



# BIOVIR LABORATORIES, INC.

## TESTING SERVICES by Analyte

### BACTERIOLOGY

#### Finished Drinking Water

TEST	DESCRIPTION	METHOD
Coliform, Total AND Fecal AND E.coli	Multiple Tube (10 Tube, 1 Dilution)	SM 9221A, B, E, CFR 141.21(f)(6)(i)
Coliform, Total AND E. Coli (MMO-MUG) Colilert®	Presence / Absence (No Dilution, 100 mL)	SM 9223
Coliform, Total AND E. Coli (MMO-MUG) Colilert®	Quantitray (100 mL)	SM 9223
Coliform, Total OR Fecal	Multiple Tube (10 Tube, 1 Dilution)	SM 9221A, B or E
Coliform, Total OR Fecal	Membrane Filter (No Dilution 100 mL)	SM 9222A, B or D
Coliform, Total OR Fecal	Membrane Filter Delayed Incubation (No Dilution 100 mL)	SM 9222A, B,C or D, E
Coliform, Total AND Fecal AND E.coli	Membrane Filter (No Dilution, 100 mL)	SM 9222A, B, D, CFR 141.21(f)(6)(ii)
Coliform, Total AND Fecal OR E. Coli	Multiple Tube (10 Tube, 1 Dilution)	SM 9221A, B & CFR 141.21(f)(6)(i)
Coliform, Total AND Fecal OR E. Coli	Membrane Filter (No Dilution, 100 mL)	SM 9222A, B & CFR 141.21(f)(6)(ii)
Coliform, Total AND Fecal OR E. Coli	Membrane Filter w.EC-MUG (No Dilution, 100 mL)	CFR 141.21(f)(6)(i)
Coliform, Total AND E. Coli	Multiple Tube (10 Tube, 1 Dilution)	SM 9221A,B & CFR 141.21(f)(6)(i)
Heterotrophic Bacteria	Plate Count (Pour Plate)	SM 9215B
Coliform, Total / Fecal OR E. Coli adapted for swab	Swab MTF (1 Tube, 1 Dilution)	SM 9221 B&E

#### Wastewater / Raw Water

TEST	DESCRIPTION	METHOD
Shigella	Multiple Tube (5 Tube)	SM 9260E - Modified
Coliform, Total OR Fecal (Recreational Water)	Multiple Tube (5 Tube, 3 Dilution)	SM 9221A,B,C or E
Coliform, Total OR Fecal (Recreational Water)	Multiple Tube (5 Tube, 5 Dilution)	SM 9221A,B,C or E
Coliform, Total OR Fecal (Recreational Water, D Only)	Membrane Filter (2 Dilution)	SM 9222B or D
Coliform, Fecal Only	Assay by A-1 Media	SM 9221E.2
Coliform, Total OR Fecal	Membrane Filter - Delayed Incubation (2 Dilution)	SM 9222B, C or D, E
Coliform, Total AND/OR E. coli	Quantitray (100 mL)	SM 9223
Coliform, Total AND Fecal	Multiple Tube (5 Tube, 3 Dilution)	SM 9221A,B,C & E
Coliform, Total AND Fecal	(5 Tube, 5 Dilution)	
Coliform, Total AND Fecal	Membrane Filter (2 Dilution)	SM 9222A,B & D
Coliform, Total AND E. coli	Multiple Tube (5 Tube, 3 Dilution)	SM 9221A,B,C & E - Modified MUG
Coliform, Total AND E. coli	(5 Tube, 5 Dilution)	(non-regulatory for E. coli)
Coliform, Total AND E. coli	Quantitray (100 mL)	SM 9223
Coliform, Total, Fecal AND E. coli (E. coli run separately)	Multiple Tube (5 Tube, 3 Dilution)	SM 9221B&E - Modified MUG
Coliform, Total, Fecal AND E. coli (E. coli run separately)	(5 Tube, 5 Dilution)	
Coliform, Total, Fecal AND E. coli	Membrane Filter (2 Dilution)	SM 9222A,B & D
Heterotrophic Bacteria	Aerobic Plate Count (Pour Plate)	SM 9215B
Heterotrophic Bacteria	Anaerobic Plate Count (Pour Plate)	SM 9215B
Enterococci (Recreational Water)	EPA Method 1600: Membrane filter (2 Dilution)	EPA-821-R-02-022
Enterococci (Recreational Water)	Enterolert Quantitray (100 mL)	Idexx



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### BACTERIOLOGY

#### General Microbiology

TEST	DESCRIPTION	METHOD
Direct Microscopic Exam		
Iron Bacteria	Direct Microscopic Exam	SM9240B
Legionella Species	Direct Isolation (Culture)	SM 9260J
Legionella Species	Fluorescence Assay-Modified (DFA)	SM 9260J
Salmonella Species	Presence / Absence (5 Tube, 1 Dilution)	EPA Method 1682 (EPA-821-R-04-028)
Salmonella Species	Multiple Tube (5 Tube, 3 Dilution)	EPA Method 1682 (EPA-821-R-04-028)
Water Suitability	Plate Count	SM 9020B.3.c.1

### BACTERIOLOGY - SPECIAL PROJECTS

#### Available Project Based Analytes

TEST	DESCRIPTION	METHOD
Clostridium perfringens - Wastewater	Membrane Filter	EPA/600/R-95/178 - Modified
Clostridium perfringens - Drinking Water	Membrane Filter (10 mL, 100 mL)	EPA/600/R-95/178 - Modified
E. Coli 0157:H7	Membrane Filter	USFDA BAM Online 2001
Aeromonas	Membrane Filter	US EPA 1605 (Negative)
Aeromonas	Membrane Filter	US EPA 1605 (Positive)
Pseudomonas aeruginosa	Membrane Filter	SM 9213E
Campylobacter	Presence / Absence	USFDA BAM Online 2001
Listeria	Presence / Absence	USFDA BAM Online 2001
Staphylococcus	Membrane Filter	USFDA BAM Online 2001

### BIOSOLIDS

#### "503" Pathogen Analysis

TEST	DESCRIPTION	METHOD
Enteric Virus	Plaque Assay	ASTM D 4994-89
Salmonella Species	MPN	EPA Method 1682 (EPA-821-R-04-028)
Helminth Ova Culture Assay	Direct Microscopic Exam	EPA 625/R-92/013
Fecal Coliform Assay by A-1	MPN 24 hour test	EPA Method 1681 (EPA-821-R-04-027)
Total Solids Assay		EPA 1684 Draft



## TESTING SERVICES by Analyte

### MICROBIAL SOURCE TRACKING

#### Microbial Source Tracking (MST) - Bacteroidales

Available Group Markers: General, Human, Cattle, Deer & Non-Ruminants, Hogs (Feral & Livestock)

TEST	DESCRIPTION		METHOD
Bacteroidales - All Markers (Presence/Absence)	Microbial Detection	RT-PCR	Lamendella, et al. (2009)
Bacteroidales - Single Marker (Presence/Absence)	Microbial Detection	RT-PCR	Lamendella, et al. (2009)
Bacteroidales - All Markers (Quantitative Result)	Microbial Detection	RT-PCR	Lamendella, et al. (2009)
Bacteroidales - Single Marker (Quantitative Result)	Microbial Detection	RT-PCR	Lamendella, et al. (2009)

### PARASITOLOGY - DRINKING WATER AND WASTEWATER

#### Parasitology

TEST	DESCRIPTION		METHOD
Cryptosporidium	Filtration / IMS / Fluorescence Assay (FA)		Method 1622; EPA 815-R-05-001
Giardia/ Cryptosporidium	Filtration / IMS / Fluorescence Assay (FA)		Method 1623; EPA 815-R-05-002
Giardia/Crypto - Additional Slide Examination	Associated with Method 1622/1623 Analyses		Method 1623; EPA 815-R-05-002
Giardia/Cryptosporidium -Wastewater	FA method. Characterization of 20 organisms.		EPA 815-R-05-002 - Modified
Cryptosporidium Infectivity	Cell Culture		Slifko et al 2000
Cryptosporidium Excystation			Atwill et al 1998
Microscopic Particulate Analysis (MPA)	Direct Microscopic Examination without Fluorescence		EPA 910/9-92-029
Microscopic Particulate Analysis (MPA)	Direct Microscopic Examination with Giardia/Crypto by Fluorescence.		EPA 910/9-92-029; (G&C by EPA 821-R-01-025)
Microscopic Particulate Analysis Filtration Plant Optimization (MPAFPO)	Direct Microscopic Examination with Particle Counting plus Giardia species and Cryptosporidium by Fluorescence.		EPA 910-R-96-001
Cyclospora species Assay	Fluorescence Assay - Water		EPA 600/R-95/178 - Modified
Cyclospora species Assay	Fluorescence Assay - Solids/Food		USFDA BAM 7th Ed. 1992- Modified

### PARTICLE COUNTING

#### Particle Count

TEST	DESCRIPTION		METHOD
Particle Count	Laser Particle Count	Batch, Light Scatter	SM 2560D



**TESTING SERVICES by Analyte**

<b>VIROLOGY - DRINKING AND WASTEWATER</b>			
<b><i>Virus Analysis - Water / Wastewater</i></b>			
<b>TEST</b>	<b>DESCRIPTION</b>		<b>METHOD</b>
Adenovirus - Filtered	MPN	(Including Filter)	EPA 600/R-95/178 - Modified
Adenovirus - Grab	MPN		EPA 600/R-95/178 - Modified
Enteric Virus -Filtered	Plaque Assay	(Including Filter)	SM 9510 - Modified
Enteric Virus - Grab	Plaque Assay		SM 9510 - Modified
Total Culturable Virus - Filtered	MPN	(Including Filter)	EPA 600/R-95/178
Total Culturable Virus - Grab	MPN		EPA 600/R-95/178
Bacteriophage - Male -Specific OR Somatic	Plaque Assay		Double Layer: Adams 1959
Bacteriophage - Male-Specific AND Somatic	Plaque Assay		Double Layer: Adams 1959
Bacteriophage - Male-Specific OR Somatic	Multiple Tube	(3 Tube, 3 Dilution)	Kott 1966
Bacteriophage - Male-Specific AND Somatic	Multiple Tube	(3 Tube, 3 Dilution)	Kott 1966
Bacteriophage - Male-Specific AND/OR Somatic	Presence / Absence		EPA Method 1601 - (4/2001)
Bacteriophage - Male-Specific AND/OR Somatic	Plaque Assay		EPA Method 1602 - (4/2001)
Collimated Beam			w/MS2 Phage
Collimated Beam			In situ organism



# BIOVIR LABORATORIES, INC.

## PRODUCT TESTING SERVICES

<b>DISINFECTANT TESTING</b>			
<b><i>Sanitizer Test</i></b>			
TEST	DESCRIPTION		METHOD
Sanitizer Test	2 Organisms	Efficacy Data Requirement	USEPA DIS/TSS10

<b>DRINKING WATER TREATMENT UNIT TESTING</b>			
<b><i>Microbiological Water Purifiers</i></b>			
TEST	DESCRIPTION		METHOD
Purifier Testing	Microbiological Water Purifier		EPA Guide Standard and Protocol for Testing Microbiological Water Purifiers (April 1987)
Purifier Testing	Performance Testing Only		NSF P231
Purifier Testing	Military Purifier Test		NSF P248
<b><i>Performance Claim Testing</i></b>			
TEST	DESCRIPTION		
ANSI/NSF Standard 42	Aesthetic Effects	Bacteriostasis, Particle Reduction	
ANSI/NSF Standard 53	Health Effects	Cyst Reduction	
ANSI/NSF Standard 55 - Class A	Ultraviolet	Microbiological Claims	
ANSI/NSF Standard 55 - Class B	Ultraviolet	Microbiological Claims	
ANSI/NSF Standard 58	Reverse Osmosis Systems	Microbiological Claims	
ANSI/NSF Standard 62	Distiller	Microbiological Claims	

<b>RESEARCH AND DEVELOPMENT SERVICES</b>			
<b><i>Research and Development</i></b>			
TEST	DESCRIPTION		
DWTU Baseline data development	Custom Protocol		
Seeding Studies	Custom Protocol		
Pilot Plant Projects	Custom Protocol		
Contract Sampling Programs	Custom Protocol		
<b><i>Consulting</i></b>			
TEST			
Consulting Services - Scientist			
Consulting Services - Technician			



## PRODUCTS AND EQUIPMENT

### PRODUCTS

#### *Biologics for Research*

MS-2 Coliphage	1 Unit	Approx. 1 x 10E11 total phage
MS-2 Coliphage	1 Unit	Approx. 1 x 10E12 total phage
MS-2 Coliphage	1 Unit	Approx. 1 x 10E13 total phage
MS-2 Coliphage	1 Unit	Approx. 1 x 10E14 total phage

### EQUIPMENT RENTAL

#### *Sampling Kit*

MPA Sampling Kit	10 calendar day rental for field sampling
MPA Sampling Kit - Additional Days	Per Day
Enteric Virus Sampling Kit (for ICR Method)	10 calendar day rental for field sampling
Enteric Virus Sampling Kit - Additional Days	Per Day