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Instrument Cleaning with Disinfectants (2/16) **New**

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 and our USAF and CDC dental infection control guidelines. Semi critical 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 semi critical items. Do not use intermediate level disinfectants intended for use on environmental surfaces to clean and disinfect dental instruments 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, semi-critical dental items are heat sterilized if they are heat tolerant.

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Instrument Presoaking with Disinfectants (12/10)

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

Answer: No. In addition to adding time and cost to your instrument processing procedures, it is very likely that the chemicals in the disinfectant could damage (e.g., cause corrosion) the instruments. As a reminder, disinfectants used in the dental operatory are intended for environmental surfaces, not instruments. Some clinics use an instrument presoak product to prevent drying of saliva, blood, and other debris on the instruments if they cannot begin cleaning in the ultrasonic cleaner or instrument washer immediately. Presoaks (also called holding solutions) are products designed specifically for instruments and are generally detergents or enzymatic solutions. As with any product, users must read and follow the instructions (e.g., correct dilution, temperature, and soak time). For example, extended presoaking (e.g., several hours) may lead to corrosion of some instruments. To ensure the detergents/enzymatic solutions you choose are compatible with the metals and other materials used in dental instruments, it is also recommended that users refer to the "cleaning" section of the instrument instructions. Finally, after using a presoak product, the instruments still need to be cleaned, packaged, and heat sterilized.



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Testing Automated Cleaning Equipment (12/09)

Question: I know we're supposed to use the "foil test" to check our ultrasonic cleaners; is there a test for the large instrument washers?

Answer: Cleaning is the most important step in instrument processing because it reduces bioburden and removes material that can act as a barrier to the sterilizing agent during the sterilization process. Therefore, to assess proper function, users should test automated cleaning equipment (e.g., ultrasonic cleaners, instrument washers, thermal disinfectors) upon initial installation, weekly during routine use, and



after major repairs. This should be included as a component of your instrument processing quality assurance program. Commercially-available 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 operating and maintenance instructions, including instrument loading procedures, which is critical to the success of the cleaning process.

For tabletop ultrasonic cleaners, follow the manufacturer instructions. In the absence of manufacturer instructions, a generic test method can be used (see page 20 of the [USAF Guidelines for Infection Control in Dentistry](#)). Because of the variety of brands and models of instrument washers/disinfectors 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 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).

Instrument Washer/Disinfecter Manufacturer*	Compatible Test Kit(s) and Manufacturer*
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	1. STERIS Corporation—Verify™ All Clean™ Washer Indicator (800) 548-4873 (440) 354-2600 www.steris.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.

References

Association for the Advancement of Medical Instrumentation, American National Standards Institute. Comprehensive guide to steam sterilization and sterility assurance in health care facilities. ANSI/AAMI ST79:2010/A12010/A22011/A32012/A42013. Arlington, VA: Association for the Advancement of Medical Instrumentation, Consolidated Text 2014

Association of Perioperative Registered Nurses. Recommended practices for cleaning and care of surgical instruments and powered equipment. In: Perioperative standards and recommended practices. Denver: AORN, 2009.

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Detergent Options with Pass-Through Washer-Disinfecter (9/04)

Question: What detergent do you recommend for use in a Getinge/Castle pass-through washer-disinfecter?

Answer: There is no single "right" answer regarding what detergent to use as there are many options available, but here is a good place to start (these are all Getinge brand detergents):

- Renuzyme WR in the prewash cycle
- Neutrawash in the wash cycle
- Instrument Lubricant in the final purified rinse cycle

Note: This combination should be effective, but if you have considerable blood/protein soils on your instruments and the above combination is not removing it all, you could try replacing the Neutrawash with Getinge's Tec Wash III detergent. Tec Wash III is more alkaline than Neutrawash. Increasing the alkalinity of the detergent improves its ability to remove blood/protein soils, but if a



detergent is too alkaline it has the potential to damage aluminum instruments/cassettes. Getinge claims that Tec Wash III will not damage aluminum.

Large pass-through washers have the capability to utilize a purified water final rinse. While not "mandatory," use of a final purified water rinse is recommended when possible as it reduces spotting and deposits on instruments. Instrument lubricant is also injected during this cycle. Either deionized (DI) or reverse osmosis (RO) water may be used in this purified rinse cycle. DI is probably the best choice if washing instruments is your only need for purified water. However, RO has the advantage that it can be used as a final rinse in the washer and RO can also be used as a source of clean water for use in dental unit "separate water system" water bottles. (Neither method provides sterile water, but RO is better at removing bacteria than DI. Note that you would still need a water line treatment chemical if you use RO water as your source water for dental unit water bottles.) Culligan and other water treatment companies can provide deionizers and reverse osmosis units.

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Detergent Options for the Miele G7781 Dental Thermal Disinfector 5/02 Updated (2/15)

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/Castle at:

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

Comparisons of Wash Cycles

	Detergent	Neutralizer	Final Rinse
Option 1	Procure Dent 11A (liquid, pH 11.4 to 11.9)	Procure Dent 40 (liquid, pH 2.1 to 2.4)	Procure Dent 30P
Option 2	Procure Dent 10A (powder, pH 11.2 to 12.0)	Procure Dent 40 (liquid, pH 2.1 to 2.4)	Procure Dent 30P
Option 3	Getinge Neutrawash (liquid, pH 7)	None	None (Neutrawash contains a rinsing agent)
Option 4	Getinge Tec Wash III (liquid, pH 11*)	None	Getinge Tec Rinse
Option 5	Getinge Tec Wash Powder (powder, pH 11*)	None	Getinge Tec Rinse
Option 6	Getinge Alkaline Detergent (liquid, pH 13)	Getinge Acid Detergent (acidic liquid, pH 2.6)	None

*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.

Product Comparisons

Product	Liquid or Powder	pH at Use Dilution	Quantity	Company Part Number	Govt cost	Govt cost (per fl oz)
Procure Dent 11A	powder	11.4 - 11.9	5 ltr (169oz)	9051940	\$179.26	44¢ (\$1.05)
Procure Dent 10A	liquid	11.2 - 12.0	10 kg (10ltr/338oz)	9051960	\$111.30	35¢ (\$0.33)
Procure Dent 40	liquid	2.1 - 2.4	1 ltr (33.8oz)	9052130	\$45.31	44¢ (\$0.75)
Procure Dent 30P	liquid	3.2 - 3.8	5 ltr (169oz)	9052080	\$111.30	89¢ (\$0.66)
Getinge Neutrawash	liquid	7	4x1 gal (512oz)	61301605274	\$36.76	7¢ (\$0.07)
			5 gal (640oz)	61301600010	\$46.50	7¢ (\$0.10)
			15 gal (1920oz)	61301600011	\$120.15	6¢ (\$0.06)
Getinge Tec Wash III	liquid	11	4x1 gal (512oz)	61301605275	\$50.81	9¢ (\$0.10)
			5 gal (640oz)	61301667776	\$63.27	9¢ (\$0.10)
			15 gal (1920oz)	61301667777	\$182.54	8¢ (\$0.10)
			30 gal (3840oz)	61301600844	\$223.08	8¢ (\$0.06)
			55 gal (7040oz)	61301600845	\$620.07	8¢ (\$0.09)
Castle Tec Wash Powder	powder	11	25 lb	61301647025	\$30	8¢ (oz)
Getinge Alkaline Detergent	liquid	13	4x1 gal (512oz)	61301605276	\$42.38	9¢ (\$0.08)
			5 gal (640oz)	61301600040	\$52.61	8¢ (\$0.08)
			15 gal (1920oz)	61301600041	\$150.76	8¢ (\$0.08)

			30 gal (3840oz)	61301602228	\$292.10	8¢ (\$.08)
			55 gal (7040oz)	61301601081	\$496.69	7¢ (\$.07)
Getinge Acid Detergent	liquid	2.6	4x1 gal (512oz)	61301605278	\$50.73	11¢ (\$.10)
			5 gal (640oz)	61301600042	\$63.96	10¢ (\$.10)
			15 gal (1920oz)	61301600043	\$176.38	10¢ (\$.09)
			30 gal (3840oz)	61301602229	\$341.91	10¢ (\$.09)
			55 gal	61301601082	\$586.15	9¢ (\$.08)
Getinge Tec Rinse	liquid	3.4	4x1 gal (512oz)	61301605280	\$79.15	15¢ (\$.15)
			5 gal (640oz)	61301664156	\$99.35	13¢ (\$.16)
			15 gal(1920oz)	61301664157	\$283.56	13¢ (\$.15)
			30 gal (3840oz)	61301601299	\$556.44	13¢ (\$.14)
			55 gal (7040oz)	61301603797	\$982.77	14¢ (\$.14)

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Cleaning Dental Carbide and Diamond Burs (Updated) (2/16)

(Originally published in the Jan 1998 issue of InCONTROL)

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

Answer: You must refer to the 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 splatter/aerosol, and involves the added danger of handling sharp and pointed items. If manual cleaning is used, heavy-duty utility gloves, mask, protective eyewear/gown must be worn. A clean long-handled brush should be utilized, and instruments should be cleaned under a running water or a solution to reduce spatter.

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. Cassettes that retain the instruments at chairside and during instrument cleaning, rinsing, and subsequent sterilization can but utilized with both systems. This maintains the instruments in functional sets, and reduces exposure to contaminated dental items.

Several options exist in handling contaminated dental burs/diamonds.

- 1) Decontaminate at chairside with wet gauze using a cleaner or presoaking solution before transport.
- 2) Spray with a holding solution or presoak to expedite cleaning at later time.
- 3) Place in ultrasonic using separate bur holder.
- 4) Use disposable burs/diamonds.
- 5) Manual cleaning under a solution (last option).

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The Acceptability of manual cleaning Instruments

(Originally published in the Jan 2000 issue of InCONTROL)

Question: Is manual cleaning instruments still acceptable?

Answer: Ideally, mechanical means (ultrasonic cleaners, thermal washers/disinfectors) should be used instead of manual cleaning, but manual cleaning is still an acceptable technique. manual cleaning recommendations include: using utility gloves, using a clean long-handled brush and keeping instruments submerged in water while cleaning to reduce spatter, and cleaning only one or two instruments at a time to avoid percutaneous injuries.

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Removing Gross Debris on Instruments Before They Are Processed (Originally published in the Jan 2002 issue of InCONTROL)

Question: Do you have any suggestions for removing gross debris on instruments before they are processed?

Answer: Gross debris can be removed from instruments by wiping them at chair side, but only if care is taken to avoid percutaneous injuries. To prevent injuries, avoid using a two-handed technique during chair side debridement. Instead, take two or three cotton rolls and wet them with clean water, then tape the wet

rolls, and two or three dry rolls to the bracket tray. To remove debris from the instruments, insert the sharp end of the instrument into the wet cotton rolls and remove, and then wipe the instrument on the dry cotton rolls to remove the remaining loose debris and excess moisture. Commercially available disposable sponges can also be used for this purpose. (If the treatment is surgical, the rolls should be sterile as should the water used to wet them.)

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Ultrasonic Cleaner Test Procedure (Aluminum Foil Test) (Originally published in the May 2003 issue of InCONTROL)

Question: Is there a method to test the function of an ultrasonic cleaner?

Answer: The aluminum foil test is a simple and fast method to check for an even distribution of the cleaning power in an ultrasonic cleaner. In the absence of manufacturer's recommendations, the following procedure can be used:

1. Using standard lightweight or regular household aluminum foil, cut a piece of foil to fit the width 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. Prepare a fresh solution of ultrasonic cleaning solution and fill the tank according to the manufacturer's instructions. 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.
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.

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