Food Safety after a Tornado

Be Prepared
If you live in an area where loss of electricity from seasonal storms is a problem, you can plan ahead to be prepared for the worst. Keep your freezer as full as possible by freezing water in plastic containers and using them to fill any empty spaces not occupied by frozen food. Keep a clean cooler on hand. Buy freeze-pak inserts and keep them frozen for use in the cooler. Know in advance where you can buy dry and block ice. Keep an appliance thermometer in the refrigerator and freezer at all times to see if food is being stored at safe temperatures (34 to 40 °F for the refrigerator; 0 °F for the freezer).

Weather the Storm
- When a tornado warning is issued, persons in its expected path should take shelter immediately in a sturdy building, ditch or ravine.
- Opening a window — once thought to minimize damage — is not recommended. In fact, opening the window can actually increase damage.
- Do not attempt to flee from a tornado by car. Most deaths occur when people try escaping in vehicles.
- After a tornado, stay out of damaged buildings until you are sure they won’t collapse.
- Be alert for gas line leaks. If you smell gas, do not try to cook. Open all windows and doors, turn off the main gas valve at the meter, and leave the house immediately.

Make Sure Your Water Is Safe: After a major storm, listen to a local radio or television station for announcements from appropriate authorities about the safety of drinking water. You can drink water from the community water system unless you have been told or have reason to suspect it has become contaminated. Do not use water that has a dark color, an odor or that contains floating material. If the water is contaminated:
- Use your emergency supply of water.
- Purchase bottled water until you are certain that your water supply is safe.
- Water from melted ice cubes made before the disaster occurred is generally safe.
- Water from undamaged hot water tanks and water pipes is generally safe to drink. Turn off the main water valve before draining water from these sources.
- Bottled juices and the liquid from canned fruits and vegetables are a source of water.

If you need to find drinking water outside your home, you can use rainwater, streams, rivers and other moving bodies of water, ponds and lakes, and natural springs. If you question its purity, be sure to treat the water first. Use saltwater only if you distill it first. Do NOT drink floodwater.

After the Tornado

Food and Water in a Tornado: In an area sustaining tornado damage, the water supply may be disrupted or contaminated. Food in damaged buildings may be hazardous.
- Drink only approved or treated water.
- Consider all water from wells, cisterns and other delivery systems in the disaster area unsafe until tested.
- Check foods and discard any containing particles of glass or slivers of other debris.
- Discard canned foods if you suspect that they may have been damaged.

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Treating Water: Treat water for drinking, cooking, washing utensils, and cleaning kitchen and bathroom surfaces only if it is of questionable quality. Also treat the water used for washing hands and bathing. Always use clean or treated water to wash any parts of the body that have come in contact with surfaces contaminated by floodwaters. There are several ways to treat water, but none is perfect. The best solution is often a combination of methods.

- Boiling is the safest method of treating water and ensures destruction of bacteria and some organisms that are resistant to chemical sanitizers. Strain water through a clean cloth to remove bulk impurities. Bring water to a rolling boil for about one full minute. Let the water cool before drinking. Boiled water will taste better if you put oxygen back into it by pouring the water back and forth between two clean containers. This will also improve the taste of stored water.

- Household liquid bleach can kill microorganisms in water. Use chlorine bleach from a freshly opened bottle. Use only regular household liquid bleach that contains approximately 5.25 to 6.0 percent sodium hypochlorite as its only active ingredient. Do not use scented bleaches, color-safe bleaches, or bleaches with added cleaners. Add 16 drops or 1/8 teaspoon of fresh liquid chlorine bleach per gallon of water, stir and let stand for 30 minutes. If the water has a slight scent of chlorine, you can use it. If it does not, add another 16 drops of bleach, stir, and let stand for 30 minutes. If the water has a slight scent of chlorine, you can use it. If not, discard it and find another source of water.

- Other chemicals, such as iodine or water treatment products sold in camping or surplus stores that do not contain 5.25 to 6.0 percent sodium hypochlorite as the only active ingredient, are not recommended and should not be used.

- Distilling removes salt and other solid impurities from water. Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt or other solid impurities. A relatively simple, although inefficient, way to distill water in an emergency is to suspend a cup over boiling water by making a cradle for the cup with string, and attaching it to the handle of the lid which is then put upside down on the pot, suspending the cup above the water line. Make sure that the ends of the string do not hang out where they could catch fire and that the pot does not boil dry.

If the Power Is Out

As during other types of disasters, electricity to the refrigerator and freezer may be off. The key to determine the safety of foods in the refrigerator and freezer is how cold they are since most foodborne illness is caused by bacteria that multiply rapidly at temperatures above 40 °F.

Leave the Freezer Door Closed: A full freezer should keep food safe about two days; a half-full freezer, about a day. Add bags of ice or dry ice to the freezer if it appears the power will be off for an extended time. You can safely refreeze thawed foods that still contain ice crystals or feel cold to the touch.

Refrigerated Items: These foods should be safe as long as the power is out no more than about four to six hours. Discard any perishable food that has been above 40 °F for two hours or more and any food that has an unusual odor, color or texture. Leave the door closed; every time you open it, needed cold air escapes causing the foods inside to reach unsafe temperatures.

If it appears the power will be off more than six hours, transfer refrigerated perishable foods to an insulated cooler filled with ice or frozen gel packs. Keep a thermometer in the cooler to be sure the food stays at 40 °F or below.

Never Taste Food to Determine Its Safety: Some foods may look and smell fine, but if they’ve been at room temperature longer than two hours, bacteria able to cause foodborne illness can begin to multiply very rapidly. Some types will produce toxins, which are not destroyed by cooking and can possibly cause illness.

Use the following "Power Out" chart to decide which foods are safe to use or refreeze when power is restored.
Powerout Chart

Keep an appliance thermometer in the refrigerator (40 °F) and freezer (0 °F) at all times to see if food is being stored at a safe temperature.

**Discard:** The following foods should be discarded if kept over two hours at above 40 °F.

- Meat, poultry, fish, eggs and egg substitutes — raw or cooked.
- Milk, cream, yogurt and soft cheese (blue, Roquefort, Brie Camembert, cottage, cream Edam, Monterey Jack, ricotta, mozzarella, Muenster, Neufchatel), shredded cheese
- Casseroles, stews or soups
- Lunch meats and hot dogs
- Creamy-based salad dressings
- Custard, chiffon or cheese pies
- Cream-filled pastries
- Refrigerator and cookie dough
- Discard open mayonnaise, tarter sauce and horseradish if above 50 °F for over eight hours.

**Save:** The following foods should keep at room temperature a few days. Still, discard anything that turns moldy or has an unusual odor.

- Butter or margarine
- Processed and hard cheese (Cheddar, Colby, Swiss, Parmesan, provolone, Romano)
- Fresh fruits and vegetables
- Dried fruits and coconut
- Opened jars of vinegar-based salad dressings, jelly, relish, taco sauce, barbecue sauce, mustard, ketchup, olives and peanut butter.
- Fruit juices
- Fresh herbs and spices
- Fruit pies, bread, rolls and muffins
- Cakes, except cream-cheese frosted or cream-filled Flour and nuts

**Refreeze:** Thawed foods that still contain ice crystals or feel cold may be refrozen.

**How to Cook When the Power Goes Out**

After a storm has knocked out electricity or gas lines, cooking meals can be a problem and even hazardous if a few basic rules are not followed.

When cooking is not possible, many canned foods can be eaten cold.

Charcoal or gas grills are the most obvious alternative sources of heat for cooking. NEVER USE THEM INDOORS. In doing so you risk both asphyxiation from carbon monoxide and the chance of starting a fire that could destroy your home. Likewise, camp stoves that use gasoline or solid fuel should always be used outdoors. Small electrical appliances can be used to prepare meals if you have access to an electrical generator.

Wood can be used for cooking in many situations. You can cook in a fireplace if the chimney is sound. Don’t start a fire in a fireplace that has a broken chimney. Be sure the damper is open. If you’re cooking on a wood stove, make sure the stovepipe has not been damaged.

If you have to build a fire outside, build it away from buildings; never in a carport. Sparks can easily get into the ceiling and start a house fire. Make sure any fire is well-contained. A metal drum or stones around the fire bed are good precautions. A charcoal grill is a good place in which to build a wood fire. Never use gasoline to get a wood or charcoal fire started. Be sure to put out any fire when you are through with it.

**Sources:**


This information has been reviewed and adapted for use in South Carolina by P.H. Schmutz, HGIC Food Safety Specialist, and E.H. Hoyle, Extension Food Safety Specialist, Clemson University. (New 04/99. Revised 09/04.)

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