UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE
Cooperative Extension Service
University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

Keeping Food Safe During an Emergency

Did you know that a flood, fire, national disaster or the loss of power from high winds, snow or ice could jeopardize the safety of your food? Knowing how to determine if food is safe and how to keep food safe will help minimize the potential loss of food and reduce the risk of food-borne illness. This information will help you make the right decisions for keeping your family safe during an emergency.

ABC's of Keeping Food Safe in an Emergency

Always keep meat, poultry, fish and eggs refrigerated at or below 40ºF and frozen food at or below 0ºF. This may be difficult when the power is out.

Keep the refrigerator and freezer doors closed as much as possible to maintain the cold temperature. The refrigerator will keep food safely cold for about 4 hours if it is unopened. A full freezer will hold the temperature for approximately 48 hours (24 hours if it is half full) if the door remains closed. Obtain dry or block ice to keep your refrigerator as cold as possible if the power is going to be out for a prolonged period of time. Fifty pounds of dry ice should hold a full 18-cubic-foot freezer for 2 days. Plan ahead and know where dry ice and block ice can be purchased.

Be prepared for an emergency by having items on hand that don't require refrigeration and can be eaten cold or heated on the outdoor grill. Shelf-stable food, boxed or canned milk, water and canned goods should be part of a planned emergency food supply. Make sure you have ready-to-use baby formula for infants and pet food. Remember to use these items and replace them from time to time. Be sure to keep a hand-held can opener (not electric) for an emergency.

Consider what you can do ahead of time to store your food safely in an emergency. If you live in a location that could be affected by a flood, plan your food storage on shelves that will be safely out of the way of contaminated water. Coolers are a great help for keeping food cold if the power will be out for more than 4 hours. Have a couple on hand along with frozen gel packs. When your freezer is not full, keep items close together – this helps the food stay cold longer.

Digital, dial or instant-read food thermometers and appliance thermometers will help you know if the food is at safe temperatures. Keep appliance thermometers in the refrigerator and freezer at all times. When the power is out, an appliance thermometer will always indicate the temperature in the refrigerator and freezer no matter how long the power has been out. The refrigerator temperature should be 40ºF or below; the freezer, 0ºF or lower. If you're not sure a particular food is cold enough, take its temperature with a food thermometer.

Frequently Asked Questions

Q. Flood waters covered our food stored on shelves and in cabinets. What can I keep and what should I throw out? How should I clean my dishes and pots and pans?

A. Discard all food that came in contact with flood waters including canned goods. It is impossible to know if containers were damaged and the seal compromised. Discard wooden cutting boards, plastic utensils, baby bottle nipples and pacifiers. There is no way to safely clean them if they have come in contact with contaminated flood water. Thoroughly wash metal pans, ceramic dishes and utensils with hot soapy water and sanitize by boiling them in clean water or by immersing them for 15 minutes in a solution of 1 teaspoon chlorine bleach per quart of water.

Q. My home was flooded and I am worried about the safety of the drinking water. What should I do?

A. Drink only approved or chlorinated water. Consider all water from wells, cisterns and other delivery systems in the disaster area unsafe until tested. Purchase bottled water, if necessary, until you are certain that your water supply is safe. Keep a 3-day supply of water or a minimum of 3 gallons of water per person.

Q. We had a fire in our home, and I am worried about what food I can keep and what to throw away.

A. Discard food that has been near a fire. Food exposed to fire can be damaged by heat from the fire or smoke fumes or the chemicals used to fight the fire. Food in cans or jars may appear to be okay, but the heat from a fire can activate food spoilage bacteria. If the heat is extreme, the cans or jars themselves can split or rupture, rendering the food unsafe.

One of the most dangerous elements of a fire is sometimes not the fire itself, but toxic fumes

released from burning materials. Discard any raw food or food in permeable packaging – cardboard, plastic wrap, screw-topped jars, bottles, etc. – stored outside the refrigerator. Food stored in refrigerators or freezers can also become contaminated by fumes. The refrigerator seal isn't airtight and fumes can get inside.

Chemicals used to fight the fire contain toxic materials and can contaminate food and cookware. Food that is exposed to chemicals should be thrown away. The chemicals cannot be washed off the food. This includes food stored at room temperature, such as fruits and vegetables, as well as food stored in permeable containers like cardboard and screw-topped jars and bottles. Cookware exposed to fire-fighting chemicals can be decontaminated by washing in soap and hot water. Then submerge for 15 minutes in a solution of 1 teaspoon chlorine bleach per quart of water.

Q. A snowstorm knocked down the power lines. Can I put the food from the refrigerator and freezer out in the snow?

A. No, frozen food can thaw if it is exposed to the sun's rays even when the temperature is very cold. Refrigerated food may become too warm and food-borne bacteria could grow. The outside temperature could vary hour by hour, and the temperature outside will not protect refrigerated and frozen food. Additionally, perishable items could be exposed to unsanitary conditions or to animals. Animals may harbor bacteria or disease; never consume food that has come in contact with an animal. Rather than putting the food outside, consider taking advantage of the cold temperatures by making ice. Fill buckets, empty milk cartons or cans with water and leave them outside to freeze. Then put the homemade ice in your refrigerator, freezer or coolers.

Q. Some of my food in the freezer started to thaw or had thawed when the power came back on. Is the food safe? How long will the food in the refrigerator be safe with the power off?

A. Never taste food to determine its safety! You will have to evaluate each item separately. If an appliance thermometer was kept in the freezer, read the temperature when the power comes back on. If the appliance thermometer stored in the freezer reads 40°F or below, the food is safe and may be refrozen. If a thermometer has not been kept in the freezer, check each package of food to determine the safety. Remember you can't rely on appearance or odor. If the food still contains ice crystals or is 40°F or below, it is safe to refreeze. Refrigerated food should be safe as long as power is out no more than 4 hours. Keep the door closed as much as possible. Discard any perishable food (such as meat, poultry, fish, eggs and leftovers) that has had temperatures above 40°F for 2 hours.

Q. May I refreeze the food in the freezer if it thawed or partially thawed?

A. Yes, the food may be safely refrozen if the food still contains ice crystals or is at 40°F or below. You will have to evaluate each item separately. Be sure to discard any items in either the freezer or the refrigerator that have come into contact with raw meat juices. Partial thawing and refreezing may reduce the quality of some food, but the food will remain safe to eat. See the attached charts for specific recommendations.

Refrigerator Foods: When to Save and When to Throw Out

FOOD	Held above 40°F for over 2 hours
MEAT, POULTRY, SEAFOOD	
Raw or leftover cooked meat, poultry, fish or seafood; soy meat substitutes	Discard
Meat, tuna, shrimp, chicken or egg salad	Discard
Gravy, stuffing, broth	Discard
Lunchmeats, hot dogs, bacon, sausage, dried beef	Discard
Pizza – with any topping	Discard
Canned hams labeled "Keep Refrigerated"	Discard
Canned meats and fish, opened	Discard
CHEESE	
Soft cheeses: Blue/bleu, Roquefort, Brie, Camembert, cottage, cream, Edam, Monterey Jack, ricotta, mozzarella, Muenster, Neufchatel, Queso blanco fresco	Discard
Hard cheeses: Cheddar, Colby, Swiss, Parmesan, Provolone, Romano	Safe
Processed cheeses	Safe
Shredded cheeses	Discard
Low-fat cheese	Discard
Grated Parmesan, Romano or combination (in can or jar)	Safe

Refrigerator Foods: When to Save and When to Throw Out (CONT.)

FOOD	Held above 40°F for over 2 hours
DAIRY	
Milk, cream, sour cream, buttermilk, evaporated milk, yogurt, eggnog, soy milk	Discard
Butter, margarine	Safe
Baby formula, opened	Discard
EGGS	
Fresh eggs, hard-cooked in shell, egg dishes, egg products	Discard
Custards and puddings	Discard
CASSEROLES, SOUPS, STEWS	Discard
FRUITS	
Fresh fruits, cut	Discard
Fruit juices, opened	Safe
Canned fruit, opened	Safe
Fresh fruits, coconut, raisins, dried fruits, candied fruits, dates	Safe
SAUCES, SPREAD, JAMS	
Opened mayonnaise, tartar sauce, horseradish	Discard if above 50°F for over 8 hours
Peanut butter	Safe
Jelly, relish, taco sauce, mustard, catsup, olives, pickles	Safe
Worcestershire, soy, barbecue sauces, hoisin sauce	Safe
Fish sauces (oyster sauce)	Discard
Opened vinegar-based dressings	Safe
Opened creamy-based dressings	Discard
Spaghetti sauce, opened jar	Discard
BREAD, CAKES, COOKIES, PASTA, GRAINS	
Bread, rolls, cakes, muffins, quick breads, tortillas	Safe
Refrigerator biscuits, rolls, cookie dough	Discard
Cooked pasta, rice, potatoes	Discard
Pasta salads with mayonnaise or vinaigrette	Discard
Fresh pasta	Discard
Cheesecake	Discard
Breakfast foods – waffles, pancakes, bagels	Safe
PIES, PASTRY	
Pastries, cream filled	Discard
Pies, custard, cheese filled or chiffon; quiche	Discard
Pies, fruit	Safe
VEGETABLES	
Fresh mushrooms, herbs, spices	Safe
Greens, pre-cut, pre-washed, packaged	Discard
Vegetables, raw	Safe
Vegetables, cooked; tofu	Discard
Vegetable juice, opened	Discard
Baked potatoes	Discard
Commercial garlic in oil	Discard
Potato salad	Discard

Frozen Foods: When to Save and When to Throw Out

FOOD	Still contains ice crystals and feels as cold as if refrigerated	Thawed. Held above 40°F for over 2 hours
MEAT, POULTRY, SEAFOOD		
Beef, veal, lamb, pork and ground meat	Refreeze	Discard
Poultry and ground poultry	Refreeze	Discard
Variety meats (liver, kidney, heart, chitterlings)	Refreeze	Discard
Casseroles, stews, soups	Refreeze	Discard
Fish, shellfish, breaded seafood products	Refreeze. However, there will be some texture and flavor loss.	Discard
DAIRY		
Milk	Refreeze. May lose some texture.	Discard
Eggs (out of shell) and egg products	Refreeze	Discard
Ice cream, frozen yogurt	Discard	Discard
Cheese (soft and semi-soft)	Refreeze	Refreeze
Hard cheeses	Refreeze	Refreeze
Shredded cheeses	Refreeze	Discard
Casseroles, containing milk, cream, eggs, soft cheeses	Refreeze	Discard
Cheesecake	Refreeze	Discard
FRUITS		
Juices	Refreeze	Refreeze. Discard if mold, yeasty smell or sliminess develops.
Home or commercially packaged	Refreeze. Will change texture and flavor.	Refreeze. Discard if mold, yeasty smell or sliminess develops.
VEGETABLES		
Juices	Refreeze	Discard after held about 40°F for 6 hours.
Home or commercially packaged or blanched	Refreeze. May suffer texture and flavor loss.	Discard after held about 40°F for 6 hours.
BREADS, PASTRIES		
Breads, rolls, muffins, cakes (without custard fillings)	Refreeze	Refreeze
Cakes, pies, pastries with custard or cheese filling	Refreeze	Discard
Pie crusts, commercial and homemade bread dough	Refreeze. Some quality loss can occur.	Refreeze. Quality loss is considerable.
OTHER		
Casseroles – pasta, rice based	Refreeze	Discard
Flour, cornmeal, nuts	Refreeze	Refreeze
Breakfast items – waffles, pancakes, bagels	Refreeze	Refreeze
Frozen meal, entrée, specialty items (pizza, sausage and biscuit, meat pie, convenience foods)	Refreeze	Discard

Adapted for use from United States Department of Agriculture Food Safety and Inspection Services by Dr. Russ Kennedy, Associate Professor - Health and Aging Specialist, University of Arkansas Division of Agriculture Cooperative Extension Service.

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American Red Cross

Fact Sheet: Post-Disaster Water Treatment

Many people have asked the Red Cross for information and suggestions on treating water after disaster strikes. The following information is provided to address those questions.

In addition to having a bad odor, and taste, water from questionable sources may be contaminated by a variety of microorganisms, including bacteria and parasites that cause diseases such as dysentery, cholera, typhoid, and hepatitis. All water of uncertain purity should be treated before use. To treat water, follow these steps:

1. Filter the water using a piece of cloth or coffee filter to remove solid particles.

2. Bring it to a rolling boil for about one full minute.

3. Let it cool at least 30 minutes. Water must be cool or the chlorine treatment described below will be useless.

4. Add 16 drop of liquid chlorine bleach per gallon of water, or 8 drops per 2-liter bottle of water. Stir to mix. 5.25% sodium hypochlorite should be the only active ingredient in the bleach. There should not be any added soap or fragrances.

5. Let stand 30 minutes.

6. If it smells of chlorine. You can use it. If it does not smell of chlorine, add 16 more drop of chlorine bleach per gallon of water (or 8 drops per 2-liter bottle of water), let stand 30 minutes, and smell it again. If it smells of chlorine, you can use it. If it does not smell of chlorine, discard it and find another source of water.

Past information that has changed and is no longer recommended

1. The only agent to use to treat water should be liquid household bleach. Other chemicals, such as iodine or products sold in camping or surplus stores for water treatment that do not contain 5.25% hypochlorite as the only active ingredient, *are not recommended and should not be used*.

2. The only accepted measurement of chlorine (or water treatment agents) is the drop. A drop is specifically measurable. Other measures such as "capful" or "scant teaspoon" are not uniformly measurable, and are not to be used.

3. There is no difference between treatment of potentially contaminated water that is cloudy or clear.

If local public health department information differs from this advice, the local information should prevail. For more information, contact your local Red Cross chapter and ask for a copy of the brochure entitled, "Food and Water in an Emergency" (A5055).