration and may only need diagnostic tools or methods based on statistical probability rather than discrete colony counting.

Hach is proud to offer one of the most comprehensive microbiology product portfolios in the environmental water quality industry. Chances are that if you need it, we already offer it!

Choose from a wide range of:

- *Field Kits* • *Dip Slides* • *Paddle Testers* • *MPN Tubes*
- *PA Tests* • *Heterotrophic Plate Counts*
- *Media and Broths for Yeasts, General Growth*

And don't forget to browse through Hach's huge general lab supplies offering—Hach is your microbiology supply source!

Presence-Absence Media

Presence-absence tests are a convenient way to detect coliforms and *E. coli* in your water system. Conforms to Standard Methods 9221 D.

Prod. No.	Description
2401650	Total Coliforms and <i>E. coli</i> P-A broth with MUG (Sterile bottle), pk/50
32215	Brilliant Green Bile Broth, confirms Total Coliforms, pk/15
2323250	Total Coliforms P-A Broth (Sterile bottle), pk/50



PathoScreen™ Media and Test Kit

- *Use to detect waterborne pathogens associated with fecal contamination of water sources.*
- *Simple presence-absence method eliminates need for an incubator in tropical and semi-tropical climates!*

Prod. No.	Description
2859100	PathoScreen Field Kit, each (100 P/A or 20 MPN tests) Includes: PathoScreen Powder Pillows (pk/100; 20 mL sample), bleach solution (59 mL; 5-6%), MPN sample vials (5; with caps)
2610796	PathoScreen Powder Pillows, pk/100 (P/A or MPN 20 mL sample)
2610696	PathoScreen Powder Pillows for 100 mL P/A pk/50



Dip Slides & Paddle Testers

Dip slides, or paddle testers, are a versatile platform of products that can test for a variety of microbes, including coliforms, yeasts, and molds.

Prod. No.	Description
2610810	Total Aerobic Bacteria/Yeast & Mold Tryptone Glucose Extract, Agar/Sabouraud Dextrose Agar, pk/10
2610910	Total Aerobic Bacteria/Total Coliform Red Bile Agar Tryptic Soy Agar (TSA)/Violet, pk/10
2619510	Total Aerobic Bacteria/Disinfection Control TSA/DE Neutralizing Agar, pk/10





Biological Activity Reaction Test (BART™)

BART biotectors are excellent diagnostic tools to help identify the presence of process-disruptors. Find out if you have bacteria that are creating slime layers that limit disinfection, discover if you have iron reducing bacteria literally eating your pipes, and so on. Ten varieties to choose from.

Prod. No.	Description	Unit
2831409	Acid Producing Bacteria (APB); Bacterial strains capable of acid production under reductive (oxygen-deprived) conditions,	pk/9
2432709	Blue Green Algae (ALGE); Photosynthetic plant-like microorganisms; Cholorophyceae, Cyanobacteria, desmids, diatoms and euglenoids	pk/9
2432727	Blue Green Algae (ALGE) same as above	pk/27
2619309	Denitrifying Bacteria (DN); Nitrate reducing bacterial strains	pk/9
2432609	Fluorescing Pseudomonads (FLOR); Fluorescing pseudomonad strains and related bacteria	pk/9
2490409	Heterotrophic Aerobic Bacteria (HAB); Broad spectrum of aerobic bacteria	pk/9
2490427	Heterotrophic Aerobic Bacteria (HAB) same as above	pk/27
2432309	Iron Related Bacteria (IRB), Iron-related bacterial populations oxidizing, reducing, and "accumulating" strains	pk/9
2432327	Iron Related Bacteria (IRB) same as above	pk/27
2619407	Nitrifying Bacteria (NB); Ammonium oxidizing strains	pk/7
2478409	Pool and Spa Bacteria (POOL); Problematic pool and spa bacteria; <i>Pseudomonas</i> strains	pk/9
2432509	Slime Forming Bacteria (SLYM); Aerobic/Anaerobic slime producing bacteria; Pseudomonads	pk/9
2432527	Slime Forming Bacteria (SLYM) same as above	pk/27
2432409	Sulfate-Reducing Bacteria (SRB); Anaerobic and aerobic hydrogen sulfide generating bacterial strains	pk/9
2432427	Sulfate-Reducing Bacteria (SRB) same as above	pk/27
2434809	Combination Pack: Convenient multi-pack for detection 3 each of IRB/SRB/SLYM (COMB) of iron-related, sulfate reducing, and slime forming bacteria,	pk/9

Most Probable Number (MPN)



Gas production and/or turbidity indicates positive reactions. From left to right: (1) Gas and turbidity in LT Broth indicates total coliforms; (2) No reaction in LT Broth; (3) No reaction in BGB Broth; (4) Gas and turbidity in BGB Broth confirms total coliforms.



Within 24 hours, detect fecal coliform contamination in seawater, treated wastewater, and sludge with A-1 Medium Broth.

Multiple Tube Fermentation and Most Probable Number (MPN)

MPN tubes, or multiple tube fermentation, is an alternative way to test for coliforms and *E. coli*. Though it eliminates manual counting of colonies, all techniques based on statistical probability sacrifice accuracy and precision, as compared to membrane filtration.

Prod. No.	Description
2560915	A-1 Medium, 15/pk
2647815	Azide Dextrose Broth Tubes, 15/pk
2406920	Bile Esculin Azide Agar Tubes, 20/pk
32215	Brilliant Green Bile (BGB) Tubes, 15/pk
1410415	EC Medium Tubes, 15/pk
2471515	EC Medium with MUG Tubes, without durham tubes, 15/pk
2282415	EC Medium with MUG Tubes, with durham tubes, 15/pk
2101315	Lactose Broth Tubes, 15/pk
1472520	Lauryl Tryptose Ampules, 20/pk
2162315	Lauryl Tryptose Broth Tubes, single strength, 15/pk
2101415	Lauryl Tryptose Broth Tubes, concentrated, 15/pk
2182115	Lauryl Tryptose w/MUG Broth Tubes, concentrated, 15/pk
2217515	Lauryl Tryptose w/MUG Broth Tubes, single strength, 15/pk
2610796	PathoScreen™ Medium MPN Pillows, 50/pk
2277700	Total Bacterial Count Media Set
2564325	Tryptic Soy Broth Bottles, 25/pk

CONSUMABLES FOR MOST PROBABLE NUMBER METHOD

2361100	<i>E. coli</i> Fluorescence Standard, 1 each
2749125	Inoculating Loop, Disposable, 10 mL, 25/pk
2075333	Whirl-Pak Sampling Bag w/dechlorinating agent, 100/pk

Dehydrated Media, Dilution Products, Chemicals and Reagents

Dehydrated Media

A-1 Medium Broth

2309934 500 g

Agar

2325034 500 g

Beta-D-Lactose

2815734 500 g

Brilliant Green Bile Broth, 2%

15926 100 g

15934 500 g

EC Medium

1410326 100 g

1410334 500 g

EC w/MUG

2310126 100 g

Esculin Iron Agar

2281326 100 g

KF Streptococci Agar

1485334 500 g

Lactose Broth

19634 500 g

Lauryl Tryptose Broth

19734 500 g

Lauryl Tryptose w/MUG Broth

2255734 500 g

m-E Agar

2281226 100 g

2281234 500 g

m-Endo Agar LES

2406634 500 g

m-Endo Broth

1462326 100 g

1462300 500 g

m-FC Broth

1462426 100 g

1462434 500 g

m-Green YM Broth

2428200 500 g

m-HPC Agar

2280734 500 g

m-TEC Agar

2281126 100 g

m-TGE Broth

2426400 500 g

Nutrient Agar

2179226 100 g

Nutrient Agar w/MUG

2487626 100 g

Nutrient Broth

2560626 100 g

Plate Count Agar

(Tryptone-glucose-yeast agar)

2177826 100 g

Presence-Absence Broth

2280934 500 g

R2A Agar

2281034 500 g

Tryptic Soy Agar

2565926 100 g

Tryptic Soy Broth

2253534 500 g

Dilution Products

Ready-to-use Dilution Water Buffered, Sterile

Butterfield's Buffered Phosphate Diluent

2319109 90 mL/1 each

2319125 90 mL/25/pk

2319145 450 mL/1 each

2319110 450 mL/10/pk

Magnesium Chloride/Potassium Phosphate Buffer, 99 mL

1430598 25/pk

Dilution Water Concentrate Pillows

Magnesium Chloride and Potassium Dihydrogen Phosphate

Makes 25 liters of dilution water

2143166 25/pk

Potassium Dihydrogen Phosphate

(Butterfield's Buffered Phosphate Diluent)

2323668 25/pk

Peptone Pillows

2142964 30/pk

Chemicals, Extracts, and Reagents

Alpha-Amylase, Type X1-A

2287124 25 g

Asparagine

2310026 100 g

Dechlorinating Reagent Powder Pillows

For dechlorinating water samples

1436369 100/pk

Immersion Oil

2387500 1 each

Indoxyl beta-D-glucopyranoside*Blue color indicator for *Enterococci*

2813935 2 g

IBDG (indoxyl-beta-D-glucuronide)*Blue color indicator for *E. coli*

2814035 2 g

Magenta-GlcA*

(5-bromo-6-chloro-3-indoyl-beta-D-glucuronide)

Red color indicator for *E. coli*

2815035 2 g

Magnesium Chloride

611434 500 g

MUG Reagent*Fluorescent indicator for *E. coli*

2184421 1 g

MUGGAL*

(4-Methylumbelliferyl beta-D galactopyranoside)

Fluorescent indicator for total coliforms

2814135 2 g

Nalidixic Acid

2407124 25 g

Oxidase Reagent, 0.5 mL

2622500 50/pk

Phenol Red Sodium Salt, pH indicator

2563922 5 g

Phosphate Buffer Solution

Pillows for use as a rinse in acridine orange direct

count analysis

2375866 50/pk

Potassium Phosphate, Dibasic, Buffer Ingredient

708034 500 g

Potassium Phosphate, Monobasic, Buffer Ingredient

17001H 454 g

Proteose Peptone #3

2815134 500 g

Rosolic Acid

(Increase selectivity of m-FC Broth)

2162921 1 g

Sodium Azide

2734526 100 g

Sodium Sulfite

2386026 100 g

TTC Solution, 1%, presterilized

(Enhances visibility of bacteria)

2406042 100 mL

Urea(Used in confirmation of *E. coli* when

using m-TEC agar)

1123726 100 g

*Store in freezer (less than 0°C)



Microbiological Environmental Laboratories (MELs)

- *All Inclusive Apparatus/Equipment*—from sample collection through incubation, each MEL is designed for efficiency
- *Sterile Components*—selected for durability and sterile for accuracy
- *Portable Incubator*—battery powered with AC/DC conversion option. Easy to use, clean, and store.
- *Platforms to Meet Any Need*—Most Probable Number, Membrane Filtration, or Presence/Absence formats
- *Wide Choice of Media*—choose from over 30 options*
- *Self Contained*—rugged carrying case for storage and rapid deployment
- *Illustrated Instruction*—Complete, easy-to-read instructions included

Monitoring water supplies for potability requires accuracy, repeatability, and efficiency. When an emergency situation arises where standard conditions do not exist, the value of Hach MELs are readily apparent. MELs are the solution for emergency or field testing operations. These efficient, cost-effective systems also allow you to establish microbiological analysis within an existing facility, at sea, from remote facilities, watershed surveys, and within educational institutions.

*Order media separately to ensure longest shelf-life.

MEL/850 Potable Water Lab

- *DR/850 Colorimeter with reagents to monitor 8 parameters*
- *50 additional parameters available on DR/850 Colorimeter; order reagents separately*
- *Consumables and P/A media included*
- *Portable incubator used to determine total and fecal coliforms directly in the field*



Monitor 8 parameters plus
Total Coliforms and *E. coli*.
(Presence Absence Method)

Product No.	Method	Sensitivity/Range	No. of Tests
2688800	Total Coliform & <i>E. coli</i> (P-A)	1 CFU/mL	100
	Chlorine, Free & Total	0.02-2.00 mg/L Cl_2 -N	100
	Nitrate	0.3-30.0 mg/L NO_3^-	100
	Nitrite	0.002-0.350 mg/L NO_2^- -N	100
	Nitrogen, Ammonia	0.01-0.50 mg/L NH_3 -N	100
	pH Pocket Pal™ Tester	0-14 pH	200 hrs*
	Phosphorus, Reactive	0.02-2.50 mg/L PO_4	100
	Sulfide	0.01-0.70 mg/L S	100
	TDS Pocket Pal™ Tester	10-1990 TDS	200 hrs*
	Temperature	-10 to 100°C	Unlimited

CONTENTS (Qty.): **Apparatus**— Clippers (1) • Grad cylinder, poly; 25 mL (1) • Thermometer; -10 to 100°C (1) • Demineralizer bottle; 6 oz (1) • Whirlpak bags w/thiosulfate; pk/100 (1) • Graduated poly droppers; 0.5 & 1.0 mL (3) • Poly beaker; 100 mL (2) • UV Lamp, 360 nm; portable (1) • Batteries, AA,4/pk (1) • Germicidal cloth (5) • Portable incubator and P-A rack (1 ea) • PocketPal pH and TDS tester (1 ea) • DR/850 and accessories **Reagents**— Sulfide 1&2 reagents; 100 mL (2 ea) • PhosVer 3 PP; 10 mL sample; pk/100 (1) • NitraVer 5 PP; 10 mL sample; pk/100 (1) • NitraVer 3 PP; 10 mL sample; pk/100 (1) • Phenol red; Spec Grade; 50 mL (2) • Free and Total Chlorine PP; pk/100 (1 ea) • pH 4/7 packets; 10 ea (1) • P-A w/MUG; pk/50 (1) • Ammonia, Salicylate, and Cyanurate reagents; 10 mL sample; pk/100 (2 ea)

*Battery life.

Media and Consumables Reordering

Product No.	Description	Format	Package
2323212	Total Coliform	P-A	pk/12; plastic bottles
2323250	Fecal Coliform	P-A	pk/50; plastic bottles
2401612	<i>E. coli</i>	P-A w/MUG	pk/12; plastic bottles
2401650	<i>E. coli</i>	P-A w/MUG	pk/50; plastic bottles
2580400	Optional 115/230 Vac power supply for portable incubator		
2590100	Reagent Set for MEL/850, Reagents only, media not included		
2691100	Reagent Set for MEL/850, Reagents and P/A Media		
2691200	Apparatus Set for MEL/850		

MEL/P-A Safe Drinking Water Lab

- Consumables only
- Choose media and order separately
- Nitrate and Chlorine determined using visual color discs
- Portable incubator used to determine total and fecal coliforms directly in the field

Product No.	Method	Sensitivity/Range	No. of Tests
2569600	Total Coliform & <i>E. coli</i> (P-A)	1 CFU/mL	100
	Chlorine	0.1-3.5 mg/L Cl_2 (F&T)	100
	Nitrate	1-50 mg/L NO_3-N	100
	pH Pocket Pal™ Tester	0-14 pH	200 hrs*
	TDS Pocket Pal™ Tester	10-1990 TDS	200 hrs*

CONTENTS (Qty.): **Apparatus**— Clippers (1) • Beaker, poly; 100 mL (1) • Color comparator box (1) • Viewing tube (4) • Color disc; Nitrate-Nitrogen (1) and DPD Chlorine (1) • Thermometer; -10 to 100°C (1) • Dropper tube, glass; 0.5/1.0 mL graduations (1) • Permanent marker (1) • Whirlpak bags w/thiosulfate; pk/50 (1) Batteries, AA; pk/4 (1) • UV Lamp, 360 nm; portable (1) • Germicidal cloth (5) • Portable incubator and P/A rack (1 ea) • PocketPal pH and TDS tester (1 ea) **Reagents**— NitraVer Powder Pillows; 5 mL sample; pk/100 (1) • Free and Total Chlorine Powder Pillows; 5 mL sample size; pk/100 (1 ea) Buffer, pH 4.00/pH 7.00 (10 ea)

*Battery life.



*Economical portable lab monitors key water quality parameters plus Total Coliforms and *E. coli* (Presence-Absence Method)*

Recommended Media

Product No.	Description	Format	Package
2323212	Total Coliform	P-A	pk/12; plastic bottles
2323250	Fecal Coliform	P-A	pk/50; plastic bottles
2401612	<i>E. coli</i>	P-A w/MUG	pk/12; plastic bottles
2401650	<i>E. coli</i>	P-A w/MUG	pk/50; plastic bottles
2580400	Optional 115/230 Vac power supply for portable incubator		

MEL/MF Total Coliform Lab

Consumables only. Choose media and order separately.

Prod. No.	Method	Sensitivity/Range	No. of Tests
2569700	Membrane Filtration Total coliforms and <i>E. coli</i>	1 CFU/mL	200

CONTENTS (Qty): Thermometer; -10 to 100°C (1) • Alcohol (100 mL) and burner (1) • Germicidal cloths (5) • Whirlpak bags w/ thiosulfate (200) • Forceps (1) Permanent marker (1) • 3x hand magnifier (1) • Field vacuum manifold (1) • Manual vacuum device (1) • Filtration assemblies (funnel/membrane/dish/pad); sterile (200) • Ampule breaker (1) • Hand tally counter (1) • Portable incubator and rack (1; ea)

Recommended Media and Consumables Reordering

Prod. No.	Description	Format	Package
2373550	Total Coliform, m-Endo Broth	MF	pk/50; plastic ampules
2373520	Total Coliform, m-Endo Broth	MF	pk/20; glass ampules
2373542	Total Coliform, m-Endo Broth	MF	100 mL bottle; glass
2580100	Micro Funnel Assembly (funnel, membrane, dish, & pad), pk/72 (3); Petri dish w/pad, pk/100 (2); Whirlpak bags, pk/100 (2)		
2580400	Optional 115/230 Vac power supply for portable incubator		



Obtain quantitative results in the field or remote lab.



Monitor Total Coliforms and *E. coli* with EPA-Approved m-ColiBlue24.

MEL/m-ColiBlue24[®] Field Filtration Lab

- Consumables and media included
- EPA-approved field method

Prod. No.	Method	Sensitivity	No. of Tests
2586400	Membrane Filtration Total coliforms and <i>E. coli</i> m-ColiBlue 24	1 CFU/mL	100

CONTENTS (Qty): Poly pipets; 10 mL; sterile (100) • 3-valve pipet bulb (1) • Alcohol (100 mL) and burner (1) • Petri dish w/pad; sterile (100) • Whirlpak bags w/ thiosulfate (100) • Forceps (1) • Ampule breaker (1) • 3x hand magnifier (1) • Microfil Single-unit filtration stand (1) • Manual vacuum device (1) mCB 24 media ampules; glass (20/pk/40 ampules) • Millipore Push-Fit funnels & S-Pak Membranes; 0.45 µm (144 ea)

Media and Consumables Reordering

Prod. No.	Description	Format	Package
2608450	Total Coliforms and <i>E. coli</i> , mCB24 Broth	MF	pk/50; plastic ampules
2608420	Total Coliforms and <i>E. coli</i> , mCB24 Broth	MF	pk/20; glass ampules
2608442	Total Coliforms and <i>E. coli</i> , mCB24 Broth	MF	100 mL bottle; glass
2619101	Replacement media set and consumables: Millipore Microfil Funnels & S-Pak Membranes, 0.45 µm (144 ea) Petri dish w/pad, pk/100 (1); Whirlpak bags, pk/100 (2), mCB24 (20)		



MEL/MPN Lab

Consumables only. Choose media and order separately.

Prod. No.	Method	Sensitivity/Range	No. of Tests
2569800	Most Probable Number (Multiple Tube Fermentation)	<1.1 MPN/100	100

CONTENTS (Qty): Poly pipets; 10 mL; sterile (100) • 3-valve pipet bulb (1) • Batteries; AA; pk/4 (1) • UV Lamp (360 nm); Portable Whirlpak bags w/thiosulfate (100) • Permanent marker (1) • Germicidal cloth (10) Portable Incubator and MPN rack (1; ea) • Inoculating loop; disposable; sterile (100) • Thermometer; -10 to 100°C (1)

Recommended Media and Consumables Reordering

Prod. No.	Description	Format	Package
2101415	Total Coliform, Lauryl Tryptose	MPN	pk/15; glass tubes
32215	Total Coliform, Brilliant Green Bile Broth	MPN	pk/15; glass tubes
2182115	Total Coliform, Lauryl Tryptose + MUG	MPN	pk/15; glass tubes



Chlorine, Coliform, and pH

Model CEC-2 with UV Lamp and Incubator

Provides a reliable, quick way to determine the presumptive presence of coliforms and the specific presence of *Escherichia coli*, a fecal coliform.

Prod. No.	Parameter	Range	No. of Tests
2223111	Chlorine, Free and Total Coliform	0.02-0.70 + 0.1-3.5 mg/L <2.2 to >16 bacteria/100 mL	100 F + 100 T 10
	pH Pocket Pal [™] Tester	0-14 pH units	200 hrs*



ToxTrak[™] Toxicity Test Kit

- Evaluates the toxicity in a water sample.
- Applicable to drinking water and wastewater samples.
- Compares toxicity to a baseline using indigenous biomass or stock bacteria cultures.

Prod. No.	Description
2597700	ToxTrak Toxicity Test Kit (25 - 49 tests)—visual color wheel kit
2597200	ToxTrak Reagent Set (25-49 tests)—includes all consumable reagents and apparatus for use with photometers
2597800	ToxTrak Culture Set (30 tests)

Microbiological Laboratory Supplies

This section of pages contains laboratory supplies that are specifically suited for microbiological applications. General purpose laboratory supplies can be found in the **Laboratory Supplies Section**, starting on page 323.



Autoclave, Steam

Simple "one-touch" controls operate each of 4 preset cycles. Conforms to EPA standards for sterilization of liquids. Chamber Dimensions: 10" diameter x 15.5" usable depth. Overall Dimensions (WxHxD): 16" x 18" x 23". Accessories included: stainless steel rack. Power: 120 V (UL certified).

Prod. No.	Description	Unit
2898600	Steam Autoclave	each

Autoclave Accessories		
2463100	Autoclave Tape	1/roll
2463200	Germicidal Cloth	50/pk
2463300	Contaminated Items Bag	200 bags
2714700	Sterilization Indicators	100/box
2811115	Sterikon® plus Bio indicators	15/pack



Bag, Sterile, Whirl-Pak® with Dechlorinating Agent

Specially designed for chlorinated water samples (Complies with USEPA and Standard Methods criteria). Sterile (certified), disposable, transparent polyethylene bags with trusted "Whirl-Pak" closure. Contains non-nutritive pill with 10 mg sodium thiosulfate (will dechlorinate up to 10 mg/Cl₂ in 100 mL sample) Four ounce and 100 mL fill-lines. "Write-on" strip accepts waterproof ink.

Prod. No.	Description	Unit
2075333	100 mL (4 oz), 4 pk of 25 bags	pk/100
2075325	100 mL (4 oz)	pk/25
2075533	Stand-up Bag	pk/100

Bag, Contaminated Items



Transparent with orange biohazard symbol on bag. For use in handling and in gas or steam sterilizing contaminated items. 30.48 x 35.56 cm (12 x 14"). AMSCO.

Prod. No.	Unit
2463300	200 bags

Balance, Laboratory, ScienTech® — Zeta Series™

ScienTech Zeta Series balances feature a **Patent Pending** unbreakable suspension system based on a direct-loading, electromagnetic cell, which differs dramatically from normal lever-configuration balance designs. The Zeta Laboratory Balance delivers 0.01g readability. Features include a capacity tracker which displays the used and unused portions of the weighing range, percent weighing, live animal weighing, parts counting, check weighing (used in process control), GLP/GMP/ISO compatibility, and five units of measure: g (grams), oz (ounces), ozt (troy ounces), dwt (pennyweight), and ct (carats). Tare range is 0 to full capacity. A selectable vibration filter adapts the balance to your working environment, and a stability indicator tells you when the reading is valid. Balances feature 5-year warranty and RS-232 interface. Calibration is via external weight. North American plug only.



Prod. No.	Capacity	Unit
2937201	600g	each

Bag, Sterile, Whirl-Pak®

Complies with Standard Methods and USEPA for drinking water sample collection. Made from poly resins approved by USDA and FDA for food contact. Sterile (certified), disposable, transparent polyethylene bags with trusted "Whirl-Pak" closure. Suitable for liquid or solid sample collection. "Write-on" surface accepts waterproof ink. 24 oz bag perfect for incubating petri dishes in water bath applications.



Prod. No.	Description	Unit
2233100	Vol: 207 mL (7 oz) Dim (W x L): 9.5 cm x 18 cm (3.75 x 7") 3.0 mil thick	pk/500
2233199	Same as above.	pk/100
2233125	Same as above.	pk/25
1437297	Vol: 720 mL (24 oz) Dim (W x L): 15 cm x 23 cm (6 x 9") 3.0 mL thick	pk/10

Clamp, Test Tube

Self-closing. Brass wire. For tubes up to 2.5 cm in diameter.

Prod. No.	Unit
63400	each



Microbiological Laboratory Supplies

Colony Counter, Hand-Held



For repetitive counting tasks, the Lux Scientific Manostat® Colony Counter virtually eliminates errors. In one step, this colony counter gives a beep and registers a cumulative count on a four-digit LCD display. A switch selects up or down counting modes for counts and count checks. Designed for single-handed operation, the counter is only 15-cm long and weighs less than 28 g (1 oz). The counter is supplied with a 3 V battery and two long-life replaceable felt tip pens. The pens

use water- and oil-resistant red and black ink. Ethyl alcohol removes the marks from petri dishes and can be used to surface sterilize the casing for in-hood use.

Prod. No.	Description	Unit
2613200	Colony Counter	each
2613212	Replacement Pen, black	each

Colony Counter, Quebec



For counting bacterial colonies. Features: 11.5 cm (4.5") lens with 1.5X magnification to eliminate parallax errors; 40-watt tungsten bulbs to illuminate dark backgrounds; Wolffhuegel guide plate and 3-wire cord. Accommodates Stewart plates. Sheet metal case. Dimensions: 25 x 28 x 27 cm (10 x 11 x 10.5"). CSA certified.

Prod. No.	Description	Unit
2252100	110 Vac, 60 Hz	each
2252102	220 Vac, 50 Hz	each

Dish, Petri, Polystyrene

Smaller size standard for water, wastewater, food and beverage analysis using 2.0 mL media. Stackable and disposable. Available with or without nutrient pad.



Prod. No.	Description	Unit
1485299	Dish only	100/pk
1485200	Dish only	500/pk
1471799	Dish w/pad (PALL)	100/pk
1491800	Absorbent Pad w/ Dispenser	1000 pads (10 tubes/100 pads)

Filter Capsules and Holders

PALL Envirocheck HV Sampling Capsule

Simple and safe capsules eliminate contact with organisms. No filter holder assembly or cleaning required, and the self-contained capsule means that the potentially contaminated filter element does not need to be handled or cut apart. Capsules replace traditional string wound filter method and increase capture and recovery of organisms by 15 times. Capsule method results in a smaller pellet after elution, requiring less analysis time and cost, and does not affect the viability of the organisms like harsh chemicals used in other techniques. Disposable design eliminates false positives from cross-contamination. The 1 µm pore size membrane eliminates false negatives for 100% collection of Cryptosporidium and Giardia. Serialized for traceability. Approved by regulatory agencies worldwide, including U.S. EPA methods 1622 and 1623, United Kingdom DWI standard operating protocols, and ISO/DIS 15553.



Prod. No.	Description	Unit
2686100	Envirocheck Sampling Capsule	each
2811200	Envirocheck HV Sampling Capsule	each
2811225	Envirocheck HV Sampling Capsule	25/pk

PALL AcroCap™ Positive Pressure Device

For sterilization or clarification of up to three liters of culture media or other aqueous solutions. Ideal for sterilization of solutions that tend to foam when filtered under vacuum. Inlet accepts 6.4 mm (0.25") tubing or most male luer fittings.



Prod. No.	Description	Unit
2323810	AcroCap Positive Pressure Device	10/pk

PALL AcroDisc® Syringe Filters

For filtration of dilute biological fluids. Sterilized by gamma irradiation to eliminate potential contamination by EtO residuals. Inlet/Outlet connections: 13/25 mm: Female Luer-Lok inlet, standard male slip luer outlet.

Prod. No.	Description	Unit
2415600	AcroDisc Syringe Filters	each

PALL Easy Pressure Syringe Filter Holder

Accepts 25 mm filter discs for fast filtration of 1-10 mL of sample. Autoclavable. Fits most standard syringes with Luer inlet and outlets.



Prod. No.	Description	Unit
246800	Easy Pressure Syringe Filter Holder	each
2258700	60 cc syringe	each

Filter Capsules and Holders continued on next page.

Filter Capsules and Holders (continued)

Millipore Microfil and Microfil V Funnels



Designed to eliminate cleaning and sanitization of filter funnels between uses. Graduated (20, 50, and 100 mL) 100 mL funnels are sterile and ready-to-use. Funnel creates leak-proof seal when seated onto Microfil Stand Alone Support. Excellent for testing water samples from potable, non-potable, source, ambient, industrial, food, beverage, pharmaceutical and wastewater sources. Microfil funnels

come with 72 Millipore filters (white; gridded; cellulose and mixed ester composition; 0.45 µm pore size; 47 mm diameter; sterile; individually packed). Microfil V includes integrated filter for added convenience and can be used with standard No. 8 stopper on any filter holder or manifold.

Prod. No.	Description	Unit
2586300	Microfil Funnels; 100 mL	150/pk
2508900	Microfil V Funnels, 100 mL, w/integral membrane	24/pk

Millipore Microfil Stand Alone Support

For membrane filtration features unique membrane lifting device. Depressing the lever breaks the vacuum and lifts the membrane above the 47 mm membrane support for easy retrieval with sterilized forceps. Designed for use with Microfil funnels (see Filtration Funnels), creating an efficient, low-maintenance system for membrane filtration in the lab or field. Rugged metal construction with vacuum side-arm at the base. Works with any vacuum source

Prod. No.	Description	Unit
2586200	Millipore MicroFil Filter Assembly	each
2586100	140 cc syringe	each

PALL MicroFunnel™ LP Funnels

Feature a completely assembled filtration unit: Funnel, filter, nutrient pad and petri dish. Filter: GN-6 Metrical with 0.45 µm pore size and 47 mm diameter; white, gridded surface. Funnel: Polypropylene Petri Dish: polystyrene lid and polypropylene base Nutrient Pad: Cellulose. Fits 2831500, 2846100 and 2846150 manifolds. Sterile and individually bagged.

Prod. No.	Description	Unit
2831500	MicroFunnel™ LP Funnels	50/pk

PALL MicroFunnel™ II Funnels

Feature a completely assembled filtration unit: Funnel, filter, and petri dish. Filter: 47 mm, white with gridded surface, 0.45 µm GN-6 Metrical media Funnel: Polypropylene Petri Dish: polystyrene lid and polypropylene base Fits 28315-00, 28461-00 and 28461-50 manifolds. Sterile and individually bagged.

Prod. No.	Description	Unit
2619000	MicroFunnel™ II Funnels	50/pk

Millipore S-Pak Type HA Membrane Filters

For membrane filtration in microbiological analysis of aqueous samples. "HA" signifies certified compliance with Standard Methods criteria. White, cellulose and mixed-ester composition. S-Pak (filter only) is sterile. Pore size: 0.45 µm. Diameter: 47 mm.

Prod. No.	Description	Unit
2936500	S-Pak (individually packaged) HA-type: gridded, sterile	600/pk

Millipore S-Pak Type HC Membrane Filters

Certified for fecal coliform analysis. Larger pore size (0.7 µm) and funnel-like pores creates a less taxing environment for stressed organisms: lessens media loss from evaporation and easier filtration of high particulate samples common to effluents. White cellulose and mixed-ester composition. Sterile and individually packaged. Pore size: 0.7 µm. Diameter: 47 mm.

Prod. No.	Description	Unit
2936600	S-Pak (individually packaged) HC-type: gridded, sterile	600/pk

Millipore MF Filter Disc

Mixed-cellulose esters. Hydrophilic. Pore size: 0.45 µm. Diameter: 25 mm.

Prod. No.	Description	Unit
2209525	Millipore MF Disc	pk/25



Millipore EZ Pak System



Dispenser provides superior convenience and assures sterility. Unique One press on the lever and a sterile membrane is presented (horizontally and inverted) for efficient and convenient assembly. The EZ Pak membranes come as a band of membranes that easily loads into the dispenser. Packaging materials are wound into the dispenser ensuring a clear operating area and quick change of bands. The membranes are Type HA, which signifies compliance with Standard Methods criteria.

Prod. No.	Description	Unit
2916700	Millipore EZ Pak Dispenser	each
2916800	Millipore EZ Pak membranes; white, gridded, 0.45 µm pore size, 47 mm	600/pk (4 x 150)
2915900	Millipore EZ Pak membranes; black, gridded, 0.45 µm pore size, 47 mm	600/pk (4 x 150)
2916900	Millipore EZ Pak membranes; white, gridded, 0.22 µm pore size, 47 mm	600/pk (4 x 150)

PALL GN-6 Metrical Membrane Filters

White mixed-cellulose ester media provides maximum retention, recovery and enumeration of microorganisms. Filters are ideal for membrane filtration of total and fecal coliforms, *E. coli*, *Streptococcus* species, heterotrophic bacteria and fungi. Meets or surpasses USEPA and ASTM specifications. Pore size: 0.45 µm. Diameter: 47 mm.

Prod. No.	Description	Unit
1353000	Plain, non-sterile	100/pk
2618901	Gridded, non-sterile	100/pk
1353001	Individually packaged, gridded, sterile	200/pk
1353002	Individually packaged, gridded, sterile	1000/pk
2126900	10 x pk/10, gridded, sterile, w/nutrient pad	100/pk

PALL Supor® 200 Membrane Filter

For isolation and enumeration of stressed organisms (*Pseudomonas* species). High retention and flow rate. Certified for use in membrane filtration analysis. White polyethersulfone media. Sterile and individually packaged. Pore size: 0.2 µm. Diameter: 47 mm.

Prod. No.	Description	Unit
2618800	Supor 200 Membrane Filter (ind. packaged): gridded, sterile	200/pk

PALL Metrical® Black Membrane

Provides contrast for microbiological and particulate analysis. Modified polyethersulfone creates dark background for excellent contrast useful in enumerating opaque colonies and light-colored particulate. White grid line aids enumeration. Certified for membrane filtration analysis. Sterile and individually packaged. Pore size: 0.45 µm. Diameter: 47 mm.

Prod. No.	Description	Unit
2490300	Metrical Black Membrane Filter (ind. packaged): gridded, sterile	200/pk

Microbiological Laboratory Supplies

Filtration Assemblies

Filter, Analytical Unit, Type A

Certified for water quality work, this sterile, disposable, polystyrene filter unit contains a 47 mm, 0.45 μ m cellulose nitrate membrane for superior recovery and growth of microorganisms. It offers good chemical resistance to dilute acids, aromatic and aliphatic hydrocarbons, and conforms to American Public Health Association (APHA) and Standard Methods. Filter unit holder is available for use in multiple filtrations.

Prod. No.	Description
2656600	Filter Unit

Unit
12/pk



Filter Apparatus, OriFlo™

Designed for rapid, qualitative filtration of particulate matter from aqueous samples using a 25 mm glass fiber filter or other medium with porosity ≥ 1.0 μ m (micron). Used in Hach Method 10014 for Ultra Low Range Chlorine in Wastewater (EPA Accepted method).

Prod. No.	Description	Unit
4966000	OriFlo Filter Apparatus.	each
2676700	Glass Fiber Filter; extra thick; 1 μ m; 25 mm	100/pk
2594025	Versapor Disc Filter; 3 μ m; 25 mm	25/pk



Filtering Funnel Assembly

Three-piece reservoir, base and stem made of borosilicate glass. Ground contact flanges with clamps for leak-tight seal. Supplied with acrylic filter support plate. Additional PTFE support plate (2164200) needed for acid and neutral detergent fiber tests.

Prod. No.	Description	Unit
2164100	Funnel, 7 cm	each
2164200	PTFE Support Plate	each
2164300	Glass Fiber Filter Paper, 100/pk, 70 mm	each



Filtration Assemblies, Glass

25 mm vacuum microfiltration assembly designed to produce ultra clean filtrate from small volumes of viscous solutions, or for microbiological analysis. Prefilter size is 16 mm diameter and the approximate filter area is 2.5 cm². Unit is supplied with a 316 stainless steel support screen, PTFE support screen gasket, glass support base, 15 mL graduated funnel (5-15 mL; 1 mL increments), anodized aluminum clamp, stainless steel support, and a #5 silicone stopper. Filtering flask sold separately. See pages 345-346 for filter options.

Prod. No.	Description
2386500	Microfiltration Assembly; 25 mm
54653	125 mL glass filtering flask; OD sidearm = 7.9 mm (5/16")

Unit
each
each



Filtration Assemblies, Graduated Glass

beaker-style funnel (500 mL) with 47 mm membrane support for filtration of aqueous samples. Fritted borosilicate glass membrane support for even filtration across surface of membrane. Funnel attaches evenly to base via aluminum clamp.

Prod. No.	Description
234000	Glass Filtration Apparatus

Unit
each



Polysulfone Filter Holder

With 250 mL graduated receiver to eliminate need for a manifold and/or vacuum flask. For use with 47 or 50 mm filters under vacuum or pressure. Autoclavable.

Prod. No.	Description
2254400	Polysulfone Filter Holder

Unit
each

Filter Holder, Magnetic, 47 mm

Made of rugged, autoclavable polyphenylsulfone. Magnetic, no-leak seal allows one-hand operation for filter retrieval. Support screen included. Graduated funnel: 300 mL (50 mL increments). Stem fits #8 stopper (not included).

Prod. No.	Description
1352900	Magnetic Polyphenylsulfone Filter Holder

Unit
each



PALL MicroFunnel™

Single-place vacuum manifold. Designed for use with PALL's MicroFunnel filter units (see Filtration Funnels). Aluminum body with stainless steel hose barb connection. Small footprint and height create a portable unit that is easily stored. Corrosion and chemically resistant. Autoclavable.

Prod. No.	Description
2831600	MicroFunnel single-place manifold

Unit
each



PALL Filter Funnel Manifolds

Feature 3-place filtration with independent vacuum control. Handles 25 or 47 mm filter funnels for processing multiple samples simultaneously. Designed for efficient analysis of microbiological or particulate contamination.

Aluminum: Anodized aluminum body; chrome-plated brass valves; stainless steel drain plugs. Autoclavable.

Dimensions (D x W x H) - 6 x 16 x 6.25"

Polyurethane: High-impact polyurethane body; glass-filled polypropylene valves; nylon drain plugs. Dimensions (D x W x H) - 4 x 11 x 6"

Prod. No.	Description
2486100	Aluminum Filter Funnel Manifold
2486150	Polyurethane Filter Funnel Manifold

Unit
each
each



Flask, Erlenmeyer, Wide-Mouth

Graduated glass flask with wide mouth for easier titrations. Reinforced tops with round finish provide maximum strength. Durable graduations indicate approx. volume.

Stopper not included—see pages 377-378.



Prod. No.	Capacity (subdivisions)	Stopper Size	Pkg
2489443	125 mL (50 mL)	6	each
2489446	250 mL (50 mL)	8	each
2489449	500 mL (100 mL)	10	each
2489453	1000 mL (250 mL)	11	each
2489454	2000 mL (600 mL)	6	each

Flask, Filtering, Glass

Glass filtering flask with side-arm at 90° angle. Heavy-walled with graduated capacity scale. Designed to ASTM E1406, Type II, Class I requirements. Hose connection accepts 5/16" I.D. flexible tubing.

Stopper not included—see pages 382-383 for tubing, see pages 377-378 for stopper.



Prod. No.	Capacity (graduation range)	Stopper Size	Pkg
54643	125 mL (50-125 mL)	5	each
54649	500 mL (150-500 mL)	7	each
54679	500 mL (150-500 mL)	7	6
54653	1000 mL (300-1000 mL)	8	each
54683	1000 mL (300-1000 mL)	8	6

Flask, Filtering, Polypropylene

Polypropylene filtering flask with side-arm at 45° angle prevents tipping. Barbed side-arm accepts 1/4-3/8" I.D. tubing for application of vacuum.

See pages 382-383 for tubing, see pages 377-378 for stopper.



Prod. No.	Capacity	Stopper Size	Pkg
2089949	500 mL	7	each
2089953	1000 mL	8	each

Handbook, Microbiology of Well Biofouling



A useful reference guide written with a direct, straight forward approach based upon the advances in the technology over the last twenty years. With this guide, you will understand the phenomena of biofouling, corrosivity, biodegradation, and shifts in hydraulic transmissivity that can be linked to microbial events. Practical approaches to the evaluation of these effects are introduced, including standard and novel methodologies.

See what's new in the new edition:

- Selectable weight units: grams & ounces
- Deleterious events in all types of wells in greater detail
- Generation of mass which interferes with the physical functioning of a well
- Major innovations in the field
- Includes more field applicable material
- Completely revised and updated

Prod. No.	Unit
2617800	each

Handbook, Wastewater Organisms: A Color Atlas



Contains 210 high-quality full-color micrographs to help you identify organisms found in sewage and sludge. These photos provide the maximum level of detail and will help you better understand the form and dimension of the organisms. Subjects depicted in the micrographs include bacteria, eggs, amoeba, parasitic protozoa, tardigrada (water bears), rotifers, ciliates, parasitic helminths, pollen grain, free-living nematodes,

algae, flagellates, and more. The chapter on enumeration provides literature and techniques for fixing and staining, techniques often required for identification to the species level. Also contains a valuable glossary and index to make the book even easier to use.

Prod. No.	Unit
2615800	each

Microbiological Laboratory Supplies

Incubator, Culture

Hach's Low-Profile Culture Model 153 Incubator exceeds performance criteria for Standard Methods/EPA/ASTM microbiological methods with an accuracy of $\pm 0.1^{\circ}\text{C}$ @ 37°C . Five heating elements minimize "hot spots" and contribute to a uniformity of $\pm 0.25^{\circ}\text{C}$ @ 37°C . Features a High Limit Thermostat and Warning Light to guard against overheating during use, stainless steel interior and shelves (2), and maintenance free heating system. Capacity: 6.67 ft³ Temperature Range: Ambient 5 to 70°C (Accuracy: $\pm 0.1^{\circ}\text{C}$ @ 20°C) External Dimensions (W x D x H): 76.2 x 76.2 x 81.3 cm (30 x 30 x 32")



Prod. No.	Description	Unit
2619200	Model 153 Low-Profile Culture Incubator 110/120 Vac, 50/60 Hz	each
2619202	Model 153 Low-Profile Culture Incubator 220/240 Vac, 50/60 Hz	each

Incubator, Culture, Portable

Field-ready unit can be used with a variety of power sources for reliable, accurate incubation. Operating range: 30 to 50°C . Accuracy: 0.5°C @ 37°C . **Power Source:** 12 Vdc via vehicle cigarette lighter socket connection. Other Power Source options include 12 Vdc rechargeable battery (12 hours of operation @ 37°C @ $20\text{--}25^{\circ}\text{C}$ ambient) and 115/230 Vac Battery Eliminator. **Capacity:** 6 P/A bottles or 39 MPN tubes or 42 50 mm Petri dishes. External Dimensions: 30.5 x 30.5 x 25.4 cm (12 x 12 x 10"). Temperature Range: Ambient 5 to 70°C (Accuracy: $\pm 0.1^{\circ}\text{C}$ @ 20°C).



Prod. No.	Description	Unit
2569900	Portable Incubator	each
Power Supplies		
2580300	Rechargeable 12 VDC battery (incl 115 Vac charger and carrying case)	each
2580400	Battery Eliminator; 115/230 Vac	each
2580301	Rechargeable 12 Vdc battery, only	each
Racks		
2580500	P/A Bottle Rack (6 bottles; Stainless Steel)	each
2580501	MPN Tube Rack (39 tubes; Stainless Steel)	each
2580502	Petri Dish Rack (42 50-mm Petri Dishes; Stainless Steel)	each

Incubator, Dri-Bath

Excellent for microbiology analysis with the Most Probable Number format. Working temperature range of ambient 5 to 110°C ($\pm 0.5^{\circ}\text{C}$). Blocks are machined aluminum with 12 wells (20 mm diam.), and have a thermometer well for temperature monitoring.



Prod. No.	Description	Unit
2281400	Single Block Incubator (Block Included); 120 Vac, 50/60 Hz	each
2281700	Dri-bath Incubator Block; 12 well; 20 mm diam	each

Incubator, Water Bath

Hach's Model 26 PC Water Bath Incubator provides accuracy and dependability for research and quality control applications. Double-walled polymer-coated stainless steel reservoir eliminates hot spots and minimizes corrosion (Do not use RO/DI/distilled water). Recessed heating element eliminates prevents burnout. Centrifugal pump provides strong circulation with low turbidity. Gable Included. Capacity: 22.1 liters Operating Range: Ambient 5 to 70°C ; t o 100°C when covered (Uniformity $\pm 0.1^{\circ}\text{C}$ @ 37°C) External Dimensions (W x D x H): 35.6 x 72.4 x 24.1 cm (14 x 28.5 x 9.5")



Prod. No.	Description	Unit
2616300	Model 26PC Water Bath Incubator; 110/120 Vac 50/60 Hz	each
2616302	Model 26PC Water Bath Incubator; 220/240 Vac, 50/60 Hz	each
2621500	Gable Cover for Model 26PC Incubator	each

Lamp, UV, Long-Wave

Mid-size (6 Watt) high intensity, hand-held and line-operated. Intensity at 15.2 cm (6"), 750 $\mu\text{W}/\text{cm}^2$. Filters: Two 6 x 7.6 cm (2.4 x 3") in snap on/off frame. Overall dimensions: 37.5 x 8.9 x 6.7 cm (14.8 x 3.5 x 2.6"). Weight: 0.91 kg (2 lbs). UL listed. Meets existing OSHA electrical standards. 352 nm.



Prod. No.	Description	Unit
2184300	115 Vac, 60 Hz	each
2184302	230 Vac, 50 Hz, does not come with plug	each
2184311	Replacement bulb	each

Lamp, Ultraviolet, Portable



Hand-held, battery-operated, long-wave UV lamp 365 nm. Uses four AA batteries not included (For Microbiology Applications). 4 W. *Note: Not for digestion.*

Prod. No.	Description	Unit
2415200	Lamp	each
2584600	Replacement tube	each

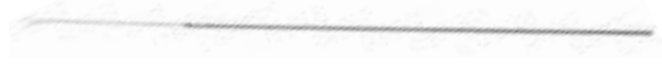
Loop, Inoculating, Disposable



Sterile, disposable, inoculating loops, packaged in zip-lock bags. Polystyrene.

Prod. No.	Description	Unit
2749125	10 µL	25/pk

Loop, Inoculating, Wire



3" nichrome V wire, 25 gauge (0.018") with 3-mm diameter loop.

Prod. No.	Unit
2112100	each

For Microscopes, see pages 364-365 of the Laboratory Supplies Section

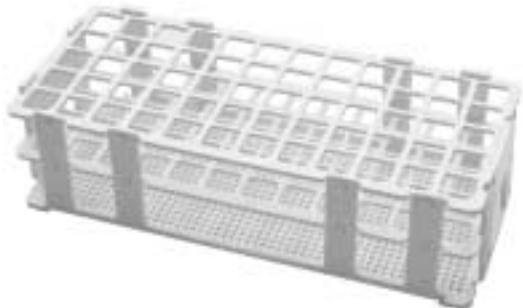
Rack, Coliform (MPN) Tube

Powder-coated steel rack holds 25 Hach MPN-style tubes (and similar tubes) for incubation, transport, or storage. Compartments keyed with numbers and letters to aid in identification. Autoclavable (up to 475°F).



Prod. No.	Description	Unit
221500	Coliform (MPN Tube) Rack	each

Rack, Test Tube, Polypropylene



Twenty to ninety-place rack features a special blend of polypropylene which sinks in water, assuring non-floating racks when immersed. Autoclavable. Stackable and autoclavable. Overall dimensions: 24.6 x 10.7 x 6.4 cm (9.7 x 4.2 x 2.5").

Prod. No.	Max. Tube Diam. (O.D.)	No. of Holes	Arrangement	Unit
2497900	13 mm	90	6 x 15	each
2497901	16 mm	60	5 x 12	each
2497902	20 mm	40	4 x 10	each
2497912	20 mm	20	4 x 5	each
2497903	25 mm	24	3 x 8	each
2497904	30 mm	21	3 x 7	each

For more Racks, see pages 370-371 of the Laboratory Supplies Section

Sample Transport Kit

Contains everything needed for collecting field samples, keeping them cold during transport. Includes Rubbermaid Cooler, plastic-coated rack with 15 compartments for sampling bags, 100 Whirl-Pak sampling bags (177 mL) with dechlorinating agent, one leak-proof refrigerant pack. Dimensions: 42.4 x 28.4 x 58.6 cm (16.7 x 11.2 x 23.1").



Prod. No.	Description	Unit
2568700	Sample Transport Kit	each

Sample Vial

120 mL sterile, hinged-cap vials meet all EPA requirements for microbiology sampling. Collection, incubation, and accurate reading can all be done in the vial without a transfer step. 100 mL raised fill line. Polypropylene.



Prod. No.	Description	Unit
2634001	120 mL with Thiosulfate and Custody Tie	200/pk
2634002	120 mL without Thiosulfate	200/pk

Tube, Culture, with Screw Cap

Cap has a firmly bonded rubber liner, providing a sure and highly inert sealing surface.



Prod. No.	O.D. x L	Capacity to Neck	Unit
2096208	13 x 100 mm	8 mL	10/pk
1436120	16 x 150	20	10/pk
2096230	20 x 150	30	10/pk
2096250	25 x 150	50	10/pk
2275800*	16 x 100 mm	11 mL	1/pk
2275806*	16 x 100 mm	11 mL	6/pk
2899300*	16 x 100 mm	11 mL	250/pk

*Does not come with caps—see below for caps.

Tube Caps

White cap w/Teflon lining. Resistant to heat and autoclaving.

Prod. No.	Fits Tube No.	Thread Size	Unit
2241106	2275806	15-415	6/pk

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