



EXHIBIT 9A-

U.S. General Services Administration
Property Management Division



Food Safety Training Manual

Presented by
U.S. General Services Administration
Property Management Division and
U.S. Public Health Service,
Program Support Center,
Federal Occupational Health



Food Safety Training

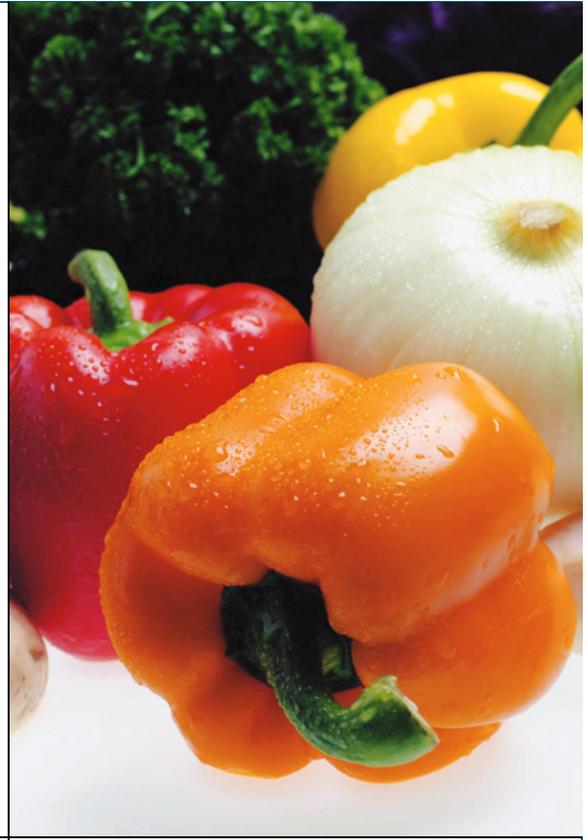


Table of Contents

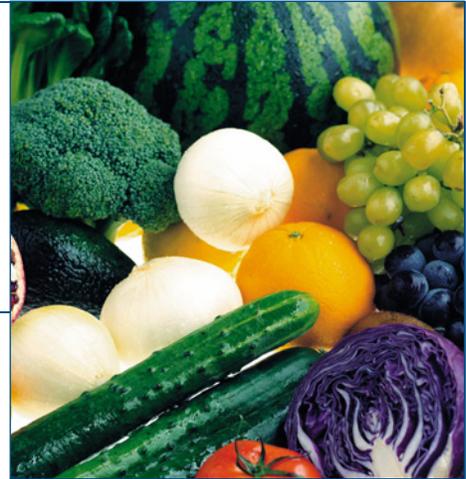
▪ Forward.....	3
▪ Section 1 – Definitions.....	6

Focus Areas

▪ Section 2 – Personnel.....	13
▪ Section 3 – Garbage and Refuse Disposal.....	19
▪ Section 4 – Food Equipment and Utensils.....	21
▪ Section 5 – Food Protection.....	33
▪ Section 6 – Summary/Review.....	40
▪ Section 7 – Instructions and Post-Test.....	43

Food Safety Training

Foreword



The General Services Administration (GSA), along with the U.S. Public Health Service (USPHS), Federal Occupational Health Program (FOH), has produced this educational program in an effort to provide standardized food safety training for managers, supervisors, and all food service workers within food establishments that are located within GSA buildings. FOH works with GSA inspecting cafeterias, snack bars, and vending machines to ensure food served is safe. The objectives for this training are to educate food service workers in safe food practices and to reduce the number of deficiencies that may be found during food inspections conducted by FOH's Environmental Health and Food Safety Specialists.

Foodborne illness is a serious public health problem. The Centers for Disease Control and Prevention (CDC) estimates that 76 million people each year get sick, more than 325,000 people are hospitalized, and 5,000 Americans die as a result of foodborne illnesses. The most common risks associated with foodborne illness

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include poor personal hygiene, contaminated equipment, inadequate cooking, and improper holding temperatures. Following the required practices outlined in this training program can minimize or even eliminate these risks.

This training is considered to be a supplementary tool in the effort to prevent the occurrence of foodborne illness in federal facilities. **This training is not a substitute for any nationally recognized accredited program** (as defined in the 2013 U.S Food and Drug Administration (FDA) *Food Code* {see Section 1, Definitions}). It is expected that supervisors and all employees will comply with existing state and federal training requirements in addition to participating in this training. This manual is supplemented by a video. To complete the training, students should read the manual and view the video. Students achieving a score of 70% or better on the post-test will receive a certificate of completion. A facility certificate will be awarded to facilities in which all food service personnel, including management personnel, successfully complete this training. After viewing the video and reading this manual, please refer to pages 43-44 for instructions on submitting the post-test to FOH for grading.

This training has been divided into four segments:

1. *Personnel*
2. *Garbage and Refuse Disposal*
3. *Food Equipment and Utensils*
4. *Food Protection*

Each training segment relates to a specific section of the USPHS/FOH's Comprehensive Food Service Inspection form. This form is the evaluation tool used by FOH to inspect your food service facility. The four segments represent the most commonly cited violation areas as indicated by data gathered from inspections conducted between 2000-2004. Each segment also includes important activities and items that can affect the health of food service employees and their customers.



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Section 1

Definitions



Accredited Program –

- (a) *A protection manager certification program that has been evaluated and listed by an accrediting agency as conforming to national standards for organizations that certify individuals.*

- (b) Refers to the certification process and is a designation based on an independent evaluation of factors. These factors include:
 - The sponsor's mission.
 - Organizational structure.
 - Staff resources.
 - Revenue sources.
 - Policies.
 - Public information regarding program scope, eligibility requirements, re-certification, discipline, and grievance procedures.

- Test development and administration.
- (c) Does not refer to training functions or educational programs.

Approved – Acceptable to the regulatory authority based on a determination of conformity and principles, practices, and generally recognized standards that protect public health.

Bacteria – A germ with only one cell. There are many kinds and they can cause illness when they are allowed to grow and multiply.

Contaminated Food – Food containing agents, including chemicals, that are capable of causing illness when consumed.

Dial Stem Thermometer – Measures the temperature of food. It has a round top with long pointed sensor made of stainless steel designed to be used to penetrate various foods. This is the thermometer recommended for use to check the temperature of food.

FDA Food Code – The U.S. Food and Drug Administration (FDA) Publishes the Federal Food Code. The most recent version was published in 2013.

The U.S. Food and Drug Administration Food Code outlines specific food handling and food safety requirements for

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federal food establishments. Local, state, tribal, and federal regulators use the FDA Food Code as a model to develop or update their own food safety rules and to be consistent with national food regulatory policy.

Food – A raw, cooked, processed substance, ice, beverage, or ingredient (including chewing gum) that is used --or intended for use or for sale in whole or in part -- for human consumption.

Food Contact Surfaces – The surfaces of equipment or utensils with which food normally comes in contact. The surface of a utensil from which food may drain, drip, or splash into another food, or onto a surface normally in contact with food. These surfaces are normally thought of as pans, spoons, countertops and cutting boards, but may also include refrigerator shelving, steamers, or other cooking appliances.

Foodborne Disease – Caused by consuming contaminated foods or beverages. Many different disease-causing bacteria, or pathogens, can contaminate foods. There are many different foodborne diseases. In addition, poisonous chemicals, or other harmful substances, can cause foodborne diseases if they are present in food.

Food Employee – An individual working with unpackaged food, food equipment or utensils, or food-contact surfaces.

Formal Setting – Training environment that fosters learning where real-life scenarios can be discussed.

Garbage – Refuse that is wet or contains food matter.

Germ – Refers to bacteria.

HACCP - Hazard Analysis Critical Control Points plan – A written document that explains the formal procedures for following the HACCP principles developed by the National Advisory Committee on Microbiological Criteria for Foods.

Hazard – A biological, chemical, or physical property that may cause an unacceptable consumer health risk.

Microorganism – Refers to bacteria.

Person-in-charge – The individual present at a food establishment who is responsible for its operation at the time of inspection.

Poisonous or Toxic Materials – Substances that are not intended for ingestion and are included in the following four (4) categories:

1. Cleaners and sanitizers. These include cleaning and sanitizing agents such as caustics, acids, drying agents, polishes, and other chemicals.

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2. Pesticides. Includes insecticides, and rodenticides. Excludes sanitizers.
3. Substances necessary for the operation and maintenance of the food establishment such as nonfood grade lubricant and personal care items that may be harmful to health.
4. Substances that are not necessary for the operation and maintenance of the food establishment and are on the premises for retail sale, such as petroleum products and paints.

Potentially Hazardous Food

- Food that is natural or synthetic and requires temperature control because it is in a form capable of supporting the rapid and progressive growth of infectious or toxigenic microorganisms.
- Animal based food that is raw or heat-treated; a food of plant origin that is heat-treated or consists of raw sprouts; garlic-in-oil mixtures that are not modified in a way that result in mixtures that do not support growth; and cut melons.

Ready-to-eat-foods

- Raw animal food that is cooked or frozen.
- Raw fruits and vegetables that are washed.
- Fruits and vegetables that are cooked for hot holding.

- All potentially hazardous food that is cooked to the temperature and time for the specific food and cooled.
- Plant food for which further washing, cooking or other processing is not required for food safety and from which rinds, peels, husks or shells – if naturally present – are removed.
- Substances derived from plants, such as spices, seasonings and sugar.
- Bakery items such as breads, cakes, pies, fillings, or icing for which further cooking is not required.
- Dry salami or pepperoni, salt cured meat and poultry products such as prosciutto ham, country cured ham and Parma ham.
- Dried meat and poultry such as jerky or beef sticks.

Refuse – Waste materials that are clean and dry such as cardboard or glass recyclables.

Regulatory Authority –The local, state, or federal enforcement body or authorized representative having jurisdiction over the food establishment.

Risk – Refers to the likelihood that an adverse health effect will occur within a population as a result of a hazard in a food.

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Sanitization – The application of cumulative heat or chemicals on cleaned food contact surfaces that, when evaluated, reduces the presence of microorganisms that are capable of producing illnesses.

Service Animal – An animal, such as a guide dog or other animal, trained to provide assistance to an individual with a disability.

Sewage – Liquid waste that contains animal or vegetable matter in a suspension or solution. May include liquids containing chemicals in solution.

Warewashing – Cleaning and sanitizing utensils and food contact surfaces of equipment.



Section 2

Personnel



This section provides information on management responsibilities, training requirements, personal hygiene, and proper handwashing techniques.

2.1 Management Responsibilities

The manager, or **person-in-charge**, of food service facilities is required to comply with the *FDA Food Code*.

Managers must obtain certification from an accredited food safety program. This is achieved in one of two ways, by passing a certification exam or showing proficiency by correctly answering questions during an inspection.

During an inspection, questions related to specific food service operations may include the following:

- Describing the relationship between foodborne disease and the personal hygiene of a food employee.

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- Explaining the responsibility of the person-in-charge relating to the prevention of transmission of foodborne disease by a food employee to a customer.
- Describing the symptoms associated with diseases that are transmittable by food.
- Explaining the significance of maintaining the appropriate time and temperature of potentially hazardous food, and the prevention of foodborne illness.
- Explaining the hazards involved in the consumption of raw or undercooked meat, poultry, eggs, and fish.
- Stating the required food temperatures and times for safe cooking of potentially hazardous foods including: meat, poultry, eggs, and fish.
- Stating the required temperatures and times for safe refrigerated storage, hot holding, cooling, and reheating of potentially hazardous foods.
- Describing the relationship between the prevention of foodborne illness and the control of the following:
 - Cross contamination.
 - Hand contact with ready-to-eat foods.
 - Handwashing.
 - Maintaining the food establishment in clean condition and good repair.

- Explaining the relationship between food safety and providing equipment that is sufficient in number and capacity and is properly design and constructed, installed, operated, maintained, and cleaned.
- Explaining correct procedures for cleaning and sanitizing utensils and food-contact surfaces of equipment.
- Identifying the source of water used and measures required to ensure that it remains protected from contamination.
- Identifying poisonous or toxic materials in the food establishment and the procedures necessary to ensure that they are safely stored, dispensed, used, and disposed of in accordance with the law.
- Identifying critical control points in the food service operation, ranging from purchasing through sale or service, that when not controlled may contribute to the transmission of foodborne illness.
- Explaining the details of how the person-in-charge and food employees comply with the HACCP plan as required by the law, the code, or by an agreement between the regulatory authority and the establishment.
- Explaining the responsibilities, rights, and authorities assigned by the *Food Code* to each of the following:

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- food employees
- person-in-charge
- regulatory authorities

2.2 Training

The *Food Code* requires that the person-in-charge ensure that employees are properly trained in food safety as it relates to their duties. Training courses must conform to the general principles and practices of recognized standards as well as be acceptable to the regulatory authority. Training courses must be documented and recorded. All training records are required to be on file and available for review by the food service inspector.

2.3 Personal Hygiene

Foodborne illnesses can result from poor personal hygiene. Food service employees are required to practice good personal hygiene and are expected to do the following:

- Wear clean working garments.
- Change clothing when soiled.
- Refrain from wearing any jewelry on their hands or arms. A plain wedding band is permitted.
- Wear hair restraints in the form of hats, hair covering, hair nets, beard restraints, and clothing that covers body hair.

- Keep fingernails trimmed, cleaned and free of polish or artificial nails when working with exposed food, unless wearing intact gloves.

2.4 Handwashing

For food service employees, handwashing is the first step toward staying healthy as well as the most important means of preventing and controlling the spread of germs.

Employees should wash hands often and especially in the following situations:

- After touching bare human body parts.
- After caring for, or handling, service animals such as seeing-eye dogs.
- After using the bathroom.
- After coughing, sneezing, or using a tissue or handkerchief.
- After using tobacco.
- After eating or drinking.
- After handling soiled equipment, clothing, and utensils.
- During food preparation, especially when
 - switching from raw food to ready-to-eat foods, or
 - touching any other food that could contaminate the hands.
- Before putting on gloves and while changing gloves.

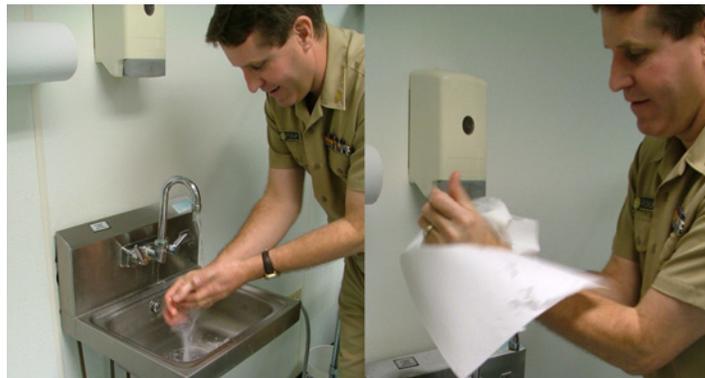
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- Before handling clean dishes.
- After using cleaning products.
- After disposing of garbage.

Proper Handwashing Procedures

When washing hands employees should follow the following five (5) steps to prevent the spread of germs and keep food safe:

1. Wet hands with warm running water.
2. Apply soap.
3. Rub hands together to lather soap for at least 20 seconds, making sure to contact all surfaces of the hand including between fingers and up the forearm. Here's a tip: 20 seconds is longer than it sounds. Try singing two choruses of "Happy Birthday." Clean under fingernails with a brush or other cleaning device.
4. Rinse off all soap.
5. Dry hands with one of the following:
 - Single use disposable towels.
 - Continuous towel system that supplies the user with a clean towel.
 - A heated-air drying device.



Section 3

Garbage *and* Refuse **Disposal**



Frequent removal of garbage helps prevent rodent or other vermin infestation in food service establishments. The Food Code outlines specific requirements for garbage containers located both inside and outside of food facilities.

3.1 Indoor Garbage Containers

Garbage containers maintained indoors must be:

- Durable
- Easily cleaned
- Non-absorbent
- Waterproof
- Leak-proof
- Rodent and insect resistant
- Kept covered when not in continuous use
- Emptied when full
- Cleaned after emptying

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3.2 Outside Garbage Containers

The requirements for outside garbage containers or dumpsters include the following:

- They must have drain holes with drain plugs which must be in place during usage.
- The area surrounding the containers must be free from debris.
- Containers must be located on a hard surface that can be sprayed clean.
- Containers must have lids or sliding doors that can be kept closed when not in use.



Section 4

Food Equipment and Utensils



4.1 Manual and Machine Warewashing

Bacteria are everywhere and can grow very quickly under the right conditions. Therefore, dishes, utensils, and equipment must be both cleaned **and** sanitized to ensure that they are safe for use by customers. Remember that cleaning and sanitizing are two separate and distinct tasks and both must be accomplished. Cleaning and sanitizing dishes, utensils, and equipment can be accomplished either manually or by machine.

Manual Warewashing

Using a 3-compartment sink, the following nine (9) steps are required to properly clean and sanitize dishes, utensils, and equipment.

1. Clean and sanitize the sinks and work surfaces before each use.
2. Sink # 1 should be filled with a soap or detergent at a water temperature of 110° – 120°F.

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3. Sink #2 should be filled with clean, hot water at a temperature of 120°F.
4. Sink #3 should be filled with a chemical sanitizing solution at a water temperature range of 75° - 120°F.
5. Scrape and pre-soak all utensils.
6. Wash utensils in sink #1.
7. Rinse utensils in sink #2. All food particles and soap film must be removed from the utensil's surfaces or the sanitizer in sink #3 will be ineffective.
8. Sanitize utensils in sink #3 by immersing them in either a chemical sanitizing solution for a minimum of 7-30 seconds (this will depend on the type of sanitizer used) or in a hot water bath at a temperature of at least 171° F for a minimum of 30 seconds.
9. Rack utensils and let air dry as part of the sanitizing process. Do not use a towel to speed up this process.

Mechanical or Machine Warewashing

The following three (3) steps outline the procedures for washing utensils using mechanical means.

1. Be sure the proper cleaning agent is connected to the machine (do the same for the sanitizing solution if the machine is so equipped).
2. Scrape utensils and pre-soak before loading them into the rack for cleaning.

- Place utensils into racks, trays, baskets, or onto conveyors in a position that exposes all surfaces to the spray from all cycles.
 - Place utensils in a manner that allows the items to drain fully.
 - If utensils are racked, place them so that the food contact surface is facing up and the handle is facing down to allow water to drain away from the action end of the utensil.
3. Start the mechanical washer and note the temperature in each cleaning chamber (if equipped). Follow the manufacturer's recommended temperature for each chamber or cycle.
- If hot water is used as a sanitizing agent the temperature must reach 160° F, or higher, at the surface of the utensil.
 - If a chemical sanitizer is used the water should be between 55° – 100° F, depending on the chemical used and its concentration.
 - If one person is responsible for loading and unloading the mechanical warewashing machine, then this person must wash hands before handling clean utensils.
 - If the machine does not meet the specified temperature in either the wash or sanitizing cycle, then the person-in-charge should be notified immediately so that the machine

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can be serviced. While the machine is not in operation, all utensils must be immersed in a sanitizing solution for at least 7 – 30 seconds and allowed to air dry.

4.2 Chemical Test Kits

When sanitizing with chemicals, employees must use a chemical test kit. Chemical test kits are designed to make sure that the water and chemical mix of the machine is correct. There are three (3) primary sanitizing solutions used in the food industry and each one requires a different chemical test kit. The solutions, test kit, and procedures for use are as follows:

1. Chlorine Kit – usually white individual strips that turn either several shades of gray or black when exposed to chlorine.
 - When removing a strip from the chlorine test kit hands and fingers must be dry.
 - Immerse in the sanitizing solution for less than one second.
 - Remove immediately.
 - Compare the resulting color to the color chart provided with the test kit.
 - The concentration, in parts-per-million (PPM), should be between 50-100 ppm, depending on water temperature.
2. Quaternary ammonia kit – usually orange individual strips that turn several shades of deep green as the concentration increases.

- When removing a strip from the quaternary ammonia test kit, hands and fingers must be dry.
 - Immerse in the sanitizing solution for at least 10 seconds undisturbed.
 - Remove from solution.
 - Compare the resulting color to the color chart provided with the test kit.
 - Follow the manufacturer's concentration recommendation.
3. Iodine kit – usually white individual strips that turn varying shades of black depending on the concentration.
- When removing a strip from the iodine test kit, hands and fingers must be dry.
 - Immerse in the sanitizing solution for less than one second.
 - Remove immediately.
 - Compare the resulting color to the color chart provided with the test kit.
 - The concentration should be between 12.5 - 25 PPM, depending on water temperature.

4.3 Calibrate Thermometers

To calibrate thermometers, set the thermometer so it can give an accurate temperature reading. It is important that **dial stem thermometers** are calibrated often enough to be accurate to within +/- 2° F of 32° F. The procedures listed below must be followed in order to calibrate a thermometer.

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- Pack a large insulated styrofoam cup full of ice
- cubes and add cold water, but not enough water to make the ice float.
- Place the thermometer in the water, making sure that the sensing dimple is immersed in the ice water.
- Allow 2 – 3 minutes to elapse before attempting to calibrate.
- Read the dial by looking at the indicator needle straight on.
- If the dial reads 30° – 34° F, this indicates that the thermometer is already calibrated and is ready for use. If the dial does not read 30° - 34° F then it must be calibrated.
- Keep the thermometer stem fully submerged in the ice water while moving the thermometer needle.
- In order to move the needle, firmly hold the hex nut (to keep from moving) with a wrench or other tool.
- Turn the silver ring on top of the thermometer to read 30° – 34° F.
- The thermometer is now calibrated and ready for use. To test the newly calibrated thermometer remove from the ice water and place the stem into a rolling pot of boiling water to see if it reads between 210° - 214° F. If not, replace the thermometer. Warning, be careful not to scald yourself.

4.4 Food Contact Surfaces

Food contact surfaces such as counters and cutting boards must be cleaned and sanitized to prevent cross contamination.

4.5 Cleaning vs. Sanitizing

Cleaning refers to the removal of all food debris, dirt, or other buildup from the surface of the utensil.

Sanitizing refers to the reduction of the actual number of microorganisms from the surface of the utensil. The sanitizing of any surface **first** involves the cleaning of all surface debris; otherwise the sanitizing agent will not be effective.

Factors affecting cleaning and sanitizing

Cleaning – various factors can affect how cleaning should be completed. These factors include:

- Types of foods prepared.
- Type of equipment used.
- Makeup of the soil. The physical makeup of the soil to be cleaned can affect the cleansing. The type of cleaner used should match the soil. Another factor to consider is how much soil has accumulated and how much energy will be required to clean the surface or equipment.

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- Water quality. Water from the tap must be clean and free of chemical contamination. All food service establishments are required to have water delivered to the facility from an “approved source.”
- Water temperature. Hot water will be more effective to emulsify soil. The best water temperature for cleaning is between 130° - 160° F. Mop water should be changed often and reheated with new water as often as needed to be effective.
- Cleaning agents. There are four (4) types of cleaning agents that are used most often in food service establishments. These agents are as follows:
 1. Abrasives - used to scour soil from surfaces using mechanical means.
 2. Acids - used to clean soil that other cleaners cannot remove such as mineral deposits and rust stains.
 3. Degreasers - these are strong alkaline cleaning agents. They are most effective at breaking up grease deposits and oily soils when used with soft water.
 4. Mild detergents -these are slightly alkaline and are used for all around cleaning in the kitchen.

Contact time with the soil will influence the cleaning agent’s effectiveness by allowing it to surround, re-hydrate, and lift the soil from the

surface. Generally, the longer the contact time the more efficient and effective the results.

Sanitizing – destroys microorganisms on clean surfaces. Food service establishments typically use a high temperature and chemical sanitizing to clean surfaces. High temperature methods are used for mechanical warewashing. Chemical sanitizers are used for both warewashing and sanitizing surfaces on equipment and food contact surfaces.

The most common types of sanitizers include:

- Chlorine
- Quaternary ammonium compounds
- Iodine

Chlorine - such as bleach, is the most commonly used sanitizer. It is inexpensive, effective on most microorganisms, and works in almost any type of water. The down side is that bleach becomes inactive quickly when in water above 115° F, or when in water with a pH of below 6.0 and above 7.5. Chlorine is also corrosive to some metals if used in the wrong concentrations. The concentration of chlorine should be between 50 to 100 PPM depending on the water temperature. This concentration can be achieved by using one

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capful of household bleach in 5 gallons of water. Remember to use a chlorine test kit to determine the concentration of chlorine. Also keep in mind that scented bleach is **not** permitted.

Quaternary Ammonium Compounds (quat) - are effective at a wider temperature and pH range than other sanitizers. The disadvantages of using quat compounds are that they are not effective on as many germs as chlorine and iodine. They also leave a residue on surfaces, and are not effective in hard water. The normal concentration of quat is above 200 PPM at a temperature above 75° F.

Iodine sanitizers are not inactivated quickly by soil. They can be used in low concentrations such as 12.5 to 25 PPM, and their presence or absence can be detected visually (brown in color). The disadvantages of using iodine sanitizers are that they are not as effective as chlorine, they are less effective in water with a pH above 5.0, they are corrosive to metals at high temperatures, and they may stain porous surfaces such as plastics.

4.6 Cross Contamination

Cross contamination is the transfer of harmful bacteria to foods from other foods, equipment, work surfaces, or people.

- Food-to-food cross contamination occurs when a raw food, such as meat, containing harmful bacteria, comes into contact with ready-to-eat-foods. For example, food-to-food cross contamination occurs when the juices of a raw contaminated chicken come into contact with salad ingredients that remain unwashed. This kind of contamination can be avoided by using separate refrigerator space when storing ready-to-eat-foods and raw meat.
- Equipment-to-food cross contamination occurs when raw foods, such as raw meat containing harmful bacteria, is cut by a knife and then the same knife is used to cut raw salad ingredients without having been cleaned and sanitized between actions. This type of cross contamination can be prevented by washing equipment after each food operation (i.e., cutting vegetables and then cutting raw meats).
- People-to-food cross contamination occurs when people directly contaminate food as a result of failing to wash their hands after using the bathroom, or sneezing into their hands, then resume food preparation, or cooking. Good personal hygiene is the best way to prevent this type of cross contamination. The recommended handwashing technique should be taught and enforced for all food service

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employees. Sneeze guards and other mechanical devices used in the customer area also prevent potential contamination.

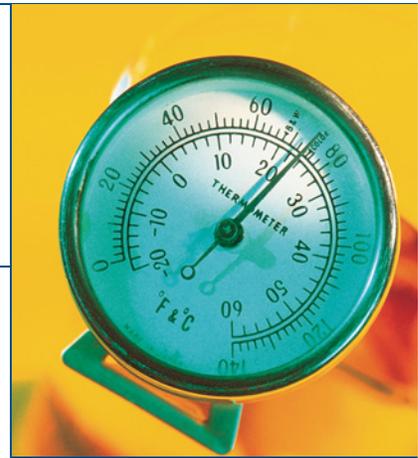
4.7 Wiping Cloths

Wiping cloths are used to wipe up foods and shall not be used for any other purpose other than their intended purposes.

- Dry wiping cloths:
 - Shall be used for wiping spills from tableware and carryout containers.
 - Shall be free from food debris and visible soil.
- Wet wiping cloths:
 - Shall be laundered daily.
 - Shall be stored in a sanitizing solution.
 - Are used only for wiping spills from food-contact and non-food contact surfaces.
- Dry or wet wiping cloths used for wiping up raw animal foods shall be kept separate from cloths used for other purposes.

Section 5

Food Protection



5.1 Time and Temperature

Maintaining proper time and temperature requirements during the storage, transport, and display of food is critical in order to avoid contamination through excessive bacterial growth. Under certain conditions, bacteria on food can multiply very quickly. There are 6 factors that affect the growth of bacteria.

- 1. Food (type)** – most foods contain sufficient nutrients for bacteria to grow. Foods such as dairy and egg products, meat, poultry, and fish are at especially high risk.
- 2. pH** – pH is a measure of the acidity or alkalinity of food. pH is indicated on a scale from 0 to 14, with seven being neutral. If the pH value is below 7, the food is classified as acid; if it is above 7, the food is classified as alkaline. Most bacteria grow well at neutral pH, but many can reproduce in a pH range from 4.5 - 10.0.

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- 3. Time** – bacteria can reproduce within 15 to 30 minutes. One bacterium reproducing in ideal conditions can produce over one million cells in five hours.
- 4. Temperature** – Bacteria are capable of growing over a wide range of temperatures, but bacteria grow best in temperatures between 41°F - 135°F. This is known as the TEMPERATURE DANGER ZONE.
- 5. Oxygen** - There are two types of bacterial growth. Bacteria can grow both with and without oxygen, and it is called aerobic and anaerobic respectively.
- 6. Moisture** – Bacteria need water to dissolve the food they use for energy and growth. Without water, growth may slow down or stop. That is why dried foods don't spoil.

Time and temperature are the most easily controlled factors affecting bacterial growth. At danger zone temperatures, 41°F - 135°F, bacteria can double their numbers every 20 to 30 minutes. Reducing the time foods are kept at room temperature and making sure that foods do not enter the temperature danger zone, will ensure the bacteria will not have an opportunity to grow.

5.2 Thawing Techniques

The following four (4) techniques are the most appropriate thawing techniques for potentially hazardous foods:

- Refrigerator - never thaw foods at room temperature. The outside layers of the food will warm faster than the center portion, allowing the outer portion to grow bacteria. Thawing products in the refrigerator allows both the inside and outside temperatures of the entire food to be kept at 41° F or less. This method does require many hours of time. Therefore, pre-planning is a must. When thawing products in a refrigerator, they should be placed on a pan to collect the drippings, and on the bottom shelf, away from other foods to prevent the possibility of cross-contamination.
- Microwave oven – using a microwave oven to thaw frozen foods will allow the frozen product to be thawed in minutes versus hours. The cooking process can be continued in the microwave or the product may be transferred into a conventional oven.
- Cooking - frozen products can be taken directly from a frozen state to a continual cooking process as long as the food is cooked thoroughly. The internal temperature of the food must meet the minimum cooking temperature requirements.

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- Cold running water – frozen foods may be thawed using cold (70°F or less) running water. The velocity of the running water must be strong enough to remove any loose food particles. The preparation sink used must be washed, rinsed, and sanitized.

5.3 Cooling

Improperly cooled food is one of the most common causes of foodborne illness. The *Food Code* recommends a two-step cooling process that must be followed when dealing with potentially hazardous foods.

- Potentially hazardous foods must be cooled from 135° to 70° F within a two-hour window. If the food is not cooled to 70° F within two hours, it must be reheated to 165°F and the process started again.
- If the potentially hazardous food has met the first criterion then the food must continue to cool from 70° to 41° F within a four-hour window. If the food does not cool to 41° F within the four-hour limit, the food must be reheated to 165°F and the whole process must start over again.

There are six techniques to cool hot foods.

1. Shallow pans – place hot food in a shallow pan and put the pan into a walk-in cooler. Shallow pans allow the heat in the food product to dissipate quickly. The hot food product should be stirred periodically in order to promote even cooling.
2. Blast Chiller – this device chills foods quickly, to 41°F or less, by circulating super chilled air around the food.
3. Ice bath – an ice bath can be used on liquid or semi-liquid foods such as broths, chili, or sauces. Place the food in a pan that will fit into an ice filled prep sink (a larger pan filled with ice and water may also be used). Stir the food while in the ice bath to facilitate rapid cooling. Monitor the temperature often to make sure the food cools properly.
4. Adding ice as an ingredient – by adding ice to soups (and other liquid foods), in their concentrated form, they become diluted and cooled at the same time.
5. Cooling wands – these are hollow plastic tubes that can be filled with water and then frozen. Hot food is stirred with the cooling wand

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causing the food to chill rapidly. This technique is especially effective when combined with the ice bath method.

6. Separating the food into thinner portions – this method increases the surface area of the food resulting in rapid cooling.

5.4 Holding Temperatures

By maintaining the proper holding temperature, bacteria can be eliminated from potentially hazardous foods. Potentially hazardous foods shall be maintained at the following temperatures:

- 135° F or higher, except for roasts cooked to a temperature and for a time as specified in the *Food Code*.
- 41° F or less for a maximum of 7 days.

5.5 Labeling

Any potentially hazardous food kept for more than 24 hours must be clearly labeled with the date of preparation or opening. The date of preparation shall be counted as day one.

Any commercially prepared, ready-to-eat food that is opened, kept for more than 24 hours, and potentially hazardous, shall be labeled with the date the food was opened or prepared. The date the food was prepared shall be counted as day

one. The manufacturer's "sell by" or "use by" date shall not be exceeded.

5.6 Thermometers

Thermometers should be used to measure the temperature of potentially hazardous hot or cold food. The placement of the thermometer and its accuracy are key to keeping foods from becoming a breeding ground for bacteria. Stainless steel dial stem thermometers that read in either Celsius or Fahrenheit shall be calibrated to:

- +/- 2 F if read only in Fahrenheit
- +/- 1 C if read only in both Fahrenheit and Celsius

Keep thermometers in areas that are easily accessible to all personnel that are responsible for cooking. Cooking personnel must understand the importance of maintaining the correct temperature of hot and cold food as a critical control in the prevention of foodborne outbreaks.



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Section 6

Summary/Review



Following the established guidelines as outlined in the FDA'S *Food Code* can help avoid potentially life-threatening episodes of food contamination and illness. The information presented in this training was designed to be a supplement to formal training that food service workers should also receive. Following the recommended procedures outlined in this manual and participating in additional required training provides food service workers with the tools they need to protect themselves and their customers from foodborne illnesses. Below is a list containing seven best practices that should be adopted to support a successful food safety program:

- Ensure that the person-in-charge is food safety certified.
- Conduct regular and effective employee food safety training and document class activity.
- Handle garbage and refuse safely and keep waste receptacles clean.

- Protect food during storage, handling, preparation and holding.
- Use accurate thermometers and sanitizer test kits.
- Keep lavatories well stocked with handwashing supplies.
- Practice frequent handwashing.

With your help, your facility will be able to provide your customers with enjoyable meals, drinks, or snacks in a clean, comfortable, and sanitary environment.

Questions regarding this training may be emailed to Jamie.Bryant@foh.hhs.gov

For additional information, you can find the FDA *Food Code* online at the Food and Drug Administration's web site, the Center for Food Safety and Applied Nutrition, <http://www.cfsan.fda.gov/list.html>



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Notes

Section 7

Instructions for Taking the Post-Test



1. Using the accompanying answer sheet, complete the post-test located at the end of this manual.
2. The supervisor or facility operator should sign off on the bottom of each employee's answer sheet, acknowledging that the employee has met the requirements of this training.
3. The completed answer sheet should be placed in the stamped, addressed envelope that was provided with this training. In an effort to save costs, all food service employees should put their answer sheets in the same envelope.
4. Once all employees have completed the training and exam, the envelope should be mailed to the address indicated.

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5. Please mail or email the completed answer sheet(s) to:

Federal Occupational Health
Jamie Bryant
1301 Young Street, Ste 772
Dallas, Texas 75202
jamie.bryant@foh.hhs.gov

6. Students who achieve a score of 70% or better on the post-test will receive a training certificate within two weeks of the date of submission.
7. If you have any questions, please call Doug Pickup at 214-422-1427.

Thank you



Final Exam

The following questions are taken from the GSA/FOH Food Safety Training. Please indicate the correct answer on the accompanying answer sheet.

1. The hot holding temperature for potentially hazardous foods is _____.
 - a. 136° F or less
 - b. 148° F or more
 - c. 135° F or more
 - d. 125° F or less

2. The *Food Code* states that _____.
 - a. hands must be washed for 20 seconds or more
 - b. hands must be washed for 20 seconds or less
 - c. handwashing may be skipped if gloves are used
 - d. handwashing is not necessary if tongs are used to handle raw meat

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3. When calibrating a thermometer using ice water, the temperature should read _____.
 - a. 0°F
 - b. 212° F
 - c. 135° F
 - d. 32° F

4. A dial stem thermometer that reads only Fahrenheit must be calibrated to _____.
 - a. +/- 5° F
 - b. +/- 1° F
 - c. +/- 2° F
 - d. +/- 10° F

5. The correct concentration of chlorine and water temperature in the sanitizing rinse of a three-sink operation is _____.
 - a. 50 to 100 PPM at 75° F to 100° F
 - b. 100 to 200 PPM at 115° F or higher
 - c. 50 to 100 PPM at 115° F
 - d. Chlorine is not used as a sanitizer in food service.

6. The concentration of Iodine, when used as a sanitizer should be _____.
- a. 12.5 to 100 PPM at 72° F
 - b. 12.5 to 50 PPM at 72° F
 - c. 25 to 50 PPM at 100° F
 - d. 12.5 to 25 PPM at 75° F
7. Which of the following statements is true regarding wiping cloths?
- a. Wet wiping cloths may be stored in a chemical sanitizer overnight.
 - b. Dry and wet cloths used with raw animal foods shall be kept together with cloths used for other purposes.
 - c. Dry wiping cloths shall be used for wiping spills from tableware and carryout containers.
 - d. Cloths used for wiping food spills can be used for other purposes as well.
8. When are you required to wash your hands?
- a. Only when time allows.
 - b. At the beginning and end of each workday, and only if time allows.
 - c. Often and especially after changing any food operation.
 - d. Only when visibly soiled.

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9. Cleaning and sanitizing are _____.
- separate and unique tasks, both are required
 - one and the same, so it does not matter which one is accomplished first
 - not used in food service establishments
 - None of the above.
10. The correct way to thaw frozen food using running water is _____.
- to place the food in a pan, fill with water and allow thawing
 - to place the food in a pan under running water and allow the water to trickle on the food
 - to place the food in a pan under running water and leave the water running with enough velocity to remove food particles
 - There is no safe way to thaw food with water.
11. To ensure the proper concentration of a rinse sanitizer you should use the following:
- Metronome
 - Thermometer
 - Chemical test strip
 - Bleach meter

12. How long and at what temperature can leftover food be kept in a refrigerator?
- a. 7 days at 41° F
 - b. 2 days at 41° F
 - c. 7 days at 51° F
 - d. 2 days at 51° F
13. The two most easily controlled factors influencing the rate in which bacteria will grow are _____.
- a. temperature and moisture
 - b. time and the acidity of the food
 - c. time and temperature
 - d. temperature and oxygen
14. When conducting manual warewashing in a 3-compartment sink, all but one of following steps should be conducted:
- a. Clean and sanitize the sink and work surfaces before each use.
 - b. Fill sink #1 with soap or detergent at a water temperature of 90° F.
 - c. Fill sink #2 with clean hot water at a temperature of 120° F.
 - d. Fill sink #3 with a chemical sanitizer and water at a temperature of 75° - 120°F.

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15. Which one of the following is not a recommended technique for thawing potentially hazardous foods?
- a. Cold running water
 - b. Cooking
 - c. Thawing at room temperature for 2 hours
 - d. Microwave oven
16. Which of the following statements is not true regarding proper methods for cooling foods?
- a. Stir the food in a container placed in an ice water bath.
 - b. Place food in deep pans, preferably plastic, to allow rapid heat transfer.
 - c. Separate or cut the food into smaller or thinner portions.
 - d. Use rapid cooling equipment, such as a blast freezer.
17. Whole shell eggs must be received and stored at ____ degrees Fahrenheit or less.
- a. 45
 - b. 55
 - c. 65
 - d. 70

18. Utensils should reach a surface temperature of at least ____ degrees Fahrenheit during the sanitizing cycle.

- a. 190
- b. 125
- c. 145
- d. 160

19. When is it necessary to put the lid on a trash container?

- a. When the trash container is in continuous use.
- b. At night.
- c. When trash container is not in use.
- d. b and c

20. Which of the examples below is not a common type of cross contamination?

- a. Water to food
- b. Equipment to food
- c. People to food
- d. Food to food

Name: _____

Facility _____

Facility Address _____

Supervisor name/phone: _____

GSA/FOH Food Safety Training

Final Exam Answer Sheet

Please select your answer by filling in the correct circle

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Date

healthy bodies



sound minds



a safe place to work

Federal Occupational Health

a component of the U.S. Public Health Service
Program Support Center
Department of Health and Human Services

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