

02 June 2014
Moscow

Summary Report

on the results of scientific studies of NAQWA type track membrane water filters ability to purify water from bacteria including Vibrio Cholera, E.Coli, E.Cloacae, P.Aeroginosa, Faecal Coliforms and other similar bacteria carried out in 1994 – 2014.

Track membrane water filters of NAQWA type are intended to purify water first of all from the most dangerous bacteria and to fight such water born diseases as Cholera, Diarrhoea, Hepatitis, Typhoid, Filariasis, Desentery, Arsenicosis, Fluorosis, HIV/AIDS. The above mentioned diseases are caused by different bacteria (there are known more than 10 million types of bacteria) and first of all by such bacteria as E.Coli and Vibrio Cholera. These bacteria are often similar by shape and size which makes NAQWA type track membrane water filter an effective tool against the both types of bacteria. Results of corresponding laboratory tests carried out in the former Soviet Union, the modern Russian Federation as well as in a number of international laboratories world wide in 1994-2014 are summarized below.

Vibrio Cholera.

The first Vibrio Cholera laboratory tests of of NAQWA type track membrane water filters were carried out in the former Soviet Union in 1994. The initial concentration of Vibrio Cholera in water solution before filtration was 10^7 per 1 ml. After the filtration no Vibrio Cholera bacteria was detected in the solution which means 100% purification ability of the NAQWA type track membrane water filters tested.

The corresponding test results are submitted below in Table 1.

**Crimean State Anty-Plague Station of Medical and Sanitary Unit No.04-01-119,
Dated 04 January 1994.**

Bacteria	Concentration before test, in 1 ml.	Purification Efficiency, %
Vibrio Cholera	10^7	100
Vibrio Parahaemolyticu	10^7	100
Vibrio Aeromonas	10^7	100
Plague culture	10^7	100
Intestinal Personalsa	10^7	100
Pathogen of Pseudotuberculosis	10^7	100
Strain of Brucellosis	10^7	100

Further laboratory microbiological studies of NAQWA type track membrane water filters were carried out both in Russia and abroad using mainly E.Coli and similar bacteria E.Cloacae, P.Aeroginosa, Faecal Coliforms which by their form and size are close to Vibria Cholera.

Being wide-spread this bacteria are recognized as international standards to carry out microbiological water tests in laboratories world wide. Corresponding laboratory tests have been carried out on NAQWA water filters in internationally certified laboratories including state laboratories in Russia, Australia, S Korea, Indonesia, India, Ghana and others. The results obtained during these laboratory studies have shown that purification ability of NAQWA water filters from E.Coli, E.Cloacae, P.Aeroginosa, Faecal Coliforms and similar bacteria is above 99.9%.

Results of the most representative laboratory studies of NAQWA water filters carried out in 2012-2014 are submitted below in Tables 2-4.

Anty-Plague Station of Medical and Sanitary Unit No.164 of the Federal Biometrical Agency of Russian Federation. Dated 21 December 2012.

Simulated contaminant	Used microorganism	Concentration of microorganism in water before water purifier		Concentration of microorganism in water after water purifier		Efficiency of purification, %
		Calculated concentration	Measured concentration	Titration method	Membrane filter method	
Total microbial count	E.coli. strain 1257, E.coli strain pSub525, Enterobacter cloacae, Pseudomonas aeruginosa	10^5 per 100 ml	1.24×10^5 per 100 ml	Absent	Absent in 100 ml	100
Bacteria	E.coli. strain 1257	10^5 per 100 ml	1.13×10^5 per 100 ml	Absent	Absent in 100 ml	100
	E.coli strain pSub525	10^5 per 100 ml	1.67×10^5 per 100 ml	Absent	Absent in 100 ml	100
	Enterobacter cloacae	10^5 per 100 ml	1.82×10^5 per 100 ml	Absent	Absent in 100 ml	100
	Pseudomonas aeruginosa	10^3 per 1000 ml	1.92×10^3 per 1000 ml	Absent	Absent in 1000 ml	100

Table 3.

**SILLIKER, Australia. Member of National Association of Testing Authorities
(NATA). Dated 26 March 2013.**



Results

Organism	Pre-filtration (cfu/100mL)	MeanCount (cfu/100mL)	Post- filtration (cfu/100mL)	Mean count (cfu/100mL)	Percentage (%) Reduction	Log reduction (Log Pre – Post Counts)
<i>E.coli</i> NCTC 8196	500,000	470,000	360	390	99.92	3.1
	450,000		410			
<i>E.coli</i> ATCC 8739	380,000	390,000	303	290	99.93	3.1
	400,000		272			
<i>E.cloacae</i> NCTC 10005	680,000	660,000	660	640	99.90	3.0
	640,000		625			
<i>P.aeruginosa</i> ATCC 9027	210,000	210,000	20	16	99.99	4.1
	210,000		12			

The latest to the date laboratory study was performed in Ghana Standards Authority in April-May, 2014. The initial bacteria concentration was in excess of 1.1×10^3 per 100 ml. This study has also shown 100% purification level of NAQWA water filters from E.Coli and Fiecal Coliforms. The corresponding results are submitted in Table 4.

Ghana Standards Authority.

Dated 16 April 2014/

NAME OF SAMPLE: SPIKED WATER AFTER FILTRATION (WATER FILTER – PURE AQUA) SAMPLE SIZE: 2 PACKS

DATE RECEIVED: 14-04-16

DATE(S) OF PERFORMANCE: 14-04-29 to 14-05-02

SOURCE/PURPOSE: QUALITY EVALUATION

TEST CODE	TEST CONDUCTED	UNIT	RESULTS	TEST METHODS	SPECIFICATION
	Faecal coliforms/ 44°C/48hr/LTB/ECB	MPN/100mL	Not Detected	ISO 9308-2 1990	Not Detected
	<i>E.coli</i> /44°C/48hr/ LTB/ECB/TW	MPN/100mL	Not Detected	ISO 9308-2 1990	Not Detected

Besides laboratory tests carried out in different countries NAQWA water filters regularly pass through microbiological control at the manufacturing facilities in NAQWA's own scientific laboratory in Obninsk, Russian Federation. Results of such tests carried out each week coincide with the results of the international laboratory tests submitted at NAQWA website: http://naqwa.com/products/laboratory_tests/

Conclusion.

Results of laboratory tests carried out in the former Soviet Union/Russian Federation as well as in other countries show that NAQWA track membrane water filters purification level from the most dangerous bacteria such as Vibrio Cholera, E.Coli, E.Cloacae, P.Aeroginosa, Faecal Coliforms and other similar bacteria is above 99.9%.

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