Keeping your steamer cleaner

Anything that saves equipment owners time and money is good news and the 3M™ SGLP-CL Series of reverse osmosis systems does just that

Since the late 1960s, the invention of the combi-oven has transformed the landscape of the professional foodservice industry. With the capability to switch between convection and steam heat throughout the cooking process, chefs and bakers around the world have taken advantage of these appliances to provide great products for their patrons.

However, with their convenience comes the potential for steam-based corrosion and build-up. 3M Purification Inc wanted to approach this issue with its progressive perspectives on water filtration technologies, investigating how to best protect the investment of combi-ovens and boilerless steamer owners.

STEAM-BASED CORROSION: UNDERSTANDING THE ISSUE

By design, combi-oven appliances place a heavy emphasis on water usage to carry out their functions. The precipitation of steam inside the oven can leave potentially harmful hardness minerals on oven surfaces, leaving residue that can gradually build up to become a serious detriment to the equipment's efficiency and costs.

On average, one-eighth inch of scale in equipment can lead to a 25% energy drop, which can result in a $300 annual loss.[1] Amongst the first considerations in the conception of this new application were hardness and total dissolved solids, which occur naturally in water supplies. Minerals and other solids (ions, including calcium and magnesium) contribute to scale build-up. Chlorides, from the salt content in water, are also common compounds in many water supplies. They can attack stainless steel surfaces at very high temperatures, causing corrosion and damage. Disinfectants such as chlorine and chloramine, also found in public water supplies, are oxidizing agents that carry additional potential for corrosion of oven materials.

APPLYING SCIENCE IN A BRAND NEW SOLUTION

With 3M's existing knowledge of water filtration and its continued research, a custom solution for steamer optimization began to take shape. Within the 3M™ SGLP-CL Series system's high-production reverse osmosis techniques, water under pressure is forced through microscopic pores in the synthetic membrane. Minerals and other contaminants responsible for scale build-up are flushed away as reject water. Filtered water then travels through the membrane and is stored in the integrated tank.

The system is also reinforced with activated carbon pre-treatment, protecting the process from chlorine, chloramines, and sediment, which are additional difficult-to-remove contributors to the build-up and corrosion that affect steam ovens with less comprehensive water filtration systems.

Chloramines are added to water for nearly 60% of US municipal water supplies and many standard carbon prefilters are inadequate in terms of chloramine reduction, so it is imperative that kitchens have access to control methods on this potential influencer in premature equipment failure.

REFINEMENT AND REVIEW

3M also turned to ease-of-use and compatibility with the development of the SGLP-CL Series system.

Working towards a fully-integrated water filtration system operating from a single rugged steel bracket, a structure was established with easy and compact wall-mounted installation and maintenance. The Sanitary Quick Change system assists in a low- or no-contact change-out of the encapsulated cartridges – no spills or mess. 3M also developed the system's optional automatic cleaning bypass, which brings further efficiency to single water inlet combi-ovens by allowing a continuous supply of filtered water throughout the cleaning processes.

How does the 3M™ SGLP-CL Series reverse osmosis system contribute to cleaner, more responsive combi-ovens and steamers? The reverse osmosis membranes are rated to 100 or 200 gallons per day (depending on the model) at 60 pounds per square inch for incoming water pressure[2] and a temperature of 77 degrees Fahrenheit. Its non-electric, hydraulically driven pump[3] helps to maximize reverse osmosis water production while providing a more energy- and water-efficient system.

Along with providing cleaner water, users can also benefit from considerable water savings when compared to a traditional reverse osmosis system. This kitchen solution can save nearly 400 gallons of water for every 50 gallons of water used.[4]

KEEPING IT TOGETHER

Combi-ovens in kitchens can be responsible for hundreds of patrons on a daily basis, and equipment maintenance in fast-moving cafeterias is something that is best kept streamlined.

The 3M™ SGLP-CL Series system is a premier solution, with the technology breathing new life into foodservice applications. Increased efficiency allows kitchen staff to return their focus onto what they do best, without having to worry about costly equipment downtime and maintenance.

As combi-ovens and boilerless steamers continue to be an integral part of the cooking and baking processes, 3M is proud to apply its research to providing new solutions for installers, owners and operators of these appliances. 3M is rooted in science and making everyday life a bit more manageable. ■

[1] BASED ON $900 ANNUAL ENERGY COSTS WITH SCALE-PROTECTION; WILL VARY BASED ON THE HEATING EQUIPMENT.
[2] RO PRODUCTION RATES LISTED ARE AT A WATER PRESSURE AND TEMPERATURE OF 60 PSI AND 77°F PRODUCING WATER AT ATMOSPHERE.
[3] MINIMUM 60 PSI (413.6 KPA) FEEDWATER PRESSURE REQUIRED.
[4] COMPARISON OF SGLP200-CL VERSUS A TRADITIONAL RO SYSTEM WITH 8% WATER EFFICIENCY PER NSF 58 PROTOCOL. ACTUAL SAVINGS MAY VARY BASED ON WATER TEMPERATURE AND INLET WATER CONDITIONS.

3M Water Filtration Products

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