

Sanitation of Juice Facilities for Presumptive *Alicyclobacillus* (TAB)

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Chemical Application Techniques

- A variety of approaches used in Juice Plants.
- Focus has been on the fruit
 - Logical place to start
 - Treating the fruit as soon as possible
 - Fruit unloading, conveyor belts, brush washers

Chemical Application:

1. Increased dosage of existing fruit wash chemical i.e.; acid detergent/ sanitizer from 200 ppm up to 300 ppm improves cleaning
 - a. Improves cleaning (more detergent)
 - b. Increases anti-microbial activity (lower pH)
 - Increased potential for corrosion.

Chemical Application:

2. Adding another chemical to the existing fruit wash i.e.; stabilized chlorine dioxide (ClO_2)
 - a. Minimal levels of stabilized ClO_2 allows for decreased acid anionic detergent.
 - b. Low pH of Condensate Water/ Acid Wash activates stabilized ClO_2

Chemical Application:

3. Treating (Condensate) water supply
 1. Prior to storage
 2. After storage
 3. Isolated supply streams
4. Cooling (Condensate) water supply
 - a. Chemical options increase when water 100° F or lower
 - Iodine sanitizer
 - Generated ClO₂
 - Chlorine
 - Increased cost of cooling the water.





An advantage of chemical application is water savings.

Treat the water rather than dump it.



Application Techniques

1. Spray nozzles (stationary)
 - a. Conveyor belts
 - b. Brush washer
 - c. Elevators
2. Hose stations fed from fruit wash system throughout the Processing Area.

Application Techniques

3. Isolated treatment of Process Water Streams
 - i.e.; Pulp Wash



Application Techniques

4. Continuous treatment

- a. Inline injection into water supply stream for the spray nozzle and hose stations
- b. Continuous application of chemical into the water supply (Allows for lower chemical concentrations)
 - Before storage (hot Condensate Water)
 - Before storage (cooled Condensate Water)
 - After storage

Application Techniques

5. Shock treatment

(Occasional injection of sanitizer)

- Storage tanks
- Supply pipeline
- Requires higher chemical concentration

➤ Chemicals Used:

- Acid Anionic
- ClO_2
- Iodophor
- Chlorine

- **In my experience stabilized ClO₂ has the greatest potential for chemical treatment and control of TAB in Juice Plants.**