



Cleaning Instructions

A: Instructions for Cleaning Stainless Steel Medical Appliances

Stainless Steel medical appliances must be cleaned on a regular basis in order to prevent unnecessary damage to metal surface. When cleaning stainless steel, make sure to use the proper cleaning agents and cleaning materials.

Regular cleaning guards against corrosion of the stainless steel surface. Stainless Steel, 400 Series, has a protective coating consisting of chromium (Cr). Stainless Steel, 304 Series, the most commonly used, contains both chromium (Cr) and nickel (Ni).

Inappropriate cleaning supplies and chemicals can completely destroy these protective coatings used on stainless steel.

In addition to chemicals, certain cleaning implements can also abrade stainless steel surfaces, damaging the protective coating, eventually leading to areas of corrosion.

Water, especially hard water containing moderate levels of chloride, will cause oxidation and pitting resulting in rust and corrosion of the stainless steel surfaces. Water with a pH-7 rating is recommended. Water registering 7 through 15 on the pH scale contains various concentration of alkaline products, with level 15 being caustic soda (lye). Water registering 1 through 6 on the pH scale contains various concentrations acidic products with level 1 being sulphuric (battery) acid.

Many compounds, considered to be acidic, if spilled and left to dry on the stainless steel surfaces will lead to various stages of corrosion if not immediately removed.

B: Approved Cleaning Agents

Cleaning agents that can be safely used with stainless steel include White Vinegar (in a spray bottle), Sodium Bicarbonate (baking soda), Isopropyl (rubbing) Alcohol, non-abrasive polish approved for stainless steel, and hospital grade (bleach free) disinfectants.



CAUTION: DO NOT use the following cleaning agents.

- Hard Water (anything with a pH reading above 7)
- Bleach or any compounds containing Chlorine
- Hydrochloric Acid (or Muriatic Acid)

Always use non-abrasive cleaning products specifically designed for use with stainless steel surfaces. *Do Not* use any cleaning agent containing chloride, bleach, or ammonia. These compounds must also be free of quaternary salts. Do not use chloride cleaning powder or crystals. These compounds are very common and are found in many industrial cleaning products and are very abrasive. These products can scratch the stainless steel surfaces.

Do Not use any form of hydrochloric acid, such as muriatic acid, to clean stainless steel surfaces.

Hydrochloric acid will erode the protective coatings of stainless steel resulting in corrosion of those surfaces.

Isopropyl Alcohol or rubbing alcohol can be used to clean almost any surface. Using the isopropyl alcohol in a spray bottle, apply a thin coating to the surface being cleaned and dried with a soft lint-free cloth.

Always use the cleaning agents at the dilutions or strengths recommended by the manufacturer.

C: Approved Cleaning Materials

Approved cleaning materials include mild detergents, Clean (distilled) water with a pH rating of 7 on a pH Scale, a soft-bristle brush, a soft-bristle toothbrush, and a non-abrasive cleaning pad.



CAUTION: DO NOT use the following cleaning materials

- Abrasive Pads
- Metal or Plastic Scrapers
- Steel Wool Pads
- Wire Brushes

Certain cleaning materials such as abrasive pads, steel wool, scrapers (both metal and plastic), or wire



brushes as they can damage the protective surfaces on stainless steel.

Do not use scrapers, either metal or plastic, for cleaning stainless steel. Scrapers can gouge or scrape the protective coating allowing corrosion to set in shortening the life of the stainless steel surface.

Never use abrasive steel wool pads or wire brushes to remove residue. Do not use abrasive cleaning pads to clean stainless steel.

A soft-bristle brush can be used to remove the majority of stains and deposits. Use a soft-bristle toothbrush to scrub tight corners and around exposed edges of the equipment.

To clean more aggressively, use a *non-abrasive* cleaning pad and scrub the contaminated surface in the same direction as the visible grain of the stainless steel. See Figure 1.

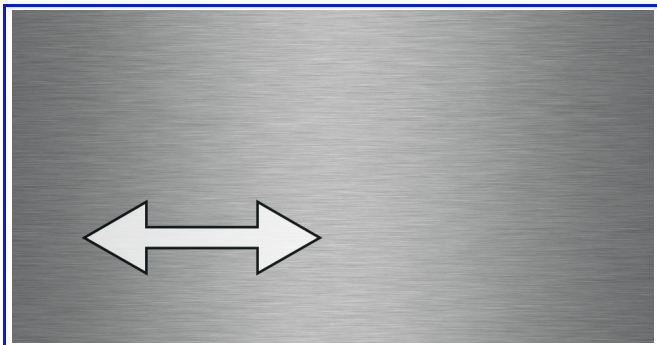


Figure 1: Rubbing With the Stainless Steel Grain

Proper cleaning agents, cleaning materials, and cleaning methods are essential to preserving the protective coating on the stainless steel.

Spilled liquids should be cleaned up immediately. The area should then be cleaned with distilled water and dried with a soft lint-free cloth.

Standing water should be cleaned up immediately. The area should then be cleaned with distilled water and dried with a soft lint-free cloth.

Water spots, especially hard water, can be cleaned using clear vinegar. Hard Water is defined as water containing alkaline contaminants and registering above pH7 on a pH Scale. Clear vinegar dissolves the water

spots. The vinegar is then treated with a sodium bicarbonate solution to remove any traces left behind, preventing any future damage to the stainless steel's protective coating. Sodium bicarbonate is also a food product and will not leave any chemical residues behind.

Stainless steel sinks should be cleaned by sprinkling sodium bicarbonate compound over the surface of the sink followed by a thorough rinsing with distilled water and dried with a soft lint-free cloth.

Fingerprints and mild stains resulting from normal use are the most common surface contaminants. The fingerprints and stains usually affect only the surface of the stainless steel and seldom, if ever, cause damage to the protective coating of the stainless steel.

Fingerprints and simple stains can be removed with a standard commercially prepared window cleaner, such as ammonia-free Windex®. Spray the window cleaner on the stainless steel and rub off with a soft, clean, lint-free cloth. Remember, as always, follow the cleaning of the fingerprints with a rinse of distilled water and dried with a soft, clean, lint-free cloth.



NOTE: DO NOT use a sprayer attachment to clean a stainless steel sink. The sinks should be wiped down ONLY using a commercially prepared non-abrasive stainless steel polish.

Oil and grease stains can carry grease, grit, and metal chips to the stainless steel surface. Grease and similar contaminants can soil the stainless steel surface and prevent passivity. Periodic removal of grease and shop oil contamination is absolutely necessary in order to protect the surface coating integrity of the stainless steel.

D: Disinfecting Stainless Steel

Bleach Free Disinfectants: Avoid the use of disinfecting solutions and wipes that contain bleach. Use a hospital grade non-bleach disinfectant whenever possible. Whenever bleach wipes or solutions are used, a thorough cleaning with distilled water followed a complete drying with a soft, lint-free cloth.