MICROLAB UK
Micro Lab UK Ltd.
Unit 17 Business Development Centre
Stafford Park 4
Telford TF3 3BA
01952 210607

UKAS TESTING
8679

NKD BOTTLE TRIAL
Test Report 2376 NKD

Test Report Approved By:	Marzena Niedzielska, BSc, Managing Director	23/01/2017

MICROLAB UK
Micro Lab UK Ltd.
Unit 17 Business Development Centre
Stafford Park 4
Telford TF3 3BA
01952 210607

UKAS TESTING
8679

1. Testing Timescale:

Testing performed between 05/12/2016- 23/01/2017

2. Testing Scope

To establish manufacturer claim of removal of microbial and chemical contamination from water using NKD bottle system-personal use water bottle with removable filter.

3. Testing Procedure Overview

Testing procedure involved seeding sterile water with concentrated bacterial culture and drawing through the bottle filter, collecting it into sterile container and analysing using UKAS accredited method: Total Viable Count by membrane filtration at 30C for 5 days.

4. Testing Method

4.1. Testing preparation

4.1.1. Initial preparation of bacterial culture was done by seeding 100ml of Tryptone Soya Broth with laboratory controlled culture and incubated according to culture requirements to receive minimum of 10^6 CFU concentration.

4.1.2. Bacterial strains used in the trial:

- *Escherichia coli* NCTC12923
- *Pseudomonas aeruginosa* NCTC12903
- *Staphylococcus aureus* NCTC10788
- *Candida albicans* NCPF03179

4.1.3. After incubation period was completed, the cultures were tested using serial dilutions to establish the concentration of working culture used for seeding samples.

4.1.4. Seeding of 100ml sterile water was performed to check what dilution level will provide readable results.

4.1.5. Concentration chosen for each of the culture based on the preliminary results:

	Concentration	CFU
Pseudomonas aeruginosa	10^{-6}	116
Candida albicans	10^{-4}	90
Staphylococcus aureus	10^{-4}	106
Escherichia coli	10^{-6}	80

Test Report Approved By:	Marzena Niedzielska, BSc, Managing Director Niedzielska	23/01/2017

5. Testing

100ml of sterile RO water was poured into NKD bottle with New unused filter(0L). Sample was prepared by dispensing 1ml of applicable culture dilution at above levels, mixed by swirling the bottle 5 times clockwise and anticlockwise. Sterilised manifold was used to process samples, and to minimize the risk of contamination the samples were processed within the laminar flow cabinet. Samples were then processed using method: **Total Viable Count by Membrane Filtration 30°C - 5 days [SOP 009 B CFPP 01-06]* .**

6. Positive controls

6.1.1. Additional controls were prepared to establish if the laboratory processing affects the culture growth:

6.1.2. At the end of sample processing, positive controls were prepared using the same method as preparation of the sample, without passing the sample through the filter. Positive controls were then processed in the same manner as the samples, with preparation of serial dilutions up to 10^{-6} and processed method: Total Viable Count by Membrane Filtration at 30C for 5 days.

6.1.3. The plates were incubated for 5 days at 30C.

Test Report Approved By:	Marzena Niedzielska, BSc, Managing Director Niedzielska	23/01/2017

MICROLAB UK
Micro Lab UK Ltd.
Unit 17 Business Development Centre
Stafford Park 4
Telford TF3 3BA
01952 210607
UKAS TESTING
8679

7. Results:

	Sample number	Duplicate sample	Control culture CFU	New Filter (0L) CFU	% Reduction
Pseudomonas aeruginosa	**35005**	**D1**	145	0	100.00%
	35006	**D2**	149	0	100.00%
Candida albicans	**34608**	**D1**	134	0	100.00%
	34609	**D2**	146	0	100.00%
Staphylococcus aureus	**34610**	**D1**	129	0	100.00%
	34611	**D2**	121	0	100.00%
Escherichia coli	**34604**	**D1**	69	0	100.00%
	34605	**D2**	83	0	100.00%

8. Conclusion

Samples processed using NKD bottle filter exhibit high level of reduction of bacterial contamination.

Test Report Approved By:	Marzena Niedzielska, BSc, Managing Director Niedzielska	23/01/2017

9. Physicochemical properties

10. Test method

10.1. Samples were prepared using Thames water as a natural source of contaminants and as a matrix of seeded samples.

10.2. 100ml of Thames water aliquots were prepared from the sample sourced by NKD.

Test Report Approved By:	Marzena Niedzielska, BSc, Managing Director Niedzielska	23/01/2017

MICROLAB UK
Micro Lab UK Ltd.
Unit 17 Business Development Centre
Stafford Park 4
Telford TF3 3BA
01952 210607

UKAS TESTING
8679

11. Results

		Untreated	0L	% Reduction
pH	pH Units	7.39	7.6	

12. Conclusion

Samples treated using NKD water filter exhibit significant reduction of contaminants compared to the original sample.

Test Report Approved By:	Marzena Niedzielska, BSc, Managing Director Niedzielska	23/01/2017