Sterilization - Cleaning

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Pretreatment sprays, gels, or foams (9/16) UPDATED (1/18)

Question: Do we need a pretreatment spray, gel or foam if we pre-clean instruments by removing gross debris in the DTR, before transporting to the decontamination area?

Answer: Yes, after gross debridement, instruments are pretreated before transport to the instrument processing center to keep them moist before definitive cleaning. Instruments become contaminated with bioburden (blood, saliva, tissue, dental cements and impression materials, that contain microbes). Precleaning is the removal of gross bioburden. When precleaning is accomplished, it decreases the microbial load and makes cleaning and disinfection more effective. In a dental setting, some removal of bioburden occurs during the procedure using four handed dentistry to prevent contaminates from drying on instruments and allowing instruments to continue to be operable throughout the procedure. At the end of a procedure instruments should be free from gross contamination. Precleaning can be accomplished by wiping instruments at chair side, but only if care is taken to avoid percutaneous injuries (see Removing Gross Debris on Instruments Before They Are Processed).

Pretreatment spray, gel or foams are designed to keep instruments moist. Keep in mind that pretreatment products may not remove some dental materials (i.e., cements and impression materials). According to The Joint Commission (TJC) and the Association for the Advancement of Medical Instrumentation (AAMI) ST79, instruments are to be kept moist when transported from the point of use (i.e., DTR) to the instrument processing center. Although this can be accomplished by either a moist towel or a pre-treatment product, USAF dental treatment facilities (DTF) use a pretreatment spray, gel or foam. Use the pretreatment even when instruments are immediately delivered to the instrument processing center. It is possible instruments may not be cleaned immediately upon arrival.

Pretreatment spray, gel or foams aid in cleaning, by preventing remaining bioburden from drying on instruments before the definitive cleaning process begins. Read instructions for use (IFU) and ensure that your pre-treatment spray gel or foam is designed to keep instruments moist during transport. Do not allow the product to remain on instruments longer than the manufacturer’s IFU allow. These products may corrode instruments if IFU are not followed. Also, ensure spray gel or foam is not excessive (pooling or sloshing in the transport bin).

Selected References


**Instrument/Device Cleaning with Disinfectants (2/16) UPDATED (1/18)**

**Question:** Some of the doctors wonder if they can disinfect their photo mirrors with an intermediate-level disinfectant (e.g., Cavicide) even though the instructions for use (IFU) call for heat sterilization of the mirrors before first use and in between patients.

**Answer:** No, the method you described above is not acceptable. You must follow the manufacturer IFU, USAF Guidelines for Infection Prevention and Control in Dentistry and the CDC Summary of Infection Prevention Practices in Dental Settings 2016. Semicritical items are medical devices or instruments (e.g., mouth mirror) that come into contact with mucous membranes and do not ordinarily penetrate body surfaces. The photo mirrors are semicritical items. Do not use intermediate-level disinfectants intended for use on environmental surfaces to clean and disinfect dental instruments/devices unless the IFU specifically states otherwise. We do not use liquid chemical sterilants/high-level disinfectants or low-level disinfectants in the dental clinic. Liquid chemical sterilants/high-level disinfectants are used in hospital sterile processing departments (SPDs) where there is appropriate ventilation and equipment for liquid chemical sterilants.

According to CDC and USAF guidelines, semicritical dental items are heat sterilized if they are heat tolerant.

**Selected References**


**Instrument Presoaking with Disinfectants (12/10) UPDATED (1/18)**

**Question:** Is there any benefit to soaking instruments in a disinfectant before we place them in the ultrasonic cleaner or instrument washer?

**Answer:** No, do not soak instruments in intermediate-level disinfectants that are used for cleaning and disinfecting environmental surfaces. It is very likely that the chemicals in the intermediate-level disinfectants could damage (e.g., cause corrosion) the instruments. Ensure you read the instrument/device instructions for use (IFU). There are some rare occasions where the manufacturer IFU directs use of an intermediate-level disinfectant for cleaning and disinfection. Otherwise do not use intermediate-level disinfectants on instruments and devices.

**Selected References**


**Testing Mechanical (Automated) Cleaning Equipment (12/09) UPDATED (1/18)**

**Question:** I know there is a test to check our ultrasonic cleaners; is there a test for the large instrument washers?
Answer: Yes, there is a test to assess the efficacy of the mechanical (automated) cleaning equipment (e.g., washers and ultrasonic cleaners). To assess proper function, users should test mechanical cleaning equipment (e.g., ultrasonic cleaners, instrument washers, thermal disinfectors) upon initial installation, daily during routine use, and after major repairs as stated in the IFU. Verification testing should be included as a component of your instrument processing quality assurance program.

Commercial tests are available to evaluate variables such as water pressure, temperature, pH, and drying. It is very important to note that these tests do not replace the requirement to visually inspect instruments after cleaning. Also, users must continue to follow the cleaning equipment manufacturer instructions for use (IFU) and maintenance instructions, including instrument loading procedures, which are critical to the success of the cleaning process.

For ultrasonic cleaners, follow the manufacturer instructions for use (IFU). Ensure you degas and change the ultrasonic solution before each use (see the IFU for your make and model). Note: use can be defined by your local policy. Because of the variety of brands and models of washers and ultrasonic cleaners available, it is recommended to first contact the manufacturer of your equipment to see if they offer or recommend a specific washer test kit. If you purchase a test kit from a manufacturer other than the equipment manufacturer, it is recommended to discuss the specific type of equipment in use at your facility (e.g., type, brand, model of instrument washer) with the washer test kit manufacturer/distributor. It is best to do this before purchasing any new products. DECS was able to obtain information about commercially-available test kits for several major brands of instrument washers/disinfectors (see below).

<table>
<thead>
<tr>
<th>Instrument Washer/Disinfector Manufacturer*</th>
<th>Compatible Test Kit(s) and Manufacturer*</th>
</tr>
</thead>
</table>
| Getinge USA (800) 950-9912 www.getinge.com | 1. Healthmark—TOSI™ Washer Test
(800) 521-6224 (586) 774-7600 www.hmark.com/ |
| Miele Inc. (800) 991-9380 www.miele.com proservice@mieleusa.com | 2. Healthmark—TOSI™ Washer Test
(800) 521-6224 (586) 774-7600 www.hmark.com/ |
| STERIS Corporation (800) 548-4873 (440) 354-2600 www.steris.com | 1. STERIS Corporation—Verify™ All Clean™ Washer Indicator
(800) 548-4873 (440) 354-2600 www.steris.com |

*The listing or omission of a product/manufacturer in this table does not imply endorsement, approval, or disapproval by DECS. Before purchasing a test kit it is recommended to confirm with the manufacturer that it will be compatible with your equipment.

Selected References


Detergent Options for the Miele G7781 Dental Thermal Disinfector

Question: I'm confused about what detergents and rinses need to be used with the Miele Instrument Washer. Can you explain it, and are there alternatives to using the Miele company’s detergents?

Answer: Many Air Force dental clinics use the Miele G7781 thermal disinfector for cleaning and disinfecting contaminated instruments prior to sterilization. Deciding on the type of detergent and how to use it with the unit can be confusing. This article will explain the use of Miele brand detergents as well as a third-party option. Depending on what detergent is used, the Miele may use up to three chemicals per wash cycle: the detergent, a neutralizing rinse, and a final rinse aid.

Wash Cycle Summary

1. Detergent:
   Either an alkaline or a neutral detergent can be used. Alkaline detergents are reported to be more efficacious than neutral detergents for removing protein, fats, and oils, but alkaline detergents can damage anodized
aluminum instruments and cassettes. Previous testing by DIS (see DIS 47-39) showed that Getinge/Castle's Neutrawash detergent (pH 7) cleaned as well as Miele's alkaline wash (pH 11.4 - 11.9) and acid rinse combination, and the cost was considerably less.

Detergents are available in either powder or liquid form.

**Powder detergent** option with this type of detergent, the powder is placed inside the unit each time a cycle is run. It is placed into a dispensing unit with a lid, which is located inside the Miele washer. This is similar to adding powder detergent to a home dishwasher.

**Liquid detergent** option Use of liquid detergents avoids the extra step of adding powder to each cycle because the liquid detergent is dispensed automatically by the Miele. Use of a liquid detergent requires purchasing an accessory, the DOS Module C60 (approximately $550). This is a small "control box" that regulates the automatic dispensing of liquid detergent into the washer. The DOS Module and detergent container sit outside of the washer. An optional cabinet (Miele model G7796, $1500) is available for storing them. It matches the Miele washer and can be placed immediately beside it. One storage cabinet can hold DOS Modules and detergent containers for two Miele washers.

2. **Neutralizing Rinse:**
If the detergent used is strongly alkaline, it must be followed by an acidic neutralizing rinse to neutralize the alkalinity. This acid neutralizer is always a liquid. The container for the neutralizer resides outside of the washer, and tubing runs between the washer and the detergent container. An automatic dispensing pump for the neutralizing rinse is incorporated into the washer as standard equipment. The container for the liquid neutralizing agent can be placed inside the optional G7796 storage cabinet mentioned above.

3. **Final Rinse:**
A "rinse aid" solution may be added in the final rinse cycle. This solution is automatically dispensed from a container located in the door of the washer. The rinse aid helps break down surface tension for faster drying and helps minimize residual spots and films.

**CHOICES**
Wash cycle comparisons and product comparisons are shown in the tables below. Note that the most economical detergent solution may be to use Castle's Neutrawash. If inadequate cleaning of protein debris is a problem, switching to Castle's Tec Wash III may help.

**Company contact information:**
**Miele Appliances, Inc.**
9 Independence Way
Princeton, NJ 08540
(800) 843-7231
(609) 419-9898
(609) 419-4298 FAX
www.miele.com
e-mail: products@mieleusa.com

**Getinge/Castle, Inc.**
1777 E. Henrietta Road
Rochester, NY 14623-3133
(800) 394-4638
(716) 475-1400
(716) 272-5033 FAX
www.getingecastle.com
e-mail: info@getingecastle.com

**Government facilities, contact Getinge at:**
P.O. Box 9766
Arnold, MD 21012
(716) 475-1400
(716) 272-5033 FAX
e-mail: gov@getingecastle.com

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**Comparisons of Wash Cycles**

<table>
<thead>
<tr>
<th></th>
<th>Detergent</th>
<th>Neutralizer</th>
<th>Final Rinse</th>
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<tbody>
<tr>
<td>Option 1</td>
<td>Procare Dent 11A</td>
<td>Procare Dent 40</td>
<td>Procare Dent 30P</td>
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</tbody>
</table>
**Option 2**
- **Procare Dent 10A**
  - Powder, pH 11.2 to 12.0
- **Procare Dent 40**
  - Liquid, pH 2.1 to 2.4
- **Procare Dent 30P**

**Option 3**
- **Getinge Neutrawash**
  - Liquid, pH 7
- **Getinge Tec Wash III**
  - Liquid, pH 11
- **Getinge Tec Wash Powder**
  - Powder, pH 11

**Option 4**
- **Getinge Tec Wash III**
  - Liquid, pH 11
- **Getinge Tec Rinse**

**Option 5**
- **Getinge Tec Wash Powder**
  - Liquid, pH 11
- **Getinge Tec Rinse**

**Option 6**
- **Getinge Alkaline Detergent**
  - Liquid, pH 13
- **Getinge Acid Detergent**
  - Acidic liquid, pH 2.6

*Note: Getinge claims that Tec Wash III liquid and Tech Wash powder, while somewhat alkaline, will not harm aluminum and do not require the use of a neutralizing acid rinse.*

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**Product Comparisons**

<table>
<thead>
<tr>
<th>Product</th>
<th>Liquid or Powder</th>
<th>pH at Use Dilution</th>
<th>Quantity</th>
<th>Company Part Number</th>
<th>Govt cost (per fl oz)</th>
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<tbody>
<tr>
<td><strong>Procare Dent 11A</strong></td>
<td>Powder</td>
<td>11.4 - 11.9</td>
<td>5 ltr (169oz)</td>
<td>9051940</td>
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<td><strong>Procare Dent 10A</strong></td>
<td>Liquid</td>
<td>11.2 - 12.0</td>
<td>10 kg (10ltr/338oz)</td>
<td>9051960</td>
<td>$106.50</td>
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<td><strong>Procare Dent 40</strong></td>
<td>Liquid</td>
<td>2.1 - 2.4</td>
<td>1 ltr (33.8oz)</td>
<td>9052130</td>
<td>$43.95</td>
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<td><strong>Procare Dent 30P</strong></td>
<td>Liquid</td>
<td>3.2 - 3.8</td>
<td>5 ltr (169oz)</td>
<td>9052080</td>
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<td><strong>Getinge Neutrawash</strong></td>
<td>Liquid</td>
<td>7</td>
<td>4x1 gal (512oz)</td>
<td>61301605274</td>
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<td>5 gal (640oz)</td>
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<td><strong>Getinge Tec Wash III</strong></td>
<td>Liquid</td>
<td>11</td>
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<td><strong>Getinge Alkaline Detergent</strong></td>
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<td>15 gal (1920oz)</td>
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<td><strong>Getinge Acid Detergent</strong></td>
<td>Liquid</td>
<td>2.6</td>
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<td>61301605278</td>
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<td><strong>Getinge Tec Rinse</strong></td>
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<td>15 gal (1920oz)</td>
<td>61301664157</td>
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**Cleaning Dental Carbide (2/16) Reviewed (01/18)**

**Question:** Could you review the process of instrument cleaning, particularly the best approach to clean dental carbide burs?

**Answer:** You must refer to the bur manufacturer instructions for use (IFU). There are two approaches to cleaning dental instruments and burs: manual or use of mechanical means like an ultrasonic cleaner or instrument washer. Manual cleaning is not recommended due to the potential for direct contact with contaminated objects. Manual cleaning increases contact with the potential to produce spatter/aerosol, and involves the added danger of handling sharp items. If manual cleaning is used, heavy-duty utility gloves, mask, protective eyewear/gown must be worn.

Ultrasonic cleaners and instrument washers are quite effective and much safer than manual cleaning. Both options reduce the direct handling of contaminated objects and chances for percutaneous injuries. Cassette systems that retain the instruments at chairside and during instrument cleaning, rinsing, and subsequent sterilization can be utilized with both systems. This maintains the instruments in functional sets, and reduces exposure to contaminated dental items.
Some manufacturers are moving toward single use. Therefore it’s imperative you are aware of the IFU for reprocessing your dental burs. Note: the symbol in the photo to the right signifies single use.

The Acceptability of Manually Cleaning Instruments (1/18)

**Question:** Is manual cleaning of instruments still acceptable?

**Answer:** Yes, manual cleaning is still an acceptable technique. Ideally, mechanical (automated) cleaning equipment (ultrasonic cleaners, thermal washers/disinfectors) should be used instead of manual cleaning. Mechanical cleaning is reproducible and consistent compared to manually cleaning and the efficacy of mechanical (automated) cleaning equipment can be tested and measured. Follow the instrument Instructions for Use (IFU) for manual cleaning. The manufacturer may require special equipment (e.g., long handled brushes, and special procedures (e.g., soaking in specific solutions). General requirements for manual cleaning include the wear of long sleeve protective clothing, head covers, gloves, mask and eyewear. Keeping instruments submerged in water while cleaning reduces spatter. Cleaning only one or two instruments at a time is important to avoid percutaneous injuries.

References


- InCONTROL Factsheet # 11 Updated January 2018: Click Here

Removing Gross Debris on Instruments Before They Are Processed (1/02) UPDATED (1/18)

**Question:** Do you have any suggestions for removing gross debris on instruments before they are prepared for transport to the instrument processing center?

**Answer:** Gross debris should be removed from instruments by wiping them as they are used chairside, being careful to avoid percutaneous injuries. Use 2X2 gauze, moisten with clean water to remove debris. If the treatment is surgical, the gauze & the water should be sterile.

References:


Ultrasonic Cleaner Test Procedure (2000) UPDATED (1/18)

**Question:** Are there methods to test the function of ultrasonic cleaners?

**Answer:** Yes, there are methods to test the function of ultrasonic cleaners. Check with the manufacturer and/or review the Instructions for Use (IFU). You may use commercially available tests or an aluminum foil test to check for an even distribution of the cleaning power in an ultrasonic cleaner.

Instructions for the Ultrasonic Foil Test Procedure
1. Using standard lightweight or regular household aluminum foil, cut a piece to fit the width and length of the cleaner chamber. For example: A tank with dimensions of 9 inches long by 5 inches wide by 4 inches deep would require a foil sample measuring 9 inches by 5 inches.

2. Fill the tank with fresh ultrasonic solution according to the manufacturer’s Instructions for Use (IFU). Do not turn the heater on for the test.

3. Insert the foil vertically into the cleaner chamber, with the length of the foil running the length of the chamber and the bottom of the foil about one inch above the bottom of the chamber.

4. Holding the foil as steady as possible, turn on the ultrasonic cleaning unit for 20-60 seconds (if the unit is supplied with a high/low switch, it should be set in the high position).

5. Remove the foil sample and observe for small indentations (pebbling) on the foil. Some holes may also be present.

With a properly functioning unit, the entire foil surface will be uniformly "peppered“ (covered with a tiny pebbling effect). If areas greater than ½ inch square show no pebbling, the unit may require servicing.

**Selected References**

- InCONTROL Factsheet # 11 Updated January 2018: [Click Here](#)