

TEST REPORT

LAB NO. : 2000594/ 1

DATE: 11/03/2020

NAME OF CUSTOMER : M/S. REAL RELIEF
ADDRESS : Essen 26,
6000 Kolding, Denmark
REFERENCE : Letter Ref. dated February 10, 2020
Kind Attention: Torben Holm Larsen
DATE OF RECEIPT : 17/02/2020
DATE OF INITIATION : 24/02/2020
DATE OF COMPLETION : 11/03/2020
SAMPLE DESCRIPTION : Towel Sample labeled as –

Sr. No.	Description
1.	Super Towel Navy Blue Color

Name of Test:

Assessment of performance of Super Towel fabric in water purification

Test Method:

Customer specified test method

Test Material:

1. Super Towel as funnel filter
2. Input water – Sterile distilled water spiked with Escherichia coli
3. Input water – Sterile distilled water spiked with Pseudomonas aeruginosa
4. Input water – Sterile distilled water spiked with Vibrio cholera

Experimental conditions:

Filter assembly	: Super towel single layer kept on a funnel with collecting device at the bottom
Water	: Spiked distilled water (1-3 cfu/ L)
Filtration	: gravitational filtration
Filtration temperature	: Test water at 20 ⁰ C
Filtrate	: Evaluation for presence of bacteria spiked
Media Used	: EMB agar for Escherichia coli, Cetrimide agar for Pseudomonas aeruginosa and Chromogenic medium for Vibrio cholera
Incubation conditions	: 37 ⁰ C for 48 hours

Test Procedure:

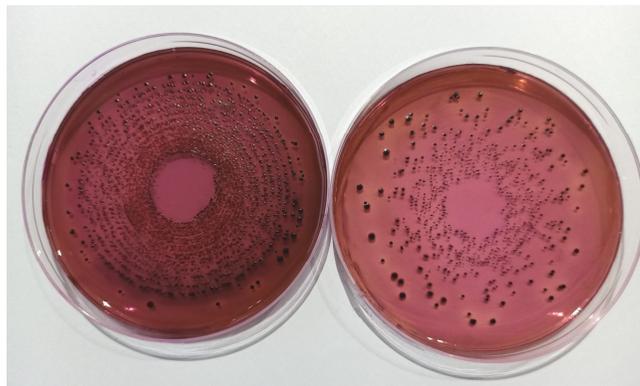
Filter with single layer of super towel was used for filtration of spiked water. About 200 ml of water was passed, the test water sample was collected in sterile container beneath. The method of filtration was gravitational filtration. Filtrate was collected immediately and tested for Enumeration of Spiked bacteria. Experiment was conducted individually for each bacteria. In case the recovered bacteria are sizeable then experiment would be repeated with two layers

Results:

A. Escherichia coli

Description of water/ Filtrate	Bacteria recovered from water		Log reduction of Bacteria (Log of Spiked water – Log of Filtrate)
	cfu/ 100 ml	Log	
Spiked water	7.30×10^6	6.86	-
Water Filtered through Super towel (single layer)	2.70×10^5	5.43	1.43 (96.30%)
Water Filtered through Super towel (double layer)	<10	<1	>5.43 (>99.999%)

Single layer



Double layer

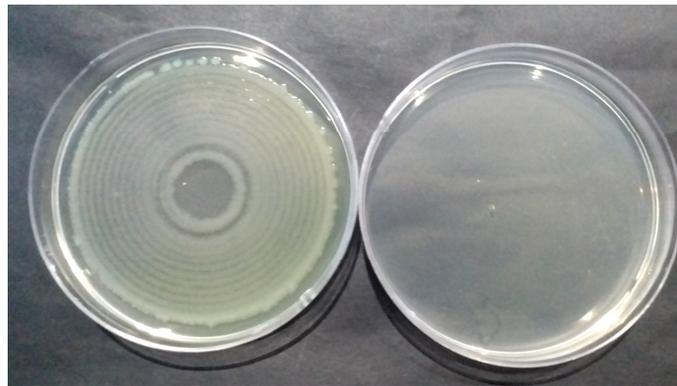


Results:

B. Pseudomonas aeruginosa

Description of water/ Filtrate	Bacteria recovered from water		Log reduction of Bacteria (Log of Spiked water – Log of Filtrate)
	cfu/ 100 ml	Log	
Spiked water	6.40 x 10 ⁶	6.80	-
Water Filtered through Super towel (single layer)	< 10	< 1	>5.80 (>99.999%)

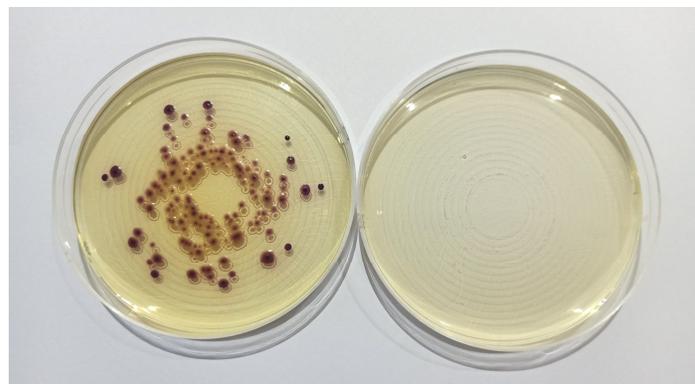
Single layer



C. Vibrio cholerae

Description of water/ Filtrate	Bacteria recovered from water		Log reduction of Bacteria (Log of Spiked water – Log of Filtrate)
	cfu/ 100 ml	Log	
Spiked water	1.04 x 10 ⁶	6.01	-
Water Filtered through Super towel (single layer)	< 10	< 1	>5.01 (>99.999%)

Single layer



COMMENTS:

Super towel used as filter for filtering artificially spiked water by gravitational force has shown > 1 log reduction of Escherichia coli in single layer and > 5 log reduction of Escherichia coli in double layer. Similarly other bacteria like Pseudomonas aeruginosa and Vibrio cholerae have shown > 5 log reduction in single layer filtration.

For BIOTECH TESTING SERVICES

Dr Shilpa U. Nair
Quality Manager
(Authorized Signatory)