24-Hour In-Office Dental Waterline Test Kit

FAQs

How often should I test my waterlines?

- Revert to manufacturer of the dental unit or dental unit waterline treatment product IFUs first. If both the dental unit and DUWL treatment manufacturer provide guidance, you must follow the test frequency recommendation with the most frequent testing intervals. For example, dental unit manufacturer specifies testing twice a year, but the DUWL treatment manufacturer specifies quarterly, follow the quarterly guidance. If no guidance is provided, we recommend following OSAP's guidance provided below.
- Per the CDC, "Dentists should consult with the manufacturer of their dental unit or water delivery system to the recommended frequency of monitoring. Monitoring of dental water quality can be performed by using commercial self-contained test kits or commercial water-testing laboratories."
- OSAP recommends:
    - Perform monitoring periodically regardless of the product or protocol used to manage dental procedural water quality, even when manufacturer directions for monitoring are absent or unclear.
    - Periodic monitoring and inspection should be performed at least monthly on each dental unit or device following installation of treatment devices or initiation of new protocols.
        - **If monitoring results indicate that water quality is acceptable for two consecutive monthly cycles, the frequency of testing may be reduced, but should be at least every three months**.
    - In addition to scheduled periodic monitoring, all dental devices that provide procedural water for patient treatment should be tested for bacterial contamination in the following circumstances:
        - Following installation of new equipment such as water reservoirs or procedural water treatment devices.
        - Following initiation of new procedural water treatment protocols using chemical germicides or cleaners.
        - After extended periods of disuse or lack of maintenance.
        - Following changes to manufacturer IFU or clinic protocols.
        - Following maintenance or repair of dental units or devices.

What is the proper way to obtain a water sample for testing?

- Review the Aseptic Technique for Obtaining a Water Sample for Testing document

Source: DENTAL UNIT WATER QUALITY: ORGANIZATION FOR SAFETY, ASEPSIS AND PREVENTION WHITE PAPER AND RECOMMENDATIONS–2018, Journal of Dental Infection Control and Safety

What are the current water standards for dental unit waterlines?

- Dental Unit waterline standards follow the EPA standard for potable water, <500 CFU/mL

Which lines should be tested?

- As a best practice, all water-bearing lines should be tested. So, if your operatory has AWS, Handpiece and Scaler lines – ideally you should complete 3 tests and should also consider periodic source water testing (sink)
- Review the Aseptic Technique for Obtaining a Water Sample for Testing document

Is it ok to use a multi-source (pooled) test sample for water testing?

- Yes. If this method is chosen, waterlines for each single operatory or single dental unit would be pooled into one sample.
    - A pooled sample must use equal amounts of water from each waterline.
    - Should not include more than 10 lines.
    - Pooling samples from units in different operatories into one sample is not acceptable.
    - Ensure to document which lines are being pooled.
    - Understand the downsides of pooling samples

What are the downsides of multi-source (pooled) test sampling?

- If CFU counts exceed recommended levels, a pooled sample will not allow identification of line-specific contamination.
    - While this may not seem like an issue if the office will be shocking all of the lines anyway following failure. However, all shocked lines should be re-tested.
        - If re-testing results in another failure, waterlines will need to be shocked again and each individual line should then be tested to identify potential deadlegs; determine if there is a protocol error when shocking or testing the lines
- Pooling samples can result in a passing CFU count as samples are diluted when pooled. I.e.: if three lines are under 500 CFU/mL and one line is over 500 CFU/mL, the pooling of these samples may dilute the failing line and provide a passing result.

What should be done if a multi-source (pooled) test sample fails?

- It is important to understand that if the pooled sample fails, *each* of the individual lines that were part of the pooled sample fail. At this point the office would have two options:
    - Re-test every line separately to determine which line(s) are failing
    - Shock every line connected to water on the dental unit (include ALL individual lines initially included as part of the pooled sample. In addition, to prevent contamination caused by areas of water stagnation not reached by shock or waterline treatments ensure to run shock through infrequently or unused lines (dead legs) on the dental unit
        - Ideally unused water lines should be disconnected from the dental unit
- Review the Aseptic Technique for Obtaining a Water Sample for Testing document

Is DUWL testing for specific organisms necessary?

- Per the CDC, “because methods used to treat dental water systems target the entire biofilm, no rationale exists for routine testing for such specific organisms as Legionella or Pseudomonas, except when investigating a suspected waterborne disease outbreak.”

We use "Good Quality" potable water for patient treatment, isn't that good enough?

- **No!** Starting with good quality potable water for patient treatment is a must, but per the CDC, removal of inactivation of Dental Unit Waterline biofilms requires use of chemical germicides. *Using potable water alone does nothing to remove or reduce bacterial contamination in patient treatment water.* **This includes**:

Tap	**Distilled**	**Sterile**
Commercially Bottled	**Reverse Osmosis**	**Procedural water drawn from individual office filtration systems OR Commercial water filtrations systems in the building**

- Once the "good water" gets into the dental unit tubing, it will be exposed to any bacterial contamination that remains in the lines and no longer is "good"

What about purging lines - isn't that an effective method to keep CFU counts low?

- No. Purging lines does not completely dry them out.
- Bacteria needs just one drop of water to put out the welcome mat and start the process for biofilm development

Water Testing Results Action Levels: HuFriedyGroup recommendation

- **Passing Results <500 CFU/mL**
    - Keep doing what you are doing and continue to test per state requirements, equipment manufacturer recommendations, waterline treatment manufacturer recommendations, or in the absence of manufacturer recommendations, follow the OSAP recommendation for quarterly testing following two consecutive months of passing results
    - Ensure that new or existing staff who are new to a waterline maintenance responsibility are trained in the office waterline treatment and testing products and protocols

- **Failing Results >500 CFU/mL = Shock/Re-Test/Treat/Test**
    - **Read the IFU of your selected shock treatment in advance** – some treatments can be completed in a few minutes to a few hours, while others may require a multiple night protocol, or for the office to be open the morning after overnight shocking to flush the shocking solution out of the lines. Do not deviate from the shock product protocol. Contact the product manufacturer with questions
    - Ensure to shock low use or unused lines, scalers, side/assistant carts, cabinets connected to water on the unit. Failure to reach these lines with shocking liquid will result in dead legs (areas where pockets of bacteria hide) that can continually re-contaminate the system
    - **Re-test as soon as possible following shock treatment**
        - Ensure that all water bearing lines are flushed for two-minutes prior to sampling
        - If previous testing was via an in-office method, consider re-testing with a mail-in lab test product to understand what the exact CFU counts are
            - Review the Aseptic Technique for Obtaining a Water Sample for Testing
    - Look to cap off/remove unused lines
    - Disconnection of unit water heaters is strongly recommended
    - Review the IFU of your current waterline treatment to ensure that protocols are being followed. If not, re-educate staff responsible for waterline maintenance to ensure that proper protocols are now in place
    - If you are not currently maintaining your waterlines with a germicidal waterline treatment product, start using one to ensure that lines are appropriately maintained following shocking. Per the CDC, removal or inactivation of DUWL biofilms requires use of chemical germicides[1]
        - Reach out to the Waterline Support team at HuFriedyGroup to discuss options on the market today
    - Follow a regular dental waterline testing protocol as determined by your state, equipment manufacturer, waterline treatment manufacturer or in the absence of a recommended testing protocol, HuFriedyGroup recommends following OSAP guidance to test monthly until two consecutive months show passing results and the switch to no less than quarterly

[1] *CDC MMWR: Guidelines for Infection Control in Dental Health-Care Settings - 2003*

What is HPC (Heterotrophic Plate Count)?

- **H**eterotrophic **P**late **C**ount, formerly known as the standard plate count is a culture method for estimating the number of live heterotrophic bacteria in water. [Source: US Environmental Protection Agency. Fed. Regist. 54(124): 27486–27541.]

What does CFU/mL stand for?

- CFU/mL is a measurement reflecting the total **C**olony **F**orming **U**nits per Milliliter.

Why do some waterlines fail to meet the EPA potable water standard (<500 CFU/mL)?

- There are many variables when it comes to treating dental unit waterlines that could lead to a failure - including but not limited to:
    - Characteristics of dental unit design (narrow, long, dark, moist tubing)
    - Non-compliance with protocols (such as incorrectly following manufacturer's instructions for use, lack of flushing waterlines)
    - Efficacy of dental waterline cleaning products
    - Incoming water quality
    - Areas of stagnant water flow/Dead legs (areas not reached by waterline or shock treatment where bacteria can hide)

What should an office do if their water test fails?

- When a dental unit exceeds 500 CFU/mL for an initial or periodic test, the unit should be treated according to manufacturer IFU, and re-tested immediately after treatment
- Educational remediation is recommended: Review waterline treatment, testing, water sampling and shocking protocols method IFUs as well as water sampling techniques
- Refer to Document: Top reasons why water tests fail and How to remediate

How long should a dental office keep their dental waterline testing records?

- The CDC Guidelines do not state a specific time period. Check with your state and local guidelines.

24-Hour In-Office Dental Waterline Test Kit Specific Questions

Can I read my results prior to or after the 24-hour mark?

- For accuracy, results must be read within the incubation time of 24-28 hours for the detection limit of 500 CFU/mL.
- Incubating less than 24 hours does not provide sufficient time for bacterial growth.
- The maximum window for reading test results is 28 hours. The test is no longer valid beyond the 28-hour mark and must be discarded. A new water sample will need to be taken.
    - A test that sits beyond the 28-hour mark will become more sensitive providing a greater chance for false positive results (CFU/mL counts >500).

Our water did not turn blue right after we took the water sample, sealed and shook the vial. What do we do?

- The test should not be used. Please contact the HuFriedyGroup Customer Care at 1-800-483-7488, or email watersupport@hu-friedy.com for assistance.

What do we do if we are having difficulty reading the water sample color change?

- Try holding the sample up against a piece of white paper. If that does not help, please contact the HuFriedyGroup Customer Care team at 1-800-483-7488, or email watersupport@hu-friedy.com for assistance.

I am not sure if my vial color has changed after 24 hours and if my water is clean or contaminated? How do I know for sure?

- A slight color change can be hard to see. This may happen when the bacteria level in the sample is close to the detection limit of 500 CFU/mL.
- The easiest way to confirm contaminated water or a borderline result, is to continue to incubate the sample for an additional 2-4 hours (no longer). If the color becomes more intense (turns to dark purple or bright pink), then the water is contaminated. If the color change does not become more noticeable after the additional 4 hours of incubation, the color change you thought you saw was most likely due to a change in lighting.
- Light, whether natural or artificial, can play a role in the color you are seeing. Ensuring that you take a photo of each test (in front of a piece of white paper) at the beginning and end of the incubation time to compare color can help with start and finish color comparison. Be sure to take the before and after photos in the same location.

Our test sample color turned clear, is there a problem with our test?

- A clear sample indicates bacterial levels exceeding 500 CFU/mL. The failed line(s) require remediation.

Will filling above or below the 5mL mark cause a problem with my test?

- Overfilling (filling the vial above the 5mL mark) will not cause a problem.
- Underfilling (filling below the 5mL mark) will cause the test to lose sensitivity and may result in a false passing result).

Do we need an incubator to incubate the vials at room temperature?

- No. An incubator is not needed.

Does the test color indicate a quantitative bacteria result?

If the color remains blue, the bacterial count is under 500 CFU/mL and safe to use.

- Bacterial counts over 500 CFU/mL will result in purple, pink or clear color changes.
- These results are non-quantitative and are not related to an exact bacterial count.
- Fast growing bacteria will change the sample to clear quicker, while with slow growing bacteria the color change does not happen as quickly.
- This is a screening method to determine pass or fail results only.

What is the benefit of using an in-office test vs mail-in lab testing?

- The 24-Hour Mail-in Dental Waterline Test Kit by Hu-Friedy provides results within 24-hours after obtaining the water sample. Faster results provide the office with an opportunity to remediate failures and get a chair back up and running quickly. With mail-in lab testing, results are not available for 7-10 days.
- In-Office testing may be a more economical options for some offices – especially those that test on a more frequent basis or have a larger number of operatories.
- HuFriedyGroup recommends using a mix of in-office testing for regular screening for bacteria and mail-in lab testing (at least 2x a year) for exact bacteria counts.

We need to know exactly what our CFU/mL counts are. Will the 24-Hor In-Office Dental Waterline Test kit provide exact counts?

- No. The 24-Hour In-Office Dental Waterline Test Kit is for use as a screening tool to provide a pass/fail indication based upon the current EPA standard of ≤500 CFU/mL. If exact bacteria counts are needed, we recommend testing with our Mail-in Dental Waterline Test Service.

How do we store our test kit?

- store in a cool space (room temperature) in original box/ away from direct light exposure)

How do we store our sample pack?

- The sample pack should be stored in a cool space (room temperature). However, they will be fine stored for 1 MONTH at a temperature range between 15° – 115° F.

How do we dispose of completed test vials?

- Test with passing results:
  - Content may be flushed down any sink drain.
  - The cap and vial may be presented for recycling or discarded in the regular office trash.
- Tests with failing results:
  - It is recommended to autoclave failed tests. Following autoclaving, content may be flushed down any sink drain. The cap and vial may be presented for recycling or discarded in the regular office trash.