

Size of Microbiological Contaminants - Bacteria, Virus, Actinomycetes and Fungi

Microbes vary widely in size which is an important consideration when selecting a method of filtration. Water filters are often used to screen or exclude contaminants from passing through them and into your drinking water. Successful 'filtration' requires a filter with pores smaller than the size of the contaminant and must continue to exclude the contaminant when its dimensions are contorted by water pressure.

Organism	Microbial Group	Rod Length Micron Rate	Rod or Coccus Diameter μm	Source	Effect
Absidia corymbifera	Fungi		3.8	Environmental	Zygomycosis
Acetobacter Melanogenus	Bacteria	1.0 - 2.0	0.4 - 0.8		Strong Beer / Vinegar Bacterium
Acinetobacter	Bacteria		1.3	Environmental	Opportunistic Infections
Acremonium spp.	Fungi		2.5	Environmental	Extrinsic Allergic Avelons
Actinomyces israelii	Bacteria		1.0	Humans	Actinomycosis
Adenovirus	Virus		0.08	Humans	Colds
Alcaligenes Viscolactis	Bacteria	0.8 - 2.6	0.6 - 1.0		Causes Ropiness in Milk
Alkaligenes	Bacteria		0.75	Humans	Opportunistic Infections
Alternaria alternata	Fungi		14.4	Environmental	Mycotoxicosis
Arenavirus	Virus		0.18	Rodents	Hemorrhagic Fever
Aspergillus spp.	Fungi		3.5	Environmental	Aspergillosis, Volatile Organic Compound
Aureobasidium pullulans	Fungi		5.0	Environmental	Chromomycosis
Bacillus anthracis	Bacteria	3.0 - 10.0	1.1	Environmental	Causes Anthrax in Mammals
Bacillus Stearothermophilus	Bacteria	2.0 - 5.0	0.6 - 1.0		Biological Indicator for Steam Sterilization
Bacillus subtilis	Bacteria	2.0 - 3.0	0.7 - 0.8		Biological Indicator for Ethylene Oxide Sterilization
Blastomyces dermatitidis	Fungi		14.0	Environmental	Blastomycosis
Bordetella pertussis	Bacteria		0.25	Humans	Whooping Cough
Botrytis cinera	Fungi		7.0	Environmental	Extrinsic Allergic Avelons
Cardiobacterium	Bacteria		0.63	Humans	Opportunistic Infections
Chaetomium globosum	Fungi		5.5	Environmental	Chromomycosis, Volatile Organic Compound
Chiamydia psittaci	Bacteria		0.3	Birds/Avian	Psittacosis
Chlamydia pneumoiae	Virus		0.3	Humans	Pneumonia
Cladosporium spp.	Fungi		9.0	Environmental	Chromblastomycosis
Clostridium botulinum (B)	Bacteria	3.0 - 8.0	0.5 - 0.8		Produces Exotoxin Cause Botulism
Clostridium Perinngens	Bacteria	4.0 - 8.0	1.0 - 1.5		Produces Toxin Causing Foor Poisoning
Clostridium tetani	Bacteria	4.0 - 8.0	0.4 - 0.6		Produces Exotoxin Causing Tetanus
Coccidioides immitis	Fungi		4.0	Environmental	Coccidiomycosis
Coronavirus	Virus		0.11	Humans	Colds
Corynebacteria diphtheria	Bacteria		1.0	Humans	Diphtheria
Coxiella burnetii	Bacteria		0.5	Cattle / Sheep	Q Fever
Coxsackievirus	Virus		0.027	Humans	Colds
Cryptococcus neoformans	Fungi		5.5	Environmental	Cryptococcosis
Diplococcus Pneumoniae	Bacteria		0.5 - 1.25		Cause Lobar Pneumonia
Echovirus	Virus		0.028	Humans	Colds
Emericella nidulans	Fungi		3.3	Environmental	Mycotoxicosis, Volatile Organic Compounds
Epicoccum nigrum	Fungi		20.0	Environmental	Extrinsic Allergic Avelons
Erwina aroideae	Bacteria	2.0 - 3.0	0.5		Causes Soft Rot in Vegetables
Escherichia coli	Bacteria	1.0 - 3.0	0.5		Indicator of Fecal Contamination in Water
Eurotium spp.	Fungi		5.8	Environmental	Extrinsic Allergic Avelons
Exophiala jeanselmei	Fungi		2.0	Environmental	Chromomycosis
Francisella tularensis	Bacteria		0.2	Animal	Tularemia
Geomyces pannorum	Fungi		3.0	Environmental	Extrinsic Allergic Avelons
Haemophilus influenzae	Bacteria	0.5 - 2.0	0.2 - 0.3		Causes Influenza and Acute Respiratory Infections
Haemophilus influenzae	Bacteria		0.43	Humans	Meningitis, Pneumonia
Haemophilus parainfluenza	Bacteria		1.0	Humans	Opportunistic Infections
Hantavirus	Virus		0.07	Rodents	Hantavirus
Helminthosporium	Fungi		12.5	Environmental	Extrinsic Allergic Avelons
Histoplasma capsulatum	Fungi		3.0	Environmental	Histoplasmosis
Influenza	Virus		0.1	Humans / Birds	Flu
Klebsiella pneumoniae	Bacteria	5	0.4 - 0.5	Environmental	Opportunistic Infections, Caused Pneumonia and other Respiratory Inflammation
Lactobacillus Delbrueckii	Bacteria	2.0 - 9.0	0.5 - 0.8		causes Souring of Grain Mash
Legionella pneumophila	Bacteria		0.6	Environmental	Pontiac Fever
Micromonospora faeni	Actinomycetes		1.0	Agricultural	Farmers Lung, Hypersensitivity Pneumonitis
Micropolyspora faeni	Actinomycetes		0.69	Agricultural	Farmers Lung, Hypersensitivity Pneumonitis
Moraxella catarrhalis	Bacteria		1.3	Humans	Opportunistic Infections
Moraxella lacunata	Bacteria		1.0	Humans	Opportunistic Infections
Morbivirus	Virus		0.12	Humans	Measles (rubeola)

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Mucor plumbeus	Fungi		7.5	Environmental	Mucormycosis
Mycobacterium avium	Bacteria		1.2	Environmental	Cavitary Pulmonary Disorder
Mycobacterium intracellulare	Bacteria		1.2	Environmental	Cavitary Pulmonary Disorder
Mycobacterium kansasii	Bacteria		0.86	Unknown	Cavitary Pulmonary Disorder
Mycobacterium Tuberculosis	Bacteria	1.0 - 4.0	0.2 - 0.5	Humans	Hard Swelling of Body Tissues (TB)
Mycoplasma pneumoniae	Bacteria		0.25	Humans	Pneumonia
Mycoplasma pneumoniae (PPLO)	Bacteria		0.3 - 0.5		Smallest Known Free-Living Organism
Neisseria meningitidis	Bacteria		0.8	Humans	Meningitis
Nocardia Brasiliensis	Actinomycetes		1.5	Environmental	Pulmonary Mycetoma
Nocardiaasteroides	Actinomycetes		1.1	Environmental	Nocardiosis
Paecilomyces variotii	Fungi		3.0	Environmental	Mucormycosis
Paracoccidioides brasiliensis	Fungi		23.0	Environmental	Paracoccidioidomycosis
Parainfluenza	Virus		0.22	Humans	Flu
Paramyxovirus	Virus		0.23	Humans	Mumps
Parvovirus B19	Virus		0.022	Humans	Fifth Disease, Anemia
Pediococcus acidilactici	Bacteria		0.6 - 1.0		Causes Mash Spoilage in Brewing
Pediococcus Cerevisiae	Bacteria		1.0 - 1.3		Causes Deterioration in Beer
Penicillium spp.	Fungi		3.3	Environmental	Mycotoxicosis, Volatile Organic Compounds
Phialophora spp.	Fungi		1.5	Environmental	Chromomycosis
Phoma spp.	Fungi		3.3	Environmental	Mucormycosis
Pneumocystis carinii	Bacteria		2.0	Environmental	Pneumocystosis
Pxvirus - Vaccinia	Virus		0.23	Agricultural	Cowpox
Pseudomonas aeruginosa	Bacteria		0.57	Environmental	Opportunistic Infections
Pseudomonas mallei	Bacteria		0.77	Environmental	Opportunistic Infections
Pseudomonas pseudomallei	Bacteria		0.57	Environmental	Opportunistic Infections
Pseudomonas diminuta	Bacteria		0.1 - 0.3		Test Organism for Retention 0.2 μm Membranes
Rhinovirus	Virus		0.023	Humans	Colds
Rhizopus stolonifer	Fungi		8.0	Environmental	Zygomycosis
Rhodotulura spp.	Fungi		14.0	Environmental	Extrinsic Allergic Avelons
Salmonella enteritidis	Bacteria	2.0 - 3.0	0.6 - 0.7		Causes Food Poisoning
Salmonella enteritidis	Bacteria	2.0 - 3.0	0.6 - 0.7		Causes Food Poisoning
Salmonella hirschfeldii	Bacteria	1.0 - 2.5	0.3 - 0.5		Causes Enteric Fever
Salmonella typhimurium	Bacteria		1.0 - 1.5		Causes Food Poisoning in Humans
Salmonella typhosa	Bacteria	2.0 - 3.0	0.6 - 0.7		Causes Typhoid Fever
Sarcina maxima	Bacteria		4.0 - 4.5		Isolated From Fermenting Malt Mash
Scopulariopsis spp.	Fungi		6.0	Environmental	Onychomycosis
Serratia marcescens	Bacteria	0.5 - 1.0	0.5		Test Organism for Retention 0.45 μm Membranes
Serratia marcescens	Bacteria		1.3	Environmental	Opportunistic Infections
Shigella dysenteriae	Bacteria	1.0 - 3.0	0.4 - 0.6		Causes Dysentery in Humans
Sporothrix schenckii	Fungi		6.5	Environmental	Sporotrichosis
Stachybotrys spp.	Fungi		5.7	Environmental	Stachybotryotoxicosis
Staphylococcus Aureus	Bacteria		0.8 - 1.0	Humans	Causes Pus Forming Infections, Opportunistic Infections
Streptococcus lactis	Bacteria		0.5 - 1.0		Contaminant in Milk
Streptococcus pneumoniae	Bacteria		0.9	Humans	Pneumonia, Otitis Media
Streptococcus pyogenes	Bacteria		0.6 - 1.0	Humans	Causes Pus Forming Infections, Scarlet Fever, Pharyngitis
Thermoactinomyces sacchari	Actinomycetes		0.86	Agricultural	Bagassosis
Thermoactinomyces vulgaris	Actinomycetes		1.0	Agricultural	Farmers Lung, Hypersensitivity Pneumonitis
Thermomonospora viridis	Actinomycetes		0.6	Agricultural	Farmers Lung, Hypersensitivity Pneumonitis
Togavirus	Virus		0.063	Humans	Rubella (german measles)
Trichoderma spp.	Fungi		4.1	Environmental	Mycotoxicosis, Volatile Organic Compounds
Ulocladium spp.	Fungi		15.0	Environmental	Extrinsic Allergic Avelons
Varicella - zoster	Virus		0.3	Humans	Chickenpox
Wallemia sebi	Fungi		3.0	Environmental	Extrinsic Allergic Avelons
Yersinia pestis	Virus		0.75	Humans	Pneumonic Plague