

1. HOLDING/PRESOAK

Never hold instruments in a dry container.

Doing so allows blood and debris to dry onto instrument surfaces and makes cleaning more difficult. If rinsing and decontamination processes are not immediately available, pre-treat instruments or hold them in a neutral pH holding/presoak enzymatic solution such as Pro Advantage Enzymatic Detergent Concentrate (6198-NDC) after patient use but before actual cleaning. As soon as possible, rinse and clean as follows:

2. RINSING

(Always wear safety protection gear.)

Immediately after surgery, remove organic materials by rinsing instruments under warm (not hot) running water. Rinse should remove most blood, fluids and tissue. Do not process dissimilar metals (stainless, copper, chrome plated, etc.) together.

Note: *Disinfection can be included to protect medical personnel from contamination during cleaning; however, protection also can be accomplished by following standard precautions by wearing appropriate PPE as promulgated by OSHA & AORN.*

3. CLEANING

All blood, dried body fluids and tissue should be completely removed from instruments prior to sterilization. Several methods for removing these materials are available.

- A. **Soak:** An enzymatic cleaner bath (soak) such as Pro Advantage Enzymatic Detergent Concentrate (6198-NDC) or a solution of water and neutral pH (7) detergent is effective in removing organic material from instruments. Use distilled (demineralized) water, if possible. Instruments should be fully submerged for at least 10 minutes. Do not let "sharps" (scissors, knives, osteotomes, etc.) touch each other. Ensure that dissimilar metal instruments are separated. Rinse instruments under running water to remove solutions and change solutions frequently.
- B. **Ultrasonic Cleaning:** Most instrument manufacturers recommend ultrasonic cleaning as the most effective way to clean surgical instruments, particularly instruments with hinges, box locks and other moving parts.
- All instruments must be fully submerged in an open position using distilled (demineralized) water, if possible. To prevent possible surface scratching make sure that "sharps" do not touch other instruments. Also, separate instruments of dissimilar metals.
 - Process instruments for the full recommended ultrasonic cleaning cycle. Change solution frequently or as often as the manufacturer recommends.
 - Rinse instruments with water to remove the cleaning solution.
- C. **Automatic Washer Sterilizers:** Following manufacturers' recommendations, ensure that instruments are lubricated before the sterilization cycle and after the last rinse cycle.
- CAUTION:** Needle holders and forceps may crack if sterilized with ratchet in closed position.
- D. **Manual Cleaning:** If ultrasonic cleaning is not available, observe the following steps:
- Use stiff nylon cleaning brushes. Do not use steel wool or wire brushes except stainless steel wire brushes specially recommended for instrument serrated areas, bone files, burs or on stained areas of knurled handles.
 - Use only neutral pH (7) detergents. If not rinsed off properly, low pH (acidic - less than 6 pH) detergents break down the stainless protective surface resulting in pitting and/or black staining on instruments. High pH detergents (alkaline - more than 8 pH) can cause brown stains (phosphate surface deposit) which can also interfere with the smooth operation of instruments. Most brown stains are not rust and are easily removed with a surgical instrument stain remover.
 - Brush delicate instruments carefully, and if possible, separate them from general instruments.
 - Make sure instrument surfaces are visibly clean and are free from stains and tissue. This is also a good time to inspect each instrument for proper function and condition.
 - Check scissors' blades to ensure proper function. Blades should open and close smoothly. Test cutting performance at 3/4 length of the blade with the materials recommended below. Scissors should cut all the way to the tips. Recommended cutting test materials:
 - Fine/Delicate scissors: Surgical glove
 - Medium scissors: Single layer of stocking/cast netting
 - Large/Utility scissors: Double layer of stocking/cast netting
 - Check forceps (pickups) for proper jaw alignment. Teeth must meet properly without catching.
 - Check hemostats and needle holders to ensure jaw tips close in first ratchet position and that the entire jaw closes in third ratchet position. Check instruments for loose hinges and verify that they lock and unlock easily. Also check instruments for wear on jaw surfaces.
 - Suction tubes should be clean inside.
 - Test Biopsy Punches by punching a clean hole in 3-6 mil thick poly-bag material. If poly-bag material is not available, use tissue paper.

- Retractors should function properly.
- Cutting edge instruments and knives should be sharp and free of damage.
- After scrubbing, rinse instruments thoroughly under running water. While rinsing, open and close scissors, hemostats, needle holders and other hinged instruments to ensure that hinged areas are rinsed out and that no debris remains.

4. AFTER CLEANING

Separate dissimilar metals prior to sterilizing/autoclaving. If instruments will be stored, allow them to air-dry and store them in a clean and dry environment.

5. AUTOCLAVING

- A. Lubricate all hinged instruments** which have any “metal to metal” action at the screw or box lock. A non-silicone, water-soluble surgical lubricant is recommended. Do not use industrial oils or lubricants.
- B. Sterilize instruments** either individually or in sets.
- **Individual Instruments:** Disposable paper or plastic pouches are ideal. Pro Advantage[®] Sterilization Pouches are available in five popular sizes (see chart). Make sure to use a wide enough pouch for instruments with ratchet locks so instruments can be sterilized in an open (unlocked) position. Instruments locked during autoclaving can develop cracked hinges (box locks) or other problems because of heat expansion. If wrapping instruments, make sure the towel does not contain detergent residue which can stain instruments. Pro Advantage[®] CSR Wrap is available in three sizes and is also ideal for sterilizing instruments.
 - **Instrument Sets:** Unlock all instruments and sterilize in an open position. Place heavy instruments on the bottom of set (when two layers are required). Do not overload the chamber because an air pocket that hinders steam penetration may form.

CAUTION: With most portable tabletop autoclaves, unlock the door and open it no more than a crack, about 1/4” (6.4 mm). (at the end of the autoclave cycle and before the drying cycle) Then run the dry cycle for the period recommended by the autoclave manufacturer. If the autoclave door is fully opened before the drying cycle, cold air will rush into the chamber and will cause condensation on the instruments, potentially resulting in water stains or causing wet packs. Make sure autoclave filters and chambers are cleaned as recommended by the manufacturer.

6. CHEMICAL/COLD STERILIZATION

Most chemical/cold sterilization solutions render instruments sterile only after 10-hour immersion. This prolonged chemical action can be more detrimental to instruments than the usual 20-minute autoclave cycle. If the instruments need to be “disinfected” only, a chemical/cold sterilization soak is acceptable, as disinfection will take approximately 10 minutes or more. Check manufacturers’ specifications. Also see our warning in using bleach (paragraph 3).

Keep in mind the difference between:

- Sterile - an absolute term (no living organism survives); and
- Disinfected - basically clean. Some organisms may survive. Always use the proper sterilization/cleaning technique to render the instrument in the required condition for use.

CAUTION: For instruments with tungsten carbide insert jaws, the use of chemical/cold sterilization solutions is not recommended as it may deteriorate the instrument’s jaw.

We recommend these Pro Advantage[®] products to assist in the care of your quality instruments:

| Item# | Description |
|----------|---|
| 6198-NDC | Enzymatic Detergent Concentrate, Gallon |
| P012790 | 2 3/4” x 9” Sterilization Pouch, 200/bx |
| P013554 | 3 1/2” x 5 1/4” Sterilization Pouch, 200/bx |
| P013590 | 3 1/2” x 9” Sterilization Pouch, 200/bx |
| P015410 | 5 1/4” x 10” Sterilization Pouch, 200/bx |
| P017513 | 7 1/2” x 13” Sterilization Pouch, 200/bx |
| P011515 | 15” x 15” CSR Wrap, 100 sheets/bg |
| P012020 | 20” x 20” CSR Wrap, 100 sheets/bg |
| P012424 | 24” x 24” CSR Wrap, 100 sheets/bg |

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