

Abstract

The initial washing step involves jet-washes and air bubbles. Sterilization using ozonated water is also applied at the same time of this washing. Water is then sprayed onto the sterilized apples, and using the dehydrating bar made of PVA sponge, water moisture on the surface of apples gets removed. The apples are then transported to the coating stage. The coating is done by spraying the coating agent onto the surface of the apples, and then the apples pass through a anti-moisture roller sponge which allows uniform coating on the surface, Finally the apples are transported on a dry conveyor to the drying unit which involves a cold dehumidifying air treatment. The apples get discharged after this step and the washing/coating test results are collected. The effectiveness of the washing is measured first in terms of the color difference (ΔE) of the apple surface between the stages “before washing” and “after washing”. The average ΔE was 3.1, which was a significant difference. The washing also significantly lowered bacterial count on apples. After washing, the coliform count decreased by 97.3% and the total bacterial count (TPC) by 93.8%. “Bio-coat” which was the coating agent used in the test produced a significant change in the gloss of surface. The “Bio-coat” mainly consisting of a natural compound used in functional foods, which is also antibacterial actually lowered the color difference (ΔE) to 1.9% when used in 3.0% concentration. In the preservation test comparing the apples that have been washed, sterilized and coated versus the ones that have not been coated, the coated apples showed a higher degree of preservation than the uncoated ones. The coated apples had a 7.5 rating, while the uncoated had a 5.8. In addition, the coated apples showed a less reduction in weight, a 6.7%, while the uncoated had a 10.5% reduction.