The Wonderful World of Warewashing!



Required Disclaimer

I have no financial interests or relationships to disclose

Learning Objectives

At the end of this session, you will be able to:

- Describe key warewashing concepts
- Properly assess warewashing in Food Establishments
- Describe Food Safety Rationale behind Warewashing regulations

Why we do Food Inspections

To Prevent Foodborne Illness at the Establishment

5 Risk Factors

- Improper holding temperatures/cooling
- Improper cooking temperatures
- Contaminated utensils and equipment
- Poor employee health and hygiene
- Food from unsafe sources

We don't want a food-contact surface to be ***the Source*** of Contamination

Warewashing - Definition

The cleaning and SANITIZING of UTENSILS and FOOD-CONTACT SURFACES of EQUIPMENT

Cleaning and Sanitizing of Food-Contact Surfaces

- How
- When
- What (Which surfaces)
- Where
- Why



How (5 Steps)

1. Pre-Rinse/Scrape
2. Wash
3. Rinse
4. Sanitize
5. Air Dry



Where

- 3 compartment sink
- Warewashing (Dish) machine
- Clean-In-Place (CIP)
- Alternate
  - Large/heavy equipment
  - 2 compartment sinks

How (5 Steps)

1. Pre-Rinse/Scrape
2. Wash
3. Rinse
4. Sanitize
5. Air Dry



Cleaning-Objective

4-601.11

(A) EQUIPMENT FOOD-CONTACT SURFACES and UTENSILS shall be clean to sight and touch

(B) The FOOD-CONTACT SURFACES of cooking EQUIPMENT and pans shall be kept free of encrusted grease deposits and other soil accumulations.

Cleaning-Objective: Cooking equipment



No 3D Build-up

Washing - How

- Hot water
  - 3 compartment sink >110F
  - Low-Temp Dishmachine >120F
  - High Temp Dishmachine >150F
- Detergent
- Agitation

As hot as is practical

How (5 Steps)

1. Pre-Rinse/Scrape
2. Wash
3. Rinse
4. Sanitize
5. Air Dry

Sanitization – Definition

The application of cumulative heat or chemicals on cleaned FOOD-CONTACT SURFACES that, when evaluated for efficacy, is sufficient to yield a reduction of 5 logs, which is equal to a 99.999% reduction, of representative disease microorganisms of public health importance



Sanitization – Types

Heat (Hot water)

Chemical solution

- Chlorine
- Quaternary Ammonium (Quat)
- Iodine
- Lactic Acid
- Citric Acid

Exposure time/temperature is Critical

Warewashing

The Inspection

Inspecting
3 compartment sink



3 compartment sink - Inspection

1. Does not need to always be set up (W/R/S)
2. Cleaned before using (at least daily)
3. Compartments do not need to labeled (Wash/Rinse/Sanitize) but PIC must be knowledgeable as to the process



PIC Knowledge

2-102.11 Demonstration of Knowledge

The PERSON IN CHARGE shall demonstrate this knowledge by:

(11) Explaining correct procedures for cleaning and SANITIZING UTENSILS and FOOD-CONTACT SURFACES of EQUIPMENT

PIC Knowledge

2-102.11 Demonstration of Knowledge



Coachable vs Citable

PIC Duties

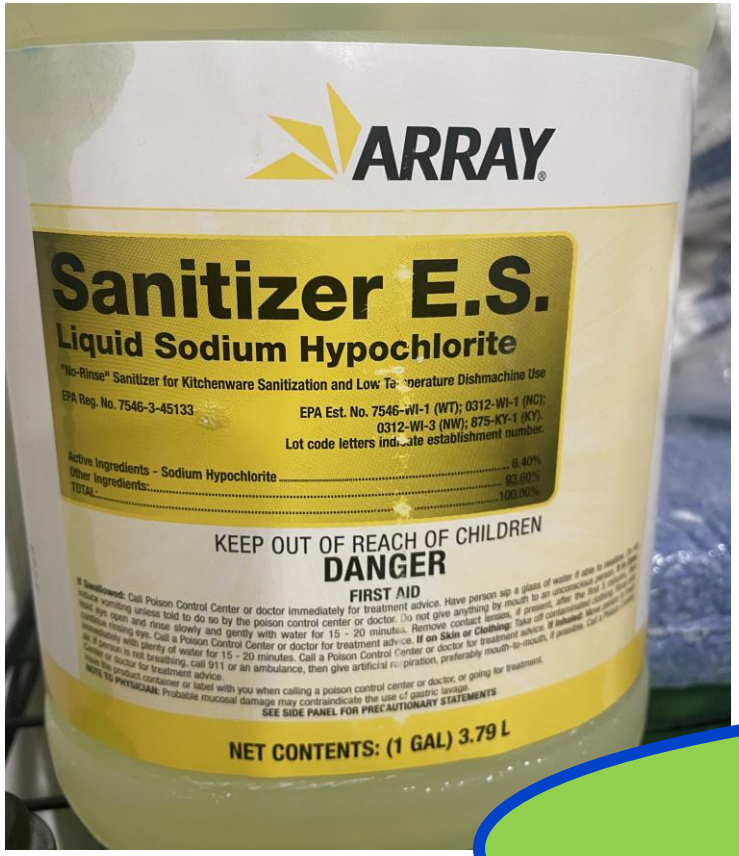
2-103.11

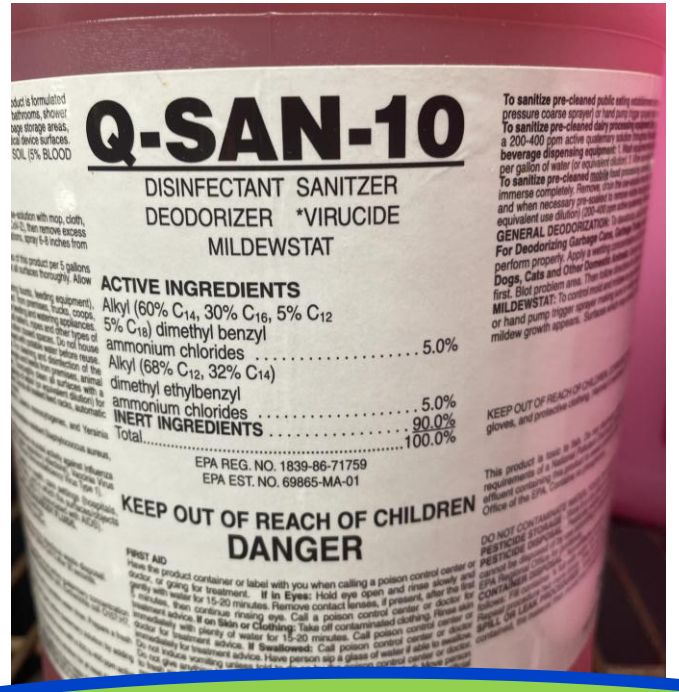
The PERSON IN CHARGE shall ensure that:

(K) EMPLOYEES are properly SANITIZING cleaned multiuse EQUIPMENT and UTENSILS before they are reused, through routine monitoring of solution temperature and exposure time for hot water SANITIZING, and chemical concentration, temperature, and exposure time for chemical SANITIZING; P

Active Managerial Control

Assessing Sanitizing chemicals





Tip: Easier to read label on a back-up container

Assessing Sanitizing chemicals

- Must have EPA Registration No. On label
- Must reference "food-contact" and provide instructions
- No scents/other additives in bleaches

Inspecting Sanitizing Compartment
3 compartment sink



Tip: Have PIC dispense Sanitizer solution into sink when testing strength

Assessing Sanitizing Compartment 3 compartment sink

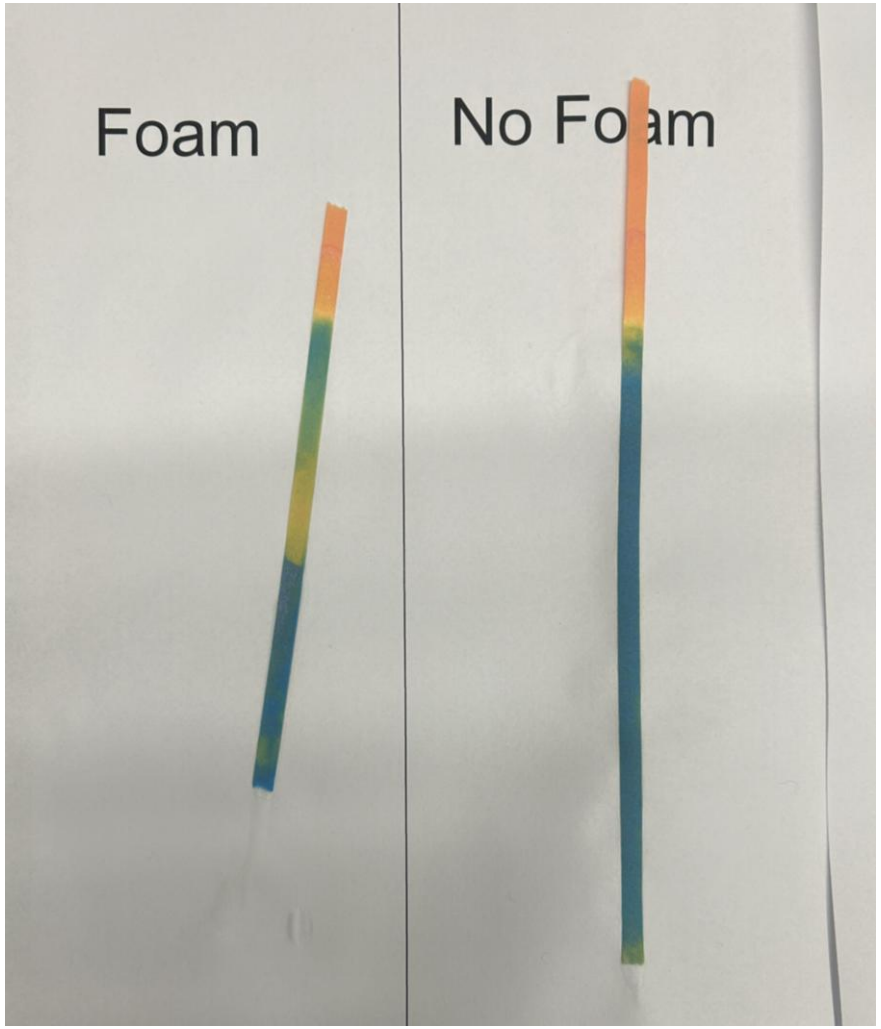
- Clean solution
- Warm water >75 F (Quat)
- Solution Deep enough to completely immerse largest piece of equipment
- Proper concentration*
- Equipment immersed (contact time) for
  - Chlorine > 7 seconds*
  - Quat > 30 seconds*

Always follow manufacturer's instructions

Proper Test Kit Usage

- Always follow Instructions on Kit
- Immersion Time
- Do Not Swirl
- Blot Chlorine test strip with paper towel immediately
- Do not dip into foam
- On Quat test strips, go by dominant color

Do not dip into foam



What you learn when the Sanitizer solution is measured by *You*

- Sanitizer solution strength

What you learn when the Sanitizer solution is measured by *PIC*

- Do they have test kit(s)?
- Do they know where it is?
- Is it the correct type?
- Is it expired?
- Is it still in original foil wrapper?
- Do they know how to properly use test strip?
- Do they know the target ppm range?
- Sanitizer solution strength

Routinely monitoring?

What you learn when the Sanitizer solution is measured by *PIC*

- Do they have test kit(s)?
- Do they know where it is?
- Is it the correct type?
- Is it expired?
- Does it still have original foil on the paper?



Dishmachines





Dishmachine Types

High Temp vs Low temp (Chemical)

Style

- Conveyer belt
- Stationary rack
  - Under-counter
  - Upright

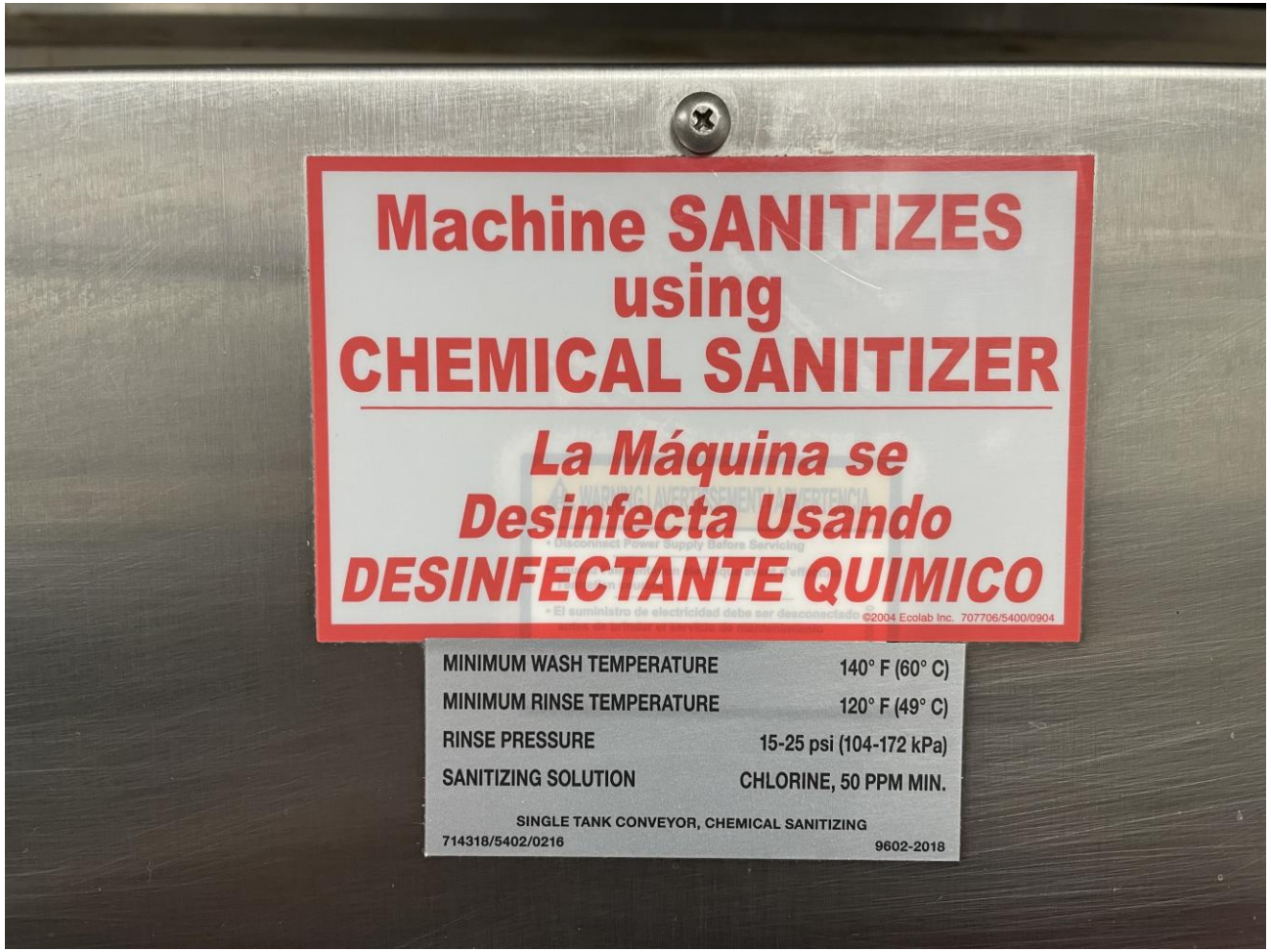




How to tell High temp from Low temp (Chemical) Dishmachine

1. PIC
2. Sign/poster
3. Does it reach 180F?
4. Follow chemical Feed tubes to containers
   - Detergent. Sanitizer? Rinse-Aid?
5. Data plate (….?)

How to tell High temp from Low temp Dishmachine



How to tell High temp from Low temp Dishmachine



Tip: 3 Chemicals = Low Temp

How to tell High temp from Low temp Dishmachine



3 Chemicals = Low Temp

Data plate

4-204.113 Warewashing Machine, Data Plate Operating Specifications.

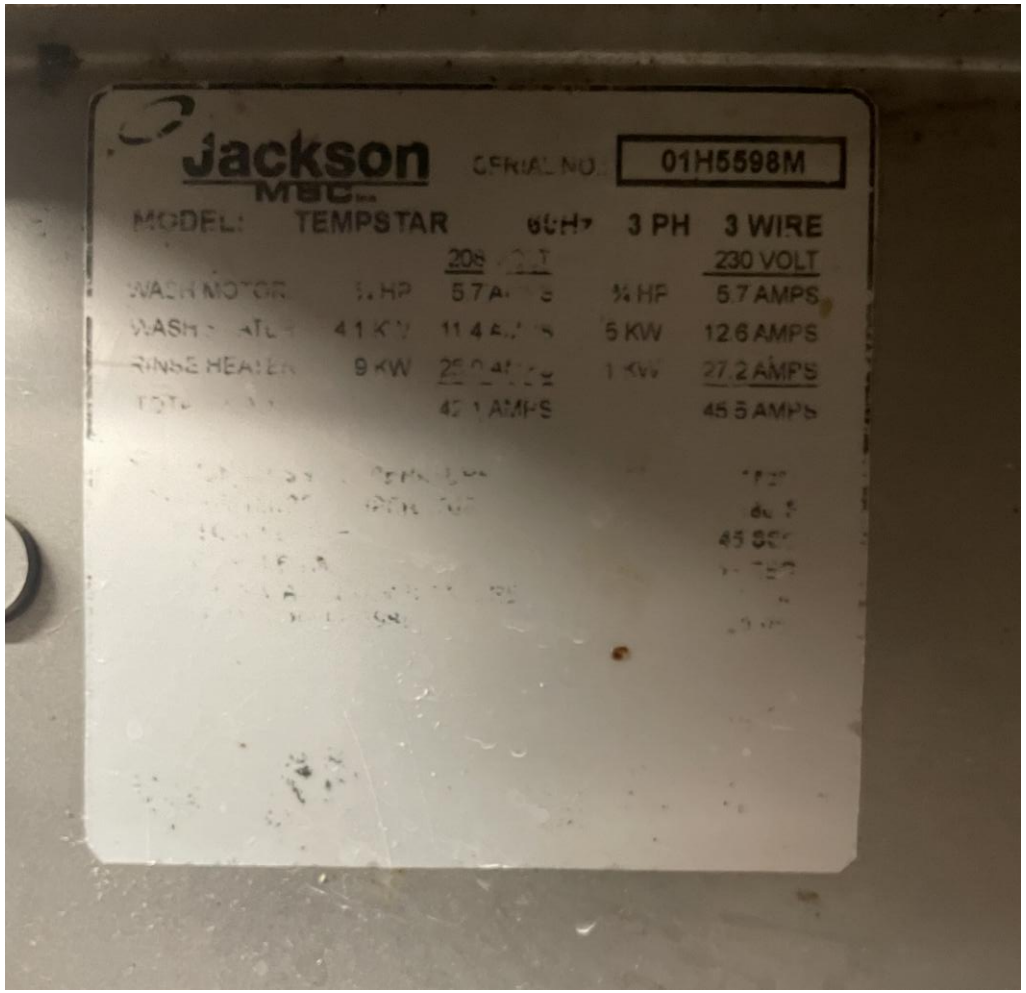
A WAREWASHING machine shall be provided with an easily accessible and readable data plate affixed to the machine by the manufacturer that indicates the machine's design and operation specifications including the:

(A) Temperatures required for washing, rinsing, and SANITIZING;

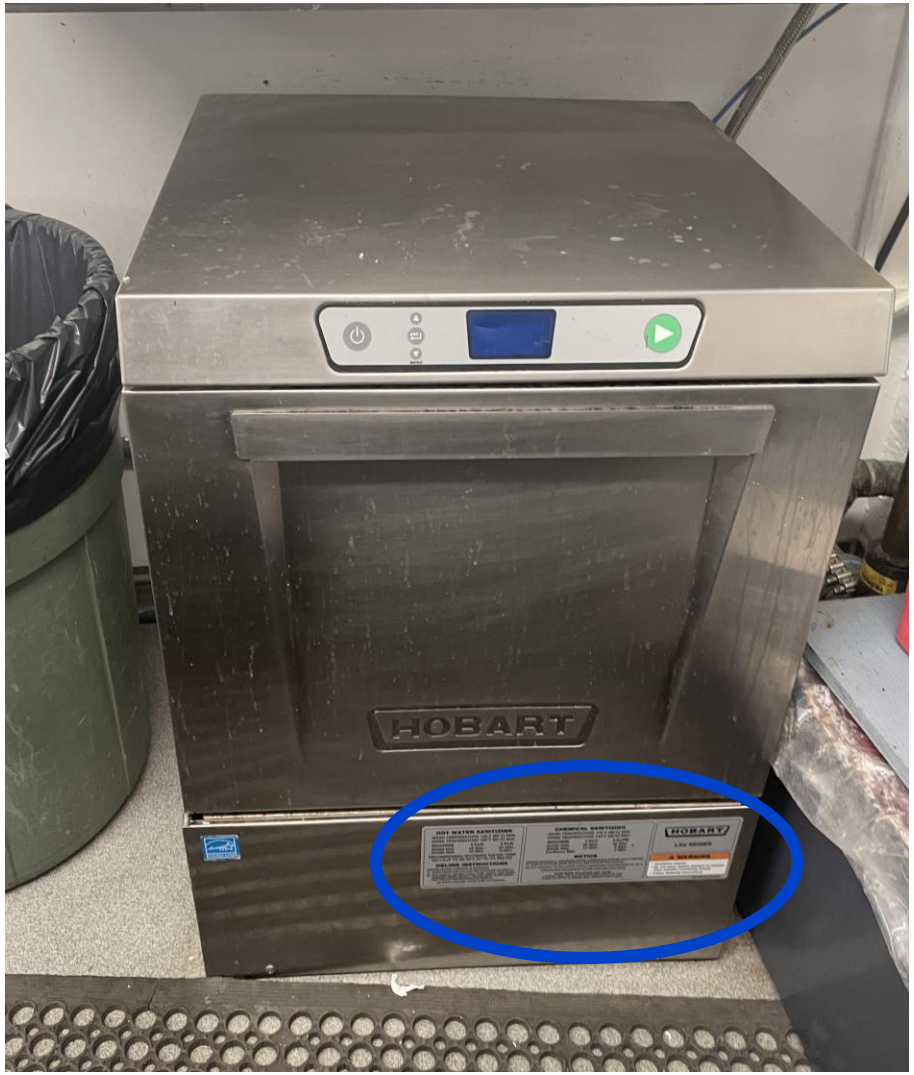
(B) Pressure required for the fresh water SANITIZING rinse unless the machine is de-signed to use only a pumped SANITIZING rinse; and

(C) Conveyor speed for conveyor machines or cycle time for stationary rack machines.

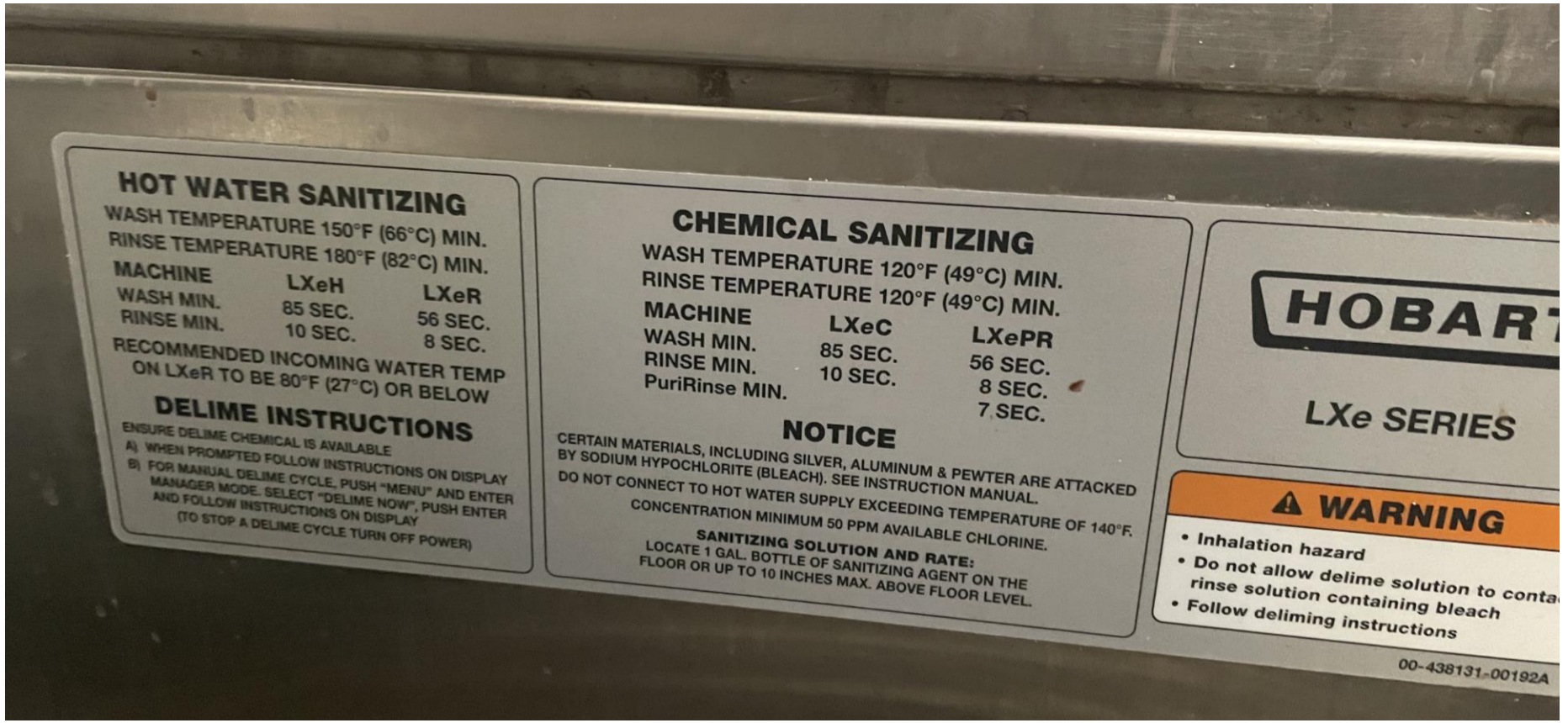
Data plate


Jackson
MSC
01H5598M
TEMPSTAR
3 PH
3 WIRE
230 VOLT
WASH MOTOR
¾ HP
5.7 AMPS
5 KW
12.6 AMPS
9 KW
27.2 AMPS
45.5 AMPS

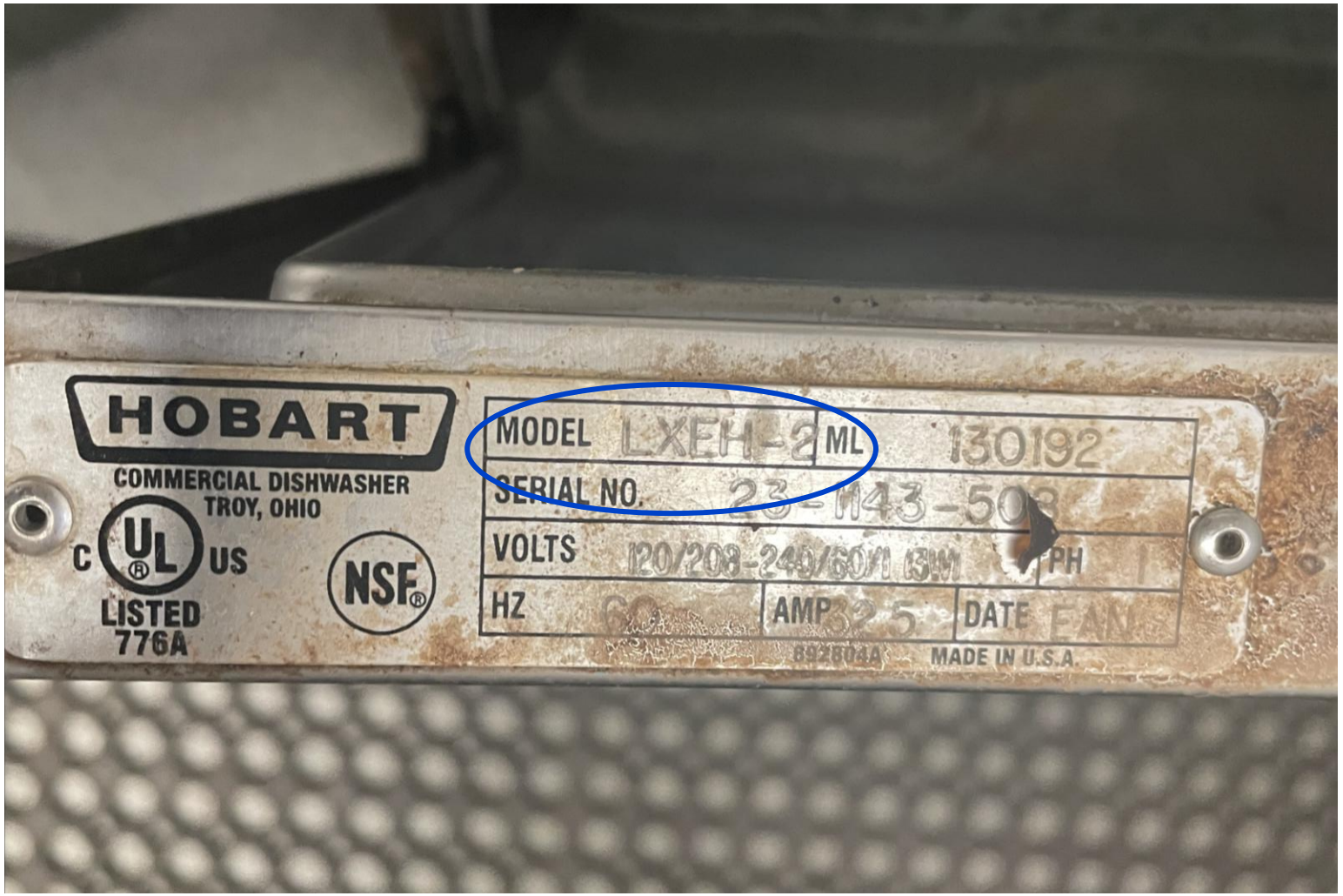
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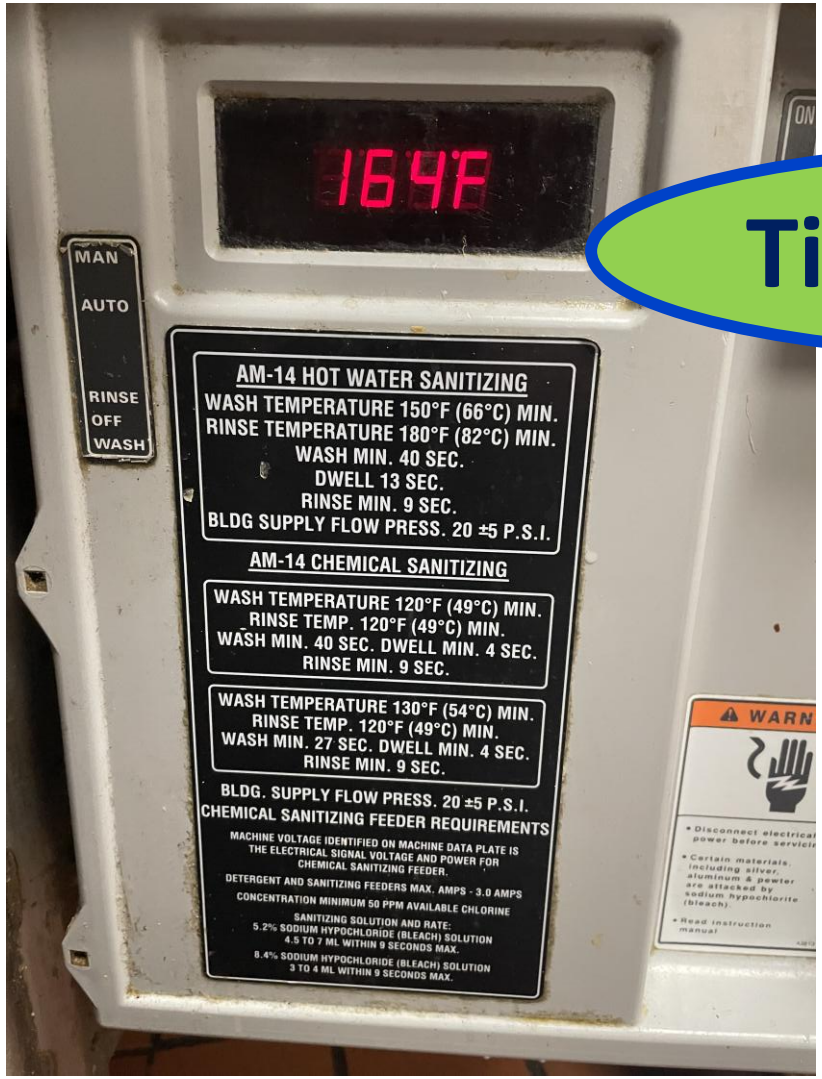
Data plate


HOT WATER SANITIZING
WASH TEMPERATURE 150°F (66°C) MIN.
RINSE TEMPERATURE 180°F (82°C) MIN.
MACHINE LXeH LXeR
WASH MIN. 85 SEC. 56 SEC.
RINSE MIN. 10 SEC. 8 SEC.
RECOMMENDED INCOMING WATER TEMP ON LXeR TO BE 80°F (27°C) OR BELOW
DELIME INSTRUCTIONS
ENSURE DELIME CHEMICAL IS AVAILABLE
A) WHEN PROMPTED FOLLOW INSTRUCTIONS ON DISPLAY
B) FOR MANUAL DELIME CYCLE, PUSH "MENU" AND ENTER MANAGER MODE. SELECT "DELIME NOW", PUSH ENTER AND FOLLOW INSTRUCTIONS ON DISPLAY
(TO STOP A DELIME CYCLE TURN OFF POWER)
CHEMICAL SANITIZING
WASH TEMPERATURE 120°F (49°C) MIN.
RINSE TEMPERATURE 120°F (49°C) MIN.
MACHINE LXeC LXePR
WASH MIN. 85 SEC. 56 SEC.
RINSE MIN. 10 SEC. 8 SEC.
PuriRinse MIN. 7 SEC.
NOTICE
CERTAIN MATERIALS, INCLUDING SILVER, ALUMINUM & PEWTER ARE ATTACKED BY SODIUM HYPOCHLORITE (BLEACH). SEE INSTRUCTION MANUAL.
DO NOT CONNECT TO HOT WATER SUPPLY EXCEEDING TEMPERATURE OF 140°F.
CONCENTRATION MINIMUM 50 PPM AVAILABLE CHLORINE.
SANITIZING SOLUTION AND RATE:
LOCATE 1 GAL. BOTTLE OF SANITIZING AGENT ON THE FLOOR OR UP TO 10 INCHES MAX. ABOVE FLOOR LEVEL.
HOBART
LXe SERIES
WARNING
• Inhalation hazard
• Do not allow delime solution to conta
rinse solution containing bleach
• Follow deliming instructions
00-438131-00192A

Serial number tag



Data plate



Time & Temp

Dishmachine cycles

- ***Wash***
  - Minimum Temperature (most machines)
    - 120F - Low Temp
    - 150F - High temp

Rinse/Sanitize (combined)

- High temp (temp range 180-194) at manifold
- Low temp (Temp – usually 120F)
- Cycle time/Conveyer belt speed



May take a few times (3) to reach temperature

Dishmachine - verifying sanitization

- ***High temp*** (maximum registering device)
  - Puck/thermometer (160°F)
  - Tape/strip (160F not 180F)
- ***Low temp***
  - Chlorine
  - Where to test…





Tip: Have PIC test if possible

Low temp Dishmachine Verifying sanitization

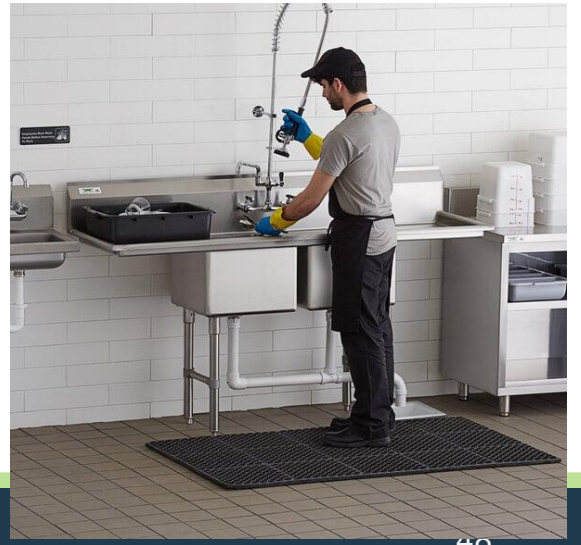




Tip: Don't test pooled water in base of machine

Alternate Warewashing - 2 Bay sink

- Use detergent/sanitizer
- Must be same product for both bays (no Rinse step)
- Make up the cleaning/SANITIZING solutions immediately before use and drain them immediately after use



2 Bay sink Detergent Sanitizer



Alternate Warewashing Large/heavy equipment



Same process – Different tools

4-703.11
After being cleaned, EQUIPMENT FOOD-CONTACT SURFACES and UTENSILS shall be SANITIZED in:

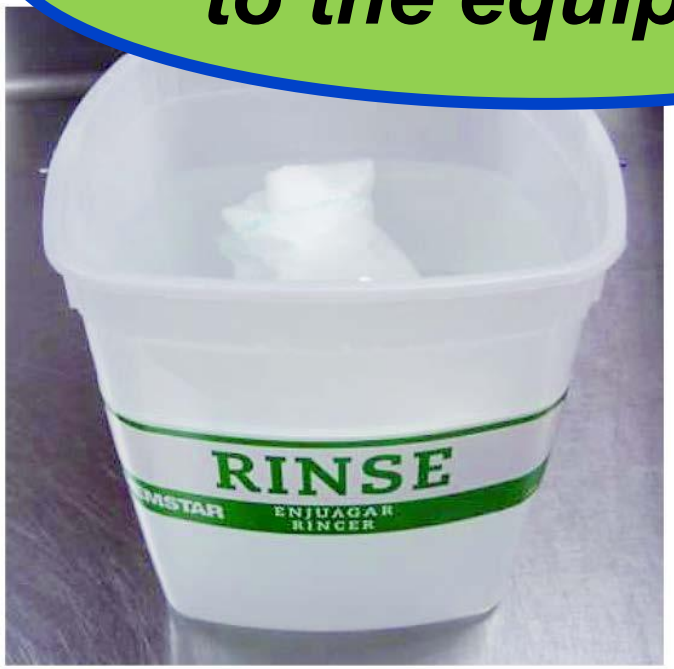
(C) Chemical manual or mechanical operations, including the application of SANITIZING chemicals by immersion, manual swabbing, brushing, or pressure spraying methods

Spray bottle?

Alternate Warewashing Large/heavy equipment -Slicer



Bring 2/3 bay sink to the equipment



Alternate Warewashing Large/Heavy equipment

Wash/Rinse/Sanitize

Or

Use Detergent/Sanitizer 2-Step process

- Same chemical for Wash & Sanitize
- Solution or pre-soaked disposable towels

Frequency of Cleaning/sanitizing

4-602.11 Equipment Food-Contact Surfaces and Utensils.

(A) EQUIPMENT FOOD-CONTACT SURFACES and UTENSILS shall be cleaned:

(1) Except as specified in ¶ (B) of this section, before each use with a different type of raw animal FOOD such as beef, FISH, lamb, pork, or POULTRY; P

(2) Each time there is a change from working with raw FOODS to working with READY-TO-EAT FOODS; P

(4) Before using or storing a FOOD TEMPERATURE MEASURING DEVICE; P and

Frequency of Cleaning/sanitizing

(B) Subparagraph (A)(1) of this section does not apply if the FOOD-CONTACT SURFACE or UTENSIL is in contact with a succession of different raw animal FOODS each requiring a higher cooking temperature as specified under § 3-401.11 than the previous FOOD, such as preparing raw FISH followed by cutting raw poultry on the same cutting board.

(C) Except as specified in ¶ (D) of this section, if used with TIME/TEMPERATURE CONTROL FOR SAFETY FOOD, EQUIPMENT FOOD-CONTACT SURFACES and UTENSILS shall be cleaned throughout the day at least every 4 hours. P

Frequency of Cleaning/sanitizing

(D) Surfaces of UTENSILS and EQUIPMENT contacting TIME/TEMPERATURE CONTROL FOR SAFETY FOOD may be cleaned less frequently than every 4 hours if:

(1) In storage, containers of TIME/TEMPERATURE CONTROL FOR SAFETY FOOD and their contents are maintained at temperatures specified under Chapter 3 and the containers are cleaned when they are empty;



Frequency of Cleaning/sanitizing

(D) (2) UTENSILS and EQUIPMENT are used to prepare FOOD in a refrigerated room or area that is maintained at one of the temperatures in the following chart and:

(a) The UTENSILS and EQUIPMENT are cleaned at the frequency in the following chart that corresponds to the temperature

Temperature	Cleaning Frequency
5.0°C (41°F) or less	24 hours
>5.0°C - 7.2°C (>41°F - 45°F)	20 hours
>7.2°C - 10.0°C (>45°F - 50°F)	16 hours
>10.0°C - 12.8°C (>50°F - 55°F)	10 hours

Refrigerated room effect on 3-bay sink solutions

Frequency of Cleaning/sanitizing

D (3) Containers in serving situations such as salad bars, delis, and cafeteria lines hold READY-TO-EAT TIME/TEMPERATURE CONTROL FOR SAFETY FOOD that is maintained at the temperatures specified under Chapter 3, are intermittently combined with additional supplies of the same FOOD that is at the required temperature, and the containers are cleaned at least every 24 hours;

Topped off – Daily
Not topped off – When empty

Frequency of Cleaning/sanitizing

(E) Except when dry cleaning methods are used as specified under § 4-603.11, surfaces of UTENSILS and EQUIPMENT contacting FOOD that is not TIME/TEMPERATURE CONTROL FOR SAFETY FOOD shall be cleaned:

(2) At least every 24 hours for iced tea dispensers and CONSUMER self-services;

UTENSILS such as tongs, scoops, or ladles;

(3) Before restocking CONSUMER self-service EQUIPMENT and UTENSILS such as condiment dispensers and display containers; and

Where to Cite
Cleanliness: Effectiveness or Frequency?

- 4-601.11 (A) EQUIPMENT FOOD-CONTACT SURFACES and UTENSILS shall be clean to sight and touch.
- 4-602.11 Frequency: Equipment Food-Contact Surfaces and Utensils

Almost all Violations: Direct Observation
Cleaning Frequency Violations: Employee statements

2 Types of Food equipment with unique challenges

- Cutting boards
- Slicers





Cutting Boards

- Only food-contact surface that when used ***as intended*** is not smooth
- Many are too large for sink/dishmachine
- Often in 'continuous use' (> 4 hours)
- Often used for raw and ready-to-eat foods and multiple allergens

Cutting Boards

4-501.12 Cutting Surfaces.

Surfaces such as cutting blocks and boards that are subject to scratching and scoring shall be resurfaced if they can no longer be effectively cleaned and SANITIZED, or discarded if they are not capable of being resurfaced

Cutting Boards



Cutting Boards



2 years old!

Cutting Boards

- Must be washed/rinsed/sanitized ***every 4 hours*** *or* ***after each use*** (if in contact with TCS foods)
- Cleaned 'in place'/ at sink/ in dishmachine?
- Just wiping pushes dirt into the grooves
- **Soak & Scrub** :Brushes (for food equipment only) recommended
- Some establishments use Block Whitener (followed by W/R/S)

Meat/deli slicers

- Deli meats most common vehicle for Listeria
- Often in continuous use (> 4 hours)
- Most difficult piece of equipment to clean
- Use flashlight if needed (communicates the importance)
- Have them dissassemble (or describe process)
- Clean/Sanitize ***Every 4 Hours*** *or* ***after each use***

Do <u>not</u> need to be cleaned between meat types

Meat/deli slicers

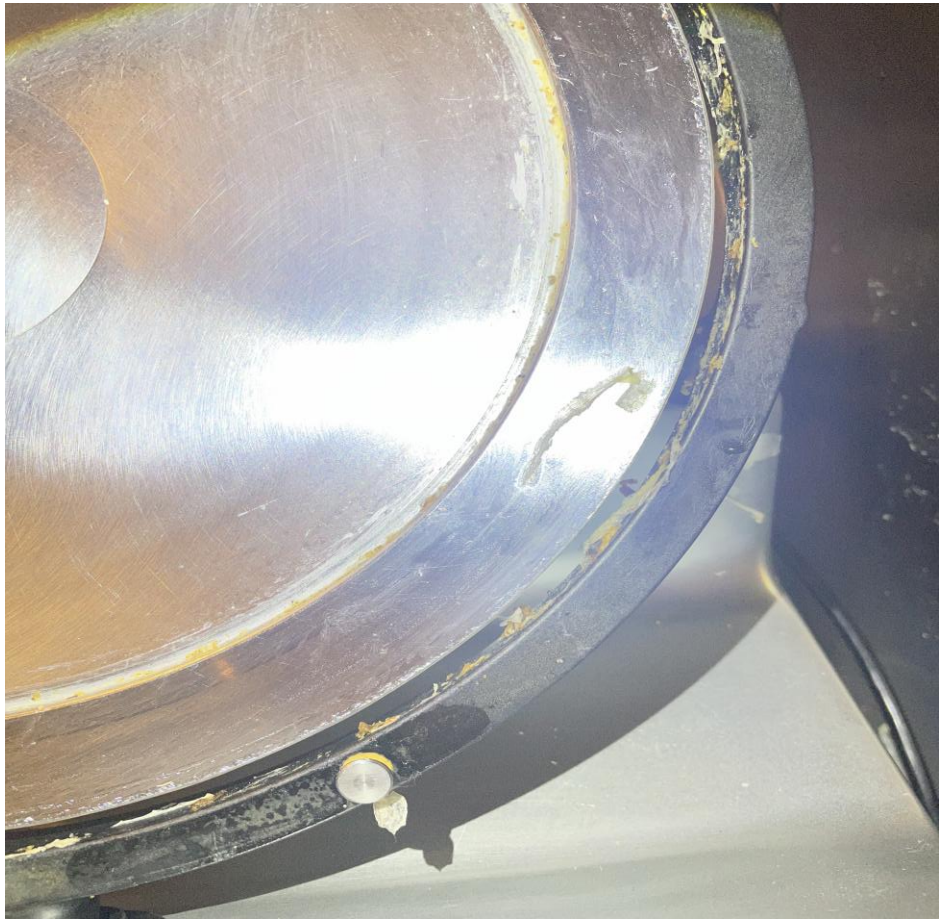
- Check Gap between blade edge and blade guard
- Parts that cannot be removed must be Washed/rinsed sanitized using pails/spray bottles/brushes/cleaning towels OR
- Can be cleaned/sanitized using detergent/sanitizer solution/wipes
- How do they keep track of the 4 hours (mark with food-safe pen/Date-marking sticker/timer?)

Meat/deli slicers



Upper blade guard is a food-contact surface
(Food residue can drip onto blade)

Meat/deli slicers



Meat/deli slicers



Why we do Food Inspections

To Prevent Foodborne Illness at the Establishment

Warewashing - Priority (P) Violations

Sanitizer solution

- Strength/concentration
- Temperature (including chemical)
- Contact time



Cleaning/Sanitizing frequency (for surfaces that contact TCS foods)

Not all-inclusive

Warewashing - Priority Foundation (Pf) Violations

Washing

- Effectiveness (Food-contact surfaces - Clean to sight & Touch)
- Wash Solution minimum temperature

Sanitizer test kit(s)/Maximum temperature registering device provided and used

Not all-inclusive

Questions



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