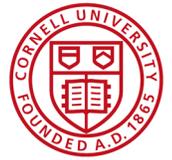


How to Wash Produce Using a Peracetic Acid Solution



This procedural guide will take you through the steps necessary to wash produce in a food safe manner. From calculation of sanitizer rates to washing procedures, many variables can affect the safety of produce on your farm.

Materials

- 3 wash tubs/basins (1 for washing; 2 for rinsing)
- potable water
- measuring spoons
- plastic or metal long-handled stirring spoon
- peracetic acid product labeled for the sanitation of surfaces and produce
- peracetic acid test strips
- pH test strips
- turbidity indicator card



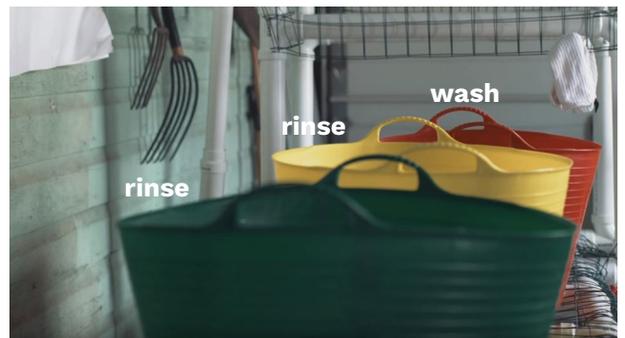
Preparation

To learn how to build an easy to clean produce washing station, visit cvp.cce.cornell.edu/food_safety.php

1. Inspect your wash tubs and clean them if necessary.
2. Fill the wash tubs with the target amount of potable water (ex. 5 gallons).



3. Remove soil from your produce first with a hose.



Calculating and Mixing the Peracetic Acid Solution

Several OMRI certified sanitation products are mixtures of the active ingredients hydrogen peroxide and peracetic acid (PAA, also called peroxyacetic acid). The recommended range for PAA dilutions is 40-80 ppm, depending on product and use. Refer to the PAA label for specific recommendations.

The general recommendation is a 60 parts per million (ppm) solution of PAA for washing produce using submersion systems.

- Using your desired ppm PAA, the volume of wash water you have in the wash tub, and the PAA concentration in your sanitizer product, calculate the volume of sanitizer needed in the wash tub using this formula:

conversion factors

1% = 10000 ppm
 1 gal = 768 teaspoons
 1 fluid ounce = 6 teaspoons

$$\text{volume PAA product needed in wash tub (gal)} = \frac{\text{desired ppm PAA} \times \text{volume of wash water in wash tub}}{\% \text{ PAA in product} \times 10,000}$$

- Convert the amount of sanitizing product needed to teaspoons. Once you have determined the amount of sanitizer needed for a given volume of water, you can use that level in the future without recalculating.

Example Calculation Using Tsunami 100

Peracetic acid product Tsunami 100 is 15.2% PAA and 11.8% hydrogen peroxide and is labeled for use in the sanitization of wash water in dunk tanks and continuous feed systems. Tsunami 100 requires a 1.5 minute mixing time when preparing a wash water solution. Please refer to the Tsunami 100 label for more details on using this product.

$$\text{Volume of sanitizer (gal)} = \frac{60 \text{ ppm PAA} \times 5 \text{ gal wash water in tub}}{15.2\% \text{ PAA in sanitizer} \times 10000 \text{ ppm/\%}} = \frac{300 \text{ ppm gal}}{152000 \text{ ppm}} = 0.002 \text{ gal}$$

$$\text{Volume of sanitizer (tsp)} = 0.002 \text{ gal} \times 768 \text{ tsp/gal} = 1.536 \text{ tsp needed in the wash tub}$$

- Add the calculated amount of PAA product to the wash tub and stir using a plastic or metal stirring spoon.
- Use a peracetic acid test strip to measure the peracetic acid concentration, following the instructions on the container. If target PAA concentration is not achieved, add small increments of product until the target is reached.
- Test the pH of your wash solution using pH strips. Water should have a pH between 6.0 and 7.5. If above 7.5, add food grade acetic acid to lower pH.
- Calculate the volume of sanitizer needed for each rinse container. Target between 5 and 10 ppm PAA to prevent build-up and cross-contamination of pathogens to produce. Follow the procedures described in Steps 1-5.



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Washing Produce

1. Place the produce into the first tub (the wash tub). It must stay in the wash tub for at least 1 minute.

Depending on the type of produce, dunk, re-dunk, agitate or whatever is necessary to remove debris and soil from the produce.



2. Dunk produce into each of the two rinse containers. This will allow for further cleaning and will remove residual PAA.



3. Remove the produce from the third bin and pour the produce into a perforated bin to allow excess water to drip out. The produce should drip dry.



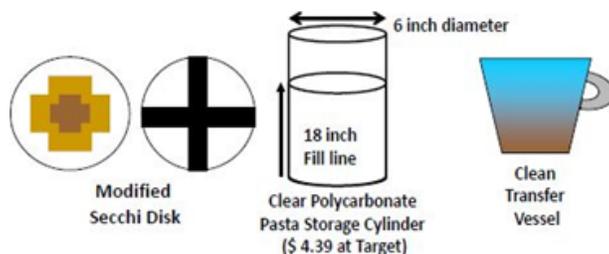
4. After a few batches, check the PAA level and turbidity of the wash solution. Replace the solution if turbidity is too high or if the PAA levels are too low.

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Testing Turbidity

Turbidity refers to the cloudiness of the water based on how many particles are suspended in the solution. As the organic matter comes off the produce, turbidity increases and the amount of available sanitizer begins to fall.

1. Fill a clear container (6" x 18", about 5.5 qt, or a 1/2 gal mason jar) with solution from the wash tub or rinse containers.



2. Place the container on a turbidity indicator card under the bottom of the container.



3. From the top of the container, look down through the solution to the turbidity indicator card below the container.
 - If you can see white area, the water does not need to be changed yet.
 - If you can see the light brown area, the water is still usable but you will have to change it soon.
 - If you can see only the dark brown area or cannot see the card at all, it's time to change the water.



Clean Up

Clean and sanitize all wash containers and food contact surfaces after done.

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