



Dental Unit Water Line Cleaning Log

Office Name: _____

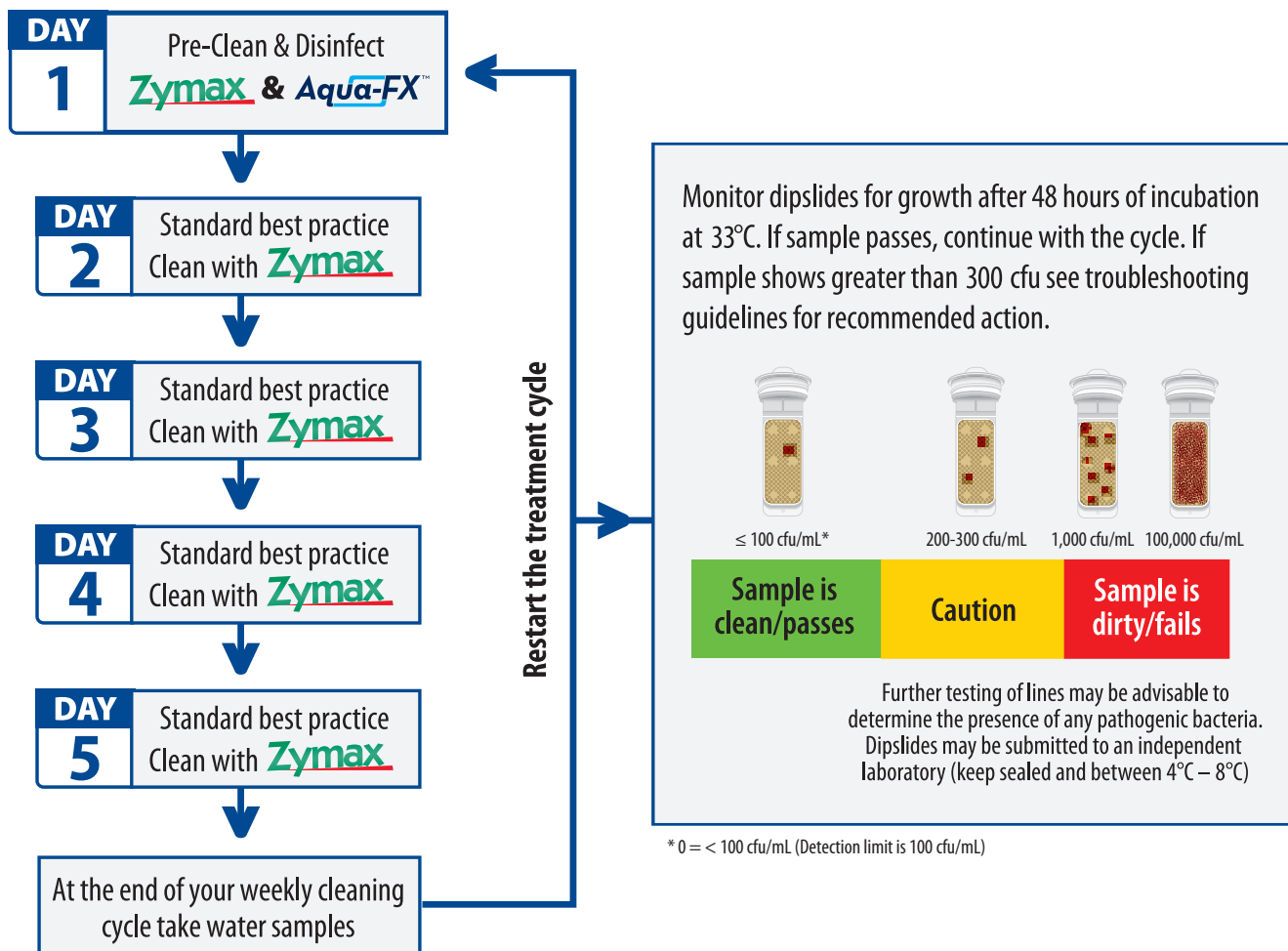
Date Started: _____ Date Completed: _____





Treatment Cycle For Dental Unit Water Lines

For stationary and mobile dental unit water lines



When to Increase Testing?

- After observing a change in bacterial contamination (foul odors/tastes)
- After stopping a regular disinfection cycle for more than 2 weeks
- After two consecutive fails in a single area
- After receiving complaints of foul tasting water

When to Decrease Testing?

- After 4-6 consecutive passes for the whole area
- After lines are replaced (but keep cleaning them!)

Best Practices

The “routine practice” theory of infection prevention and control incorporates risk assessment and management including the maintenance of dental unit water lines (DUWL) and water quality monitoring. Regardless of the source of water, type and age of equipment, best practice approaches include both cleaning and disinfecting of all dental unit water lines (DUWL).

In 2016 the Centers for Disease Control (CDC) reaffirmed from 2003 the concept of a risk management approach for proper maintenance and testing of water lines. This is supported by the Organization for Safety and Asepsis Prevention (OSAP), dental professional regulatory bodies, municipal government at public health level and manufacturers of dental equipment.

The original water source in the dental office whether municipal, filtered or treated should be no more than 500 colony forming units (CFU) per milliliter (mL). However, the water exiting the DUWL has travelled under low pressure and remained stagnant in extremely small diameter hosing creating biofilm formations, thus increasing the CFU/mL to unsafe levels.

Countless studies prove biofilm in DUWL harbor a host of dangerous microbes placing both the dental client and clinician at risk. It is the responsibility of the dental practice to ensure safe usage and dispensing of water by following best practice approaches to clean, disinfect and test DUWL including the source reservoir (water bottle). Logging and retention of maintenance records of DUWL should comply with each states record keeping regulations.

Resources:

Miller, Chris H. Infection Control and Management of hazardous Materials for the Dental Team 6th Edition. Toronto: Elsevier, 2017.

Kohn, William G., Collins, Amy S., Cleveland, Jennifer L., Harte, Jennifer A., Eklund, Kathy J., Malvitz, Dolores, M., “Guidelines for Infection Control in Dental health-Care Settings --- 2003.” Centers for Disease Control and Prevention (CDC). MMWR Recommendations and Reports 2003. 19-12-2003. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm>. 2017

“Centers for Disease Control and Prevention. Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care.” Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Oral Health; March 2016. <https://www.cdc.gov/oralhealth/infectioncontrol/pdf/safe-care.pdf>. 2017

“Oral Health Topics: Dental Unit Water lines.” American Dental Association. Center for Science Information, ADA science Institute, 19-08-2016. <http://www.ada.org/en/member-center/oral-health-topics/dental-unit-water-lines>. 2017

Barbeau, Jean. “Waterborne Biofilms and Dentistry: The Changing Face of Infection Control.” J Can Dent Assoc. 66 (2000): 539-41.

Instructions for Pre-Cleaning, Disinfection, and Monitoring of Dental Unit Water Lines

The following instructions outline best practices for ensuring your DUWL are safely, and effectively treated.

General Information

- All dental water line units (DUWL) require disinfection.
- The following instructions include a cleaning and pretreatment method with Zymax. Always consult your DUWL manufacturer’s instructions.
- The following instructions are based on using Aqua-FX as a water line disinfectant. Always consult your dental chair manufacturer’s instructions on how to perform a disinfection cycle.
- Always ensure the concentration of Aqua-FX peracetic acid is at least 500 ppm
- Flushing times and solution volumes can vary between different DUWL makes and models.
- Do not attempt to force liquid through a clogged hand-piece
- When purging lines with Zymax and Aqua-FX, it is possible that gross debris may be dislodged. If lines appear clogged, consult your manufacturer’s instructions and troubleshooting guide.
- If you experience difficulty using Zymax or Aqua-FX, please contact maxill customer service.
- If you experience difficulty using your DUWL, please contact the manufacturer.
- Always wear gloves and eye protection when handling Zymax and Aqua-FX. Refer to the SDS for full product details.
- Zymax is an enzyme concentrate which is biodegradable. No specific waste handling is required.
- Aqua-FX contains ingredients which naturally breakdown into water, oxygen, and carbon dioxide. No specific waste handling is required for diluted Aqua-FX.

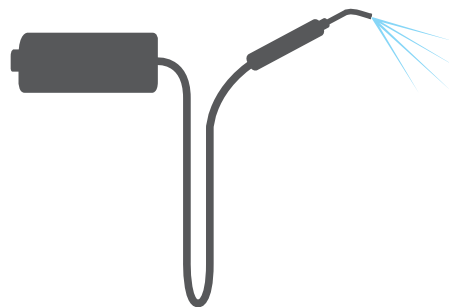
Pre-Cleaning with Zymax

Record your pre-cleaning activities in the provided log.

A



Prepare the Zymax working solution according to the directions for use.

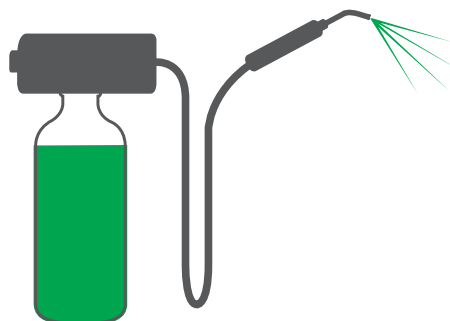


Disconnect the water bottle and allow the water lines to be purged of water until only air is being expelled.

B

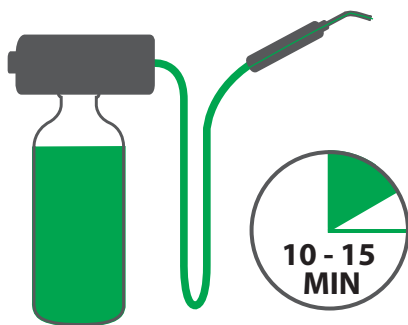


Connect the maxill H2O Zymax bottle to your closed water system.

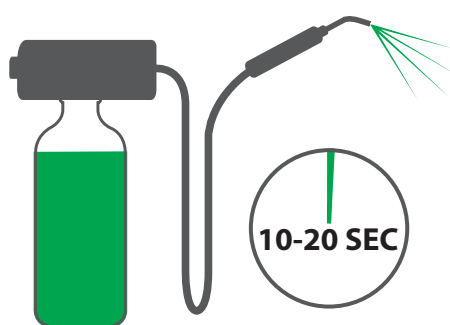


Allow Zymax to flow through each hand-piece until only Zymax is being discharged.

C



Allow the Zymax to dwell in the lines for a minimum of 10 to 15 minutes.



Flush each hand-piece with additional Zymax for 10-20 seconds

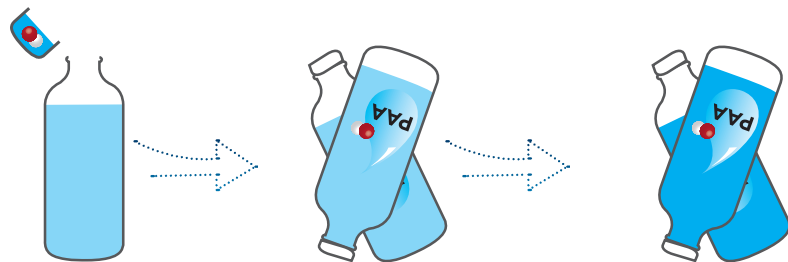
Detailed Instructions:

1. Determine the amount of Zymax working solution you will require based on the number of DUWLs you will be treating, and the flow rate of your unit. (Flow rates are variable and are best determined by your experience with the unit, or consulting the manufacturer)
2. Prepare the Zymax solution according to the directions for use directly in the Zymax maxill H₂O water bottle. Note: If this is your first time cleaning or pre-cleaning your DUWL, it is advisable to repeat the process below.
3. If necessary, consult with your chair manufacturer's instructions for running a line flush or line maintenance/cleaning cycle.
4. Turn DUWL off. Remove handpieces from water lines/tubing. Empty the water bottle (if applicable), then reconnect (or disconnect from water source if no water bottle) and turn the unit on.
CAUTION: Consult with your DUWL manual before performing air purges.
5. Hold water lines/tubing over sink or pail. Flush all water from the system.
6. Turn DUWL off. Attach the Zymax maxill H₂O bottle with prepared Zymax to the DUWL.
7. Turn DUWL on, and flush the system until Zymax is dispensed from all tubing in a continuous stream.
8. Allow the Zymax to dwell in the lines for a minimum of 10 to 15 minutes.
9. Flush all tubing with Zymax for an additional 10 – 20 seconds. If you are repeating the cleaning and pretreatment process, repeat from step 7.
10. Turn DUWL off. Attach empty water bottle, and purge all tubing with air as before.
11. If you are performing an Aqua-FX disinfection, proceed to the "Disinfecting with Aqua-FX" instructions.
12. To clean the water bottle, add approximately 100 mL of leftover Zymax solution to the water bottle, shake vigorously, and allow to dwell if necessary for 10 minutes. Rinse several times with water before proceeding with disinfection or patient care.
13. If no PAA treatment is to be performed, fill the water bottle with water from an appropriate source, wipe the inlet tubing (if applicable) and reattach the filled water bottle.
14. Perform a purge of all tubing using water as before, flushing for 20 – 30 seconds.
15. Reattach all handpieces and proceed with patient care using best practices.

Disinfecting with Aqua-FX

Record your disinfection activities in the provided log.

A

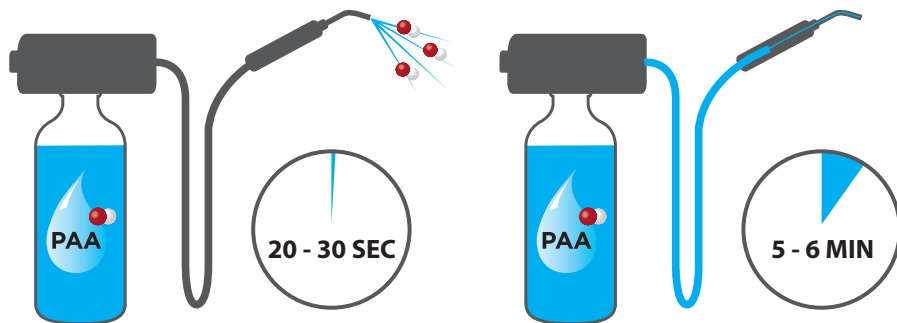


Prepare the Aqua-FX solution by making a 1 in 100 dilution.

Screw the lid on the bottle, and invert several times to mix.

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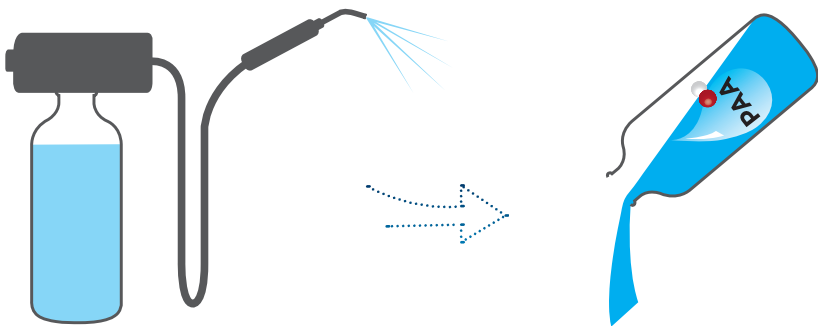
B



Connect the maxill H₂O Aqua-FX bottle to your closed water system. Allow Aqua-FX to flow through each hand-piece line for 20-30 seconds.

Allow the Aqua-FX to dwell in the lines for 5 to 6 minutes.

C



Remove the Aqua-FX bottle, and attach the filled DUWL potable water bottle. Flush each hand-piece for 20 to 30 seconds.

Discard unused Aqua-FX peracetic acid test strips may be used to confirm Aqua-FX is rinsed from the system.

Detailed Instructions:

1. Determine the amount of prepared Aqua-FX you will require based on the number of DUWLs you will be treating, and the flow rate of your unit. (Flow rates are variable and are best determined by your experience with the unit, or consulting the manufacturer)
2. Prepare the Aqua-FX solution by making a 1 in 100 dilution. For 1 L of solution, measure 10 mL of Aqua-FX into 990 mL of water in the maxill H₂O Aqua-FX bottle.
3. Screw the lid on the bottle, and invert several times to mix the solution.
4. Confirm the concentration of Aqua-FX is at 500 ppm using the test strips. Immerse PAA test strip into solution, and remove with pad face up. Do not shake off excess solution. Wait 10 seconds and compare to color chart on the test strip bottle. The test is not readable 30 seconds after exposure to the solution.
5. If no pre-cleaning has been performed, remove the handpieces, attach the empty water bottle (or disconnect from water source if no water bottle), turn the system on and purge the lines/tubing with air into a sink/suitable container before proceeding. CAUTION: consult with your DUWL manual before performing air purges
6. After purging with air or pre-cleaning with Zymax, replace the empty water bottle with the filled Aqua-FX bottle.
7. Flush the tubing with Aqua-FX solution for 20 - 30 seconds. The indicator dye will allow visual recognition that Aqua-FX is now in the tubing. Confirmation of Aqua-FX in the lines may also be achieved using the peracetic acid test strips as described in step 5.
8. Allow the Aqua-FX to dwell in the lines for 5 to 6 minutes.
9. Detach the Aqua-FX bottle, and reattach the empty water bottle. Purge the tubing with air as before.
10. If multiple disinfection cycles are required, you may repeat this process starting at step 6.
11. To clean the water bottle, add approximately 100 mL of leftover Aqua-FX solution to the water bottle (pre-cleaned or not pre-cleaned with Zymax), shake vigorously, and allow to dwell for 5 minutes. Rinse several times with water before proceeding with disinfection or patient care.
12. Fill the water bottle with water from an appropriate source, wipe the inlet tubing (if applicable) before reattaching the filled water bottle.
13. Perform a purge of all tubing using water as before, flushing for 20 - 30 seconds. To confirm that no peracetic acid is left in the tubing, you may use a peracetic acid test strip as described above to show 0 ppm.
14. Reattach all handpieces and proceed with patient care using best practices.
15. Remaining Aqua-FX solution is to be discarded.

Dental Unit Water Lines: Office Customization

The following chart should be used to identify the dental unit water lines by assigning an area number/code to each DUWL and identifying the water line sources present.

Area Number/ Code	Description	Water Line Sources Present to be Treated (Source Code)			Notes
MO	Main Operator	☒ Air Water Syringe 1 (S1)	☒ High Speed Hand Piece (H)	☐ Water Source Bottle (W)	DUWL installed 2016-05-24, cleaning and disinfecting once per week.
		☒ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
		☐ Air Water Syringe 1 (S1)	☐ High Speed Hand Piece (H)	☐ Water Source Bottle (W)	
		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
		☐ Air Water Syringe 1 (S1)	☐ High Speed Hand Piece (H)	☐ Water Source Bottle (W)	
		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
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		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
		☐ Air Water Syringe 1 (S1)	☐ High Speed Hand Piece (H)	☐ Water Source Bottle (W)	
		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
		☐ Air Water Syringe 1 (S1)	☐ High Speed Hand Piece (H)	☐ Water Source Bottle (W)	
		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
		☐ Air Water Syringe 1 (S1)	☐ High Speed Hand Piece (H)	☐ Water Source Bottle (W)	
		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	
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		☐ Air Water Syringe 2 (S2)	☐ Ultrasonic Hand Piece (U)	☐ _____ ()	

Pre-Cleaning and Disinfection Log

The following log should be used to record your weekly DUWL Zymax pre-cleaning and Aqua-FX Disinfection. Recording daily maintenance is not required in this log.

Date of Action	Area Code	Performed By	Zymax	Aqua-FX	Aqua-FX Purge	Observations/Notes
2017-05-24	MO	JS	☒ 10 min dwell time ☐ Not Applicable	☒ 1:99 solution ☒ PAA test (500 ppm) ☒ 5 min dwell time	☒ PAA test (0 ppm)	
YYYY-MM-DD			☐ 10 min dwell time ☐ Not Applicable	☐ 1:99 solution ☐ PAA test (500 ppm) ☐ 5 min dwell time	☐ PAA test (0 ppm)	
YYYY-MM-DD			☐ 10 min dwell time ☐ Not Applicable	☐ 1:99 solution ☐ PAA test (500 ppm) ☐ 5 min dwell time	☐ PAA test (0 ppm)	
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YYYY-MM-DD			☐ 10 min dwell time ☐ Not Applicable	☐ 1:99 solution ☐ PAA test (500 ppm) ☐ 5 min dwell time	☐ PAA test (0 ppm)	
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