

Food Handlers' Course

Environmental Health, Department of Public Health
Fort Liberty, NC



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Food Handler Course Intent

- Provide standardized training across Fort Liberty in the basic principles of food safety
 - ❖ Perform duties in a safe manner
 - ❖ Protect yourself and others from intentional and unintentional food contamination



Outline

- Food Safety
- Personal Hygiene
- Purchasing, Receiving and Storing
- Preparing, Cooking and Serving
- Pest Management

SECTION 1: Food Safety

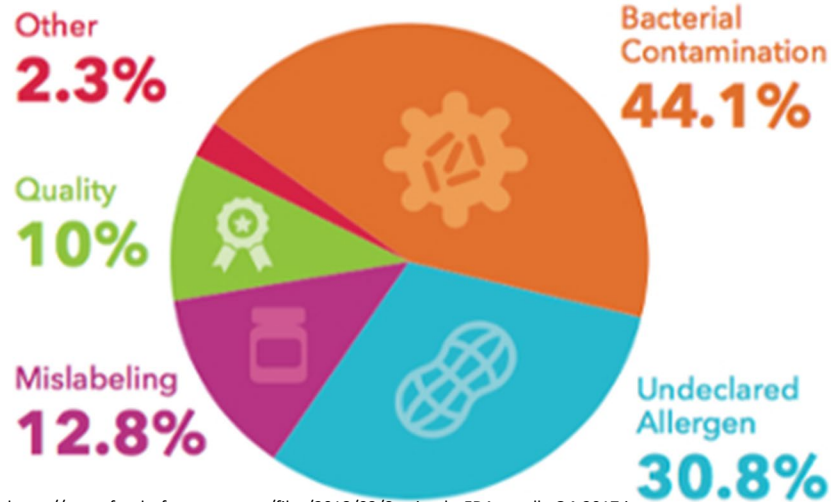


Food allergens and contamination

- 8 Common Food Allergies
- Itching and tightening of the throat; may be deadly
- Know and communicate allergens on your menu



Top causes of FDA food recalls in Q4 2017

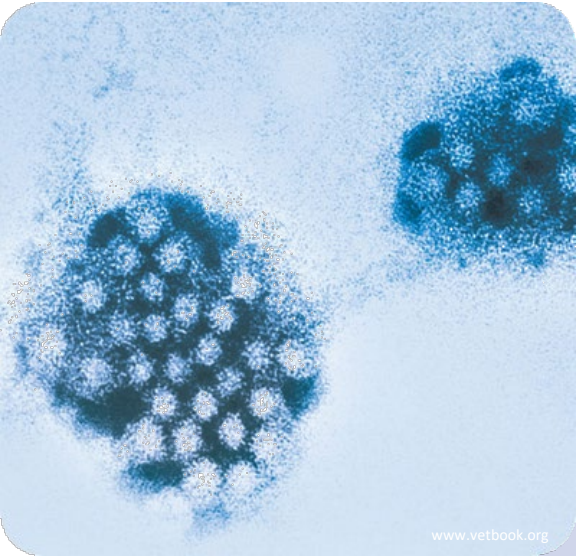


<https://www.foodsafetynews.com/files/2018/02/Stericycle-FDA-recalls-Q4-2017.jpg>

<http://texaswic.dshs.state.tx.us/>

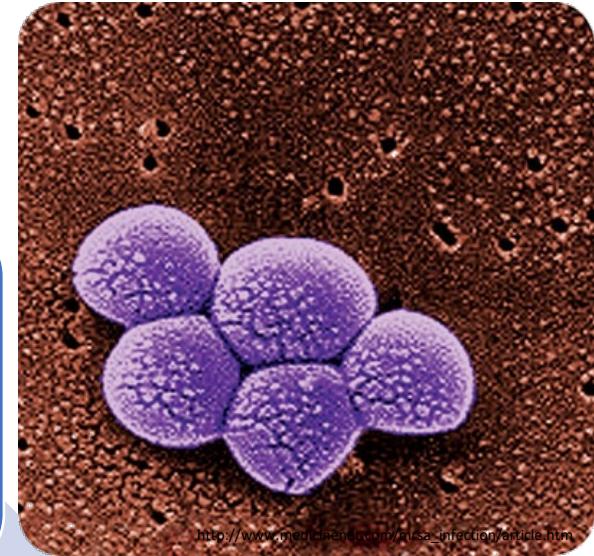
<http://workouttrends.com/ever-confused-facts-about-eggs>

Foodborne Pathogens



Viruses

Bacteria



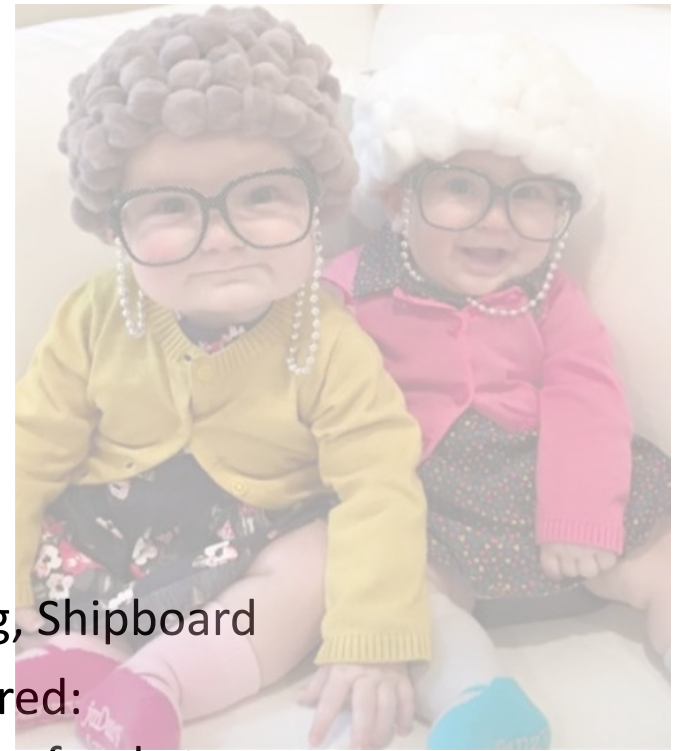
Parasites

Fungi

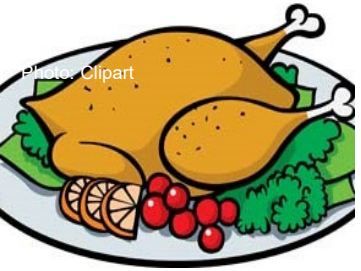


Highly Susceptible Populations (HSP)

- Because we are all susceptible
- Highly Susceptible Populations (HCP) include:
 - ❖ Immunocompromised
 - Children 5 years old or younger
 - **Older Adults**
 - ❖ Facility Based
 - Hospital, Senior Center, Custodial Care, etc.
 - ❖ Stress environment
 - Field/deployments Operations, Initial Training, Shipboard
- Various **restrictions** to improve food safety are required:
 - ❖ Such as no raw or undercooked foods, not keeping food at unsafe temperatures, no unpasteurized juice or eggs for recipes



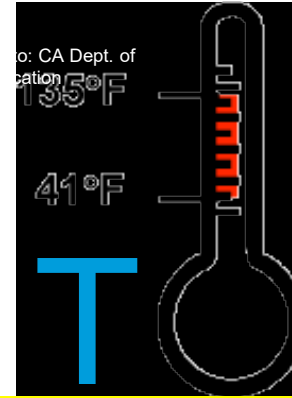
What Bacterial Pathogens need to grow



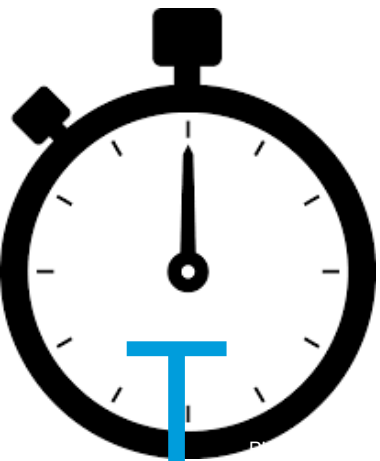
F
Food



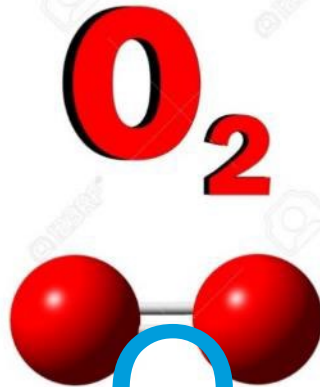
A
Slight Acidity



T
Temperature



T
Time



O
Oxygen



M
Moisture



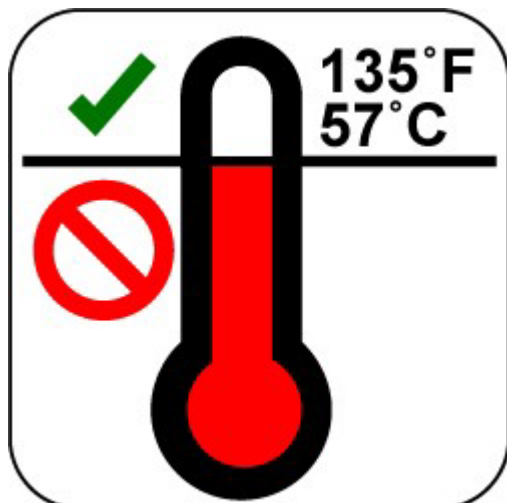
FAT TOM (CAT)

Time & temperature are the key factors for controlling bacterial growth

Time-Temperature Control for Safety (TCS) Food

[Formerly Potentially Hazardous Food (PHF)]

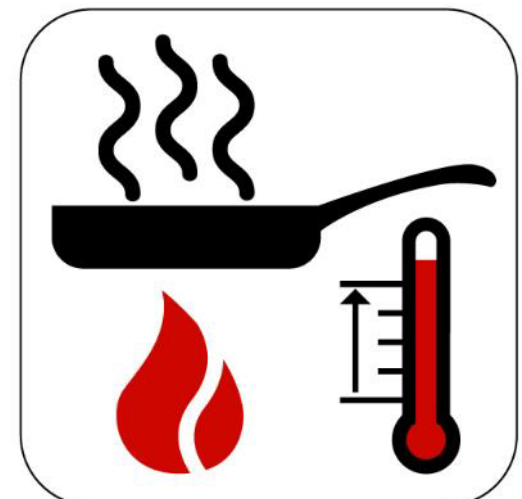
- Time-Temperature Control for Safety (TCS) Food means a food that requires **Time/Temperature Control for Safety** to limit microbial pathogens growth or toxin formation
- Keep hot foods hot and cold foods cold to protect against foodborne illness



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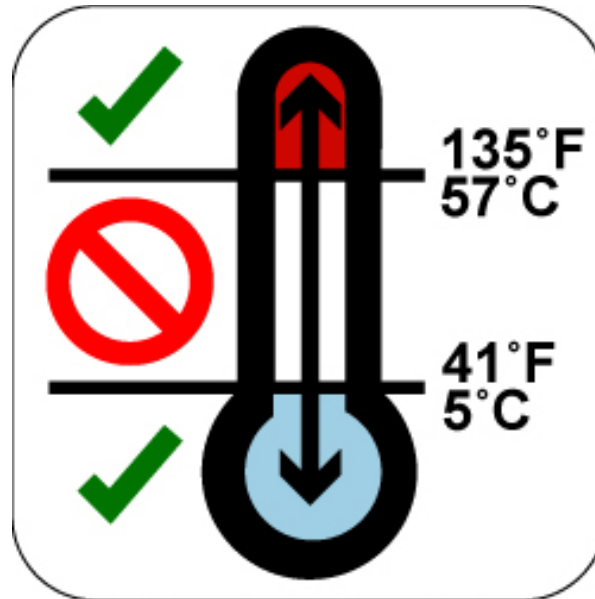
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Temperature Danger Zone

- The temperature range between ** 41° - 135° F ** within which most foodborne microorganisms rapidly grow
- Time/Temperature Control for Safety (TCS) Foods that have been out of temperature control for greater than **FOUR HOURS** will be **DISCARDED** as food waste.



Foodborne Illness

- Foodborne Illness: illness carried or transmitted to people by food
- Foodborne Disease Outbreak: the occurrence of two or more cases of a similar illness resulting from the ingestion of a common food



Food-borne Illnesses (Viral)

Hepatitis A

- Ready-to-eat food
- Shellfish from contaminated water

Control Measures

- **Wash hands**
- Keep employees with Jaundice out of facility
- Minimize bare hand contact with ready-to-eat food
- Purchase shellfish from approved suppliers

Norovirus gastroenteritis

- Ready-to-eat food
- Shellfish from contaminated water

Control Measures

- **Wash hands**
- Keep employees with diarrhea and vomiting out of facility
- Minimize bare hand contact with ready-to-eat food
- Purchase shellfish from approved suppliers

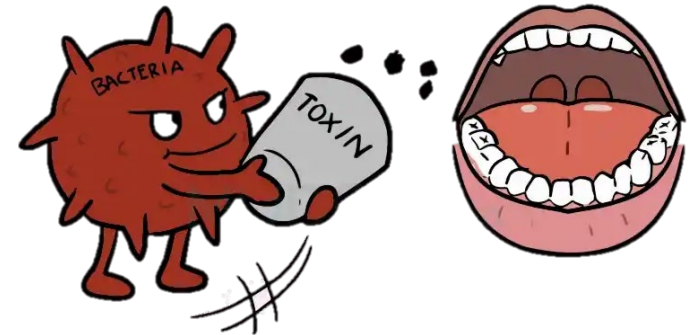
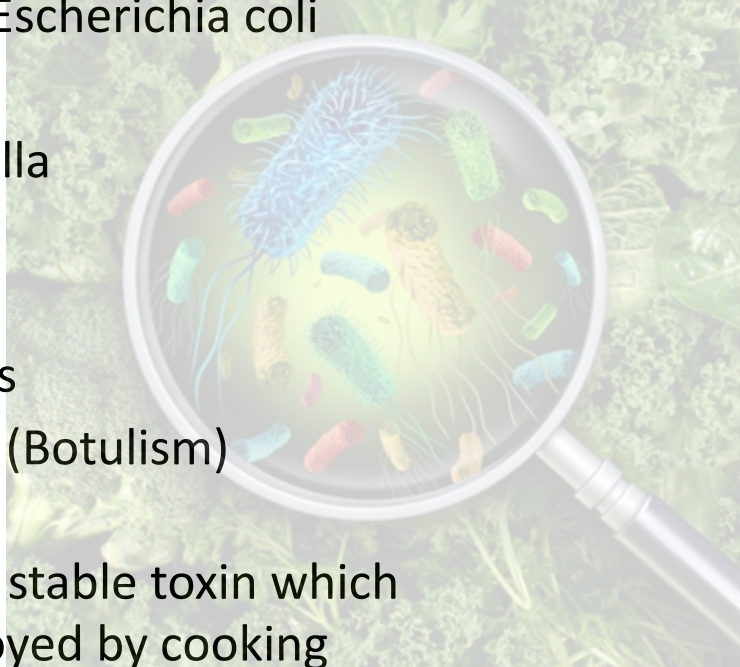
Foodborne Illnesses (Bacterial)

Major:

- Shigella spp.
- Shiga toxin-producing Escherichia coli
- Salmonella Typhi
- Nontyphoidal Salmonella

A few others of note:

- Clostridium perfringens
- Clostridium botulinum (Botulism)
- Staphylococcus sp.
 - ❖ Produces a heat stable toxin which **cannot** be destroyed by cooking



How Food Becomes Unsafe



Time-Temperature Abuse

Cross-Contamination



Poor Personal Hygiene



Improper Cleaning and Sanitizing



Time-Temperature Abuse

- Food is Time-Temperature abused:
 - ❖ Any time you allow food to remain at temperatures favorable to the growth of foodborne microorganisms
- Conditions for microbial growth:

- Food
- Acidity
- **Time**
- **Temperature**
- Oxygen
- Moisture



These two are the easiest to control or abuse



Cross-Contamination

The transfer of pathogens from one surface or food to another:

- From personnel to food, food packaging material, and other food-contact surfaces
- Especially from raw product to processed product



SECTION 2:
Ensuring
Proper
Personal
Hygiene

Handz washed ...



... gimme snakz!

<https://www.pinterest.com/pin/236992736980122132>

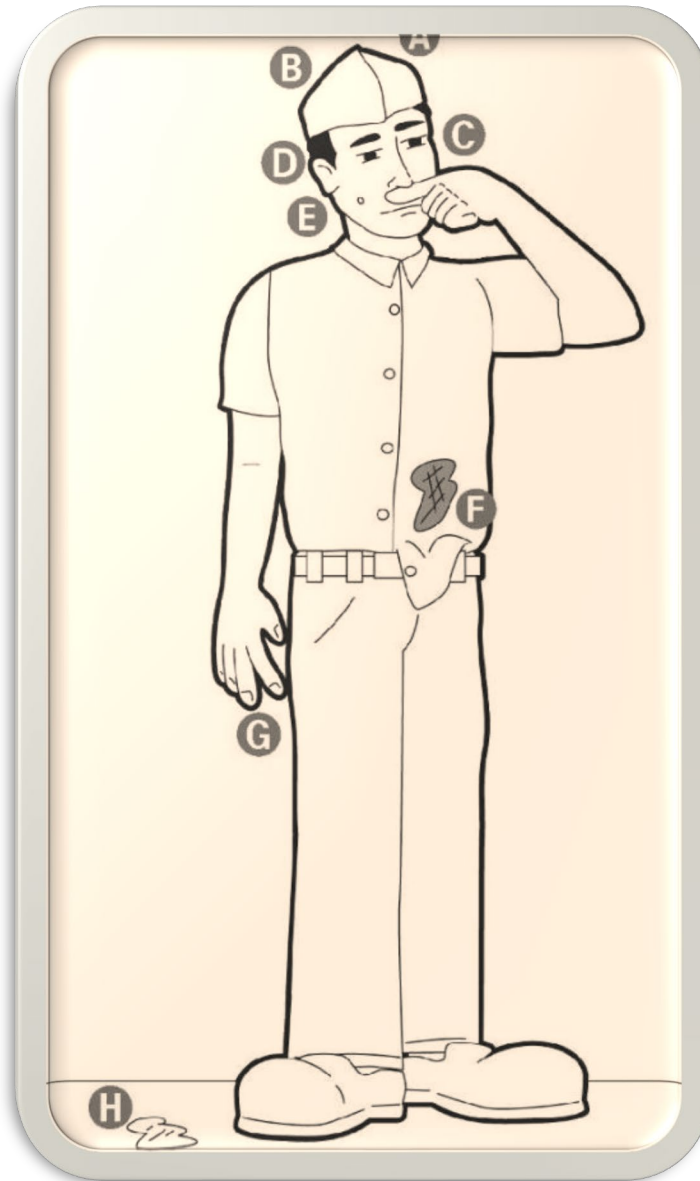
Personal Hygiene

- Definition: Personal hygiene is the practice of health rules by an individual to safeguard his/her own health and the health of others.
- It includes daily showers, baths, proper hand-washing, wearing clean clothes, and not working while sick.



How Food Handlers Contaminate Food

- A** Scratching the scalp
- B** Running fingers through hair
- C** Wiping or touching the nose
- D** Rubbing an ear



- E** Touching a pimple or open sore
- F** Wearing a dirty uniform
- G** Coughing or sneezing into the hand
- H** Spitting in the establishment

Good Personal Hygiene

Good personal hygiene includes:

- Maintaining personal cleanliness
- Wearing proper work attire
- Following hygienic hand practices
- Avoiding unsanitary habits and actions
- Maintaining good health
- Reporting illnesses
 - ❖ Food handlers must be **restricted** from handling food or **excluded** from the facility if they are experiencing vomiting, fever, diarrhea, jaundice
- You have a responsibility to report any illness or symptoms



When to Wash Hands

Food-handlers must wash their hands after:

- Using the restroom
- Handling raw meat, poultry, or fish (before and after)
- Touching the hair, face, or body
- Sneezing, coughing, or using a tissue
- Smoking, eating, drinking, or chewing gum or tobacco
- Cell phone Use

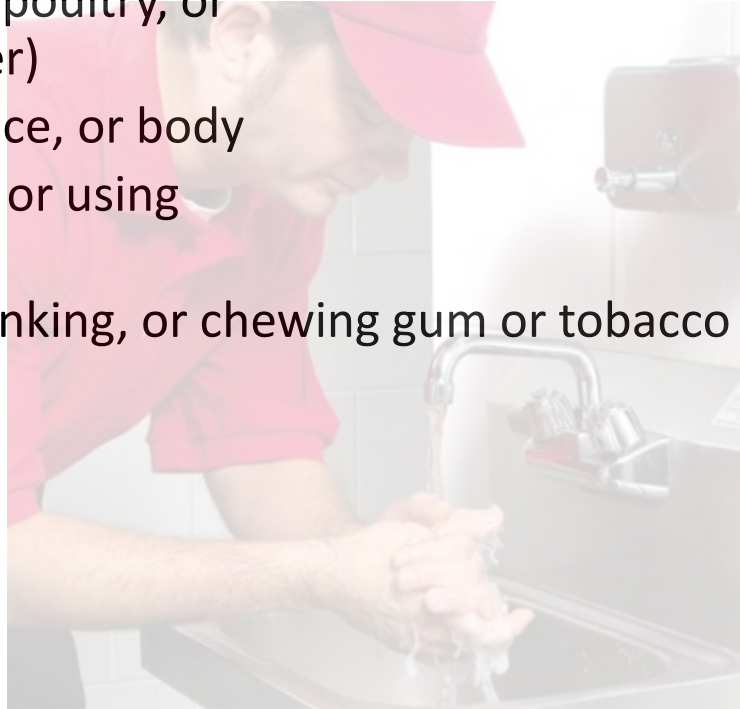
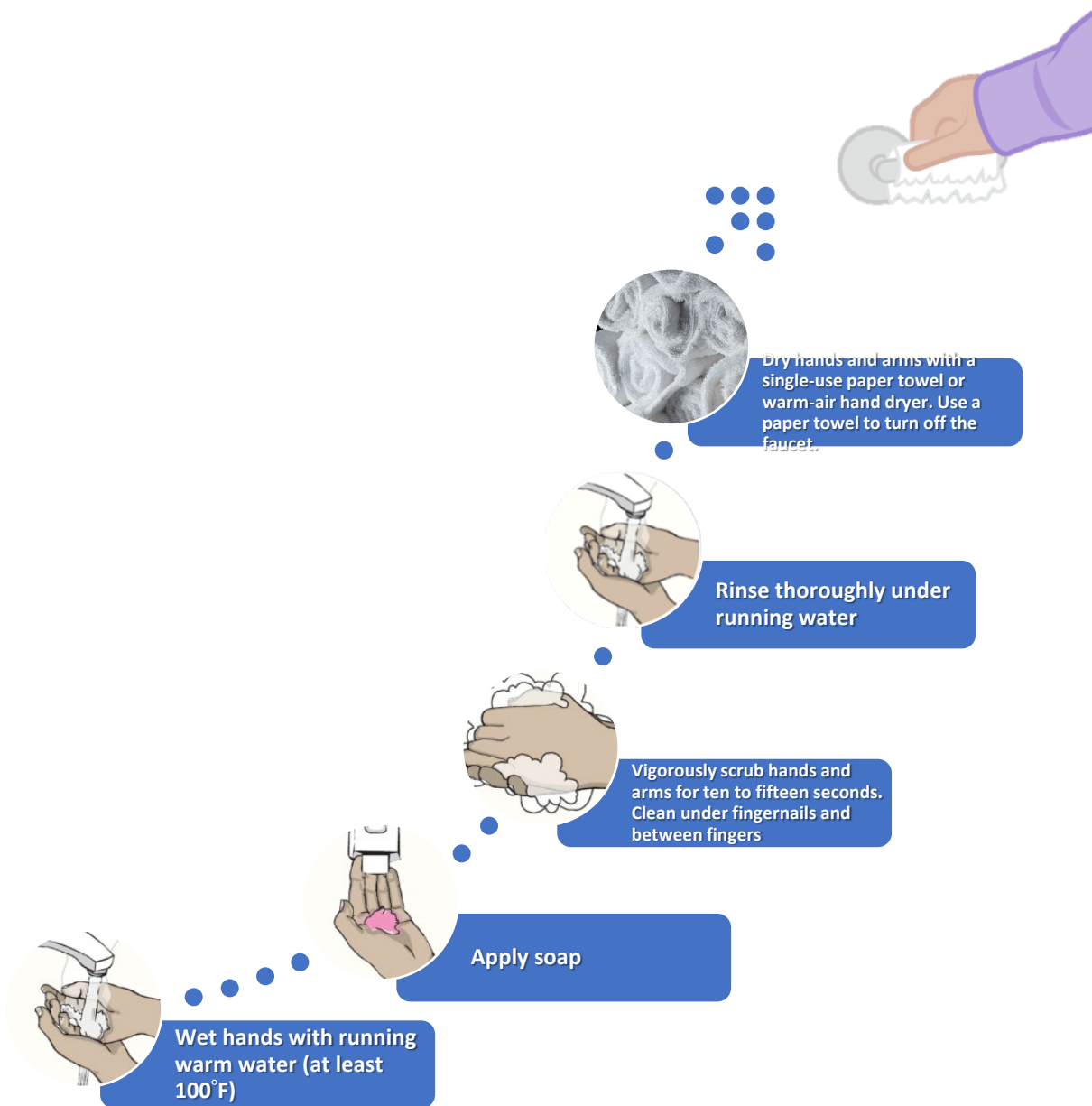


Photo: ServSafe

Wash hands after every possibility of contamination and before every new food process

Proper Handwashing



Hand Antiseptics (Sanitizers)



- Must comply with Food and Drug Administration standards
- May only be used after hand-washing (if used in the establishment)
- **Must *never* be used in place of hand-washing**

Hand Maintenance



Keep fingernails short and clean



Do not wear false nails or nail polish



Bandage cuts and cover bandages

Gloves

Used for handling food:

- *Never* use in place of handwashing
- Are for **single use only**
- Should be right for the task
- Must be safe, durable, and clean
- Must fit properly

Must be used when handling READY-TO-EAT foods



Hygienic Hand Practices: Gloves

When to Change Gloves

- As soon as they become soiled or torn
- Before beginning a different task
- Frequently as needed
- After handling raw meat and before handling cooked or ready-to-eat food



Proper Work Attire

Food-handlers should:

- A** Wear clean clothing daily
- B** Remove aprons when leaving food-preparation areas
- C** Remove jewelry from hands and arms (one plain ring only such as a wedding band is permissible)
- D** Wear appropriate, clean, and closed-toe shoes



Proper Work Attire: Authorized Hair Restraints

- Wear a clean hat or other hair coverings or nets
- Hair restraints must be **effective**
- Additional requirement for facial hair



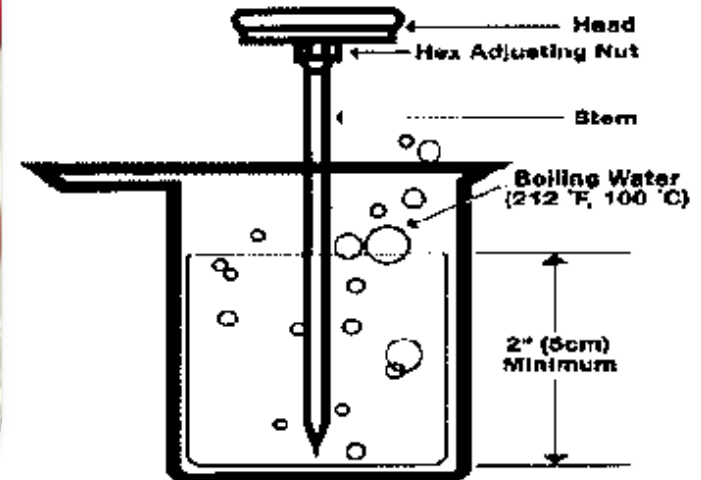
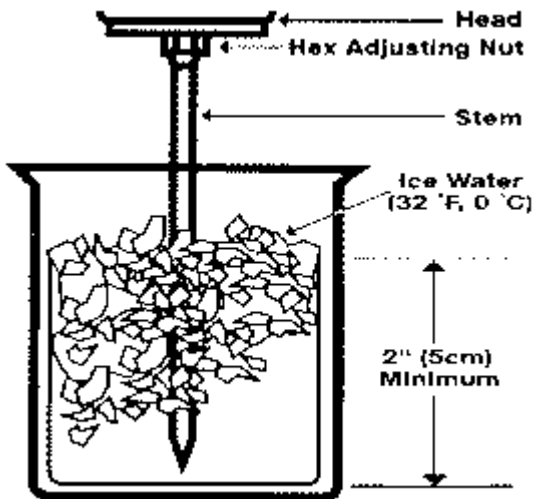
Photo: CiboWares



Photo: Steamprite

Calibrating Thermometers

- Calibration
 - Adjusting a thermometer in order to get accurate readings
- Methods
 - Ice-point method (32°F)
 - Boiling-point method (212°F)



Ice Point Method of Calibration



1. Fill a large container with crushed ice and water



2. Submerge the thermometer stem or probe in the water for thirty seconds



3. Hold the calibration nut and rotate the thermometer head until it reads **32°F** (0°C)

Checking the Temperatures of Various Types of Foods

Meat, Poultry, Fish

- ❖ Insert the thermometer stem or probe into the thickest part of the product (usually the center)



Packaged Food

- ❖ Open select packages and insert the thermometer stem or probe into the product



General Thermometer Guidelines

- Keep thermometers clean
- Calibrate regularly to ensure accuracy
- Never use glass thermometers to monitor food temperatures
- **Sanitize** before taking food temperatures
- Wait for the thermometer reading to stabilize before recording the temperature



Advanced Prepared Foods

TCS food prepared on-site (and held) must contain a label that includes:

- The **name of the food**
- The **date** by which the food was prepared and when the food shall either be consumed or **discarded**

The maximum refrigerated holding period for Advanced Prepared Foods may not exceed **7 days**

- the day of preparation shall be counted as Day-1

Advanced prepared foods may be frozen for up to **30 days**, when handled properly



Leftovers (foods previously offered for service)



Leftover Food Label

Date: 07 Jan 2020

Item: Chicken Cacciatore

Use by: 14 Jan 2020



Leftover Non-TCS food must have been protected from contamination by customers and from TCS food spill

Leftover TCS food **Prohibitions** include:

- TCS foods held in the temperature danger zone or not properly cooled
- Creamed foods (potato salad), gravies, & highly perishable foods
- TCS foods removed from a consumer self-service line

Leftover TCS foods may be kept for up to 7 days and must be labelled accordingly

- Can only reuse a leftover once
- May not be refrozen

Transferring foods

If food is removed from its original package:

- Put it in a clean, sanitized container
- Cover it
- **Label** the container with:
 - ❖ The name of the food
 - ❖ The original use-by or expiration date
 - ✓ For non-TCS foods



Holding opened containers of Commercially Processed RTE food

Refrigerated RTE TCS Food prepared and packaged by a Food Processing Plant shall be:

- Clearly marked, at the time the original container is opened (if the food will be held for more than 24 hours), to indicate the date in which the package was opened and the date by which the food shall be consumed or else discarded
- Up to 7 days when held at 41°F or less
 - The day the original container is opened shall be counted as Day 1;
 - The date marked may not exceed a manufacturer's use-by date.
 - A refrigerated RTE TCS FOOD ingredient that is subsequently combined with additional ingredients or portions of FOOD shall retain the date marking of the first-prepared ingredient.



monday	tuesday	wednesday	thursday	friday	saturday	sunday
17	18	19	20 Open	21 Day 2	22 Day 3	23 Day 4
24 Day 5	25 Day 6	26 Use by Day 7	27	28	29	30

General Storage Guidelines

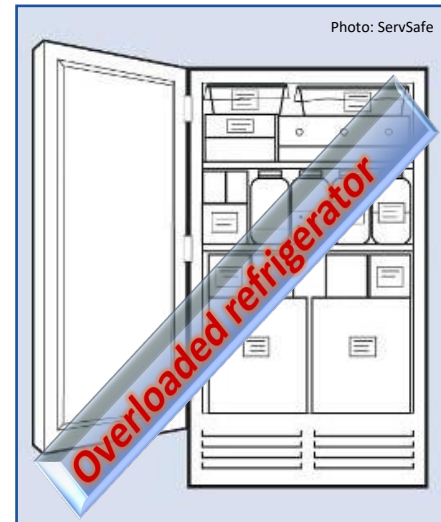
- Keep all storage areas clean and dry
 - ❖ Clean up spills immediately
 - ❖ Clean dollies, carts, transporters, and trays regularly
- Store food in designated storage areas
- Do **not** store food:
 - ❖ Near chemicals or cleaning supplies
 - ❖ In restrooms
 - ❖ In locker rooms
 - ❖ In janitor closets
 - ❖ In furnace rooms
 - ❖ Under stairways or pipes



Never store food near chemicals or cleaning supplies

Refrigerated Storage

- Used to hold TCS Food at 41°F or lower
- Slows the growth of microorganisms
- Set refrigerators to a proper level of cooling
 - ❖ The setting must keep the food at an internal temperature of 41°F or lower
- Monitor air and food temperatures regularly throughout the day
- Record air temperature twice daily
- Keep refrigerator and freezer doors closed as much as possible
 - ❖ Frequent opening lets warm air inside
 - ❖ Use cold curtains to help maintain temperatures
- Do not overload refrigerators or block air flow



Frozen Storage Guidelines

- Keep freezers at a temperature that will keep products solidly frozen (generally at **0°F**)
- Monitor and record freezer temperatures regularly
- Place deliveries in freezers promptly after inspection
- Clearly label frozen food that was prepared on site to use within 30 days
- Foods received frozen may last a long time if properly stored – Check regularly



Dry Storage Guidelines

- Keep storerooms:
 - ❖ Cool (50°F to 70°F)
 - ❖ Dry (50% to 60% humidity)
 - ❖ Well ventilated
 - ❖ Clean
- When storing food in dry storage keep foods:
 - ❖ Away from walls
 - ❖ Out of direct sunlight
 - ❖ At least 6 inches off the floor



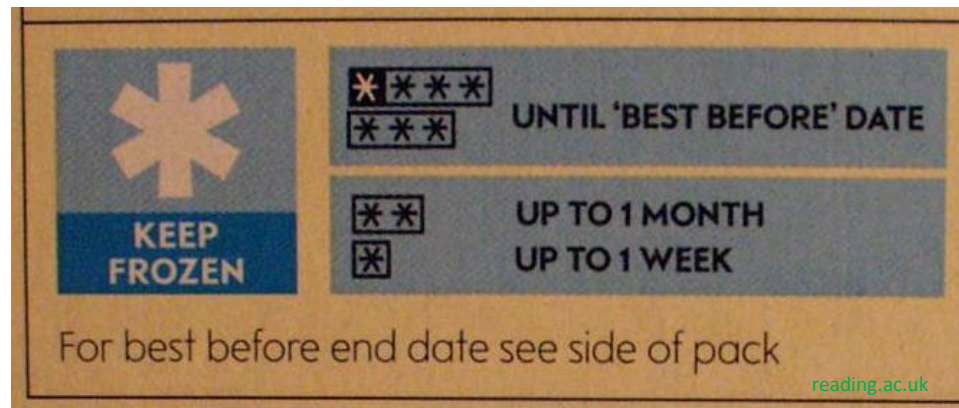
Section 4

Preparing, Cooking, and
Serving



Previously Frozen Foods

- Shall be labelled when transferred to refrigeration
- Includes any package stating “keep frozen”
- Use or Discard within 7 days
(or manufacturers written guidance)
- Plan Accordingly
- May not be refrozen



Thawing Food

- Any method that keep food at **41°F (5°C) or lower**
- Four Acceptable Methods for Thawing Food



In a **refrigerator**, at **41°F or lower**



Submerged under **potable running water**, at a temperature of **70°F or lower**



In a **microwave oven** - the food **must be cooked immediately after thawing**



As part of the **cooking process**

Cooking Food

- When cooking TCS food, all portions must:
 - ❖ Reach the required minimum internal temperature
 - ❖ Hold that temperature for a specified amount of time



sarchef.wordpress.com



Photo: National Restaurant Association

Table F-1. Summary chart for minimum food cooling temperatures and holding times

Food	Minimum Temperature and Holding Time at the Specified Temperature ¹
<ul style="list-style-type: none"> • Cooked fruits and vegetables 	135°F (57°C); 15 seconds
<ul style="list-style-type: none"> • Raw Eggs prepared for immediate service • Commercially Raised Game Animals and Exotic Species of Game Animals • Fish, Pork cutlets/chops, and Meat not otherwise specified in this chart or in ¶ 3-401.11(B) 	145°F (63°C); 15 seconds
<ul style="list-style-type: none"> • Pork Roast 	145°F (63°C); 4 minutes
<ul style="list-style-type: none"> • Raw Eggs not prepared for immediate service (e.g., scrambled bulk, quiche, pre-cracked or “pooled”) • Comminuted Commercially Raised Game Animals and Exotic Species of Game Animals • Comminuted Fish and Meats • Injected Meats 	158°F (70°C); < 1 second, or 155°F (68°C); 15 seconds, or 150°F (66°C); 1 minute, or 145°F (63°C); 3 minutes
<ul style="list-style-type: none"> • Poultry • Baluts • Stuffed Fish; Stuffed Meat; • Stuffed Pasta; • Stuffed Poultry; • Stuffed Ratites • Stuffing Containing Fish, Meat, Poultry, or Ratites • Wild Game Animals 	165°F (74°C); 15 seconds
Food Cooked in a Microwave Oven	165°F (74°C); Hold for 2 minutes after removing from microwave oven
¹ Summarized from § 3-401.11	

Cooling Food: Prior to Cooling

- Before cooling food, start by reducing its size:
 - ❖ Cut larger items into smaller pieces
 - ❖ Divide large containers of food into smaller containers or shallow pans

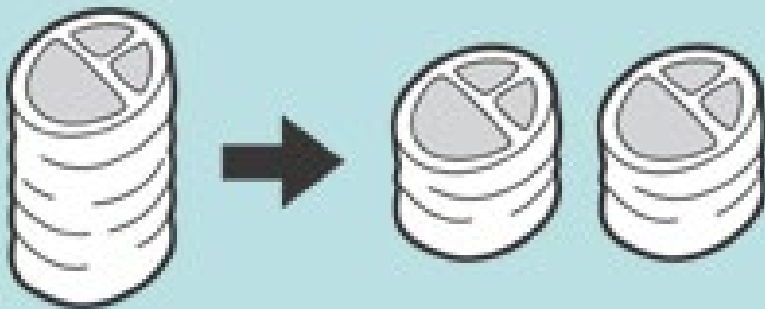


Photo: ServSafe

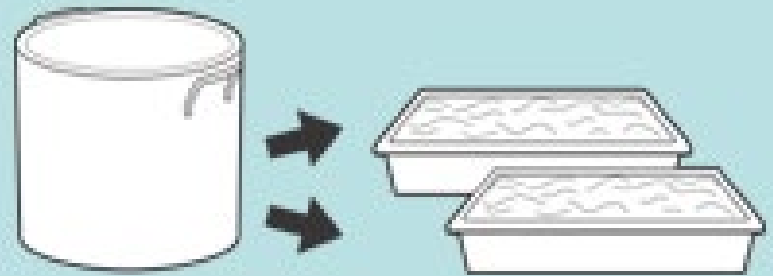


Photo: ServSafe

Safe Methods for Cooling Food

- **Place it in an ice- bath:** Food cools faster when placed in an ice-water bath and stirred with an ice paddle
- **Place it in a blast chiller**
- **Place it in a tumble chiller**

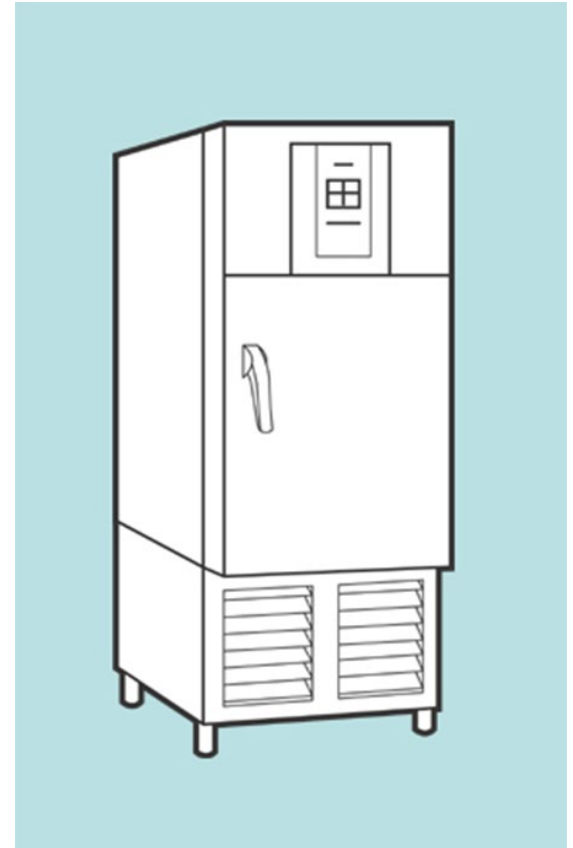
Food cools even faster when placed in an ice-water bath and stirred with an ice paddle



Place it in an ice-bath



Stir it with an ice paddle



Reheating TCS Food

- Cold-stored leftovers – use within **7 days**
- If TCS food is reheated for hot holding:
 - ❖ Must be reheated **within 2 hours** to an internal temperature of **165°F**
Discard if 165°F is not reached within 2 hours
 - ❖ Following initial heating, ***maintain above 135°F***



To Prevent Contamination When Serving Food

- Practice good personal hygiene
- Use clean and sanitized utensils for serving
 - ❖ Use separate utensils for each food
 - ❖ Clean and sanitize utensils after each task
- Use serving utensils with handles long enough to keep hands away from food



To Prevent Contamination When Serving Food Con.

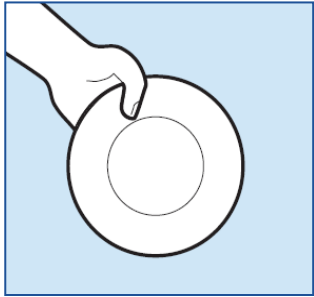
- Store serving utensils properly
 - ❖ Store them in the food, with the handle extended above the rim of the container
 - ❖ Store them on a clean, sanitized food-contact surface



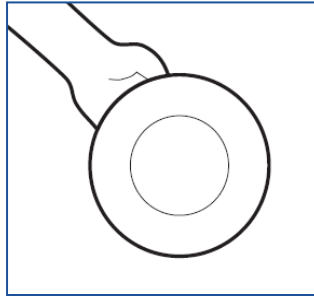
Serving Food Safely: Servers

Handling Dishes and Glassware:

Photos: ServSafe



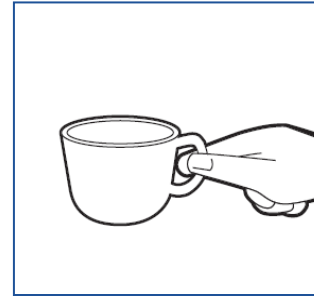
WRONG



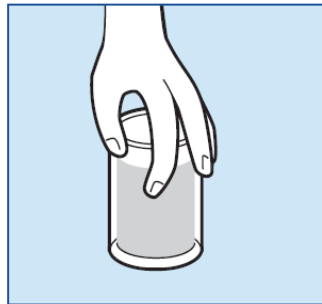
RIGHT



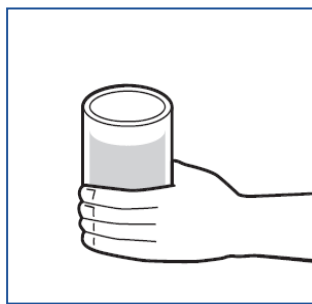
WRONG



RIGHT



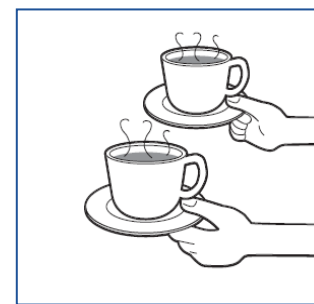
WRONG



RIGHT



WRONG



RIGHT



Photo:
Hospitality
School

Time as a Public Health Control (TPHC)

- An exception allowing foods to reside in the Temperature Danger Zone (TDZ) under certain conditions
- Written procedures must be prepared and kept on site
 - Procedures must have been approved by Public Health
 - The last time food was verified to be at proper temperatures must be recorded
- Unmarked foods or foods kept past time/ temperature limits will be discarded
 - 4-hour limit in TDZ for previously hot or cold held foods or
 - 6 hours for cold foods only that do not exceed 70°F (verified)
- Any unserved food at end of service will be discarded

Off Site Delivery, Catering & Field Feeding

- Catered TCS foods must initially meet hot or cold holding temperature requirements
 - ❖ May use TPHC if approved
 - Must verify the last time the food was measured at proper temperature, e.g. upon delivery to catering site
 - Cannot be retained past time/temperature limitations (four hours outside of temperature controls)
- Vehicles for transporting food must be clean, covered, and used for no other purpose
- Field feeding has additional requirements such as:
 - ❖ All cooked TCS foods heated to 165°F and kept above 135°F
 - ✓ Hot foods transported in insulated containers, received at 135°F, and kept for no more than 4 hours
- Leftover TCS foods may not be retained

Cleaning VS Sanitizing

- Cleaning
 - ❖ Process of removing food and other types of soil from a surface
- Sanitizing
 - ❖ Process of reducing the number of microorganisms on a clean surface to safe levels
 - ❖ Surfaces must first be cleaned and rinsed before being sanitized
- Two ways to sanitize
 - ❖ Very Hot Water
 - ❖ Approved Chemicals



Chlorine (Bleach) Sanitizing Solutions

- 100ppm Concentration Ideal:
 - ❖ 1/2 teaspoon (tsp) of bleach per one quart of water generally equals 100 parts-per-million (ppm)
- Concentration must be checked with a **test kit**
 - ❖ **Low Concentrations:**
May fail to sanitize objects
 - ❖ **High Concentrations:**
May be unsafe, leave an odor or bad taste, corrode metals
- Change the solution whenever it becomes dirty or whenever the concentration has dropped below the required level



Quaternary Ammonium (QUAT) Sanitizing Solutions

- **200ppm** Concentration
- Concentration must be checked regularly with a **test kit**
 - ❖ **Low Concentrations:**
May fail to sanitize objects
 - ❖ **High Concentrations:**
May be unsafe, leave an odor or bad taste, corrode metals
- Change the solution when it becomes dirty or whenever the concentration has dropped below the required level



<http://www.global-sensors.com/Quats.htm>



Food-Contact Surfaces

- A surface of Equipment or a Utensil with which Food normally comes into contact; or
- A surface of Equipment or a Utensil from which Food may drain, drip, or splash—
 - ❖ Into a FOOD, or
 - ❖ Onto a surface normally in contact with FOOD.
- Implicated in many food borne illness outbreaks



Food-Contact Surfaces

- Must be washed, rinsed, and sanitized:
 - ❖ Before working with another type of food
 - ❖ At 4-hour intervals if the items are in constant use
 - ❖ After each use
- Food-Contact Surfaces must be:
 - ❖ Smooth
 - ❖ Free of cracks, chips, and similar imperfections



Chemical Sanitizing Method

- Food-contact surfaces can be sanitized by:
 - ❖ Immersing them in a specific concentration of sanitizing solution for a specific amount of time **or**
 - ❖ Rinsing, swabbing or spraying them with a specific concentration of sanitizing solution
- Approved Chemicals:
 - ❖ Chlorine
 - ❖ Quats
 - ❖ Iodine
- Use as specified



Factors Influencing Sanitizer Effectiveness

- **Temperature**

- ❖ Follow the manufacturer's recommendations for the proper temperature

- **Contact Time**

- ❖ The sanitizer must make contact with the object for a specific amount of time
- ❖ Minimum times differ for each sanitizer
- ❖ **Check the label for guidance**



Cleaning Tools and Supplies

- Prohibited Items for Food-Contact Surfaces
 - ❖ Soft Wood
 - ❖ Steel Wool
 - ❖ Sponges
 - Use single use disposable towels or
 - Reusable wiping cloths stored in a sanitation solution



SECTION 5: Pest Management

- **Pests of Concern**
- **Spread Disease**
- **Contaminate food**
- **Cause Damage**
- **Deter Customers**



Practice Pest Exclusion

Pests

Exclusion

Cockroaches



Clean area, fix leaks, seal cracks and crevices

Flies



Clean area, keep lids on trash cans, air curtains, mechanical traps

Rodents



Clean area, store food 6" above floor, fix leaks, mechanical traps

DPH Fort Liberty Environmental Health

Bldg 1-2739 2nd floor

Corner of R. Miller
and Hamilton

Between Iron Mike
roundabout and Polo
Field

Also near
Throckmorton Library
and collocated with
Hearing Conservation

Phone Number:
910-396-5882



We value your feedback.