

Ice Machine Cleaning and Maintenance Prevents Biological and Scale Problems



Keeping Ice Machines Clean to Prevent Pathogens, Scale and Mold

Ice machines are used in hospitality facilities, restaurants, hotels, convenience stores, and healthcare facilities. Ice is so common that it can be overlooked as a source of contamination, yet studies confirm that ice machines are the primary source of food-borne contamination in restaurants. In fact, the U.S. Food and Drug Administration (FDA) defines it as a type of food. When health inspectors visit restaurants, one of the first places inspected are ice machines, with frequent citations for poor conditions that include mold and biofilm (slime).

Ice Machine Health Safety Regulations

FDA regulations require ice to be stored and handled like food. Kitchen maintenance programs must include a procedure that ensures that ice machines are regularly cleaned. The FDA Food Code chapter 1 part 1-201.10 defines ice as food, and mandates that ice be managed to the same handling and cleanliness standards as other components in food service, beverage service, and manufacturing equipment.

Ice is regulated under 40 C.F.R. 141 governing drinking water purity, with specific guidance on ice machine cleaning, governed by Food Law 2009 Chapter 4 part 602.11 section (E) item (4a and b). This section specifies that ice machines must be cleaned “at a frequency specified by the manufacturer,” which usually ranges from two to four times per year, or “at a frequency necessary to preclude accumulation of soil or mold.”

Ice machine sanitizing is governed by Chapter 4 part 702.11, which states that the ice contact surfaces must be sanitized after each cleaning.

Depending on the volume of use, the location of the machine, and water quality conditions, and ice machine may need to be cleaned more frequently, such as when a unit is located inside a restaurant kitchen, which should be cleaned every 30 days.

Ice Machine Maintenance

Ice machines require maintenance by professionals when electrical or components need servicing, but a monthly inspection by employees will identify mold, algae and scale issues that can be corrected quickly and easily. This practice will prevent contamination from ice that can harm customers and could be lethal to patients at healthcare facilities.

Baseline Water Conditioning for Scale and Biofilm Prevention

HydroFLOW physical water conditioners prevent biofilm, algae, mold and scale from forming on areas of ice machines where water flows. The HydroFLOW is a non-chemical preventative that operates 24/7 on circulating water lines without requiring maintenance or adjustment. Flowing water areas remain free of biological fouling that affects ice, and “splash areas” will require scheduled wiping down to remove any accumulation.

HydroFLOW units continuously operate and the “lit” red light indicates that the unit is operating.

The following is a guide for monthly ice machine inspection and cleaning:



Cleaning and disinfecting procedures for commercial ice-making machines

Ice Machines with removable ice contact surfaces.

1. Wear clean disposable gloves and use sanitized tools on all fasteners and surface areas
2. Remove all ice-contact parts from the machine.
3. Wash all parts in hot detergent water. Use a soft brush to remove rust and dirt from metal parts. Nylon and rubber parts including gaskets and O-rings should be washed using a cloth. Rinse parts thoroughly in clean water.
4. Place parts in a sanitizing solution for 30 seconds. (Management will provide **either** a quaternary ammonia compound or household bleach, in specified dilution ratios) Make sure that dilutions are carefully measured.
5. After 30 seconds, let parts air-dry.
6. Thoroughly wash hands before handling sanitized parts.
7. Reassemble the machine. Wipe all exposed surfaces with a fresh chlorine solution. Let air-dry.
8. Restart the machine. Discard the first ice produced.
9. Wipe down ice making areas with a clean cloth, working outward towards edges of equipment

Ice Machines with non-removable ice contact surfaces

Machines with non-removable ice contact surfaces that are NSF/ANSI Standard 12 listed are designed to have sanitizing solutions circulate through the machines. The manufacturer may state that chlorine solutions **not be used** during the clean in place procedures. If not:

1. Wear clean disposable gloves and use sanitized tools on all fasteners and surface areas
2. Remove any residual ice from the ice reservoir or shoots. Turn off the machine to allow any other ice in the machine to melt.
3. Turn the water supply and electricity on. Drain sufficient water through the machine to flush any residual water and dirt from the machine.
4. Run the machine through 2 or 3 freezing cycles. Discard the ice made during this process.
5. Turn the water supply off.
6. Drain the water and the ice inside the system.
7. Circulate a warm water cleaning solution through the machine for at least 2 minutes. Drain the system.
8. Circulate clean potable water for 2 minutes. Drain the system.
9. Circulate a Management-Approved sanitizing solution. **Either** a quaternary ammonia compound or household bleach, in specified dilution ratios) Make sure that dilutions are carefully measured.
10. Run the solutions through the machine for 2 minutes. Drain the system.
11. Wash, rinse, and sanitize any storage bins.
12. Return the drain valves to their normal position and start the machine.
13. Discard the first ice produced.
14. Wipe down ice making areas with a clean cloth, working outward towards edges of equipment

Adapted from the County of San Diego, Department of Environmental Health www.sdcdeh.org

Sanitary Handling of Ice

All workers who handle ice must follow these precautions:

- Wash hands before obtaining ice.
- Do not handle the ice with hands.
- Hold the ice scoop by the handle and do not touch other parts of the scoop.
- Do not return unused ice to ice storage chest or ice machine.

ICE Equipment Handling Procedures:

- Keep the access doors to ice storage chests and ice machines closed except when removing ice.
- Ice scoops should be smooth and protected against contact with contaminated surfaces such as floors, access door handles, service carts and non-food contact surfaces.
- Scoops should be kept on an uncovered stainless steel, impervious plastic or fiberglass tray when not in use. The tray and scoop should be cleaned daily in the kitchen dishwasher.
- Remove all extraneous equipment and items from around or in the ice storage chests and ice-making machines, and if possible, limit access to them.
- Never store any items in the ice storage chests
- Clean the ice storage chests on a weekly schedule, (no less than monthly).

If You See Any of The Following Issues, Promptly Clean an Ice Machine:

- Ice quality is poor (soft or not clear)
- Ice machine does not release ice, is slow to harvest or low capacity than normal
- Ice machine does not cycle into harvest mode
- Ice machine produces shallow or incomplete cubes

Follow these Practices when Maintaining an Ice Machine

- Be sure to follow the proper instructions specified in an ice machine's manual
- All ice produced during the cleaning and sanitizing procedures must be discarded. It's also suggested to throw out the first batch of ice made after cleaning
- Avoid any harmful chemicals (**Only approved** chemical cleaners) on ice machines, for customer safety. Do not use chemicals that could harm equipment, tubing, parts or people.
- Some manufacturers require specific or approved cleaner and sanitizer solutions to be used with their machines
- Do not mix cleaner and sanitizer solutions together
- Read and follow any instructions and cautions listed on the solution bottles
- Wear rubber gloves and protective safety glasses when handling cleaner and sanitizer solutions
- To prevent damage to the water pump, do not leave the control switch in a service position for an extended period when the water tank is empty during cleaning.



Installing a HydroFLOW Physical Water Conditioner on an Ice Machine

HydroFLOW is a chemical-free, environmentally friendly way to control algae, mold and scale on ice machines.

- HydroFLOW installs on a water line in minutes with no cutting or drilling.
- HydroFLOW has No maintenance and it saves hours of labor each month.

Ice makers develop a mat of biofilm, with mold and algae that serves as a host for bacteria if not disinfected frequently.

Biofilm is difficult to control, and it protects bacteria and harmful pathogens such as Legionella, e-coli, and other harmful organisms that can survive in temperatures that ice making equipment uses.

Preparing for installation

- HydroFLOW S38 model attaches around a circulating water line on an ice machine.
- Identify an available 110v electric outlet for the HydroFLOW
- Have the HydroFLOW and surge protector ready, but don't plug them in
- Remove the closure pin and open the S38 HydroFLOW so that both the top and bottom parts are detached
- Place both parts around the circulating water line on the ice machine and fasten the pieces together, with the indicator light facing outward. (when plugged in the light will be red)

Note: If 2 circulating lines are used by an ice machine model, but share a common sump, the pulsed frequency will be shared by both sides.

If 2 sumps are used (uncommon), a second HydroFLOW will be installed.

- When the HydroFLOW is attached, feed the electric cord along a path that remains dry and away from moving parts, heat or sharp edges. Extra line should not be stored inside the equipment, and will leave enough to avoid a taught line between the outlet and the HydroFLOW unit.
- Wipe down the ice production area of any biofilm, mold or scale according to cleaning protocols. Always wear sanitary gloves.
- Attach the electric cord to the HydroFLOW and when determined safe to insert the adaptor into the electric outlet. The red indicator light should glow.
- Take a photograph of the installation and note the date of installation.

Maintenance of the HydroFLOW S38

- The HydroFLOW operates for years without need of adjustment or maintenance.
- During scheduled wipe-down and cleaning events, make note that the red indicator light is on.



HydroFLOW Installs on the Circulating Water Line

