



Handling Turbidity in Postharvest Wash Water

Turbidity in postharvest wash water is a factor that needs to be monitored to ensure effectiveness of sanitizer in wash water. Turbidity is a measure of the clarity of water. Turbidity can come from organic sources (plant particles and “juices”) or inorganic sources (soil). Excessive turbidity will consume the fast-acting oxidizers and interfere with testing of sanitizer levels, making it ineffective. In addition, the Food Safety Modernization Act (FSMA) requires growers to monitor turbidity in postharvest wash water.

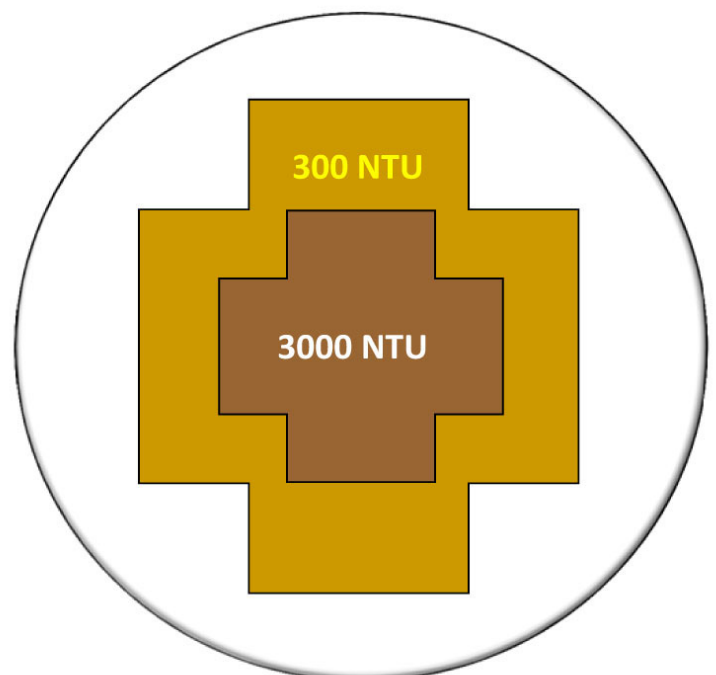
In lakes and streams, environmental scientists use a tool called a Secchi disk to qualitatively measure turbidity. The disk itself has a high contrast pattern on it, divided in quarters and colored alternating black and white. The disk is dropped into a water body and lowered into the water until the scientist can't see the pattern. The depth is recorded and it is used as a comparison with other water bodies.

A similar process has been devised for postharvest wash water by Dr. Trevor Suslow of University of California-Davis*. The disk below can be placed at the bottom of a clear food safe cylinder that is at least 18 inches deep. For ease of handling, the cylinder should be 4 inches or less in diameter. The cylinder is then filled with wash water from the wash tank, flume, or other use. If the outer cross (labeled 300 NTU) is unable to be seen, it is time to change the wash water on account of excessive turbidity.

It is important to remember that this is a qualitative measure of turbidity. Soil type and crop being washed can change the results. Calibrating the tube with a digital turbidimeter and wash water specific to the operation can greatly improve the accuracy and usefulness of this tool

Whenever performing food safety procedures, it is important to have a Standard Operating Procedure in a food safety manual that outlines how the procedure is to be performed. As with any monitoring on farm, a record should exist that the activity actually took place. On the back of this document is a sample Standard Operating Procedure for measuring turbidity using the modified Secchi disk. It is left to the grower to create a record sheet for the activity.

* Suslow, T. (2012). [Top FAQs about Produce Wash Water Management for Small-Scale and Direct Market Farms \(Including the Secchi Disk method\)](#)





Title: Turbidity Monitoring

Effective Date:

Developed by: Phil Tocco, Michigan State University; adapted from Trevor Suslow, UC Davis

Reviewed by: _____ GAP Coordinator, Date: _____

1.0 Purpose

Turbidity should be monitored to control the effects of turbidity on sanitizer effectiveness.

2.0 Scope

This SOP covers all produce that contacts the wash water being monitored.

3.0 References

This SOP is designed to support compliance with the FSMA Produce Safety rule §112.48 (b)

4.0 Definitions

Secchi disk: a tool to qualitatively determine the level of turbidity in a quantity of water.

5.0 Responsibility

_____ is responsible for carrying out this SOP.

(Fill in the appropriate name)

6.0 Procedures

1. At least hourly (flume) or after each load (batch), whichever interval is shorter, test water for turbidity
2. Using a clean container or bucket, fill a clear foodsafe container to a depth of 18".
3. View the modified Secchi disk through the water and container.
4. When the outer cross of the Secchi disk becomes difficult to see, change the wash water.
5. Record results on a record sheet.
6. Discard water in the monitoring container, and rinse it with clean tap water.

7.0 Verification procedures

_____ will intermittently verify the procedure being performed.

(Food Safety Coordinator)

8.0 Records

The results of each monitoring event will be recorded on the appropriate record sheet.