

FOOD

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FOOD

THE FOOD AND DRUG ADMINISTRATION’S definition of food means: *“A raw, cooked, or processed edible substance, ice, beverage, or ingredient used or intended for use or for sale in whole or in part for human consumption, or chewing gum.”*

Therefore, any substance that is consumed is considered food. It is the backcountry operator’s responsibility to ensure that food served to guests is safe for human consumption. To ensure that food is safe, backcountry operators must know how to:



- Properly store, prepare and serve food
- Properly cook food
- Advise guests of the hazards if raw or undercooked potentially hazardous food is consumed
- Effectively wash hands
- Properly sanitize equipment
- Prevent cross-contamination

FOOD HANDLER RESTRICTION AND EXCLUSION REQUIREMENTS⁽¹⁴⁾

To prevent food borne diseases all food employees and applicants must provide information to the backcountry operator about their health and activities as they relate to food borne diseases. Whenever a food employee is ill they must tell their food operator so steps may be taken to protect public health. The following provides a list of conditions and activities that must be reported to a backcountry operator:

Conditions/Activities

A food employee is diagnosed, exposed to, or had a past illness with any of the following diseases:

- *Salmonella typhi*
- *Shigella spp.*
- *Escherichia coli 0157:H7*
- Hepatitis A

A food employee must also let a food operator know if he/she prepared food during an outbreak with any of the four diseases listed above, or lives with a person(s) that has been diagnosed or was exposed to an outbreak with any of these four diseases.

A food employee has symptoms of an acute gastrointestinal illness, which may or may not involve fever and/or sore throat that includes:

- Diarrhea
- Vomiting
- Jaundice

A food employee has a wound or sore containing pus, such as Folliculitis, Furuncles, or Carbuncles located on:

- Hands or wrist
- Exposed portions of arms
- Other parts of the body where pus from a sore or wound can drain and contaminate food or food equipment

Food operations that serve at-risk groups, such as elderly, pre-school children, pregnant women, or immune-deficient individuals must take even greater precautions. A backcountry operator must immediately enforce the following exclusion/restriction requirements after a food employee has reported any of the conditions or activities listed above.

At-Risk Groups

Exclusions

A food employee must be excluded from a food operation if any of the following applies:

1. A food employee is diagnosed, had a past illness, implicated in an outbreak, exposed to, lives with a person that has been diagnosed or was exposed to an outbreak with any of the following diseases:

- *Salmonella typhi*
- *Shigella spp.*
- *Escherichia coli* 0157:H7
- Hepatitis A

2. Experiencing acute gastrointestinal symptoms, which may or may not involve fever and/or sore throat that include:

- Diarrhea
- Vomiting
- Jaundice

3. Not experiencing any symptoms of acute gastroenteritis, but a stool analysis is positive for *Salmonella typhi*, *Shigella spp.*, or *Escherichia coli* 0157:H7.
4. Had a past infection of *Salmonella typhi* within the last 3 months.
5. Had a past infection from *Shigella spp.* or *Escherichia coli* 0157:H7 during the last month.
6. Experiencing jaundice.

Restrictions

A food employee must adhere to the following restriction when serving a highly susceptible group:

1. A food employee that has a wound or sore containing pus, such as Folliculitis, Furuncles, or Carbuncles located on hands, wrists, exposed portions of arms, or other exposed parts of the body must cover the sore or wound by the following methods:
 - Wear an impermeable cover such as a finger cot or stall that protects the lesion followed by a single-use glove, or
 - Wear an impermeable cover or a dry, durable, tight-fitting bandage on arms or on other exposed body parts.

Non-At-Risk Groups

Exclusions

A food employee must be excluded from a food operation if any of the following applies:

1. Diagnosed with any of the following diseases:
 - *Salmonella typhi*
 - *Shigella spp.*
 - *Escherichia coli* 0157:H7
 - Hepatitis A
2. Jaundice occurred within the last 7 days.

Restrictions

A food employee who has any of the following conditions must be restricted from working with exposed food, cleaning food equipment, utensils, linens and unwrapping single-service articles:

1. Experiencing acute gastrointestinal symptoms, which may or may not involve fever and/or sore throat that include:
 - Diarrhea
 - Vomiting
 - Jaundice
2. Not experiencing any symptoms of acute gastroenteritis, but a stool analysis is positive for *Salmonella typhi*, *Shigella spp.*, or *Escherichia coli* 0157:H7.
3. Onset of jaundice occurred more than 7 days.

Removal of Exclusions and Restrictions

A food operator must follow these requirements before allowing a food employee to resume her/his normal duties at a food operation:

Excluded – If a food employee was excluded, he/she must provide written medical documentation by a physician or, if allowed by law, a nurse practitioner or physician assistant, that specifies that the person is free of the infectious agent.

Restricted – A restriction may be removed by a food operator if a restricted food employee no longer is experiencing acute gastroenteritis symptoms, or written medical documentation is provided from a physician or, if allowed by law, a nurse practitioner or physician assistant, that specifies that the person is free of the infectious agent.

HYGIENIC PRACTICES⁽¹⁴⁾

One of the single most important practices in a food establishment is good hygiene. Implementing good hand washing may prevent the spread of most food borne diseases. It is especially important to use good hand washing methods as well as other hygienic practices in a backcountry setting.

Personal Hygiene

Clean Outer Clothing

Backcountry food handlers must wear clean outer garments when preparing food. This may be difficult if a food handler has spent all day on a horse, in a boat, or hiking. A food handler may slip on a clean shirt or jacket over his or her clothes that have been worn all day.



Hair Restraints

Food employees must also wear effective hair restraints prior to handling food. Hair restraints are required for all types of facial hair. Acceptable hair restraints include hairnets, caps, hats, bandanas, beard-nets, or any other device that keeps hair out of food.

Jewelry

Food employees may wear a plain wedding band when preparing food. However, nothing else may be worn on hands or wrists during food preparation.

Fingernails

Food employee's fingernails must be trimmed and clean with smooth edges. If fingernail polish or artificial nails are worn, then single-use gloves must be worn during food preparation.

Eating, Drinking and Tobacco Use

Employees may not eat as they prepare food. Food employees must thoroughly wash their hands before they resume work to prevent cross-contamination.

Food employees may have covered drink cups in food preparation areas as long as the covered drink cups are located in a place where they cannot contaminate food if spilled. Acceptable covered drink cups include plastic insulated drink cups with lids, paper cups with lids, or water bottles with tight-fitting lids or nozzles. Unacceptable beverage containers include pop cans, open cups, or glasses.

Food employees may not smoke or use any type of tobacco product in food preparation or dish wash areas.

Hand Washing

Proper hand washing is essential in preventing the spread of diseases. Food employees must wash their hands after:

- Eating
- Smoking
- Handling raw meat
- Touching any part of their body
- Using the rest room

- Toilet duty
- Handling untreated water
- Handling animals
- Handling anything else that may contaminate their hands

Backcountry operations must provide hand wash facilities near toilet and kitchen areas. Hand wash facilities for backcountry operations must have:

- A pump operated system, like a manually operated foot pump (see Figure 1), or it can be a gravity fed system where treated water is transferred from a reservoir with treated water to a container that catches the dirty hand wash water.
- Dispensed hand soap
- Dispensed paper towels



Figure 1

Food employees must wash their hands, wrists and exposed arms with soap by vigorously rubbing together the surfaces of their lathered hands and arms for at least 20 seconds and thoroughly rinsing with treated water.

Hand Sanitizers

Hand sanitizer solutions that are approved by the federal government may be used after hands are thoroughly washed, but not instead of hand washing.

HAZARDS⁽¹⁴⁾

The three primary hazards that may contaminate food and cause food borne disease are chemical, physical, and biological. Ultimately, it is a food operator's primary responsibility to prevent contamination of food, control the growth of natural contaminants in food and destroy natural contaminants in food, when possible, through cooking.

Chemical Hazards

Common chemical hazards associated with food include antimony, cadmium, lead, copper and zinc. Antimony and cadmium are heavy metals that can attach onto food if enamelware is used for food equipment. Enamelware food equipment usually comes in the forms of cups, plates, kettles and pots. Enamelware is not approved for commercial food operations because of the hazards associated with the consumption of these metal cations. If antimony or cadmium is consumed it may cause vomiting and diarrhea.

Lead may be found in ceramic, china, crystal and other types of food equipment if lead was used to make these wares. According to the Food and Drug Administration, food equipment must be lead free or contain levels of lead not exceeding those listed in Chart 1:

CHART 1		
Equipment	Description	Max Lead Concentration (mg/l) or %
Hot Beverage	Coffee Mugs	0.5 mg/l
Large Hollowware	Bowel size > 1.16 quart (1.1 liter)	1.0 mg/l
Small Hollowware	Bowel size < 1.16 quart (1.1.liter)	2.0 mg/l
Flat Utensils	Plates and Saucers	3.0mg/l
Pewter Alloys	Used for any type of food equipment	0.05 %
Solder and Flux	Used for any type of food equipment	0.2%

Lead when consumed may cause permanent damage to a person’s nervous system.

Copper and copper alloys, such as brass equipment may not be used with food that has a pH less than 6.0. Acid food will cause the copper to attach onto food, which may result in food borne disease. The signs and symptoms include diarrhea and “green” colored vomit.

Zinc poisoning occurs if galvanized equipment is used. The galvanization process, which contains zinc, coats metal surfaces, such as metal trashcans and the insides of some hermetically sealed food containers to prevent oxidation of metal surfaces. However, after a hermetically sealed food can is opened, the food may react with the galvanized coating causing the zinc to leach into food. Zinc in food may cause food borne disease, therefore, it is important to never use any type of galvanized container and remove food from opened hermetically sealed cans immediately after opening.

Other types of chemical poisonings occur if chemicals used in a food operation are not properly labeled or stored. Chemical poisonings have happened because chemicals were not properly labeled and a chemical is accidentally used in a recipe, or chemicals are carelessly stored near food.

 **Physical Hazards**

Physical hazards usually get into food accidentally. Examples of physical objects that have been found in food include band-aides, rocks, string, glass, nuts and bolts. These objects may get into food if food equipment is not

properly maintained, or if food handlers are careless and do not cover a band-aid on a finger with a disposable glove, or if food, such as beans and produce, is not properly washed.

Biological Hazards

Biological hazards consist mainly of three groups of microorganisms: bacteria, viruses and protozoa. They get into food through cross-contamination, fecal/oral transmission, and use of untreated water. Viruses and protozoa do not grow or multiply in food; they only grow and multiple in a living host. Bacteria, on the other hand, is capable of growing and multiplying in potentially hazardous food.

The definition of a potentially hazardous food is a food that can support the growth of disease causing bacteria. Food that can support the growth of disease causing bacteria is technically defined as a food with a pH greater than 4.6 or a water activity of greater than 0.85. A food that has a pH greater 4.6 is less acidic than a food with a pH of 4.6 or less, and a food that has a water activity greater than 0.85 has more moisture than a food that has a water activity at 0.85 or less. Both the pH and water activity of a food must be confirmed by laboratory analysis.

The best way for a food operator to determine if a food is potentially hazardous is to read the manufacturer's label on the food package. A food operator must know what foods are potentially hazardous so the proper precautions are taken to prevent food borne disease. The following is a list of common potentially hazardous food:

- Whole Fresh Eggs
- Dairy Products
- Raw and Cooked Meat (poultry, fish, beef, pork, ratite and inspected and approved wild game)
- Shellfish (mollusk and crustacean)
- All cooked vegetables
- Raw Sprouts (alfalfa, bean and clover)
- Cut melons (watermelon, honeydew and cantaloupe)
- Cooked legumes (beans)
- Cooked grains (rice)
- Chopped garlic in oil



All of the food listed above supports the rapid growth of disease-causing bacteria. However, it is important to remember that powdered food, such as milk, eggs, infant formula and pancake mix becomes a potentially hazardous food after it is mixed with water or mil. It must be refrigerated. It is also important to remember thta any food can be a vehicle for most microbes.

FOOD CONDITION AND STORAGE⁽¹⁴⁾

Approved Source and Condition

Food must be from an approved source. Unapproved sources include food prepared in a non-permitted kitchen (like a home), non-inspected meat, raw dairy products, or produce and eggs from non-commercial sources. Condition of the food must also be considered. Food may not be used:

- From damaged hermetically sealed containers or damaged packages
- If it is moldy (mold that was not part of the production process)
- If it was held at improper temperatures for over 4 hours
- If it has been contaminated from untreated water, dirt or other pollutants

Cold and Hot Storage

Potentially hazardous food must be stored at proper cold and hot temperatures. The **temperature danger zone** for potentially hazardous food is between:

45°F ←————→ 140°F

Pathogenic bacteria multiply at rapid rates if potentially hazardous food is left in the temperature danger zone. Potentially hazardous food that has been left in the temperature danger zone for over 4 hours must be discarded because it can cause disease.



Potentially hazardous food must be held cold at 45°F or less and held hot at 140°F or greater to slow down microbial growth. Even at 45°F or less microbes are growing and reproducing, but at a slower rate. Therefore, there is a time limit that potentially hazardous food (PHF) may be held in cold storage. If cold storage temperatures are maintained between 41°F and 45°F, then PHF is good for 4 days. However, if cold storage temperatures are consistently at 41°F or less then PHF is good for 7 days.

Frozen food must be held at 0°F or less so food is frozen completely to halt microbial growth. Once food is thawed, it may not be refrozen unless it is cooked after it has been thawed.

Date Marking

Opened packages or containers of PHF, and prepared PHF that are not used within 24 hours must be date marked. Each food item must be date marked with the date the PHF was opened or prepared and the date it expires.

Frozen packages of PHF must be date marked indicating the number days left before it expires once it is returned to cold storage. There is no time limit for food that is properly frozen. However, once a PHF is removed from a freezer the expiration time begins immediately, not allowing for thawing time.

Thermometers

Thermometers, which must be accurate $\pm 2^\circ\text{F}$ must be placed in all cold storage units including refrigerators, ice chests and freezers to monitor temperatures. Dial face thermometers may be used to monitor cold or frozen temperatures.

Metal probe thermometers, which must be accurate $\pm 2^\circ\text{F}$ must be used to monitor hot food temperatures. These probes are made to take internal food temperatures, and must be placed in to a certain depth in order to take accurate temperatures (read manufacturer's instructions). However, before inserting a probe into food, make sure the probe has been washed and sanitized. The proper way to take a food temperature is to insert the probe in the:

- Top portion of hot food diagonally being careful not to touch the sides of the pan
- Middle of two frozen food packages to record frozen food temperatures
- Warmest portion of cold food to make sure proper food temperatures are being maintained
- Thickest part of cooked food to make sure it reached the minimum cooking temperature

Metal probe thermometers must be calibrated on a daily or weekly basis, depending on use, to make sure they are accurate. Ice baths may be used to calibrate metal probe thermometers in a backcountry setting. This is done by placing 70% ice and 30% water in a glass and placing the probe in the ice bath (make sure cubes of ice are in the bottom of the glass). Read the temperature after allowing the thermometer to adjust. An ice bath that has a sufficient amount of ice has a temperature of 32°F. If a thermometer is off by more than 2 degrees, then it must be adjusted or replaced.

■ Dry Storage

Canned or packaged food, not requiring cold storage, must be stored in containers or boxes to prevent insects and vermin from getting into dry food. If there is evidence that rodents have gotten in to the food, then the food must be discarded. This food must also be protected from inclement weather as well as air borne contaminants. Dry food needs to be inspected periodically for insect infestations as well.



■ Cross-contamination

To prevent cross-contamination of food:

- Store pre-cooked food or ready-to-eat food, such as lettuce, grapes and other similar food over raw meat or in a separate cold box
- Store different raw meat separately and store them in the following order: fish meat on top followed by pork, then ground beef and poultry on the bottom

FOOD PREPARATION⁽¹⁴⁾

■ Food Assembly

Produce

Prior to eating, produce must be washed with treated water to remove dirt and microorganisms. Some produce, such as berries may need to be soaked in clean water to loosen dirt. To prevent food borne illness, it is important that all produce is washed thoroughly to remove dirt and debris. The Centers for Disease Control and Prevention has indicated that the number of food borne diseases associated with produce has increased during the last 5 years. Therefore, the importance of washing produce cannot be overstated.

Untreated water may not be used to wash produce. Water must be treated in accordance with the procedures listed in the water purification section of this manual.

Ready-To-Eat Food

Ready-to-eat food, such as lunch meat, cheese and lettuce that is not cooked or heated after being handled by a food operator before it is served to guests, is potentially hazardous food. If ready-to-eat food is handled with bare hands, there is a greater risk of food borne illness because large numbers of

microorganisms are transferred from bare hands to these food items.

Consequently, food operators are required to wear single-use gloves or utilize utensils to serve ready-to-eat food to avoid bare hand contact.

■ Cooking Temperatures

Potentially hazardous food (PHF) must be cooked to proper temperatures because of the various pathogens associated with different PHF. The required cooking temperatures for each type of food are as follows:

Commercially processed food • 140°F for 15 seconds

Commercially processed food is food that is pre-cooked and processed in a commercial kitchen facility, and packaged or canned. Examples of commercially processed food include hot dogs, various types of lunch meats, and canned potentially hazardous food.



Non-commercially processed food • 145°F for 15 seconds

Non-commercially processed food includes any food that is prepared outside an approved commercial canning or packaging facility. Non-commercially processed food includes fish, eggs, pork and steak except those foods listed below. Steak may be cooked to order as long as the outside surfaces are seared to a temperature of at least 145°F for 15 seconds.



Ground or Injected Meat and Ratite Meat • 155°F for 15 seconds

Injected meat is when another food substance, such as a sauce or honey is injected inside muscle tissue. When whole muscle tissue is injected with a food substance then microbial contaminants can be introduced deep into the tissue as well. Therefore, injected tissue must be cooked to 155°F for 15 seconds. Ratite is Ostrich or Emu meat. These fowl are not common carriers of Salmonella and Campylobacter and therefore may be cooked to 155°F for 15 seconds. Inject poultry must be cooked to 155°F.

Poultry and Stuffed Food • 165°F for 15 seconds

Poultry includes chickens, turkeys, ducks, pheasants and other game hens. Stuffed food comprise stuffed fish, stuffed meat, stuffed pasta and any other stuffed potentially hazardous food.

The cooking temperatures listed for the potentially hazardous food (PHF) listed above are used to “kill” the pathogenic microbes that might be present. Both a temperature and time are indicated for each PHF. The temperature is the minimum cooking temperature and the time of 15 seconds means that all portions of that particular food must be cooked to that temperature and held at that temperature for at least 15 seconds.

For example, when grilling or barbecuing chicken, the temperature of the thickest part of the food must reach at least 165°F for 15 seconds, which would be the center of the piece just away from the bone. Once chicken meat has been cooked to at least 165°F for 15 seconds, then a food operator can assume that the two primary bacterial pathogens of poultry (Salmonella and Campylobacter) have been destroyed. Again, it is of the utmost importance that a food operator sets the thermometer to be certain that proper temperatures are reached.

■ Consumer Advisory

If guests are allowed to order potentially hazardous food raw or undercooked (less than the cooking temperatures indicated above), then a backcountry operator must provide a consumer advisory to a guest in writing. A consumer advisory consists of two parts: Disclosure and Reminder.

The **disclosure** part of the consumer advisory must indicate the food item that is served raw or undercooked. For example, raw shellfish, sunny side up eggs, or hamburgers cooked to order. The **reminder** part of a consumer advisory warns a guest of the hazard(s) that may be associated with consuming the raw or undercooked food.

An example of an appropriate consumer advisory is:

“Hamburgers Cooked to Order – The consumption of raw or undercooked hamburger meat may increase your risk of food borne illness, especially if you have certain medical conditions.”

Backcountry operators must take note that consumer advisories do not remove liability of an operator, advisories are to warn guests of the hazards in an effort to prevent food borne illness. For a backcountry setting, advisories

may be printed individually and given to guests who order potentially hazardous food raw or undercooked; a verbal warning is not enough.

■ **At-Risk Groups**

At-risk groups include elderly, pre-school aged children, pregnant women and immune compromised individuals. These four groups are highly susceptible to diseases. Therefore, if a backcountry operator caters to a recognized at-risk group, then certain foods may not be served to these groups. These foods include:

- Non-pasteurized dairy products or juices
- Raw or undercooked fresh whole eggs
- Raw or undercooked ground meat, fish, shellfish, or other similar potentially hazardous food (this does not include steak from whole muscle tissue as long as the outside surfaces are seared to at least 145°F for 15 seconds)
- Raw seed sprouts
- Leftover food

All of the items listed above cannot be served to at-risk groups!

■ **Cooling and Reheating Food**

Backcountry operations are not allowed to serve potentially hazardous leftover food (PHF) because mechanical refrigeration to properly cool food is not available in the backcountry.

The only situation where leftover PHF may be served is during an emergency. An emergency is if no other food is available due to an accident that destroyed or contaminated supplies for a trip. If an emergency occurs, then a backcountry operator may use leftovers if proper steps for cooling and reheating are followed.

Cooling

Potentially hazardous food must be cooled to 45°F in 4 hours. This may be accomplished during a backcountry trip by:

1. Placing hot food in a plastic sandwich or freezer bag so that the overall thickness of the filled bag is not greater than 2 inches.
2. Seal the plastic bag, which contains the hot food, and place it in an icebox directly on top of an ice pack or block of ice.
3. After 2 hours, flip the bag of hot food so the opposite side touches the ice pack or block of ice for the remaining 2 hours.

Reheating

Rapidly reheat the chilled potentially hazardous food to at least 165°F over an open flame before reserving the food hot. However, chilled potentially hazardous food does not require reheating if the food is served cold.

Cross-Contamination



To prevent cross-contamination during food preparation, make sure:

1. Hands are properly washed after they touch contaminated items!
2. Food contact surfaces are properly sanitized before, during and after use
3. Utensils are not reused (Do not use the same utensil for cooked and raw meat during preparation)
4. Raw and ready-to-eat food is not prepared on the same surface at the same time
5. Raw meat is not stored over or next to ready-to-eat food
6. Single-use gloves are changed after they become contaminated (single-use gloves cannot be washed or re-used!)
7. Chemicals are not stored in close proximity to food or food equipment
8. Food is protected from animal contamination during a backcountry trip

FOOD SERVICE⁽¹⁴⁾

Time/Temperature Control Requirements



Potentially hazardous food must be held at proper hot or cold temperatures when the food is served to guests. Hot holding temperatures must be at least 140°F and cold holding temperatures must be 45°F or less.

The only exception to the hot and cold holding temperature requirement is if potentially hazardous food is served within 4 hours, and the food is discarded immediately after the meal.

Food Protection during Service

Care must be taken by a backcountry food operator to protect food from becoming contaminated during service. Contamination of food may occur if:

1. Food is not properly covered and guests accidentally spit, sneeze, or drop hair on the unprotected food.
2. Dispensing utensils are not provided for guests to keep them from touching the food.
3. Insects, such as flies or other animals are allowed access to the food.
4. Food is not protected from inclement weather, such as rain and wind.

WASH AND SANITIZE⁽¹⁴⁾

Equipment must be washed and sanitized before, during and after each use; whenever they become contaminated. If equipment is not properly washed and sanitized then contaminants will be present on the equipment.



Dishwashing Procedures

Steps to properly wash equipment are:

1. Pre-flush, scrape and soak to remove food debris
2. Wash equipment in hot soapy water
3. Rinse equipment in hot clean water to remove soap
4. Sanitize equipment in sanitizing solution with one of the sanitizing agents specified in the next section
5. Air dry; do not towel dry!



Figure 2 is an example of a dish wash set up in a backcountry location. The first bucket is used to pre-flush dishes, the second to wash, third to rinse and the last bucket to sanitize. Equipment is air dried in the hammock that is strapped to the legs under the table.

Figure 2.

Equipment that cannot be easily washed in a bucket system must be cleaned in place using the same steps:

- pre-flush
- wash
- rinse
- sanitize
- air dry.



Sanitizing Agents

The following chemical sanitizing agents are approved by the Food and Drug Administration for food surfaces:

1. Chlorine. Household bleach contains chlorine and may be used to sanitize food equipment by referring to the following table:

Chlorine			
Concentration (ppm or mg/l)	Temperature	Time	pH (seconds)
25	120°F	10	10 or less
50	75°F	10	8 or less
50	100°F	10	10 or less
100	55°F	10	10 or less



2. Quaternary ammonia. It must be used as shown in the following table:

Quaternary Ammonia Compound			
Concentration (ppm or mg/l)	Temperature	Time (seconds)	Water Hardness (ppm or mg/l)
200 (or specified by manufacturer)	75°F	30	500 or less

3. Iodine. It must be used as shown in the following table:

Iodine			
Concentration (ppm or mg/l)	Temperature	Time (seconds)	Water Hardness (ppm or mg/l)
12.5 to 25	75°F	30	5 or less

FOOD EQUIPMENT⁽¹⁾

Approved Construction

Food equipment must be constructed of material that does not allow the migration of deleterious substances or impart odors, tastes, or colors to food. Food equipment must be:

1. Safe
2. Durable (withstand repeated washing)
3. Non-absorbent
4. Resistant to corrosion, pitting, chipping, crazing, scratching, scoring, distortion and decomposition
5. Smooth and easily washable

Examples of approved contact surfaces include:

1. Hard wood, such as maple or High Density Polyethylene for cutting boards
2. Pyrex or Stainless Steel for cookware
3. Stainless Steel and Porcelain for dishes

Single-service articles may be used instead of reusable cups, plates and utensils.

Condition

As food equipment wears it must be replaced to prevent cross-contamination. If equipment is



not smooth, free of cuts and grooves, then it must be replaced. Equipment that commonly wears is cutting boards.



QUIZ – FOOD SECTION

1. What is considered food?
2. What steps must be taken by a person-in-charge if a food handler is diagnosed with one of the four diseases of concern (Hepatitis A, *Escherichia coli*, *Salmonella typhi*, or *Shigella spp.*)?
3. What steps must a person-in-charge take if a food handler reports that he/she has diarrhea and the operation serves at-risk people?
4. When can a food handler return to work after he/she has been diagnosed with one of the four organisms of concern?
5. What is the primary method a food handler can use to prevent the spread of food borne diseases?
6. When must a food handler wash her/his hands?
7. What type of hand wash facility design is acceptable for a backcountry setting?
8. What type of hand sanitizers may be used by food handlers?
9. List the three main hazards of food.
10. What type of microorganism can grow and reproduce in potentially hazardous food?
11. What is the temperature danger zone?
12. What type of thermometer must be used to monitor internal food temperatures?
13. What is cross-contamination?
14. Why is it important to wash produce prior to consumption?
15. What is ready-to-eat food, and why is it important to avoid bare hand contact with this type of food?
16. What is the proper cooking temperature of ground pork?
17. What is the proper cooking temperature of fish filets?
18. What is the proper cooking temperature of stuffed manicotti?
19. What is the proper cooking temperature of canned beans?
20. What two parts must be provided for a Consumer Advisory, and explain what they are?
21. List the four groups that are considered at-risk.
22. What kind of situations may a backcountry operator serve leftover potentially hazardous food?
23. What temperature must leftover food be reheated to?
24. Explain what is time/temperature control?
25. Describe proper dish washing procedures.
26. Can household bleach be used as a sanitizing agent?
27. If the pH of water is 9.0 and the water temperature is 58°F, then what is the concentration of chlorine for sanitizing dishes?
28. What type of materials may be used for cutting boards?

