

# Revolutionary Weed-Freezing at -320°F to Kill Mold Efficiently

## From Nuts to Frozen Nuggs: Sanfilippo's Evolution from Food Packaging to Cannabis Innovation

Anthony Sanfilippo, an industry veteran with decades of experience in packaging, has made a notable leap from the food industry to the cannabis sector. His early expertise in developing oxygen-free packaging for nuts helped revolutionize food safety and extended product shelf life. This innovation eventually carried over into the pharmaceutical industry. After selling two divisions of his family's food business to packaging giant Sonoco in 2017, Sanfilippo turned his focus to the fast-growing cannabis industry, where packaging solutions were in desperate need of innovation.

"Cannabis is a \$35 billion industry in the U.S.," Sanfilippo said, highlighting concerns about microbial contamination in cannabis products. His latest venture, VIST Labs, aims to address these contamination issues head-on.

### Cryogenic Pasteurization: The Cannabis Industry's Dirty Little Secret

At the core of VIST Labs' groundbreaking work is a process called cryogenic pasteurization. This method employs medical-grade cryogenic vapor to sterilize cannabis products, preserving their potency while eliminating harmful contaminants. "Cannabis is heavily contaminated with yeast, mold, and pathogens like *Aspergillus*," Sanfilippo explained, noting that these microbial organisms can pose serious health risks to consumers.

[Traditional decontamination methods](#), such as gamma radiation or ozone treatment, can damage the delicate cannabinoids and terpenes that give cannabis its therapeutic properties. Cryogenic pasteurization, however, allows cannabis to retain its quality while undergoing thorough sterilization.

### Freeze Microbes! A Deep Dive into VIST Labs' Sterilization Process

The cryogenic pasteurization system designed by VIST Labs halts microbial growth and oxidation without harming the cannabis product's integrity. Here's how it works:

**Loading the Product:** Cannabis is placed into a product cassette capable of holding 4-5 pounds. The cassette is then loaded into a refrigerator-sized pasteurization machine.

**Cryogenic Vapor Activation:** The chamber is prepared with cryogenic vapor generated by boiling off liquid nitrogen at -320°F. This vapor mixes with medical-grade air to create the perfect sterilization environment.

**Sterilization Process:** Within 90 to 150 seconds, the chamber is filled with 95% cryogenic vapor, drastically reducing oxygen levels. This extreme environment effectively kills harmful pathogens like *Aspergillus*, *E.*

coli, and Salmonella.

**Rapid Cooling:** Once sterilized, the product is cooled quickly using liquid nitrogen to prevent oxidation, ensuring that the cannabis retains its full potency.

**Purification:** The cannabis is then purified using a HEPA filtration system that removes any remaining airborne contaminants. This final step guarantees the product is safe and stable, ready for packaging in aseptic, low-oxygen conditions.

## **A Modular Solution for Cannabis Businesses**

VIST Labs' cryogenic pasteurization machines are designed with scalability in mind, offering flexibility for cannabis cultivators of various sizes. "We can run it in cassette mode at 25 pounds per hour or upgrade to our high-output configuration, which can handle up to 40 pounds per hour," Sanfilippo explained.

The technology goes beyond sterilization; it's a fully integrated packaging system. Once the cannabis is sterilized, it is transferred into a bulk packaging device that allows for customized bag sizes. Whether packaging in one-pound increments or smaller quantities like eighth-ounce pouches, VIST Labs ensures that products are stored in a near-zero oxygen atmosphere, protecting their quality and potency for extended periods.

This modular design makes the system adaptable to businesses ranging from mid-sized cultivators to large-scale cannabis operations. The aseptic packaging solution meets stringent European Pharmacopoeia standards, allowing cannabis companies to comply with both domestic and international regulations.

## **A Forward-Thinking Approach to Federal Legalization**

Sanfilippo and his team are preparing for the future, anticipating the regulatory challenges that could arise from potential federal legalization in the U.S. With the likelihood of stricter regulations and oversight, particularly regarding product labeling and safety, technologies like VIST Labs' cryogenic pasteurization system will be crucial for businesses aiming for long-term success.

"With our system, we're offering crop-year protection and complete microbial control for up to a year," Sanfilippo said. VIST Labs is on track to process and package nearly 150 million pounds of outdoor-grown cannabis in 2023 alone, making it a key player in the industry's future.

## **Tackling Contamination and Mislabeling in Cannabis**

Beyond decontaminating cannabis, VIST Labs' system addresses another critical issue in the industry: THC potency degradation and product mislabeling. Inconsistent oxygen levels in packaging can lead to significant losses in THC potency, resulting in false label claims and, ultimately, product recalls.

"Within 45 to 50 days, THC levels can degrade by 10% or more," Sanfilippo explained. Such degradation can lead to mislabeled products, sparking regulatory action and damaging consumer trust. VIST Labs' modified atmosphere packaging (MAP) ensures that THC potency remains stable for up to a year, preventing these issues and keeping cannabis products compliant with regulatory standards.

## **The Future of Cannabis Packaging: Compliance, Safety, and Innovation**

Sanfilippo's transition from food packaging to cannabis exemplifies how innovation in one industry can revolutionize another. By applying his decades of experience in food safety and packaging technology to the

cannabis sector, Sanfilippo has developed a solution that addresses some of the most pressing issues faced by cannabis producers today: microbial contamination, product safety, and labeling compliance.

VIST Labs' cryogenic pasteurization system is not just a sterilization machine; it's a comprehensive solution that offers scalability, compliance, and long-term product stability. As cannabis markets continue to grow and evolve, particularly with the potential for federal legalization in the U.S., technologies like VIST's will be essential for businesses looking to remain competitive and compliant in a rapidly changing industry.

Sanfilippo's innovations, from his early days in the food industry to his current work in cannabis, reflect a dedication to improving product safety and extending shelf life—whether it's nuts or frozen nuggs.

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