

Sterisil

BEST MANAGEMENT PRACTICES



Visit us online at Sterisil.com





TABLE OF CONTENTS

Introduction	2
Key Terms	2
Water Quality Recommendations	3
Recommendations for Maintaining Water Quality	4
<i>Protocol Breaches</i>	5
Monitoring Dental Unit Water Quality	5
<i>Waterline Testing</i>	5
<i>Initial Waterline Test</i>	5
<i>Initiating and Interpreting Periodic/Follow-up Waterline Tests</i>	6
<i>Source Water Considerations</i>	6

INTRODUCTION

As a dental waterline treatment manufacturer, we are required by USEPA to provide product labeling that enables you to safely use our products. This Best Management Practices guide was developed to supplement and compliment existing product labeling. Over the years, we've learned that the right combination of routine shock treatments, regimented water testing, and continuous maintenance treatment can reliably ensure handpiece water meets the CDC's recommendation of <500 CFU/ml for HPC bacteria. Water quality. Water treatment. Water testing. It's all here.

KEY TERMS

Biofilm: a mass or layer of live microorganisms attached to a surface. These microorganisms colonize and replicate on the interior surfaces of waterline tubing, creating adherent microbial accumulations.

Boil-Water Advisory: a public health announcement that the public should boil tap water before drinking it. When issued, the public should assume the water is unsafe to drink.

Colony-Forming Unit (CFU): the minimum number of separable cells on the surface or in semi-solid agar medium which gives rise to a visible colony of progeny is on the order of tens of millions. CFUs may consist of pairs, chains, and clusters as well as single cells and are often expressed as colony-forming units per milliliter (CFU/mL).

Dental Treatment Water: non-sterile water used for dental therapeutic purposes, including irrigation of non-surgical operative sites and cooling of high-speed rotary and ultrasonic instruments. For the purposes of this policy, "dental water" refers to treated water that meets the American Dental Association water quality standard of <500 CFU/mL.

Drinking Water: non-sterile treated water that meets the minimum acceptable CDC water quality standard for safe drinking water of <500 CFU/mL.

Distilled Water: water heated to the boiling point, vaporized, cooled, condensed, and collected so that few, if any, impurities are reintroduced. For the purposes of this policy, the process of distillation has the effect of removing impurities (minerals and salts) that are harmful to medical equipment (e.g., sterilizers) and that bind to antibacterial agents in treated dental water, reducing its effectiveness.

Deionized Water: deionization removes minerals and ions, both cations (positively charged ions) and anions (negatively charged ions) using ion-exchange resins. Like distilled water, deionized water has been purified and stripped of impurities. The process is different, the end result is the same. For the purposes of this policy, both distilled water and deionized water are considered to be “purified” (impurities and minerals removed), making them suitable for use with steam sterilization and water treatment applications that produce dental treatment water.

Direct-Feed System: a water delivery method that utilizes dedicated waterlines to convey treated dental water directly between the water treatment system and the dental unit without the requirement for an internal water reservoir.

DUWL: Dental Unit Water Lines

Heterotrophic Bacteria: bacteria that require an organic carbon source for growth (e.g., they derive energy and carbon from organic compounds). The Heterotrophic Plate Count (HPC) is a laboratory method used to measure heterotrophic colony formation in drinking water, measured in CFU/mL.

Independent (or internal) Water Reservoir: a container in a dental unit used to hold water or other solutions and supply it to handpieces and air/water syringes through dental waterlines. This is also referred to as a “bottle-fill” water delivery system.

Retraction: the entry of oral fluids and microorganisms into waterlines through negative water pressure.

Sterile Water: water that is sterilized and contains no antimicrobial agents.

WATER QUALITY RECOMMENDATIONS

1. Dental Water Quality Standards for Routine (non-surgical) Dental Procedures.
 - a. Offices should use treated dental water for all non-surgical dental procedures that utilize water delivered through dental unit waterlines, regardless of the water source (e.g., self-contained reservoir [bottle-fill], or line [direct-feed] sources).
 - b. Dental water should contain an EPA registered dental waterline treatment component that enables it to meet or exceed the EPA, CDC, and ADA water quality standards.
 - c. Dental water must be capable of providing “continuous treatment” of the waterline to prevent the formation of biofilm and/or remove biofilm from the interior surfaces of DUWL.
 - d. At a minimum, all dental treatment water must meet or exceed the minimum acceptable EPA regulatory standards for “drinking water,” which is defined as <500CFU/ml of heterotrophic bacteria.
 - e. Use distilled water whenever possible; however, if you wish to use municipal tap water, Sterisil recommends you consult with your Sterisil Dental Water Compliance Specialist or have the TDS content assessed to ensure source water contains no more than 250ppm TDS.
 - f. Sterisil products are intended for use with potable water. Source water bacterial counts should not exceed 500CFU/ml.

2. Dental Water Quality Standard for Surgical Procedures.
 - a. Surgical procedures require sterile solutions for use as an irrigant or coolant without exception (e.g., sterile saline or sterile water).
 - i. Dental water is not a sterile solution.
 - b. Surgical procedures include, but are not limited to:
 - i. Biopsy
 - ii. Periodontal surgery
 - iii. Apical surgery
 - iv. Implant surgery
 - v. Uncomplicated tooth extraction,
 - vi. Surgical extraction of teeth (e.g., removal of erupted or non-erupted teeth requiring elevation of mucoperiosteal flap, removal of bone or section of tooth, etc).
 - vii. Removal of hard or soft tissues, or the incision, excision, or reflection of tissue that exposes the normally sterile areas of the oral cavity.

NOTE: Conventional dental units cannot reliably deliver sterile water even when equipped with independent water reservoirs. When sterile water is placed inside of an independent bottle reservoir, it becomes contaminated with bacteria as it travels through the tubing of the chair. Only recognized sterile delivery mechanisms (i.e single use pipettes or syringes) should be used in the delivery of surgical irrigants and coolants.

RECOMMENDATIONS FOR MAINTAINING WATER QUALITY

1. Dental devices connected to the dental water system that enter the patient's mouth (e.g., handpieces, ultrasonic scalers, and air/water syringes) should be discharged for a minimum of 20-30 seconds between each patient.
2. Prevention, removal, or inactivation of dental waterline biofilms through continuous treatment; regardless of whether the source water to a dental facility has been pre-filtered or otherwise "treated" to remove particulate matter and/or total dissolved solids (e.g., via water softening, reverse-osmosis, deionization, etc.)
 - a. Continuous treatment requires that all DUWL, water reservoirs (bottles), and municipally fed waterlines always remain primed with treated dental water.
 - b. Water delivery systems (water bottles and waterlines) using continuous treatment should never be drained and left empty overnight.
3. Sterisil recommends periodically disinfecting the outside of all water bottles with a hospital grade, intermediate-level tuberculocidal surface disinfectant.
4. Do NOT use cleaners that contain oxidizing agents such as bleach, peroxide, or iodine, as these chemicals react with the amalgam debris contained in amalgam separators; releasing mercury into the effluent waste water system.
5. For chairs that have been inactive more than 3-5 days, run handpieces for 20-30 seconds to refresh the antimicrobial treatment properties inside the waterline.

PROTOCOL BREACHES

If there is a breach in maintenance protocols, shock using orange Citrisil™ shock tablets and return to the standard maintenance protocol.

Examples of protocol breaches that warrant shocking are as follows:

- If air is introduced to the dental unit waterline for longer than 30 minutes
- An oxidizer is introduced. (e.g. chlorine, iodine, peroxide, chlorhexidine)
- A chair sits for longer than 14 days without any activity
- A waterline treatment product other than Sterisil or Citrisil was introduced into the waterline

MONITORING DENTAL UNIT WATER QUALITY

Clinical monitoring/testing of effluent handpiece water quality is recommended to ensure:

- Continuous water treatment procedures are being correctly performed
- Water treatment equipment and devices are working appropriately
- The dental water being produced is compliant with ADA, FDA, and EPA standards
- The dental unit water lines are free of biofilm or other microbial contamination

WATERLINE TESTING

Routine monitoring of bacterial content and general water quality in effluent hand piece water can identify dangerous conditions before they become a problem. This necessary feedback loop allows clinical staff to adjust ONGOING treatment efforts until microbial loads return to compliant levels.

TESTING TRIGGERS

The occurrence of any of the following scenarios should trigger a water test:

- Changes in office or dental plumbing
- Changes in water treatment; process or equipment related.
- Breach in protocol

Thereafter, we recommend that DUWLs maintain “continuous treatment” and be tested every at least every 12 months.

TESTING INTERVALS

OSAP Recommends testing monthly until you've attained passing results for 2 consecutive months. Continue to test monthly or reduce to quarterly testing cycles so long as you maintain passing results.

INTERPRETING WATERLINE TEST RESULTS

Following the completion of an initial or annual waterline test, it may be necessary or appropriate to perform periodic or follow-up waterline tests.

In-Office Testing (Paddles)

Paddles are generally accepted as a rough screening method. They carry a higher margin for error compared with mail-in tests. Test failures with a paddle will warrant a shock and a retest. Always consult your IFU.

Mail-In Testing

For mail in test methods, any sample that produces HPC counts above 500 CFU/ml should be shocked immediately. While counts below 500 CFU/ml are generally safe, Sterisil recommends our customers aim for <10 CFU/ml.

- Dental units with bacterial contamination >50 to 199 CFU/ml should be shocked using the orange Citrisil™ shock tablet, but they do not need to be re-tested.
- Dental units with bacterial contamination >200 CFU/ml but <399 CFU/ml can be shocked and retested using an in-office test paddle like MyCheck™.
- Dental units with bacterial contamination >400 CFU/ml should be shocked and re-tested using a professional lab that provides a certified lab report for bacterial load, pH, and TDS, such as Agenics. Another follow-up waterline test should be performed in three months to confirm that dental water quality standards have been maintained.



NEED HELP OR HAVE QUESTIONS?

Our technical support staff is available and ready to help.
Please call, email, or visit us online for additional support.



719 622 7200



support@sterisil.com



sterisil.com

835 S Highway 105 Suite D
Palmer Lake, CO 80133

Office: 719 622 7200
Fax: 866 299 2495