

Case Study: Bakery cleans faster and more effectively without water.

Cold Jet's dry process ensured quality results in record time.

COMPANY

A Texas bakery

APPLICATION

Bakery equipment

COLD JET SYSTEM

Aero

BENEFITS

By reducing the amount of people and time required to clean the equipment by hand, they were able to recoup 24-30 hours per person that can be allocated to other cleaning and maintenance projects.

The safe, moisture-free dry ice blasting eliminates any set-up, including wrapping electrical equipment

The Situation

Producing quality bakery foods at a good value for customers is part of one Texas bakery's mission, and is a major reason for the company's near consistent year-over-year growth. Critical to the quality of the company's packaged bakery foods is ensuring that the baking environment and equipment is always clean, a typically laborious process that involves a large, mobile maintenance team.

The Problem

In the company's 125,000 square foot baking facility, there are many things for its quality assurance (QA) manager to worry about; from general maintenance and equipment repair to shelf life and product contamination. Helping to alleviate many of the cleaning and maintenance concerns is the recent implementation of a Cold Jet Aero dry ice blast cleaning system.

Prior to the Cold Jet system, the plant used a combination of traditional cleaning methods, such as pressure washing and detailed hand washing. The process was extremely labor intensive, taking a

crew of five to 25 people working 8-10 hours to just clean the bread cooler. The same scenario repeated itself when the company would have to clean other areas of the plant, such as the bread proofer and baggers, which required at least two hours of set-up time to wrap the electrical components.

The mile long bread cooler, which moves the baked goods from the oven for cooling and packing, was cleaned regularly by hand. Because of the plant's constant operation, the conveyor and surrounding equipment were coated with layers of mineral oils and bread crumbs that had accumulated over time. In fact, the proofer's half-mile long drive chain had to be replaced because of the build-up and the lack of an effective cleaning process to remove it.

Recently, the cleaning crew performed a deep cleaning of the cooler, which took 25 people more than 10 hours to clean the entire length of the conveyor. Since then, regular pressure and hand





BEFORE

washing, conducted by five laborers working 8-10 hour shifts has helped keep the surface of the stainless steel pins and rollers, guides and wear strips clean. Unfortunately, the general maintenance does not clean deep enough to completely remove the layers of residue from the other parts of the cooler, proofer, grids, baggers and floors. In addition, the pressure washing and manual wiping remove important mineral oils from the conveyor, which must be reapplied following the cleaning to ensure the conveyor is properly lubricated; a process which adds at least two hours of downtime.

The use of the pressure washer also required the company to wrap all electrical components prior to cleaning and then designate a few crew members to collect the water. The crew must remove all secondary wastewater and ensure that the equipment is completely dry before the parts can be reassembled and production could begin again

“No matter how hard you try, water gets everywhere, and even after trying to remove the water, moisture remains,” stated the QA manager. “In a baking environment, we are highly concerned about the long-term quality and shelf life of our products. Where there is moisture or build-up there is a greater chance of a biological growing. That is why so much emphasis is placed on not just cleaning our equipment, but actually sanitizing it. We were spending a lot of time, money and labor resources to keep the line clean and maintain our high sanitation standards.”

The Cold Jet Solution

Encouraged by the effectiveness of the Cold Jet system at two sister plants, the quality assurance manager brought in an Aero system for testing.

Cold Jet’s dry ice blasting system uses non-abrasive media in the form of recycled CO₂ pellets that won’t damage surfaces or

CUSTOMER COMMENTS

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equipment. The combination of dry ice blast cleaning’s kinetic energy and thermal effects break the connection between the dirt and the surface, lifting away contaminants. Unlike power washing or steam cleaning, dry ice blasting does not leave any secondary waste, as the dry ice pellets or particles sublime – convert from solid to gas – upon impact. Dry ice blasting is also safe and non-toxic, does not create downstream contamination, and reduces or eliminates employee exposure to dangerous chemical cleaning agents.

Results

Since implementing the Aero system, the Texas bakery has seen an immediate return on investment. Cleaning the bread cooler and mile long conveyor, which had required five to 25 laborers, 8 to 10 hours, now takes two people less than six hours. Facility managers noted that they were also able to reduce their staffing in the sanitation department while the remaining

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crew is now able to focus on areas of the plant that the company hadn't been able to clean previously. They estimated that by reducing the amount of people and time required to clean the equipment by hand, they were able to recoup 24-30 hours per person that can be allocated to other cleaning and maintenance projects.

In an experiment with the Cold Jet system, one cleaning crew of four people cleaned one of plant's bagger machines using a power washer and by hand, while a second crew of two people cleaned another bagger with dry ice. It took the hand-washing crew more than four hours, while the dry ice blasting crew took less than an hour. When the baggers were restarted, the one cleaned by hand popped the circuit breaker while the other machine started right up.

The safe, moisture-free dry ice blasting eliminates any set-up, including wrapping electrical equipment, which was a big selling point for the bakery. The cleaning process is soft enough

that it doesn't peel paint, impinge electrical conduit, damage the laser and infrared photo eyes used in production or remove the mineral oils on the conveyor, yet is powerful enough to remove several years of built-up residue from production line machines.

The QA manager commented, "We simply did not have downtime to clean some pieces of equipment to our standards, but because of the speed and effectiveness of the Cold Jet system, we now have the time and resources to attend to a variety of other areas of the plant. Much of the equipment in a high-speed baking plant is simply not designed to be cleaned easily. With the Cold Jet system, we are cleaning things that I have never seen cleaned in the decade I have been in the industry. In fact, when I tell engineers what we are cleaning with dry ice, they are truly surprised."

The mobile Aero allows the company's maintenance staff to clean wherever needed and while equipment is still hot and online. Cold Jet's system has proven

effective in cleaning hard-to-reach areas and eliminates any secondary waste disposal or concern of water contaminating production in the tight spaces on the equipment.

With the Cold Jet system, the plant does not have to worry about water residue anymore. Crew members no longer have to bag the electrical components, and they have also reduced the possibility of harmful biologicals. The QA manager noted, "We do a lot testing to determine how clean our equipment is after cleaning, and with dry ice blasting, we are able to do more than simply removing debris. We are actually sanitizing our machines, which will have a positive impact on the long-term quality of our products and the life of our equipment."

While the Texas bakery team is still learning about what can be cleaned with dry ice blasting, the Cold Jet system is allowing the company to clean deeper than it has ever done in the past while reducing maintenance time and costs and improving productivity.