

**Disruptor® -
Bio-performance testing**



Ahlstrom quality testing of initial bacteria (RT), virus (MS2), and cyst (test method: TM-120)

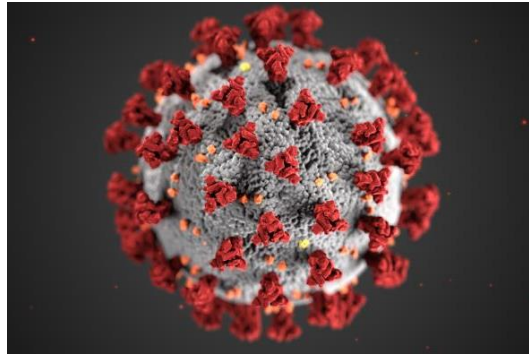
Bacteria

- *Raoultella terrigena*
- Influent concentration of 10^5 or 10^6 per ml
- Required reduction 99.9999% or **6 log**



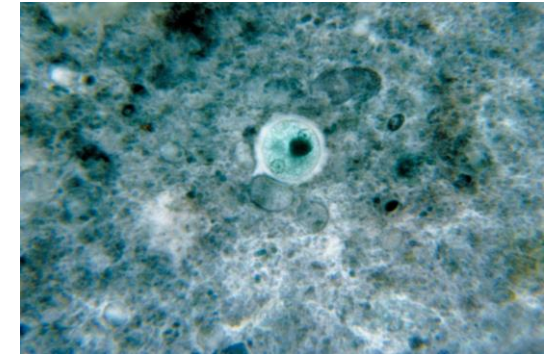
Virus

- MS2 Bacteriophage
- Influent concentration of 10^5 or 10^6 per ml
- Required reduction 99.99% or **4 log**



Cyst

- 3 microns bead surrogate
- Influent concentration of 10^5 or 10^6 ml
- Required reduction 99.95% or **3.5 log**



In comparison: Ganges River in India carries a total coliform concentration in the 1×10^6 /ml range

Virus (MS2) capacity testing for 5283 at 3rd party BCS labs.



Single Layer 90 mm	MS-2 PLAQUE FORMING UNITS COUNTS PER MILLILITER												
	Influent	1 Liter Effluent	5 Liter Effluent	10 Liters Effluent	15 Liters Effluent	20 Liters Effluent	25 Liters Effluent	30 Liters Effluent	35 Liters Effluent	40 Liters Effluent	45 Liters Effluent	50 Liters Effluent	55 Liters Effluent
Filter A	3.0 x 10 ⁵	<0.45	<0.45	1,4	1,4	0,91	4,5	6,3	12,2	24,1	27,2	28,6	N/A
Filter B		<0.45	<0.45	1,4	1,4	2,7	3,6	6,3	16,8	28,1	31,8	32,7	N/A

Single Layer 90 mm	MS2 PERCENT REDUCTION (%)												
	Influent	1 Liter Effluent	5 Liter Effluent	10 Liters Effluent	15 Liters Effluent	20 Liters Effluent	25 Liters Effluent	30 Liters Effluent	35 Liters Effluent	40 Liters Effluent	45 Liters Effluent	50 Liters Effluent	55 Liters Effluent
Filter A	3.0 x 10 ⁵	>99.9999%	>99.9999%	99,9995%	99,9995%	99,99997%	99,999%	99,998%	99,996%	99,991%	99,991%	99,99 %	N/A
Filter B		>99.9999%	>99.9999%	99,9995%	99,9995%	99,9991%	99,999%	99,998%	99,994%	99,99 %	99,99 %	99,99 %	N/A

Corresponding to ca. 8000 liters/m² capacity or in total 2,36 x 10¹² (2,36 trillion) MS2 virus removed per m2 media at LRV 4.



Bacteria (E-Coli) capacity testing for 5283 at 3rd party BCS labs.



Single Layer 90 mm	Day 1 Date: __02/14/2017__													
	Influent	1 Liter Effluent	15 Liter Effluent	30 Liters Effluent	45 Liters Effluent	60 Liters Effluent	75 Liters Effluent	90 Liters Effluent	105 Liters Effluent	120 Liters Effluent	135 Liters Effluent	150 Liters Effluent	165 Liters Effluent	180 Liters Effluent
5283 Filter A__	6.0 x 10 ⁵	>99.99993%	>99.99993%	>99.99993%	>99.99993%	>99.99993%	99,9991%	99,998%	99,996%	99,998%	99,992%	99,99 %	99,98 %	99,91 %
5283 Filter B__		>99.99993%	>99.99993%	>99.99993%	>99.99993%	99,9998%	99,999%	99,998%	99,996%	99,996%	99,995%	99,99 %	99,96 %	99,9%

Corresponding to ca. 7100 liters/m² capacity or in total 4,25 x 10¹² (4,25 trillion) E-Coli bacteria removed per m² media at LRV 6.



Where can Disruptor® be used? (cont.)

Filtration Technology Positioning

Water Remediation Technologies - Residential, Commercial, Industrial, Municipal, Desalination								
	Disruptor® PAC Technology	RO	NF	UF	MF	Particulate Catridges	Carbon Block	Ultra Violet
Contaminants								
Dissolved Salts		x						
Endotoxin	x	x	x	x	x	x		
Virus	x	x	x					x
Bacteria	x	x	x	x	x	x	x	x
Cysts	x	x	x	x	x	x	x	x
Polysaccharides (TEP)	x	x	x	x	x			
Colloids	x	x	x	x				
Particulates	x	x	x	x	x	x	x	
Chemical Reduction	x	x					x	x
Trace Pharmaceuticals	x	x					x	x

Membrane definition: Reverse Osmosis=RO; Nanofiltration=NF; Ultrafiltratio=UF; Microfiltration=MF.



Thank you!

