

Reference #4 Virus Reduction Ability

SEONDO ELECTRON Test		Virus TEST REPORT
TEST NO. 20190403-1 Mr. Park S.D. elect. 7-29, Sinchon 2 Ro, Paju, Keonggi-Do, Korea		
TEST RESULT		
Result	PASS	Report Date 08-05-2019
Customer Name	Seondo electron	
Tested TO	Virus Reduction POU/POE 200% (Used Reverse Osmosis Water)	
Description	Terra CTU T300	
Test Type	Qualification	
Job Number	J-20190403	
Project Number	Terra Water Research CTU T-300	
Project Manager	Jeahyeog Choe	
Report Authorization :		Date 08-05-2019

Virus Reduction POU/POE 200% (Used Reverse Osmosis Water) : PASS

Manufacture's Name: Seondo electro.

Job NO.: J-20190403

Date of Job Creation: 03-04-2019

Date Sample Received: 03-04-2019

Date Test Completed: 08-05-2019

Sample Type: Qualifiation

Product: Terra Water Research CTU T-300

DCC Number: T000403

Filter Capacity: 6000 Gallons (22,712 Liter)

Flusing Time: 3 minute

Maximum Rated Op. Pressure: 4.1 kgf/cm² (4.1 bar)

Percent Capacity: 200%

Physical Description of Sample: Counter Top Connected to Sink Faucet without Diverter

Rated Service Flow: 3.0 LPM (1.05 GPM)

Test Description: Virus (MS-2 Bactria phage)

Trade Designation/Model Number: Terra Water Research CTU T-300

Performance Strandard: Reference for NSF 244

Virus reduction P/F: PASS

overall Percent Reduction: >99.9999%

Test Result Maximum Effluent: <300 PFU/mL

All effluent values are less than or equal to the pass/fail criteria: YES

Data Summary Table

Sample point	Accumulated Volume (Liter)		Dynamic Pressure (kgf/cm ²)	Virus (PFU/100 mL)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup (0%)	30	30	3.4	3.2*10 ⁸	1.0*10 ²	ND
50%	5700	5790	3.1	1.6*10 ⁸	ND	ND
100%	11700	11890	3.1	4.0*10 ⁷	ND	ND
150%	17100	17180	3.1	1.4*10 ⁷	ND	ND
180%	20560	20590	3.1	5.0*10 ⁶	ND	ND
200%	22800	22800	3.1	2.0*10 ⁶	ND	3.0*10 ²

Sample point	Flow Rate (LPM)		pH
	Effluent 1	Effluent 2	Influent
Startup (0%)	3.1	3.2	6.8
50%	3.2	3.4	6.7
100%	3.3	3.5	6.8
150%	3.4	3.5	6.7
180%	3.3	3.4	6.5
200%	3.4	3.5	6.7

Virus Detection Limit: 1 PFU/mL

pH Detection Limit: 0.01

Data Analysis Table

Sample point		Inf. Average (PFU/100 mL)	Average (PFU/100 mL)		Eff. % Reduction (Ave. Inf.) (%)		
			Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
0%	30 Ltier	3.2*10 ⁸	100	ND	99.9999	99.9999	99.9999
50%	5700 Liter	1.6*10 ⁸	ND	ND	99.9999	99.9999	99.9999
100%	11700 Ltier	4.0*10 ⁷	ND	ND	99.9999	99.9999	99.9999
150%	17100 Liter	1.4*10 ⁷	ND	ND	99.9999	99.9999	99.9999
180%	20560 Liter	5.0*10 ⁶	ND	ND	99.9999	99.9999	99.9999
200%	22800 Liter	2.0*10 ⁶	ND	300	99.9999	99.9999	99.9999

Sample point		Ave. % Reduction (%)	Maximum (PFU/100 mL)				
			All Effluent	Effluent 1	Effluent 2		
0%	30 Ltier	99.9999	100	ND	100		
50%	5700 Liter	99.9999	ND	ND	ND		
100%	11700 Ltier	99.9999	ND	ND	ND		
150%	17100 Liter	99.9999	ND	ND	ND		
180%	20560 Liter	99.9999	ND	ND	ND		
200%	22800 Liter	99.9999	300	ND	300		

Inf. Average: Influent Average

Average: All Effluent Average

Eff. % Reducetion (Ave. Inf.):

Effluent percent reduction calculated from average of previous influent values.

Ave. % Reductio: Percent reuction calculated from all prior influents and effluents.

Maxxmum: Maximum Effluent

Water Characteristics

Characteristic	Units	Range		
		Minimum	Average	Maximum
Temperature	Degrees C	17.5	20	22.5
Turbidity	NTU	0	0.5	1
pH		6.75	7	7.25

All analyses performed at Seondo electro.

Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \text{Influent Average} - \text{Effluent Average} / \text{Influent Average} * 100$$

Influent Average Percent Reduction Calculations

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.

Effluent Average includes all effluent for the current sample point.

$$\text{Average } \% \text{ Reduction} = \text{Influent Average} - \text{Effluent Average} / \text{Influent Average} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.

Effluent includes the effluent value for the specific sample point.

$$\text{Average } \% \text{ Reduction} = \text{Influent Average} - \text{Effluent} / \text{Influent Average} * 100$$

Average Percent Reduction Calculations

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.

Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Results and Picture (Virus)

