

# FOOD HANDLER TRAINING BOOK



LEARN ABOUT  
FOODBORNE ILLNESS  
RISK FACTORS  
AND  
FOOD HAZARDS

# INTRODUCTION



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This book was prepared by the Southern Nevada Health District Environmental Health Division as an educational tool. For more information on taking the test to receive your Food Handler Safety Training Card, visit [www.snhd.info](http://www.snhd.info).

# INTRODUCTION



## ■ ABOUT THIS BOOK

The Southern Nevada Health District's food regulations focus on the control of foodborne illness risk factors in food establishments. Control of the five risk factors will help prevent foodborne illness. The Person in Charge of a restaurant must be knowledgeable about the risk factors in order to train food handlers and ensure food safety practices are followed. This information is enhanced through continuous training with emphasis on preventing foodborne illness. If there is a risk to food safety, such as loss of water, sewage backup, or pest infestation, then the food establishment should self-close and contact the Health District.

## ■ FOODBORNE ILLNESS RISK FACTORS

### Poor Personal Hygiene

- Improper hand washing
- Bare hand contact with ready-to-eat (RTE) foods
- Food handlers working while ill with the following symptoms: vomiting, diarrhea, sore throat with a fever, infected cuts on the hands, and jaundice

### Food From Unsafe Sources

- Food from an unapproved source and/or prepared in unpermitted locations
- Receiving adulterated food

### Improper Cooking Temperatures/Methods

- Cooking
- Reheating
- Freezing (kill step to eliminate parasites in fish)

### Improper Holding, Time and Temperature

- Improper hot and cold holding of TCS foods
- Improper use of time as a control
- Improper cooling of TCS foods

### Food Contamination

- Use of contaminated/improperly constructed equipment
- Poor employee practices
- Improper food storage/preparation
- Exposure to chemicals

## ■ FOOD HAZARDS

### Biological

- Microorganisms that can cause foodborne illness
- Bacteria, viruses, parasites, and fungi

### Chemical

- Chemicals not meant to be consumed
- Sanitizers, cleaning agents, or pest control products must be separated from food

### Physical

- Foreign objects that can cause injury
- Glass, metal, or bone



# PERSONAL HYGIENE



## ■ PROPER HANDWASHING TECHNIQUE

Handwashing is a critical part of personal hygiene. It is important to **wash your hands in a designated handwashing sink** before food handling to prevent foodborne illness. The hand sink is for hand washing **ONLY** and should have liquid soap, paper towels, and a trash can.



**1 WET HANDS**  
with warm water  
(min. 100°F)



**2 SOAP**



**3 RUB VIGOROUSLY**  
for 15 seconds



**4 RINSE**



**5 DRY**



**6 TURN OFF WATER**  
with paper towel

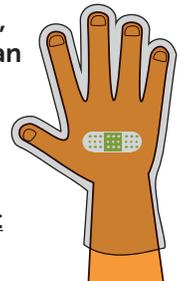
### WASH YOUR HANDS...

- ✓ When entering the kitchen
- ✓ After touching your face, hair, or skin
- ✓ After using the restroom
- ✓ After handling raw animal products
- ✓ After taking out the trash or cleaning
- ✓ After handling ANYTHING dirty



If you have a cut on your hand, wash your hands, put on a clean bandage, and wear gloves.

If you can't wash your hands because of a wound, splint, bandage, or brace, you **cannot** work with food.



## ■ NO BARE HAND CONTACT WITH READY-TO-EAT FOODS



Ready-to-eat foods cannot be handled with bare hands. **Use a physical barrier to prevent contamination from germs that have the potential to cause foodborne illness.** These germs cannot be fully removed by proper handwashing alone.

Ready-to-eat foods include cooked food, raw fruits and vegetables, baked goods, snack foods, and ice. Physical barriers include deli/wax paper, gloves, and utensils such as tongs, scoops, and spatulas.



# PERSONAL HYGIENE



## UNIFORMS

- ✓ Proper hair restraint
- ✓ Neat and clean clothes
- ✓ All wounds covered
- ✓ No wrist jewelry
- ✓ Plain band ring
- ✓ Short and clean nails



- ✗ Hair coming outside the cap
- ✗ Dirty clothes
- ✗ Open and bleeding wounds
- ✗ Wrist jewelry
- ✗ Ornate or jeweled ring
- ✗ Long, painted, and/or artificial nails

## EMPLOYEE HEALTH POLICY

Personal hygiene starts at home when you get ready for work each day. All of us carry disease-causing germs that can cause illness. **As a food handler, you are responsible for taking care of your health** to prevent foodborne illness. Tell your employer if you have been diagnosed with *Salmonella*, *Shigella*, *E. coli* O157:H7, Hepatitis A, or Norovirus or if you have any of the following symptoms:



VOMITING



DIARRHEA



SORE THROAT  
WITH A FEVER



INFECTED CUTS  
OR WOUNDS  
on hands and arms



JAUNDICE

## AN EASY WAY TO REMEMBER THE BIG 5 FOODBORNE ILLNESSES

<b>SEND</b>	Salmonella
<b>SICK</b>	Shigella
<b>EMPLOYEES</b>	E. coli
<b>HOME</b>	Hepatitis A
<b>NOW</b>	Norovirus

**YOU CANNOT WORK AGAIN UNTIL SYMPTOM-FREE FOR 24 HOURS WITHOUT THE USE OF MEDICINE.**

# APPROVED SOURCES



## FOOD FROM AN UNAPPROVED AND/OR UNPERMITTED SOURCE

First things first.... Once you have accepted food deliveries, **you cannot make unsafe food safe once again.**

Time/temperature control for safety (TCS) foods, also known as potentially hazardous foods (PHF), require time and temperature control to limit pathogenic microorganism growth or toxin formation.

An **approved source is a reputable supplier** that has been inspected and follows regulations. You should always check food before you accept it from the supplier. During receiving you should check foods for:

Temperatures for receiving TCS food	Overall Wholesomeness	Frozen Foods
<p><b>135°F</b> Hot foods hot (above 135°F)</p> <p><b>DANGER ZONE!</b> Between 41°F and 135°F</p> <p><b>45°F</b> It is acceptable to receive eggs, milk, and live shellstock at 45°F</p> <p><b>41°F (OR BELOW)</b> Cold foods cold (below 41°F) Frozen foods should be frozen solid</p>	 <p>Reject cans that are dented, swollen, or leaking.</p>	 <p>Reject frozen foods that have ice crystals or liquids in the packages.</p>
Spoilage	Expiration Dates	Signs of Contamination from Pests or Spills
 <p>Food should <u>NOT</u> be slimy, sticky, off-color, or have a bad odor.</p>	 <p>Food should be within the use-by date marked from the manufacturer.</p>	 <p>Packages should be clean, dry, and intact</p>
Proper Labeling and Invoices	Shellstock Tags	Parasite Destruction for Some Fish
<p><small>INGREDIENTS: Enriched Wheat Flour (Flour, Ferrous Sulfate (Iron), B Vitamins (Niacin, Thiamine Mononitrate (B1), Riboflavin (B2), Folic Acid)) Sugar, Corn Syrup, Water, High Fructose Corn Syrup, Vegetable and/or Animal Shortening (Contains one or more of: Partially Hydrogenated Soybean, Cottonseed, or Canola Oil, Beef Fat), Dextrose, Whole Eggs, Contains 2% or Less of: Modified Corn Starch, Cellulose Gum, Whey, Leavenings (Sodium Acid Pyrophosphate, Baking Soda, Monocalcium Phosphate), Salt, Cornstarch, Corn Flour, Corn Syrup Solids, Mono- and Diglycerides, Soy Lecithin, Polyphosphate E0, Dextrin, Calcium Caseinate, Sodium Stearoyl Lactylate, Wheat Gluten, Calcium Sulfate, Natural and Artificial Flavors, Caramel Color, Sorbic Acid (to Retain Freshness), Color Added (Yellow 5, Red 40).</small></p> <p>Food must be identified as to what it is and where it came from.</p>	 <p>Shellfish tags must be kept on file for 90 days.</p>	 <p>Fish served undercooked or raw must have documents from the supplier explaining how the fish is frozen or raised.</p>

**REJECT FOOD IF IT DOES NOT MEET STANDARDS RATHER THAN ACCEPTING IT FROM THE SUPPLIER.**

## EXERCISE ACCEPT OR REJECT?



Coleslaw mix packaged in good condition at 45°F



Clean and unbroken raw shell eggs at 45°F



Fish with sunken and cloudy eyes



Cheddar cheese with small mold spots



Fresh beef that springs back to the touch

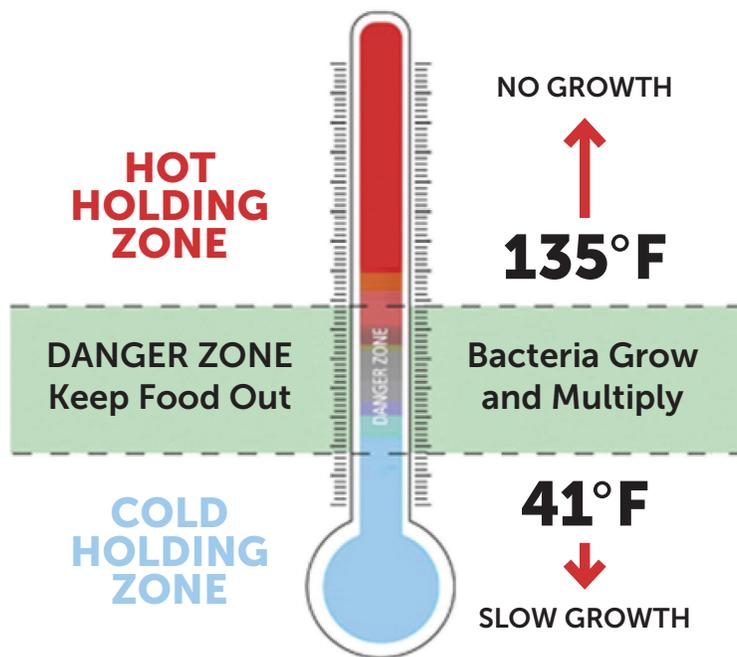


# PROPER TEMPERATURES



## HOLDING TEMPERATURES

Although cooking foods is the only way to reduce the number of germs to safe levels, **you must store TCS foods at correct temperatures for safety.** It is important that foods requiring time and temperature control for safety (TCS) stay out of the temperature danger zone where bacteria grow the fastest. Keep hot foods hot and cold foods cold! When using time as a public health control, TCS foods held at room temperature should be held for a limited amount of time and then discarded.



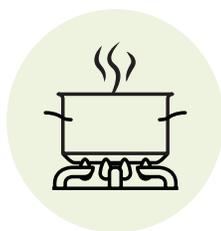
## PROPER THAWING

It is important to **maintain foods 41°F or below when thawing (defrosting).** Use an approved thawing method:



### UNDER REFRIGERATION

Plan ahead — large items may take several days to thaw. Maintain refrigeration at 41°F or less.



### AS PART OF COOKING

Take directly from frozen to cooking. This is great for foods that are small.



### IN MICROWAVE (TO BE IMMEDIATELY COOKED)

Transfer immediately to a conventional cooking process or cook completely in the microwave.



### FULLY SUBMERGED UNDER COLD RUNNING WATER

Ensure running water flows fast enough to remove and float off loose particles. Ensure all portions of food are fully submerged under water. Running water should be cold; food should not rise above 41°F.

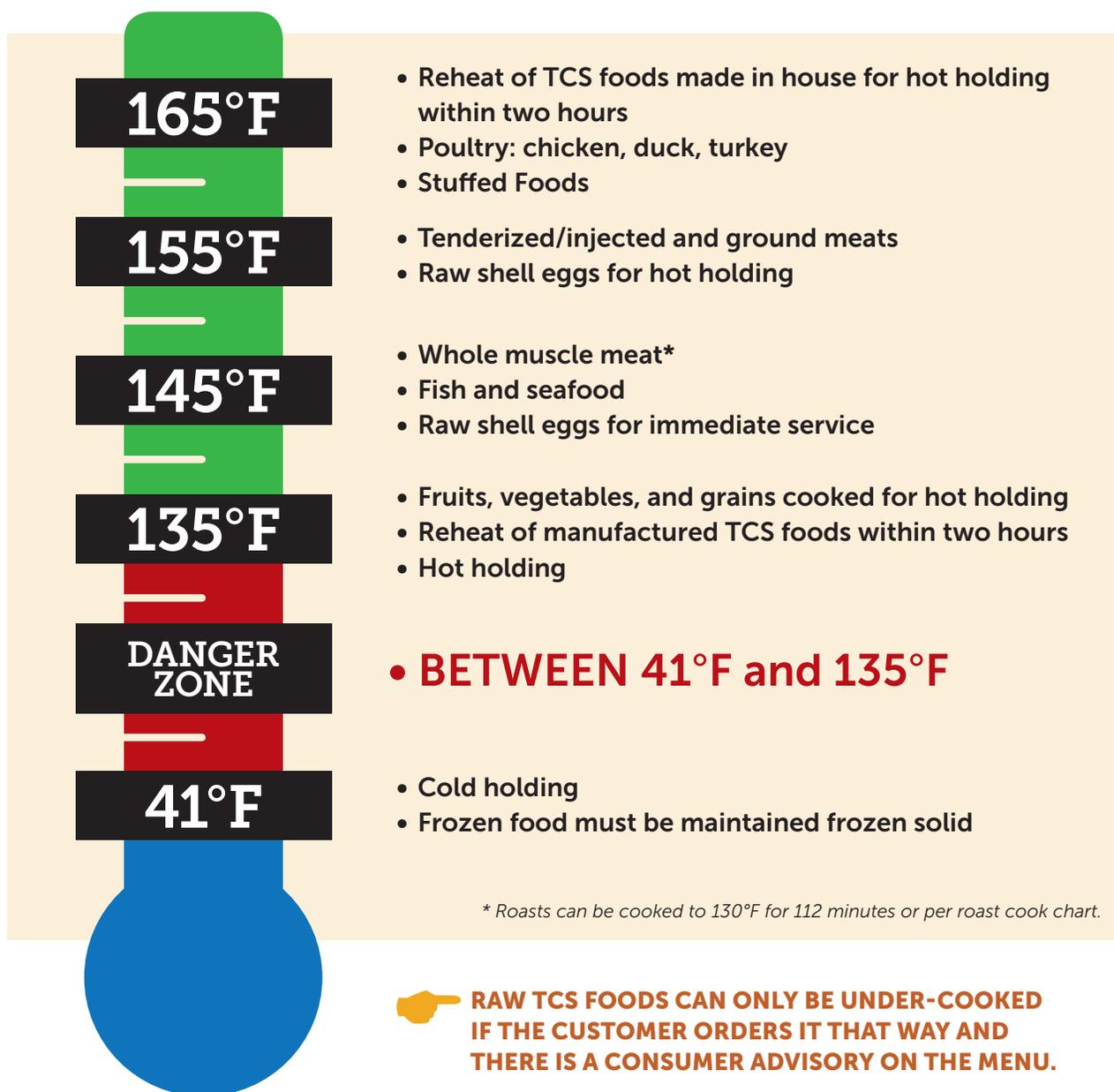
# PROPER TEMPERATURES



## ■ COOKING

Cooking TCS foods to their required temperatures is the only way to reduce the amount of germs to safe levels. Use a calibrated and sanitized stem thermometer to check food temperatures. Insert the thermometer into the thickest part of the food away from bones to be sure all parts of the food are cooked thoroughly. Use proper equipment to cook and reheat foods. Do not cook foods in equipment that is intended only for hot holding.

(Note: Minimum cooking temperatures are held for 15 seconds.)

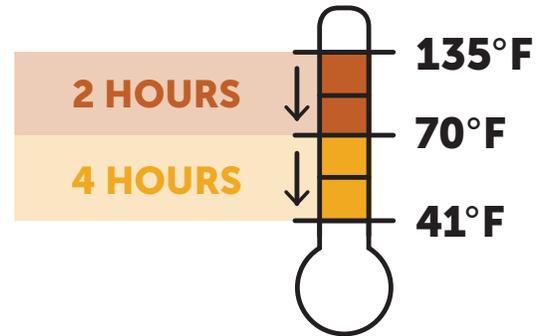


# PROPER TEMPERATURES



## COOLING METHODS

A two-stage cooling process is required for hot TCS foods: 135°F to 70°F in two hours and 70°F to 41°F in next four hours (not to exceed six hours total). **Cooling foods quickly and safely is important to ensure foods spend a minimum amount of time in the temperature danger zone.** Use a method that will speed up the cooling process, such as using an ice bath or dividing hot foods into shallow pans and then placing them into a refrigerator. Stir food regularly to allow heat to escape.



Date	Food	Start Time & Temp	At 1 Hour	At 2 Hours	135°F to 70°F in 2 hours?	At 3 Hours	At 4 Hours	At 5 Hours	At 6 Hours	70°F to 41°F in 4 hours?
3-20	SOUP	9AM 135°F	10AM 120°F	11AM 80°F		12PM 65°F	1PM 40°F			
6-27	RICE	3PM 135°F	4PM 90°F	5PM 68°F		6PM 55°F	7PM 50°F	8PM 45°F	9PM 39°F	

Soup should have been reheated to 165°F before two hours. The soup must be discarded.

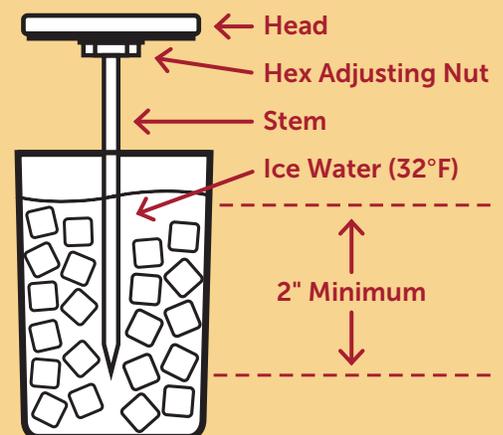
The rice met the 70°F and then the 41°F requirement within the six-hour cooling process.

## THERMOMETER CALIBRATION

A **thermometer** is the most important tool you have to ensure food safety. It is important to calibrate your thermometer before checking the internal temperatures of food. Calibrate each thermometer regularly, as well as when it is new, and any time the thermometer is dropped. Use the appropriate thermometer for the food being measured.

### STEPS FOR PROPER CALIBRATION OF STEM THERMOMETER

1. Completely fill a container with ice.
2. Add clean water (ice should not float).
3. Immerse thermometer.
4. Stir well.
5. Allow 30 seconds before adjusting to 32°F.



# FOOD CONTAMINATION



## ■ CROSS CONTAMINATION

Cross contamination occurs when germs are moved from one food or surface to another.

Foodborne illness has resulted from:

- Adding contaminated ingredients to food.
- Food contact surfaces (equipment and utensils) that were not properly cleaned and sanitized.
- Allowing raw food to touch or drip on ready-to-eat food.
- Hands that touch contaminated food then ready-to-eat food.

Avoid other cross contamination by:

- Using separate cutting boards and utensils for raw products (such as shell eggs, meat, fish, poultry) and ready-to-eat food or cleaning and sanitizing equipment in between uses.
- Separating dirty equipment from food or clean equipment.
- Starting with a clean, sanitized work surface and cleaning and sanitizing all work surfaces, equipment, and utensils after each task.
- Not storing anything in ice that will be consumed.



## ■ CLEANING & SANITIZING

Make sure equipment is clean and sanitized by washing as often as necessary.

When in use, clean and sanitize utensils and equipment every four hours.

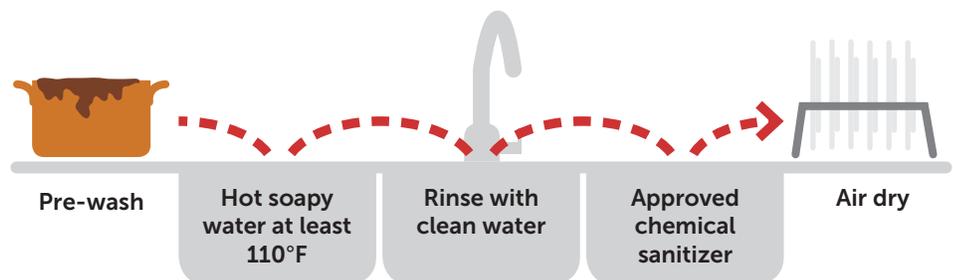


### SANITIZER BUCKETS —

**Chlorine and Quaternary Ammonia (Quats) are types of approved sanitizers.** Follow manufacturer recommendations for proper concentration and contact time. Test the sanitizer with paper test strips to check the concentration. Keep a cloth stored in a sanitizer bucket anytime there is food service or preparation.

### THREE-COMPARTMENT SINK —

Always use a properly set up three-compartment kitchen sink for proper manual warewashing and follow the five steps: pre-wash (scrape), wash, rinse, sanitize, and air dry.



### DISH MACHINES (HIGH TEMP AND CHEMICAL) —

**Sanitizing is reducing the number of germs to safe levels. Chemicals and heat are used to sanitize food contact surfaces.** Read the manual or data plate on machine for proper operation. Surface temperature of food contact surfaces in a high temperature machine must reach at least 160°F. Measure the proper concentration of chemical sanitizer by using test strips. Measure temperature of high temperature dish machine by using a min-max thermometer or temperature-sensitive tape.

# FOOD CONTAMINATION



## ■ OTHER SOURCES OF CONTAMINATION

### WASHING PRODUCE —

Wash fruits and vegetables under running water before cutting, combining with other ingredients, or cooking. Pests and dirt can hide in the inner leaves of produce. Remove outer leaves and pull lettuce and spinach completely apart. Rinse thoroughly. Cut away bruised or damaged areas when preparing fruit and vegetables.

### UTENSIL STORAGE —

Store utensils in the following manner:

- With handles pointing in the same direction.
- On a smooth, easily cleanable food contact surface
- In water that is 41°F or below, 135°F or above
- Under running water

### PEST CONTROL (RODENT AND INSECT) —

Examples of pests include **cockroaches**, **flies**, and **rodents**.

Integrated Pest Management (IPM) is a series of prevention methods used to keep pests away and to control infestation:

- Deny access, food, and shelter.
- Work with a licensed pest control operator.
- Seal all gaps and openings in floors, walls, and ceiling.
- Keep doors, screens, and windows closed to keep pests out.
- Keep air curtains operational.

Signs of a pest infestation include:

- Seeing pests in various sizes and stages of development.
- Pest activity noted on a report from a licensed pest control operator.
- Finding rodent droppings on floors or equipment or cockroach feces (small black specks) on walls and floors.
- Bite marks on food containers.



A single rodent in a facility requires immediate pest control consultation. Do not use pesticides labeled as “household use only.” Only a licensed pest control operator can apply restricted-use pesticides.

### SMOKING/EATING IN KITCHEN —

Rules regarding smoking, eating, and drinking in the kitchen:

- Prohibit eating, smoking, and drinking while preparing or serving food, while in areas used for preparing or serving food, or while in areas used for washing equipment and utensils.
- Eating and smoking are only permitted in designated areas away from food or ware washing areas.
- Smoking areas must be compliant with the Nevada Clean Indoor Air Act.



# REFRIGERATED STORAGE



**Proper food storage** and preparation are key components of preventing foodborne illness. Store and prepare foods to protect them from cross contamination.



Keeping foods covered, storing raw animal products below and away from ready-to-eat foods, using clean and sanitized equipment /utensils, and enforcing overall good employee practices will help keep food safe.

# GLOSSARY



## **Approved Source/Supplier**

A grower, supplier, manufacturer, processor, or any person or business providing food for sale or consumption that is acceptable to the health authority, based on a determination of conformity with principles, practices, and generally recognized standards that protect public health.

## **Calibrate**

To adjust, by comparison with a known standard, the accuracy of a measuring instrument such as a thermometer.

## **Consumer Advisory**

A written statement that informs consumers about the increased risk of foodborne illness when eating raw or undercooked animal products, and identifies any items on a food establishment's menu that contain raw or undercooked animal products.

## **Contamination**

The presence of extraneous, especially infectious, material that renders a substance or preparation impure or harmful. The three types of contamination include physical, biological, and chemical hazards.

## **Cooling**

The two stage process of reducing food temperatures quickly. Stage one is to cool from 135°F to 70°F in two hours, then stage 2 is from 70°F to 41°F in four hours. Cooling cannot exceed six hours total.

## **Cross-contamination**

The passing of germs, microorganisms or other harmful substances such as chemicals from one surface to another through improper or unsanitary equipment, procedures, or products.

## **Employee Health Policy**

Procedures to identify and restrict/exclude employees who may transmit foodborne pathogens in food. It also provides hygienic interventions that prevent the transmission of foodborne viruses and bacteria in food establishments.

## **Equipment**

An article that is used in the operation of a food establishment including but not limited to a freezer, grinder, hood, ice maker, meat block, mixer, oven, reach-in refrigerator, scale, sink, slicer, stove, and table.

## **Food**

A raw, cooked or processed edible substance, ice, beverage, or an ingredient used, or intended for use or for sale, in whole or in part for human consumption. Chewing gum is also considered food.

## **Foodborne Illness**

Adverse health effects resulting from the ingestion of contaminated or adulterated food or water.

## **Germ**

A microorganism, especially one that causes disease.

## **Imminent Health Hazard**

A significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or closing of operation such as loss of water, sewage backup and pest infestation.

## **Infestation**

The presence of an unusually large number of insects or animals in a place, typically so as to cause damage or disease.

## **Parasite**

An organism that lives in or on another organism (its host) and benefits by deriving nutrients at the host's expense.

## **Person in Charge**

An Individual present at a food establishment who is knowledgeable and responsible during its operation.

## **Pest**

Any unwanted and destructive insect or other animal that harms food or crops and can spread disease by cross-contamination.

# GLOSSARY



## **Pesticide**

A substance or agent used to kill pests, applied by a certified pest control operator in a food establishment.

## **Reheat**

To apply heat to a food product that has been previously cooked.

## **Ready-To-Eat (RTE) Food**

Food that is edible without additional preparation or cooking.

## **Sanitize**

Application of high heat or chemicals on cleaned food-contact surfaces to reduce the number of illness causing germs or microorganisms to acceptable levels.

## **Shellstock**

Raw, in-shell molluscan shellstock such as clams, oysters, or mussels.



## **Symptoms**

A sign or indication of a disorder or disease, usually a noticeable change in how a person feels or looks.

## **Temperature**

The amount of heat or cold measured in a product with a thermometer.

## **Temperature Danger Zone**

Temperature range in which germs or microorganisms grow at an unsafe rate (between 41°F-135°F).

## **Thawing**

To change from a solid, frozen state to a refrigerated temperature by an approved method. It is also known as defrosting.

## **Thermometer**

A device designed to measure temperatures.

## **Time and Temperature Control for Safety (TCS)**

Food that requires time and temperature control for safety to limit pathogenic microorganism growth or toxin formation, such as meat, fish, eggs, milk, and cut lettuce.

## **Time as a Public Health Control**

A procedure in which time is used to control the growth of germs or microorganisms. Food held using this procedure must be served, sold, or discarded after four hours.

## **Utensils**

A food contact implement or container used in the storage, preparation, transportation, dispensing, sale, or service of food that is multi-use or single-use such as deli paper, tongs, spoons, ladles, scoops, etc.



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# FOOD



# HANDLER