

## July Tip of the Month:

# Ice Machine Preventative Maintenance

An AmeriCold refrigeration technician will perform a light cleaning **every 4 months** and the major cleaning, sanitation, and preventive maintenance (PM) tasks **every 6 months**. Frequent interior cleaning of ice storage bins is very important for maintaining clean and sanitary ice.

If you haven't been doing this, or not doing it properly or frequently enough, it's likely that you have mold, slime and scale buildup inside your machine that's contaminating your ice. When a contaminant is introduced into an ice machine, the ice can actually preserve the germs and the moisture allows them to reproduce.



Over time, scale or calcium and magnesium buildup can change the taste of the water. This buildup can damage your machine by adhering to the surface of the evaporator plates. These damages can lead to expensive repairs as well as costly equipment downtime. When slime or mold is present it creates an unsanitary environment, violating health codes and putting customers' health at risk.

### The Primary Items For an Ice Machine PM Check are as Follows:

- Clean and sanitize the water system
- Clean air filters on air-cooled models
- Check external filter system and change cartridges as needed
- Check inlet water valve screens
- Conduct bearing and auger inspection on extruded icemakers
- Conduct a visual inspection of components, controls, and wiring for oil spots, loose wires, loose fasteners, corrosion, etc.
- Clean the bin interior and unit exterior

## Step 1: Check Water Filters

Approximately 70 percent of ice machine problems are a direct result of poor water quality, slow water fill, insufficient water supply or no water supply.

Unfiltered hard water contains particulates that restrict water flow to the ice machine and can be introduced into beverages as the ice cubes melt. When water-containing lime is frozen, the heavier particles fall out of the water during the ice-making process and build up on surfaces inside the ice machine, acting as an insulator on the refrigerated surface.

All of these problems cause ice machines to work harder to make the ice, which reduce their efficiency and increase maintenance costs.

Filtered water is preferred and selection of the correct water filtration system makes a significant difference in the taste and odor of the ice. Water filters are extremely important to extending the life of your machine and should be replaced every six months.



### **A Water Filter Performs Three Tasks:**

- Removes sediment from the water, keeping ice clean and clear in appearance
- Inhibits scale, which can build up in the machine over time and drastically reduce ice production
- Removes odor and bad taste, keeping customers happy

Although the filter may not appear to be blocked with sediment after six months, the scale inhibitor and carbon elements (which prevent odor and bad taste) are usually depleted and no longer effective.

## Step 2: Clean and Sanitize



As ice forms on an ice machine evaporator plate, a separation occurs. Minerals separate from the water and form scale, which sticks to the surfaces of the water system components. This scale will be more visible when the surfaces are dry. The color of the scale will vary due to the type of minerals in the local water supply. As an example, lime or calcium scale will be off white in color while iron scale will turn a rusty red color. Algae or slime growth may also occur in some locations. This is due to air or water-borne bacteria, which can settle in the wet areas and grow.

On an evaporator plate, this scale build-up insulates the freezing surface and impedes heat transfer. If the scale build-up remains, the ice cubes will stick to the plate and not harvest properly. As the next cycle continues, excessive ice will freeze on the evaporator plate and cause what is commonly known as a freeze-up. On auger-driven Flaker or cubelet machines, the scale sticks to the inside of the barrel and causes low production and poor quality ice. The scale build-up must be removed. This is accomplished by circulating a mild phosphoric acid solution throughout the water system.

Units that have plated evaporators require the use of a nickel safe cleaner. Nickel safe cleaner has a weaker acidic solution to protect the plating surface.

Once the cleaning process is complete, the unit should be sanitized. This is especially important if algae or slime is present. The sanitizer will eliminate any bacteria present and retard further growth. The storage bin should also be cleaned and sanitized at this time.

Failing to properly delime and sanitize ice machines can result in poor-quality ice. Ice cubes may be smaller or irregularly shaped, and the ice machine's production capacity can be reduced or fail completely. The taste, odor and clarity of the ice can be negatively impacted.

## Step 3: Clean and Inspect

Additionally, condenser fins or air filters should be cleaned or replaced every six months as well. Failure to keep the condenser free from lint and grease build-up will decrease the machine's ability to breathe and operate at peak capacity, thus reducing the ice production.

Clean the condenser fins and/or air filter and check the inlet water valve screen for restriction. Clean condenser fan blades. If the condenser coil is covered with grease, grime or dirt, a non-corrosive cleaner should be used and then rinsed thoroughly with water. You may find it necessary to use a fin comb or brush on the coil fins. This is especially important on remote condenser units where the coil is subjected to outside elements.



For water-cooled condenser units, the water connections of the condenser coil must be disconnected and cleaning solution circulated through the coil. The water-regulating valve must be cleaned and re-adjusted for proper flow once the cleaning process is completed. Service or change the filter cartridge on the external water filter/treatment system if present.

Inspect the control box and electrical components for loose or burnt connections. Look over the refrigeration system and service access valves for oil spots or other evidence of leaks. A complete, visual inspection of the unit can point to future problems, and will allow you time to correct the problem before expensive down time occurs.

## Step 4: Clean Exterior

The final step in the PM process is to clean the exterior. Use a soft cloth and a neutral cleaner to wipe down the stainless exterior of the unit and storage bin.

### Follow These Guidelines From Food Safety Magazine To Prevent Contamination Between Cleanings:

- When removing ice, use scoops with handles that prevent hands from touching the ice. Don't touch any other part of the scoop except the handle
- Keep the scoop outside the ice bin, so the handles don't touch the ice. The scoop should be kept on a stainless steel, impervious plastic or fiberglass tray
- Keep doors closed except when removing ice
- Consider periodically testing your ice and ice machine surfaces for the presence of contaminants
- Make sure that you use ice dedicated buckets for transport
- Do not store food, containers or other objects within the ice bin
- Change your water filters on a regular basis



### In Between These Service Visits, We Need You To Do Your Part By Conducting The Following Tasks:

- **ALWAYS** – make sure the ice machine is protected from extreme temperatures (*no less than 40F and no higher than 90F*) and ensure the equipment has unrestricted air flow
- **WEEKLY** – clean the exterior surfaces of the commercial ice machine with diluted bleach to inhibit mold growth
- **FREQUENTLY** – rinse out ice machine air filters. Grease, dust and lint in the air filter will decrease the performance of the icemaker  
**NOTE:** Do not bang or hit the air filters on anything to clean – this will damage the filter
- **PERIODICALLY** – check both the icemaker and the bin drainpipes at the floor drain to make sure it is free of debris
- **NEVER** – use the ice machine as a storage unit (*i.e. don't stack boxes or store supplies on top of the equipment*)