

Fruit Wash Case Study

Melon Wash (Cucumis melo)

Problem:

A multinational fruit grower produces cantaloupe melons (*Cucumis melo*) in Central America for consumption in the US, among other markets. As part of the harvest and shipping process, the company needs to maintain washing integrity and efficacy to meet FDA requirements for a HACCP “kill step” with an ORP >850, as part of the wash cycle to prevent mold or salmonella growth.

Cantaloupe melons are notoriously difficult to wash. They are irregular in shape and size and their skin is both rugged and pitted. Washing requires a consistent treatment with sodium hypochlorite to maintain efficacy, without leaving a residual effect on the melon’s natural aroma, a key factor used by consumers in the selection and purchase of ‘ripe’ melons.



Cantaloupe Melon skin

Objective:

The multinational fruit grower approached Trustwater™ for a solution to this problem. The key objective was to minimize mold and salmonella growth within the melons while providing a more cost effective and environmentally sensitive method of washing the fruit.

Solution:

Having evaluated the requirement, Trustwater™ provided a fully automated on-site generating system for the wash tanks. Trustwater™ solutions were dosed into the wash tanks at the point of entry, which were maintained and refreshed as the wash tank water was consumed.

Conclusion:

Pre-wash testing showed initial colony counts on fruit were 4.8×10^7 . After immersion in the wash tank water dosed with Trustwater™ solutions, a seven log reduction in bacterial count was consistently experienced. Dosing levels were then varied between 50 – 200 ppm FAC of the Ecasol solution. At 50 ppm free chlorine content the Trustwater™ Ecasol was seen as a valid substitute for other fresh produce dump tank chlorination methods. A free available chlorine reading above 150 ppm, meets the FDA requirements for a HACCP “kill step” with an ORP >850. The cost to produce the Ecasol solution was 1/10th that of sodium hypochlorite, resulting to significant annual savings and the Ecasol/Aversol remixed, resulted in elimination of harmful chemicals to drain.

References:

Melon wash peer review. Dr R Yudin, 2009.