#LEGIONELLA2018

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Managing Legionella and Other Pathogens in Building Water Systems

LONGER LASTING POINT-OF-USE DISPOSABLE WATER FILTERS

(shower and faucet) to prevent infections, improve efficiencies and reduce cost in healthcare facilities

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Scientific studies review of latest field evaluation (USA & France) – February 2018

Disposable Water Filters become part of Infection Prevention Control to reduce Healthcare Associated Infection linked to premises plumbing pathogens. By providing immediate physical barrier at the point of use water fixture, installation of Disposable Water Filters is very effective to prevent *Legionella pneumophila*, *Pseudomonas aeruginosa* and other waterborne pathogens in healthcare facilities (Baron and al-2014, Trautmann and al-2008).

However, a major drawback of Point-of-Use (POU) filters use, is the short life of 31 days due to filter clogging. As a result, one of the limitations of extended life filters lies with their ability to handle large volumes of water without a significant reduction in flow, before replacement becomes necessary (Dangel and Widmer-2015).

Bubl'Air Wash™ Extended Life of duration filters 62 Days, 3 & 4 Months

To address this issue, the Bubl'Air Wash™ technology (manufactured by aqua-tools) has been developed as a self-cleaning mechanism which introduces turbulent flow during filtration to keep particulates from becoming fully trapped on the membrane and permits the filters to have long life use.

During filtration step, domestic water goes through microfiltration membrane, the water velocity triggers the turbulence phenomenon permitting the suspension of solid particles out of the membrane surface.

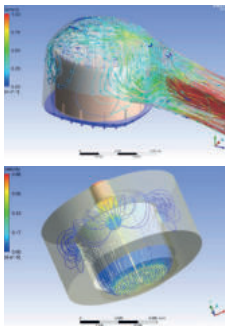

Figure 1 — Bubl'Air Wash™ (aqua-tools)

Field Study of Point-of-Use filters 62 Days and 3 & 4 Months

Two field evaluations of a new extended life of duration filters that includes the Bubl'Air Wash™ technology have been performed:

1st Study

One on 62- days filters: this study was realized by Special Pathogens Laboratory®: The *legionella* expert® and Klenzoid Canada Inc. and Eldon Water Inc. on shower and faucet filters for 12 weeks (84 days) in real use conditions to evaluate the efficacy for removal of *Legionella* and HPC (Stout-2017). Efficacy in removing microbes and determination of performance issues such as Usability/functionality, Clogging Contamination. Results for both the faucet and shower filters show exclusion of *Legionella*, significant reduction of HPC and No clogging or membrane housing rupture.

	Legionella pneumophila Mean (CFU/mL)			
	Filtered Test Fixtures		Control Fixtures	
Weeks	Faucets	Showers	Faucets	Showers
Baseline	4.6	57.2	32.0	78.0
Week 0	Not sampled	0	Not sampled	Not sampled
Week 1	0	0	12.2	146
Week 2	0	0	14.6	191.2
Week 3	0	0	2.4	26.0
Week 4	0	0	8.4	68.0
Week 5	0	0	2.4	22.6
Week 6	0	0	14.2	54.0
Week 7	0	0	10.0	56.0
Week 8	0	0	4.0	82.0
Week 9*	0	0	0.6	53.2
Week 10*	0	0	4.2	40.2
Week 11*	0	0	0	33.6
Week 12*	0	0	6.2	40.0

* After 62 days of use

Table 1 : *Legionella* recovery from fixtures (faucets and showers) with (filtered) and without (control) point- of-use filters throughout 12 weeks of usage

2nd Study

One on 3 and 4 months filters: this study has been performed in a healthcare facility by the Infection Prevention Control Department of Hospices Civils de Lyon Hospital. 12 shower filters were installed in the cardiology department and the *Legionella pneumophila* retention was measured (Cassier and al-2017).

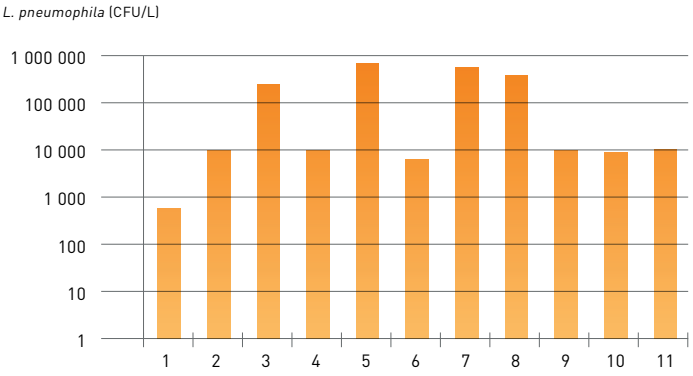

Figure 2 — *L. pneumophila* concentration in shower water collected without filters at D0

RESULTS

Both of these studies have demonstrated performances of the new extended life POU filters under real use conditions in removing microbes, avoiding retrograde contamination and clogging for 62 days, 3 and 4 months.

CONCLUSION

Bubl'Air Wash™ Extended Life of duration filters 62 Days, 3 & 4 Months of this new innovative generation of Disposable Water Filters have the ability to decrease change out labor, volume of waste but also reduce burdensome for patient when the filters are being changed in their room.

Brought back to a monthly cost, the purchasing of only one extended life filter (62 Days, 3 or 4 Months) will always be less costly than buying two, three or four 31-days filters (Baron and al-2014).