

SmartFLO3 Trap ATP Testing

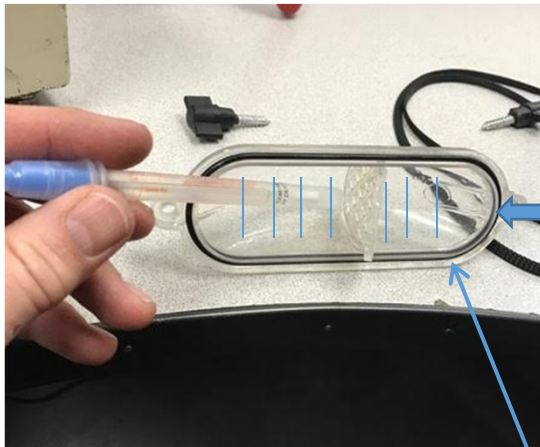
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1. Trap testing of biofilm in the waste (measured via ATP tests).

Outline

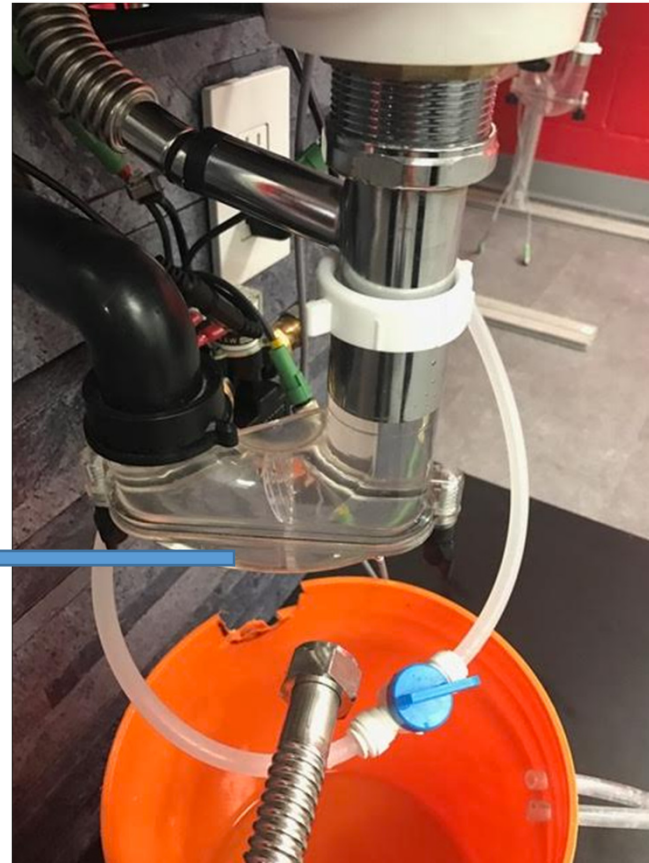
Trap testing of biofilm in the waste (measured via ATP tests).

A clear cleanout test/trap has been installed onto SmartFLO3 sinks in our test lab.

The bottom of the trap can be removed for ATP swab readings to be taken.



7 swipes taken at blue lines indicated above

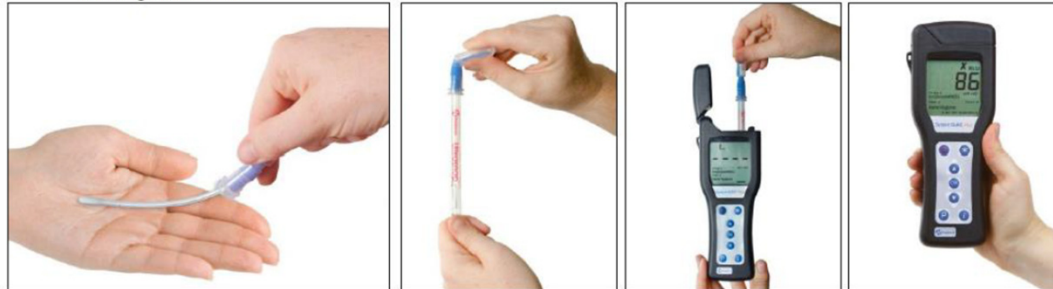


Outline

Trap testing of biofilm in the waste (measured via ATP tests).

ATP is the universal energy molecule found in all organic material. This includes organisms, bodily fluids and food residues. The combination of ATP with the enzyme, luciferase, produces light that can be measured in a luminometer. The amount of light is proportional to the amount of ATP and is expressed in Relative Light Units (RLUs). The greater the level of ATP, the higher the RLU value, the dirtier the surface.

Testing Procedure:



1. Remove swab from tube and swab the palm of dominant hand, applying sufficient pressure to create flex in the swab shaft, and rotating to collect sample on all sides of the swab tip.
2. Replace swab in the tube and activate by bending the bulb forward and backward. Squeeze to expel liquid into the tube. Shake for 5 seconds.
3. Select the test location in the luminometer. Insert the swab into the chamber and press "OK" to initiate measurement.
4. Results will be displayed in 15 seconds. Test device may be discarded.

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

Bio-loaded water was left in the trap over 3 days to grow biofilm. During this time the daily disinfection cycle of SmartFLO3 was deactivated.

SmartFLO3 was then used for hand washing periodically throughout the day to initiate the ozone generator cycle.

The following ATP readings were taken to assess the impact of SmartFLO3 use.



Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 3, 2017



6528

Initial reading taken in the morning

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 3, 2017



3317

Reading taken at lunch after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 3, 2017



2859

Reading taken mid afternoon after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 4, 2017



497

Reading taken in the morning after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 4, 2017



286

Reading taken at lunch after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 4, 2017



153

Reading taken late afternoon after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 5, 2017



104

Reading taken in the morning after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

April 6, 2017



36

Reading taken in the morning after use of SmartFLO3 for hand washing

Test 1 – Load trap with Stagnant Water / Biofilm Load to see reduction

In just 3 days with no physical cleaning/removal of biofilm and with continued use/bio-loading, SmartFLO3 was able to reduce ATP levels from 6528 - 36



2. Testing inhibition of biofilm growth

Test 2. Biofilm Growth Inhibition

2 SmartFLO3 sinks have been installed in the FRANKE test lab, one of which has its ozone generator disconnected.

Each sink will be bio-loading via hand washing and saliva.

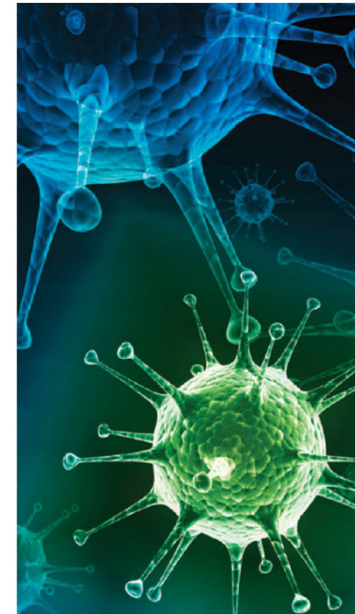
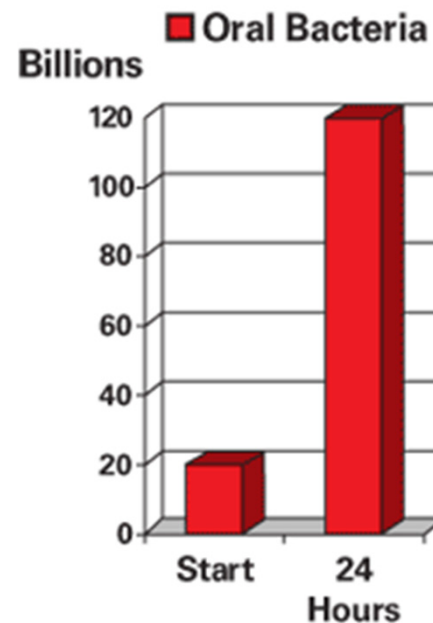


Test 2. Biofilm Growth Inhibition

Did you know 1 mg of oral biomass typically contains about 100 million microbes? Some species of oral bacteria can double their numbers every 20 minutes under ideal conditions.

Saliva is home to bacteria, viruses, fungus and protozoa. If we are looking to grow biofilm in the trap, this seem to be a readily available source of fuel.

In addition to hand washing we will be using both sinks as a spittoon throughout the day....its not gross....its science.



Test 2. Biofilm Growth Inhibition

A comparison of SmartFLO3 to a standard sink setup in terms of ATP readings in the trap.

Ozone Generator Disconnected



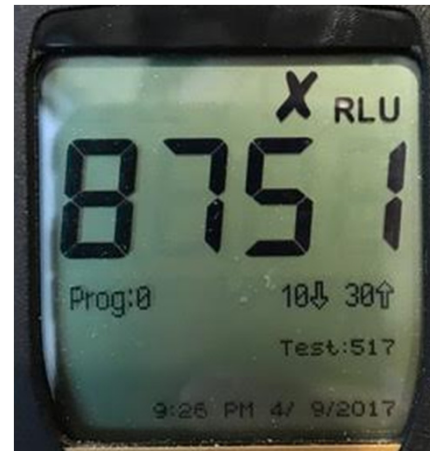
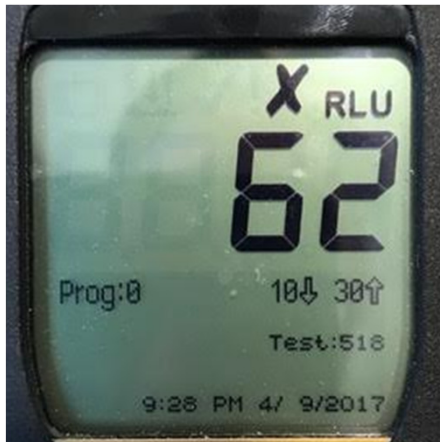
(new un-used waste installed)

April 5th, 2017

Test 2. Biofilm Growth Inhibition

A comparison of SmartFLO3 to a standard sink setup in terms of ATP readings in the trap. Notice the difference after 4 days of a daily trap disinfection vs stagnant water.

Ozone Generator Disconnected

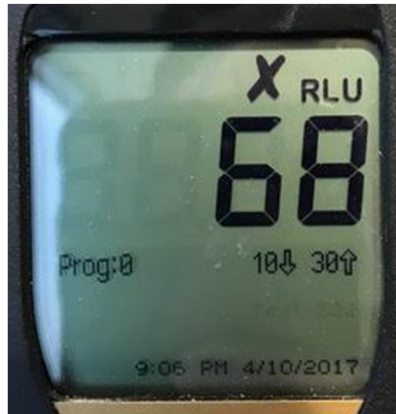


Test 2. Biofilm Growth Inhibition

With continued use of both sinks as a hand washing station, SmartFLO3 continues to yield low ATP readings and the other setup continues to grow biofilm.



Ozone Generator Disconnected



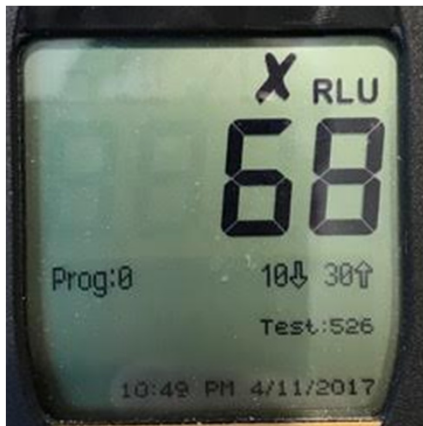
April 10th, 2017

Test 2. Biofilm Growth Inhibition

and this trend continues.....

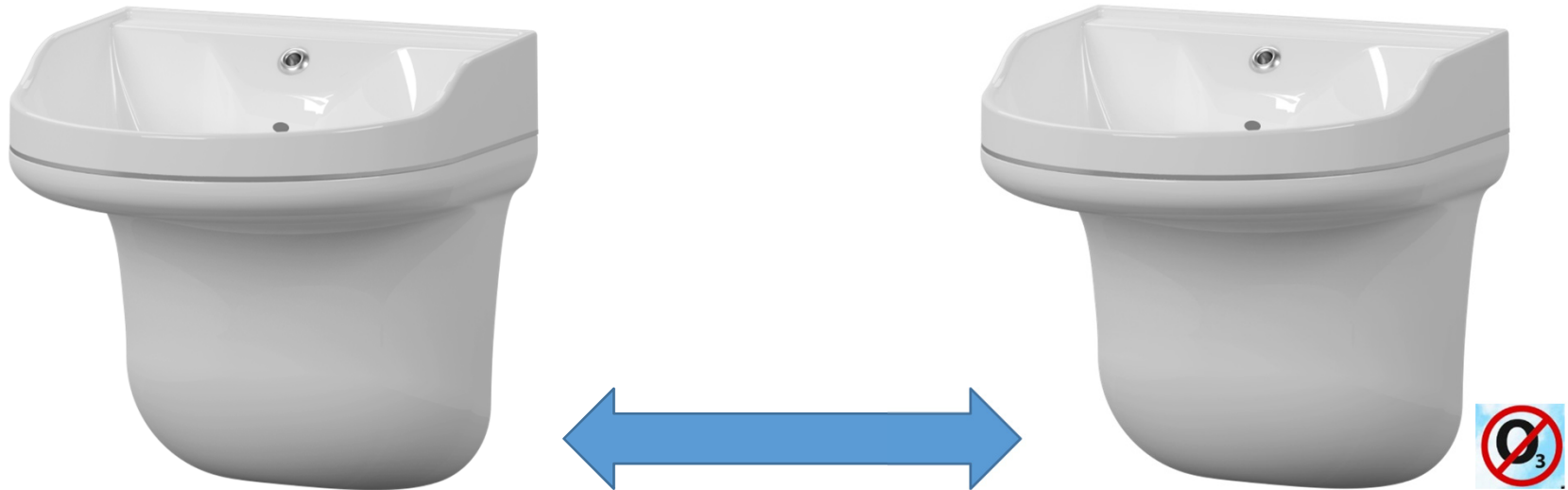


Ozone Generator Disconnected



Hand Hygiene Sinks

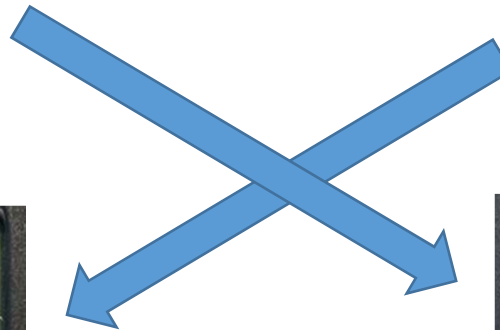
What if we switched the removable traps and continued the test?



Test 2. Biofilm Growth Inhibition

The shoe is on the other foot now... With the wastes switched, we evaluate the change in ATP readings as both sinks continue to be used for hand washing.

Ozone Generator Disconnected



April 12th, 2017

Test 2. Biofilm Growth Inhibition

As with our initial trial, these results show SmartFLO3 will dramatically lower ATP results with use and ATP results continue to rise using the standard setup.



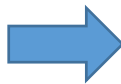
Ozone Generator Disconnected



April 12th, 2017

Test 2. Biofilm Growth Inhibition

The trap was subsequently tested 5 days later.... With continued use and the trap disinfection cycle, RLU units were reduced to almost negligible values.



April 12th, 2017

April 18th, 2017



Thank you.



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