

Cleaning With Dry Ice

Incorporated in 1852, Ghirardelli Chocolate Company is a manufacturer and marketer of premium chocolates and chocolate products. Ghirardelli controls the entire chocolate manufacturing process, from cocoa bean to finished product. This control over the manufacturing process combined with Ghirardelli's proprietary bean blend and unique methods of roasting and processing, ensure the highest quality and richest chocolate products.



One of the issues Ghirardelli grapples with in its manufacturing process is deploying cleaning solutions that are efficient and safe and help maintain clean, allergen-free environments for continuous manufacturing. When it comes to manufacturing the world's finest chocolates, Ghirardelli is a company that emphasizes even the minutest details. Ensuring that non-nut containing products do not contain nuts, for example, is a critical concern for the company, as well as its consumers who have come to rely on Ghirardelli for its quality.

The company's traditional cleaning methods included manually scraping chocolate and food particulates from chains and rails on its production line using brushes and scrapers. The process was time consuming and tedious, and required that the company shut-down production and allocate extensive resources. With new product lines to launch and a high standard of profitability, Ghirardelli's has been looking for

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ways to implement cleaning methods that will reduce people resources and time while still maintaining a clean manufacturing environment.

In an effort to enhance its cleaning process, Ghirardelli decided to evaluate new cleaning methods and systems. Ghirardelli isn't willing to cut corners so it needed a cleaning solution that was reliable, easy-to-use and provided the level of cleanliness that the company needed to manufacturer multiple, independent food products. In addition, whatever method or system Ghirardelli selected; it needed to help the company increase profitability with its new product lines, rather than add to any production costs. Among the processes the company researched was steam cleaning, which used portable steamers and custom made brushes and scrapers. However, while they were effective in cleaning the equipment, the steamers proved to be inefficient. Ghirardelli also evaluated several different makes and models of other alternative cleaning systems, including those which utilize dry ice.

"Ghirardelli is committed to lean manufacturing, and our manual clean-up process was both time consuming and inefficient," said Tony Tai, Production Supervisor at Ghirardelli. "Our allergen cleanup process required up to 500 man hours at times to ensure that we were operating an allergen-free and safe work environment. We needed a new solution that was more efficient and provided the environment that is required to produce the variety and breadth of products that we manufacture. We looked at a lot of solutions, and ultimately, Cold Jet's dry ice blast cleaning systems proved to be the best."

In one of the closely monitored initial trials using a Cold Jet Aero 40 dry ice blast cleaning system, Ghirardelli was able to reduce its clean-up time by more than 60 percent. In addition to saving time and people resources, the production teams found the system to be user-friendly and a complement to their lean manufacturing initiatives.

"It's not easy to cut clean-up costs without cutting corners, but when working with food, you simply don't take risks," commented Tai. "Nut allergies are a huge problem today, and we don't take that issue lightly. That's why we decided to implement a Cold Jet cleaning system."



Cold Jet's dry ice production system has been specially engineered to produce high density

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extruded dry ice.

Following the initial pilot test, Ghirardelli deployed three Cold Jet Aero 40 systems, which deliver advanced economical dry ice cleaning in an environmentally friendly format. The Aero 40 is a compact, rugged, mobile solution that allows Ghirardelli to clean its chocolate and candy production equipment in place and while it is still hot and online. With fewer people required to clean and the ability to clean in less time, Ghirardelli has been able to reduce its maintenance costs and production downtime. A faster, more effective clean allows Ghirardelli to increase the number of production cycles using the same equipment.

The environmentally responsible dry ice blasting process uses recycled CO₂ in the form of dry ice pellets. The pellets are accelerated at supersonic speeds using compressed air and the combination of the velocity and the thermal gradient of the dry ice removes the contaminants from the surface of the equipment. Once the dry ice strikes the surface of the conveyors, chains and other equipment, it sublimates, leaving only a small amount of removed contaminants to sweep up or vacuum. Dry ice blasting is also non-abrasive and non-conductive, which means Ghirardelli can use the system without worrying about the wear and tear on equipment or damaging electronic components. Dry ice blasting has also been acknowledged by the EPA, FDA and USDA as an acceptable cleaning method.

“We tried different models of dry ice blasters, but eventually all agreed that the units from Cold Jet were easier to use and more effective,” said Tai. “The Aero 40 machines are fast, efficient, non-toxic and non-abrasive. My production team tells me repeatedly that Cold Jet’s product is user-friendly and that it has the best applicator nozzle and attachment of all those that we evaluated.”

Tai added, “Did I mention they are fast? The Aero systems give us everything we asked for in a cleaning solution, and I’m getting a lot of interest from other plants within our organization because of the efficiency and the production increases we’ve achieved. Cold Jet has helped us become a better, cleaner manufacturer, and the dry ice blast cleaning system truly adds value to our organization’s operations.”

By deploying Cold Jet’s environmentally responsible cleaning systems, Ghirardelli has reduced the time and resources it takes to complete the company’s extensive allergen cleanup process. As a result, Ghirardelli has enhanced its lean initiatives and deployed an effective cleaning solution that actually helps increase production and profitability.

Ghirardelli is currently looking to expand its use of dry ice blast cleaning to other departments and possibly other plants within the Lindt and Sprungli Chocolate family of companies.

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