

CASE STUDY
DAIRY

Leprino Foods® Company

Introduction

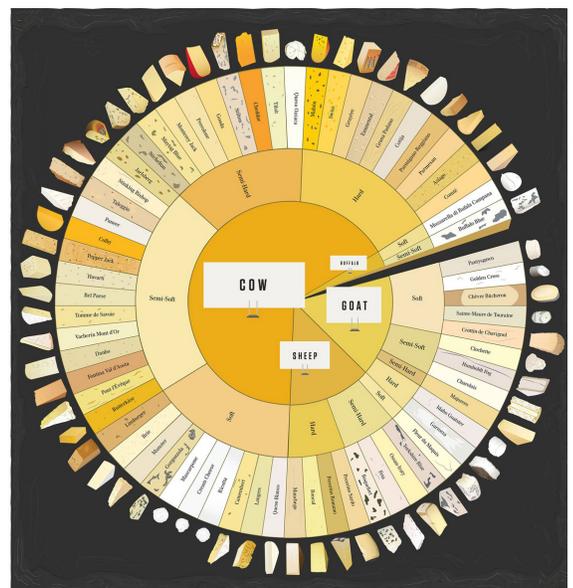
Cheese has been considered a cultural representation among even the most ancient civilizations. Cheese is delicious, and a consumer favorite. The global cheese market is enormous, and currently expanding at an impressive rate.

In 2017, the U.S. cheese industry produced nearly 13 billion pounds of cheese - upwards of \$40 billion dollars worth. The U.S. Department of Agriculture (Agriculture Research Service) has learned through their research, that pizza is the most popular food in the world – great news for cheese manufacturers.

Cheese (well, really milk) holds caseins, a protein that breaks down to essential elements when digested. When metabolized, caseins release fragments known as Casomorphins, an ingredient that arouses the brain's opioid receptors. Essentially, Casomorphins are the root cause for a cheese lover's cravings and a windfall for the dairy industry.

Wisconsin leads the country in cheese production. However, the world leader in mozzarella cheese production is headquartered in the mile-high city of Denver, Colorado.

Introducing the Leprino Foods® Company, a company that has, for almost 70 years, set the bar for the ethical, quality, and service-centric focus that define a worldwide dairy production leader.



Meet the Client / History



Leprino Foods' humble beginnings can be traced back to the middle of the 20th century – 1950 to be exact. From a family-owned food store in Denver, Leprino Foods has grown to be the #1 supplier of mozzarella cheese worldwide.

Now, that's a wow!

Leprino Foods' incredible growth and success have only strengthened its resolve as a pioneering industry leader. With more than 4,000 employees, continuous improvement is business as usual.

Today, after nearly 70 years, Leprino Foods remains committed to its original intents and promises. They continue to be a family-run business that is unwaveringly dedicated to the production of high-quality dairy food – cheese, whey protein, and other products. Leprino maintains long-term partnerships with the Dairy Farmers of America and the Michigan Milk Producers Association. This ensures that Leprino Foods has a reliable supply of superior milk. Quality milk, along with a strong commitment to the consumer public is the basis for Leprino's cheese and nutritional product excellence. It is that simple.

The Leprino Foods' Difference

Leprino Foods exemplifies an ethos dedicated to quality, commitment, customer care, and intellectual business pursuits. Innovatively, the company created a quality quick-frozen freshness lock – a game-changer – that eventually thrust them ahead of their competition, where they remain today. Not surprisingly, Leprino holds more than 50 patents regarding dairy production.

Through hard work, dedication, and a customer-centric commitment, Leprino Foods routinely exceeds the expectations of its customers. As an industry leader, Leprino Foods understands that in order to produce quality, safe-food products, the process must begin with the best ingredients and, of course, a commitment to implementing strict food-safety protocols and preparedness plans.

Before, during and after cheese production Leprino focuses on food safety protocols that reach every production step. It is representative of their commitment to their customers, and their customer's customers.

A Leader in Food Safety

Leprino Foods adheres to a Zero Tolerance Food Safety Leadership policy. Leprino Foods holds firm to the belief of doing the right thing, the right way. The results speak for themselves.

So, how does Leprino consistently produce quality, safe food products to meet the growing demand for mozzarella cheese?

Leprino's experienced corporate sanitation managers are tasked with the responsibility of overseeing the company's food safety protocols and their implementation in the manufacturing plants. These professionals make it look simple, even though it is quite a challenging task.

One of the sanitation professionals responsible for meeting Leprino Foods' safe food standards is Monty Bohanan. For the past seven years, Mr. Bohanan, as Corporate Senior Manager in charge of Sanitation has set forth, managed and monitored Leprino Foods' sanitation policies for the company's processing plants.

A few of his responsibilities include:

- Employee Training
- Consistent Monitoring of Microbiological Surveillance
- The Auditing and Compliance in Accordance with Government Safety Standards
- The Improvement of Sanitation Procedures
- The Refinement and Improvement of Current Policies to Include New Technologies

The Situation

Lemoore West is one of two dairy processing plants in Lemoore California owned by Leprino Foods. With more than 7 million cubic feet (covering the size of eleven football fields) and 3 production lines operating simultaneously, Lemoore West is the largest Mozzarella Plant in the World.

Pete Davidson, a 25-year Air-force veteran (and almond-tree farmer) serves as Lemoore West's Engineering Manager.

One of Pete Davidson's responsibilities is to manage all aspects of the plant's major projects for continuous improvement and repair. This can include emergency sterilizations projects, as well as the more proactive scheduled sterilization projects – like those endeavors after a processing plant has been recently renovated or reconstructed.

The sterilization process is incredibly important, and quite expensive when one considers that during this procedure the area being sterilized is shut down, and not producing. For every hour a production line remains inactive, Leprino Foods' (or any processing plant) takes a financial hit. As such, the two primary goals of sterilizing a dairy equipment processing plant are:

- To sterilize and to get it done right, and
- To get it done fast

The Leprino Approach to Food Safety

Dairy processing plants are routinely cleaned; it is a scheduled component of the process and required by law. In fact, the latest dairy processing equipment has been specifically designed to facilitate the dairy equipment's daily regimen. Of course, like any food plant, there are sanitation emergencies, but for the most part, routine cleaning and scheduled maintenance is a company's primary way of maintaining safe food products.

However, when a company, like Leprino Foods, wants to expand or redesign a processing plant, or replace the equipment in a processing plant, they know before they restart production, the entire area must be sanitized professionally.

Just recently Leprino Foods' faced a need for an 'after construction' proactive sterilization. At the end of 2018, Leprino upgraded the dairy processing equipment in one of their dairy processing plants. After fifteen years in use, the dairy processing equipment in their Lemoore West plant was being upgraded.

Lemoore West's Equipment Facelift

Near the end of 2018, Leprino Foods was finalizing the update of one of the three production lines at their Lemoore West facility.

The equipment had run the course of its useful life, but, more importantly, the new equipment being installed was being built with radical updates to facilitate the equipment's daily cleaning processes. In other words, the updated equipment had all the bells and whistles of modern equipment with the added benefit of clever, effective built-ins that improved and sped up the equipment's daily cleaning routine.

Let's take a look at how Monty Bohanan and Pete Davidson managed the critical sterilization stage after Lemoore West's production equipment update was complete. Who did they trust to get his post-construction sterilization done right, on time, and in a flash?

Under Monty's direction, PureLine was chosen to sterilize the upgraded/reconstructed portion of Lemoore West. Monty's experience with PureLine Solutions throughout the Leprino Foods system and Pete's previously successful experiences with Pureline Solutions made the decision almost routine.

The Decisions and Results

Pete Davidson, an experienced Engineering Manager has managed numerous proactive-sterilization projects for Leprino. He understood what it took to skillfully plan and execute the sterilization of 3 million cubic feet efficiently and professionally. That is why Leprino Foods counts on PureLine services.

Over time, Leprino Foods had learned that Pureline Solutions' Chlorine Dioxide sterilization processes were done professionally by a team of experts who coordinate and preplan the project with great precision, flexibility and communication. When Pete previously required PureLine's professional assistance, PureLine successfully met the project's determined goals and time commitments.

The sterilization of just one of Lemoore West's three production lines required PureLine professionals to lay 2.5 miles of fumigation lines to ensure the Chlorine Dioxide treatment reached every square inch of that 3 million cubic feet of space requiring sterilization.

The 2.5 miles of fumigation hosing was then connected to two Pureline MobileClean trucks – each situated on opposing sides of the dairy processing plant. For the next eight hours, Pureline's trucks generated enough Chlorine Dioxide to sterilize nearly 3 million cubic feet of space.

Why Sterilize?

Foodborne illness is one of the many fundamental causes of human illness.

Microorganisms impact human health across a spectrum of maladies that include allergies and sensitivities on one end to serious illnesses – like food infections or food intoxications on the other end.

Ensuring food safety equipment and plants are clean is only the first step to producing safe food products. While disinfection is an effective method of bacterial cleaning, it does not reach the level of sterilization. It is, however, a great way to prepare a surface for sterilization.

The final step is sterilization. Sterilization is designed to kill 99.9999% of microorganisms to achieve what is referred to as a 6-log (10⁶) kill – a statistical measurement (known as a Sterility Assurance Level (SAL)) that is used as an acceptable definition of 'Zero Viable Organisms'.

Despite the incredible challenge Monty and other dairy manufacturers face each day, it is noted that the United States' dairy food supply is one of the safest in the world!

The Results

Pureline's chlorine dioxide sterilization treatment is a comprehensive process. The key to excelling at the process relies upon Pureline's dedicated teams – a team that remains in constant contact with Monty Bohanan and Pete Davidson long before the sterilization project even began. These phases generally follow this order –

- Planning:** The planning phase can last several weeks and generally depends on the customer's time requirements, and the project's complexity.
- Pre Inspection:** PureLine onsite members perform a final walk-through to double check that the building is ready for the chlorine treatment to begin.
- Execution:** When PureLine's equipment has been readied and the pre-inspection has been completed, a safety meeting led by PureLine is held with members of the Leprino Foods team. The chlorine dioxide treatment begins under the watchful eye of Pureline professionals. The amount of time required to complete a chlorine dioxide treatment varies; based on the size of the area, and the reason/purpose of the sterilization treatment, and are most often completed within a single day.

Exhausting Residual Gas begins when the chlorine dioxide treatment ends. For the next few hours, the facility's exhaust fans reduce the interior gas concentrations - until they reach acceptable levels suitable for human habitation

The chemical application that sterilized 3 million cubic feet required an 8-hour application. Technically, when considering the setup and exhaustion phases, PureLine's team of professionals masterfully organized, coordinated and executed a sterilization project that allowed the Lemoore West production line (housed in the largest mozzarella plant in the world) to start production immediately.

Because PureLine's sterilization process was so well planned, and completed so quickly and on time, Leprino Foods minimized their production downtime at their Lemoore West facility.

The Secret to Making It Happen

Intellectually, 3 million cubic feet is almost too big to imagine. Yet, in only eight hours, PureLine's team of professionals had sterilized this massive space. And, in doing so, PureLine's onsite MobileClean units produced over 100 pounds of chlorine dioxide required to complete the job appropriately.

But, the real secret to Leprino's success story here depends upon the talent and skills of PureLine's management and onsite staff. PureLine simply makes the process easier and, they deliver what they promise on time.

Together, PureLine and Leprino Foods' representatives worked closely with one another - before, during and after - Lemoore West's updated production line was sterilized and then restarted.

As Monty and Pete note, Pureline is dependable and professional, each time and every time. This is the reason why Leprino Foods chooses to work with PureLine for all of their food plant sterilization projects, and why they will continue to recommend PureLine's services to industry colleagues.

Experts in the manufacture, generation and application of chlorine dioxide

Pureline offers a complete line of chlorine dioxide products, solutions and accessories.



PureLine
Solutions™

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