

Case Study: Dogfish Head Brewery removes tank build-up

Wooden brewing vessels were thoroughly cleaned without affecting the flavor of the beer

COMPANY

Dogfish Head Craft Brewery

APPLICATION

Cleaning wooden brewing vessels

COLD JET SYSTEM

Aero 75-DX

BENEFITS

Dogfish Head was able to clean the inside of the tanks more effectively than their past method of using ozonated water.

Distillery build-up was removed from vessel interiors without damaging the flavor of the beer.

The exterior of the tanks were cleaned as well, making them more presentable for brewery tours.

The Situation

In 1995, Dogfish Head opened as the smallest commercial brewery in America producing 10 gallon batches two to three times per day. Today Dogfish is the biggest craft brewery in the Mid-Atlantic region with a state-of-the-art 103,000 square foot facility located in Milton, Delaware. Known for its off-centered ales and wood-aged beers, Dogfish is also one of the fastest growing breweries in the country.

The Problem

According to Dogfish's web site, "wood has played an important role in our company history since its inception." Leaning on traditional brewing that used wooden tanks for aging, Dogfish is home to the largest wooden brewing vessels built in America since the prohibition. The tanks are approximately 15 feet wide by 20 feet tall. Two are made of American White Oak while a third is made of Palo Santo wood from Paraguay. The brewery's approach to making wood-aged beer is more akin to wine making than distilling, counting on the beer's

direct contact with the wood to add a distinct flavor that can't be duplicated with traditional brewing methods. Unfortunately, years of distilling and aging the beer in the large vessels left the wood inside the tanks coated with build-up, which started to affect the quality and flavor of the beer.

The brewery tried several different cleaning methods, but were concerned with how cleaning would impact the vessels and the flavor of the beer.

"In the past, we used ozonated water to flush out the tanks, but we had never performed a thorough cleaning because we could not find a process that would not impact the flavor of the beer," said Lenore Bennett, quality control manager at Dogfish. "We needed to remove all the build-up inside the oak vessels so that we could restore the quality of our wood aged beer. We also needed to clean the outside of all three of our tanks as plant tours are very popular for our business. After years of continuous use, the tanks had started to show signs of wear and tear. We want to





CUSTOMER COMMENTS

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present a clean environment for all our guests, so while cleaning the inside was critical to restoring production of our wood aged beer, cleaning the outside of the vessels was equally important."

The Cold Jet Solution

After a suggestion from a connection in the wine industry, Dogfish contacted React365, a specialist in dry ice blasting utilizing state-of-the-art Cold Jet systems. Cold Jet's dry ice blasting systems use recycled CO₂ in the form of non-abrasive dry ice pellets or blocks for a variety of cleaning applications. The dry ice media, blasted using pressurized air at user-controlled speeds, sublimates upon impact with the surface being cleaned, lifting away dirt and contaminants without leaving behind any secondary waste.

Cleaning wine barrels with dry ice eliminates the need for chemical solvents, which can influence the essence of the wood, and at 109 degrees below zero, dry ice has

proven effective in removing mold spores, bacteria, fungus, and many other winery associated problems. Dry ice blasting also removes a tiny layer of the wood's surface, helping to remove any mold spores while exposing fresh wood, a process Dogfish was hoping to accomplish.

"Like wine barrel blasting, a key benefit of dry ice blasting for this project was the ability to help rejuvenate the wood," said Jim Leatherman, national sales manager for React365. "Refreshing the wood would help restore that quality, wood-aged flavor for which Dogfish was known."

Dogfish selected React365 because of its crew's experience working on projects with confined space entry and training using rigging and repelling. Because of the wood tanks' depths, React365's crew would have to be lowered into the vessels and at times hang in the air while blasting with Cold Jet's system.

CUSTOMER COMMENTS

"With the wood now very clean and rejuvenated, implementing a more formal wood tank management plan, and increasing the production of our wood aged beer, we'll have better quality, more delicious beer."



"This was not a traditional cleaning job, and Dogfish was not going to give this project to just anyone," added Leatherman. "The size and the depth of the barrels presented a unique situation, but given our crew's military and firemen training, and our Cold Jet systems, we were well prepared to safely and effectively provide the results Dogfish wanted."

The project took React365's four crew members three days to complete. The dry ice blasting process was effective in cleaning all of the interior build-up, which after removed, was quickly flushed out of the bottom of the tanks with water. Crew members were able to refresh the wood on the inside and clean the outside, providing the like-new appearance Dogfish wanted for its brewery tours.

"The results were better than I expected," concluded Bennett. "The tanks look much better on the outside, and because of how effective the dry ice blasting process was on the inside, we plan on repeating the blasting process with React365 at least once a year. With the wood now very clean and

rejuvenated, implementing a more formal wood tank management plan, and increasing the production of our wood aged beer, we'll have better quality, more delicious beer."

By using dry ice blast cleaning systems through React365, Dogfish Head Brewery was able to clean its brewing vessels inside and out. As a result, Dogfish Head can continue to proudly give tours and brew its wood-aged beers without worrying about affecting the quality or taste.