

Title Ozone washing for fresh-cut produce
Author D. M. GRAHAM, J H. Strasser, W. Strickland, K. L G. Ho, G. T. Battles
Citation Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.
Keywords fresh cut produce; ozone; sanitizer

Abstract

Strickland Produce packages fresh cut vegetables, lettuce and fruits for the ready-to-eat market. Lettuce is sorted, cut, washed, flumed, dewatered, packed in plastic bags, and distributed under refrigeration. The flume water is recycled in a closed loop at 200 gpm. After extensive pilot testing, Strickland realized the benefit of ozonated water for cleaning and sanitizing produce and, after extensive pilot testing, installed a State-of-the Art ozonation system in 2000 with assistance from TVA and EPRI. A self-cleaning 50-micron RonningenPetter "wedge-wire" filter reduces the suspended solids load in the 800 liters per minute (200 gpm) loop before the water chiller. Subsequently, a 200-liters per minute (50 gpm) "slipstream" is ozonated at 350 kPa (50 psig) pressure in an Osmonics designed system. Ozone is injected with a Mazzei injector followed by a pressurized contactor tank. Before returning the highly Ozonated water to flume stream, any entrapped gases are removed in a GDT centrifugal separator with catalytic destruction of any excess ozone. Following are the benefits of ozone treatment of lettuce to the food processor and the consumer: Improved cleanliness of the recirculated water in the flume system (no brown off-color, reduced bacterial count in the water, and better sanitation). Flume water replacement is required only once a day instead of every 2 - 3 hr. Reduced usage of chlorine, thus better tasting lettuce, better appearance. Lower bacterial count on the lettuce, thus longer shelf-life. In May 2003, Praxair Inc. demonstrated the performance of the NatureWash™ ozone-washing process with fruits (honeydew melon, cantaloupe, and watermelon) at Strickland. In this study, the ozone treated fresh cut fruits were packaged and stored at 39°F (4°C). Based on the microbial and sensory results of this performance test, the process achieved at least a 50% increase in shelf-life of the fruits tested.