



Getting the Most From Your Foodservice Equipment

The Real Cost of Washing Dishes

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In previous articles we've discussed cooking equipment performance and how to select the best equipment for your particular foodservice operation. This month we'll go to the very back of the house to investigate the ins and outs of an often taken for granted yet most critical element when it comes to serving your product to your customers: your warewashing system.

Making the case for sanitation...

Cleanliness is the top priority for foodservice customers. As an operator, you may think that food quality and service are what keep your customers coming back, but think again. If you aren't serving your product on sparkling clean and bacteria-free dishes, they won't be coming back for long.

A recent study conducted by the Food Safety Council shows that less than 50% of customers think restaurants are doing a good job ensuring safe food practices. With that in mind, the timing could not be better for the industry to prove itself to the public with proper food safety practices. A key component of this commitment is properly cleaned and sanitized dishes and utensils.

While no foodborne illnesses are documented to have come from food served on unclean dishware, foodservice safety inspectors openly admit that improperly cleaned and sanitized utensils do increase the risk of foodborne illness outbreaks.

The real issue here is cross-contamination. If, for example, a knife has been used to cut raw poultry and is not properly cleaned and sanitized, it provides an excellent environment for breeding bacteria. That, in turn, can contaminate the next food it's used on. Proper cleaning and sanitizing of utensils can easily eliminate this problem.

When it comes to food safety, it's imperative that the dish room staff, no matter how high the turnover, be properly trained in dish machine maintenance. Operating temperatures that are too low, clogged rinse arms and poor water pressure can leave your restaurant with unclean and unsanitized dishes. Many local health department officials have commented that often 50% of the machines they look at in a given day of routine inspections fall short of functioning properly!

Operators should give employees the responsibility of verifying that the warewashing machine is working properly and help them to understand maintenance procedures. Even more importantly, employees should know who to call for local professional service. Remember, if your dish machine is down, you're out of business. Those who do not realize this and continue to operate are setting themselves up for a potential major liability.

The impact of time and temperature...

In order to consistently reach the required heating level during the sanitation process, operators are increasingly turning to high-temperature warewashing equipment that heats the rinse water to 180°F. At this temperature, cleaning and sterilizing are more complete and final drying time is reduced. To reach this optimal temperature, machines require booster heaters that can efficiently and economically achieve the temperature rise required.

The booster heater literally "boosts" the temperature of the water coming into the warewasher from the water heater from 140°F to 180°F for use as a final, sanitizing rinse. The higher temperature water offers many advantages in addition to leaving dishes, glasses and utensils sparkling clean and bacteria-free.

High-temperature machines save on water and

detergent in that the fresh, final rinse water circulates to preheat the next load's wash water. Generally, low-temperature (chemical) rinse machines have a much longer wash cycle and incorporate a "fill and dump" rinse approach for each load, thereby using more water and detergent than high-temp systems. And of course, more water means higher sewage costs too.

The sanitizer/rinse water mix used in low-temp systems ranges in temperature from 115°F to 140°F. Because of the lower temperatures, manufacturers suggest a thorough scraping of the dishes prior to loading. Products such as lipstick, meat fats, egg yolks and citrus pulp do not "melt off" until they reach 160°F so dishes might not come out clean on the first run-through and often have to be rewashed. All this adds to your overall labor, energy, detergent, water and sewer costs, making low-temp systems more expensive to operate in the long term.

High-temps outperform low temp machines...

A typical high-temp rack machine will wash about 55 racks of dishes per hour, compared to 40 racks per hour in a low-temp chemical rinse unit. Because of these faster cycle times, high-temp users can wash more dishes in the same time period, thereby saving labor, energy, water, sewage and detergents. High-temp machines are really a "no-brainer" and it's easy to see that they most certainly will add profits to your overall bottom line.

Dishes exiting a high-temp washer flash dry. The dishes are heated to a higher temperature during the sanitation cycle and when they come out of the washer they hit the cooler air and the sudden temperature change causes them to dry faster and virtually spot-free! This decreases drying time and also diminishes the likelihood of water buildup on your washroom floor. This promotes a safer environment for your employees and can reduce accidents caused by having an employee slip and fall. (This statement is backed up by an OSHA study reporting that 41 cents per dollar of workman's compensation claims in the restaurant industry is related to slips due to water on the floor.) Less liability from accidents and fewer health care claims save you money.

Competing against chemicals...

Low-temp warewashers, which use chemicals for

sanitizing, are often used in the foodservice industry because of their reasonable initial cost. But they present some issues that operators need to consider.

The chemical sanitizers used in low-temp machines are regulated by the Federal and State EPA, which classify them in the same category as pesticides. Labels must state concentrations, effectiveness, directions for use, and possible health hazards. Chlorine agents used in low-temp washers can be corrosive to both the machine and plumbing over time. These chlorine compounds are also more likely to damage rubber and metals, such as pewter, stainless steel, aluminum and silverplate. You just don't have these issues with high-temp systems.

Stacking dishes wet may promote bacterial growth...

Even though a low-temp chemical machine will deliver dishes that are free of bacteria, the dishes will still be wet when exiting the machine. This is where caution needs to be exercised. Those once bacteria-free plates could easily become contaminated again if they are not allowed to dry properly before being stacked after washing.

A recent study conducted by Oregon Health Sciences University in Portland suggests that this just might be the case. The purpose was to assess whether stacking wet dishes in a commercial establishment contributed to the growth of harmful bacteria on plate surfaces. The researchers first identified bacteria on 100 dishes (prior to washing) that had been used to serve meals to patients at a medical facility. They put half the plates through the full cycle of a warewasher, then stacked the plates after placing a small amount of water on each surface. The other 50 plates were machine washed and then left to air-dry for 24 hours.

Twenty-four hours after washing, the investigators found no apparent difference in bacterial growth between those stacked wet and those fully air-dried. However, after 48 hours a significantly higher amount of various bacteria were evident on the wet-stacked dishes. Although it was not determined exactly what kind of bacteria had grown on the plates, the study concluded that there is a risk of bacterial growth and food contamination if

dishes are stacked wet.

This study offers substantial reasons for moving from a low-temp chemical warewashing system to a

high-temp hot water sanitizer. Remember, the high-temp machine delivers “flash dried” dishes that may be stacked without the concern of potential bacterial growth due to stacking wet.

Bottom line comparison...		
	High-Temp Hot Water Wash	Low-Temp Chemical Sanitizing
SYSTEM	Fresh Water Rinse	Fill and Dump
TEMPERATURE	140°F wash 180°F final rinse	140°F or less with chemical final rinse. May leave film or require rewash.
WASH PERFORMANCE	Dissolves grease, lipstick and stubborn stains.	Leaves a chlorine smell on dishes.
SPEED	55 racks/hour (62 second cycle)	40 racks/hour (90 second cycle)
WATER USEAGE	1.2 gal/cycle	1.7 gal/cycle
DRYING TIME	25% less than chemical wash/dry time.	Longer to air dry and results in wet floors when racks are moved.
CHEMICALS	Less detergent and no chemical sanitizer.	Chlorine sanitizer may etch silver and glassware. Safe storage required for chemicals.
OPERATION	Overflow pipe in wash tank allows for grease and scum to flow down drain during final rinse.	Bottom drain opens at end of wash cycle to drain tank. Wastes water and some grease and scum adhere to sides and bottom of tank.
CORROSION	Not applicable	Premature failure of warewasher and drain piping.
ENVIRONMENT	Friendly to the environment	Environmental issues
OPERATING COST	Less labor, energy, water, sewage, detergents.	Less heater energy but more water, sewage, detergent and sanitizer is used.
MACHINE COST	Higher first-cost, but usually pays for itself in 2-3 years.	Lower first-cost, but more expensive per rack.

In addition, a high-temp machine can really pay for itself by reducing the cost of chemicals alone. An industry rule of thumb is that a high-temp machine will use approximately fifty-percent less detergent and 100% less sanitizer! When you also consider that low-temp machines often require as much as 30% rewash, this can add significant costs and have a major impact on your bottom line! Many operators who pay for their machine use on a “charge per rack” basis could be paying anywhere from five to seven cents per rack. When one adds up the rewash

potential, the cost per rack in a low-temp machine could actually increase to over nine cents per rack.

So there you have it...the real costs of washing dishes. To find out how much you can save with a high-temp system that uses one of the new gas-fired booster water heaters, give me a call, check out the Booster Heater section in the Foodservice Gas Equipment Catalog, the comprehensive source for manufacturers and models, or log onto the Gas Foodservice Equipment Network: www.gfen.org.

