Impact the Mechanical Egg Washer has on Food Safety!!

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DiverseyLever - System Sure testing of Mechanical Egg Washer surfaces.

Purpose of this test was to determine if soil loads left on the surface areas of a mechanical egg washer is substantial enough to cause an increase in microbial growth. By cleaning off these soil loads do we impact or reduce bacteria numbers to a safe level? What affect does cleaning and sanitizing have on bacteria contaminants on these food processing surfaces?

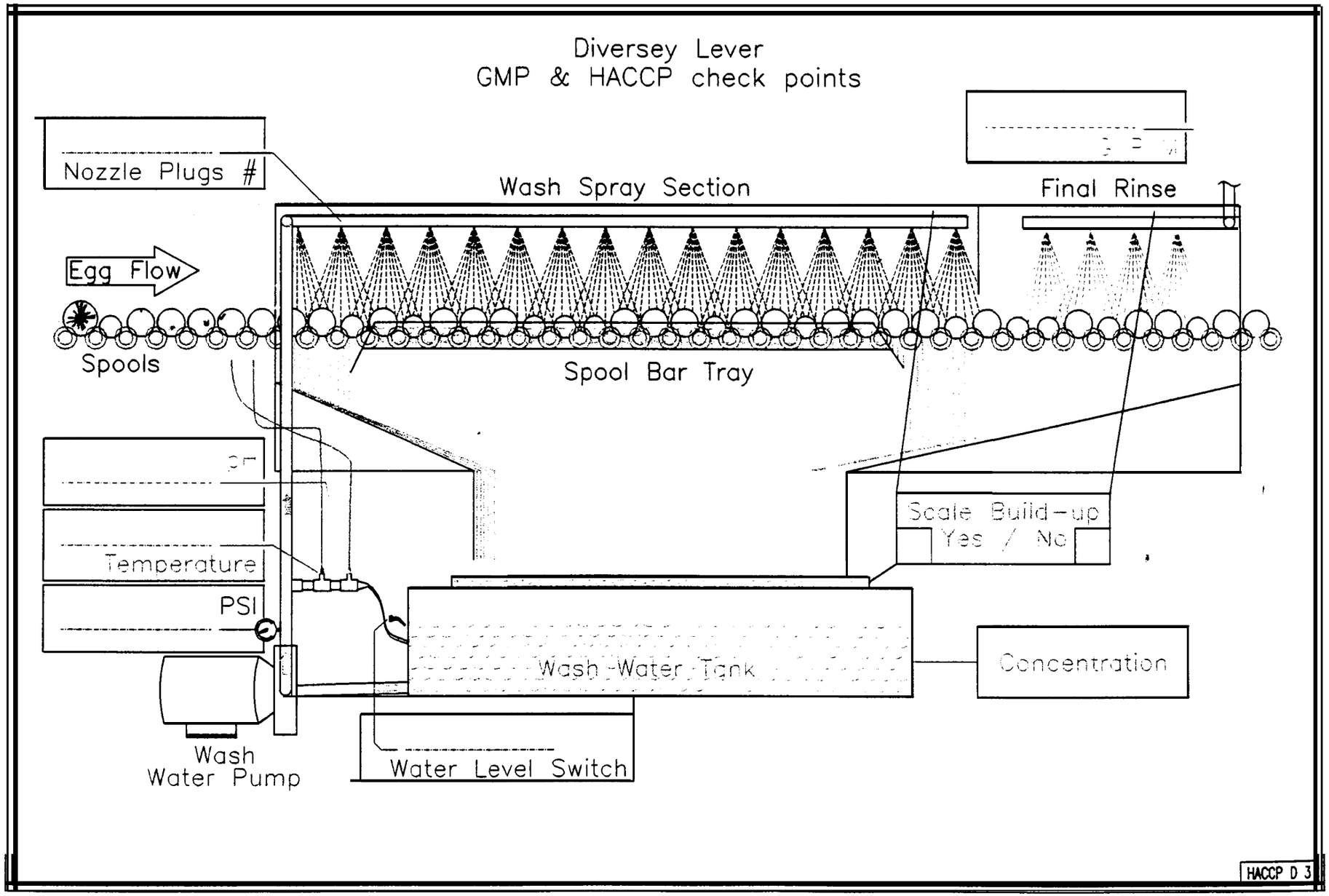
Set up a "**System Sure**" test swab analysis of the uncleaned surface of a mechanical egg washer. Test swabbed the cleaned surface of a mechanical egg washer and followed test swabbing of a cleaned and sanitized surface.

The results are expressed in relative light units (RLU's). DiverseyLever has established a minimum threshold of 300 RLU's to be considered a clean and sanitary surface for the processing of shell eggs. Results above 300 RLU's are suspect and may pose possible microbiological concerns.

On cleaned & sanitized stainless steel surfaces that come in contact with pasteurized liquid egg product in the further egg processing industry a RLU threshold factor is 80. Any thing over 80 RLU's is considered suspect and may contain bacteria or protein soil loads that can support bacteria growth. For this reason a lower RLU factor is calculated for safe pasteurized egg product surfaces verses a stainless steel mechanical egg washer processing surface.

This system does not measure bacteria directly. It is designed to measure "Dirt", both bacterial and organic. It is assumed that if there is a measurement above 300 RLU's that conditions are present that could support microbiological activity and therefor compromise product quality. Following are the results of the tests run in a egg processing plant.

SAMPLE No.	DESCRIPTION Mechanical egg washer uncleaned surfaces	RESULTS (RLU)
100	wash tank inside	1247
101	wash tank inside	1312
102	wash tank screen	1111
103	wash tank screen	907
104	inside lid	944
105	inside lid	1671
106	spray piping	1421
107	spray piping	875
108	cabinet walls	1672
109	cabinet walls	2120
110	rinse bar assembly	1916
Total samples 11		Avg. 1381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GMP & HACCP check points
Nozzle Plugs #
Wash Spray Section
Final Rinse
Egg Flow
Spools
Spool Bar Tray
Temperature
PSI
Scale Build-up
Yes / No
Wash Water Tank
Concentration
Wash
Water Pump
Water Level Switch
HACCP D 3

SAMPLE No.	DESCRIPTION - Egg Washer - Cleaned	RESULTS (RLU)
111	wash tank inside	148
112	wash tank inside	129
113	wash tank screen	223
114	wash tank screen	185
115	inside lid	87
116	inside lid	94
117	spray piping	65
118	spray piping	78
119	cabinet walls	101
200	cabinet walls	186
211	rinse bar assembly	55
Total samples 11		Avg. 123

SAMPLE No.	DESCRIPTION - Egg Washer Cleaned/Sanitized	RESULTS - (RLU)
	Cleaned & Sanitized 100ppm Chl.	RESULTS (RLU)
212	wash tank inside	38
94	wash tank inside	48
95	wash tank screen	18
96	wash tank screen	24
97	inside lid	28
98	inside lid	22
99	spray piping	17
100	spray piping	21
101	cabinet walls	88
102	cabinet walls	93
103	rinse bar assembly	22
Total samples 11		Avg. 54

What We Have Establish

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- Acknowledge that bacteria survival and growth is dependent upon having a ample food supply source.
- A clean surface reduces the food source that is necessary for bacteria growth.
- A clean and sanitized surface further reduces bacteria numbers to an exceptable food safe level, thus reducing the potential risk of harmful bacteria contaminants in our egg products.

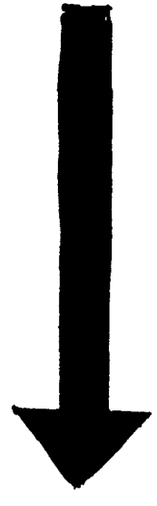
WHY SANITIZING IS EFFECTIVE ONLY ON CLEAN EQUIPMENT:

- Dirty Equipment
  1 Million Bacteria
  per Square Inch

Sanitize
to a
99.9%
KILL

- 1000 Bacteria Still Left

- Clean Equipment
  200 Bacteria
  per Square Inch

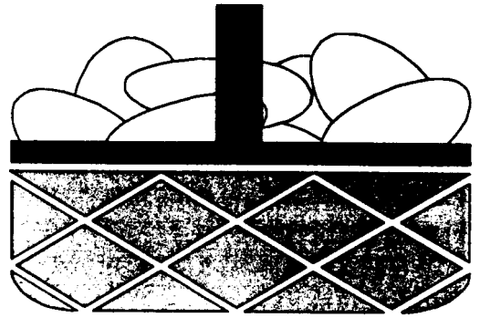


Sanitize
to a
99.9%
KILL

- Only 20 Bacteria Left

EGGxactly the Facts in.....
.....Egg Washing

Research has shown that the pH and temperature of egg wash detergent solutions is very important in the control of Salmonella enteritidis and other bacteria on shell egg surfaces.



Basic Sanitation Definitions

- **CLEANING:** The removal of soil particles or residues from the surfaces by mechanical, manual, or chemical method.

  - Mechanical egg washer:
  - Production room environment:

    - Purpose is to reduce vegetative food matter which is essential for continued or rapid bacteria growth.

What We've Done...Why It Matters!

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- Look at Best Practice Methods..Cleaning.
- Review mechanical egg washer operating efficiencies that impact your business.
- Cover Key HACCP points...Egg Washing

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Sanitation Objectives

The following sanitation guidelines will provide the egg processor with these benefits:

- Provide a clean and sanitary environment for the processing of shell eggs and egg products.
- Guidelines for proper egg washing and sanitizing that meets or exceeds USDA/FSIS requirements.
- Provides a clean work area for employees.
- Helps reduce the risk of harmful bacteria contaminations.
- Provides a sanitation guideline that is quality oriented and cost effective for the egg producer.

Basics of Cleaning and Sanitizing

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Clean-up and Pre-Processing Sanitation:

- Dry pick-up of floor soils
- Pre-rinse equipment using tempered water with High Pressure or boostered rinse
- Use of a self foaming general cleaner formulated to remove egg soils.

Sanitation Points of Interest

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- Cleaning procedures are provided in detail on the proper methods developed for effective removal of common soils found in a typical egg processing plant.
- GMP and HACCP Inspection forms to manually record and track key points of the operation .
- Inspection check point forms that may be used to record daily operating parameters that meet USDA guidelines.

Improved Cleaning Method for Mechanical Egg Washer

In the process of properly and efficiently removing daily deposits of egg product soils from the internal and external surfaces of the Diamond washer, it's extremely important to select the proper cleaning brush. We recommend a dairy bulk tank, white nylon-type bristle brush as best suited for this purpose.

Keys to keeping your washer clean:

☑ Immediately following the day's production, rinse down the top lids and thoroughly rinse down the inside covers and all washer distribution pipes, support bars, and mechanical brushes. **Open** side access panels or doors and rinse inside of cabinet area. NOTE: Make sure the wash tank catch screens are in place when rinsing down the upper cabinet.

☑ Pull the wash tank catch screens and rinse off thoroughly. Drain the wash tank solution and rinse out inside of washer thoroughly. High pressure rinsing is the preferred method in removing all egg shell and egg product residues from the washer. Make sure to rinse out underneath the heat transfer coils.

☑ Using a brush and a pail of warm water, prepare a small amount of DiverseyLever Rapid Kleen detergent, thoroughly hand brush clean all internal and external surface areas of all washer parts. A preferred method is to apply a detergent by use of a foam applicator, followed by hand brushing. Rinse all parts with fresh water, replace the catch screens and leave the washer lids open to air out the machine.

NOTE: Using the above mentioned type hand cleaning brush will dramatically improve cleaning results. Employees will find it much easier to clean hard to reach areas of your washer.

Plant inspection check list

Mechanical Egg Washer:
Date: _____

Equipment/Components	Checked by	Comments
Inside lids and covers		
Spray distribution piping		
Spray nozzles / plugs wash sol.		
Spray nozzles / sanitize rinse		
Upper cabinet section		
Egg catch screens		
Wash tank / side walls		
Wash tank / heating coils		
Washer exterior		
Supply pumps/leaking seals		
Temperature gauges		
pH monitor devise		
Sanitizer pump system		
Misc: items		

HACCP	GMP's
▪ Temperature	▪ **T** - Time
▪ pH over 10.0	**a** - Action
▪ Detergent Conc.	**C** - Chemical
▪ Sanitizer strength	
▪ Temperature - rinse	▪ **T** - Temperature