Farm Food Safety:

Standard Operating Procedure for Washing Produce with a Peracetic Acid Solution

This standard operating procedure will guide 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. Use this SOP to learn how to use sanitizers in your produce washing procedure, for training employees and future reference.

Materials

- 3 wash tubs/basins
- Potable water
- Plastic or metal long handled stirring spoon
- Peracetic acid product
- Peracetic acid test strips

Preparation

Several OMRI certified sanitation products are mixtures of the active ingredients hydrogen peroxide and peracetic acid (PAA, also called per oxyacetic acid). The recommended range for PAA dilutions is 40-80 ppm, depending on product and use. See PAA label for specific recommendations (for example, VigorOx target is only 45 ppm). The general recommendation is a 60 parts per million (ppm) solution of PAA for washing produce using submersion systems.

Prior to mixing the Sanitizing Solution

1. Use a Peracetic acid (PAA) product labeled for the sanitation of surfaces and produce.
2. Calculate the amount of sanitizer product required to achieve the desirable PAA concentration using the formulas on the next page.
3. Inspect washtubs and clean them if necessary.
4. Fill washtubs with the target amount of potable water (ex. 5 gallons).

Mixing the Sanitizing Solution

1. Add the calculated amount of PAA product to the each wash and stir using the plastic or metal stirring spoon.
2. Use a peracetic acid test strip to measure the peracetic acid concentration, following instructions on the container.

   If target peracetic acid concentration is not achieved, add small increments of product until the target is achieved.

3. Proceed to produce washing once peracetic acid and pH are within acceptable ranges.
4. Use this calculated amount of sanitizer for future wash water solutions. Double check levels with monitoring strips.
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Calculating Peracetic Acid Levels

The current recommended level is 60 ppm solution of PAA for washing produce.* Using this level, the volume of wash water per washbasin and the PAA concentration in your sanitizer product, calculate the amount of sanitizer needed per washbasin. The formula below can be used to calculate the amount of PAA product per washbasin for your given volume of water. Once you have determined the amount of sanitizer needed for a given quantity of water, you can use that level in the future without recalculating. PAA levels remain stable even when organic matter is introduced. Double check levels with monitoring strips.

### Example Calculation using Tsunami 100

Volume of sanitizer needed = \( \text{Desired ppm PAA} \times \text{volume of wash water} \) 
\( \frac{\% \text{ PAA in product}}{10,000} \)

**Volume of sanitizer needed =**

\[ \text{60 ppm PAA} \times 5 \text{ gal of wash water} \]
\[ 15.2\% \text{ PAA in sanitizer} \times 10,000 \text{ppm/\%} \]

\[ = \frac{300 \text{ ppm } \cdot \text{ gals}}{152000 \text{ ppm}} = 0.0019 \text{ gals} \]

Now convert the amount of sanitizing product needed to teaspoons

\[ \text{Volume of sanitizer needed} = 0.0019 \text{ gals} \times \frac{768 \text{ tsp}}{1 \text{ gal}} = 1.46 \text{ tsp} \]

*Although 60 parts per million can be used as a general rule for peracetic acid concentration for dunking fresh produce, please refer to the label and associated materials referring to the specific product you choose to use.

**Notes about Tsunami 100:**

PAA product Tsunami 100 is 15.2% PAA and 11.8% Hydrogen Peroxide and is labelled 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.

### Tsunami 100 Label Rates for a Range of PAA Concentration

- **30 ppm PAA** (214 ppm total product) = **2.5 oz per 100 gallon**
- **80 ppm PAA** (575 ppm total product) = **6.7 per 100 gallon**
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Testing Turbidity

1. Attach a turbidity indicator card to the bottom of a clear container (6” x 18” or about 5.5qt or a 1/2gal mason jar).
2. Fill container with water from sanitizer or rinse bucket.
3. Looking down from the top of the container, look at the card on the bottom of the container.
4. If you can see the white area, then the water does not need to be changed.
5. If you can see the light brown area, the water is still usable but you will have to change it soon.
6. If you can see only the dark brown area, or cannot see the card at all, change the water.

Washing

1. Place produce into the first tank. It must stay in this first rinse at least 1 minute.
   
    Depending on type of produce, dunk, re-dunk, agitate or whatever is necessary to remove debris and soil from produce.

2. Dunk produce in each of the two rinse containers. This will allow for further cleaning and will remove residual PAA.
   
    Add a small amount of sanitizer to even the rinse containers (target between 5 and 10 ppm free PAA) to prevent the build-up and cross-contamination of pathogens to produce.

3. After a few batches, check the PAA level and turbidity of the wash solution. Turbidity will increase as organic matter comes off produce.

4. Periodically test the turbidity of the rinse water.

5. Replace sanitizing solution if turbidity is too high or if free chlorine or PAA levels are too low.

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