

From the U.S. Food and Drug Administration

## Food and Water Safety During Power Outages and Floods



*Know the proper food safety precautions to take before, during, and after a power outage.*

Emergencies can happen, especially with extreme weather conditions. When they do, the best strategy is to already have a plan in place. This includes knowing the proper food safety precautions to take before, during, and after a power outage — and being prepared to safely handle food and water in the event that flooding occurs.

### Prepare Yourself *Before* Power Emergencies

1. Make sure you have **appliance thermometers in your refrigerator and freezer**.
  - Check to ensure that the freezer temperature is at or below **0° F**, and the refrigerator is at or below **40° F**.
  - In case of a **power outage**, the appliance thermometers will indicate the temperatures in the refrigerator and freezer to help you determine if the food is safe.
2. **Freeze containers of water** for ice to help keep food cold in the freezer, refrigerator, or coolers in case the power goes out. If your normal water supply is contaminated or unavailable, the melting ice will also supply drinking water.
3. **Freeze refrigerated items** such as leftovers, milk, and fresh meat and poultry that you may not need immediately. This helps keep them at a safe temperature longer.
4. **Group food together** in the freezer. This helps the food stay cold longer.
5. **Have coolers on hand** to keep refrigerated food cold if the power will be out for more than 4 hours.
6. Purchase or make **ice cubes in advance**, and freeze **gel packs** ahead of time. Store all of these in the freezer for future use in the refrigerator or in coolers.
7. Check out local sources to know where **dry ice and block ice** can be purchased, in case it should be needed.
8. **Store food on shelves** that will be safely out of the way of contaminated water in case of flooding.
9. Make sure to have a **supply of bottled water** stored where it will be as safe as possible from flooding. If your bottled water has an odor, do not drink or use it. Instead, dispose of it, or if applicable, call your bottled water provider to make arrangements to get a replacement.

During an emergency, if you use food or beverage containers to hold non-food substances like gasoline, dispose of them after use and do *not* recycle them.

## Power Outages: Before and After

### If the Power Goes Out . . .

Follow these basic tips to keep food safe:

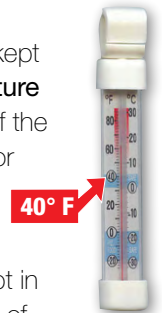
1. Keep the **refrigerator and freezer doors closed** as much as possible to maintain the cold temperature.
  - The **refrigerator** will keep food **cold for about 4 hours** if it is unopened.
  - A **full freezer** will keep the temperature for approximately **48 hours** (24 hours if it is half full) if the door remains closed.
2. Buy **dry or block ice** to keep the 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 keep an 18 cubic foot, fully stocked freezer cold for two days.
3. If you plan to eat refrigerated or frozen meat, poultry, fish, or eggs while they are still at safe temperatures, it is important that each item is **thoroughly cooked to a safe minimum internal temperature** to ensure that any foodborne bacteria that may be present are destroyed. However, if at any point the food was above 40° F for 2 hours or more (or 1 hour if temperatures are above 90° F) — **discard it**.



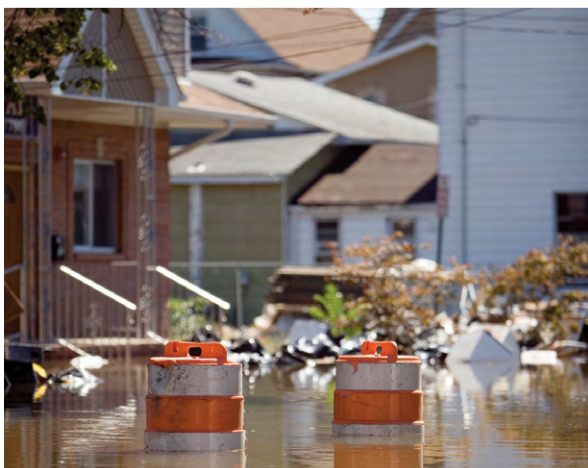
### Once Power Is Restored . . .

Determine the safety of your food:

1. If an appliance thermometer was kept in the freezer, **check the temperature** when the power comes back on. If the freezer thermometer reads 40° F or below, the food is safe and may be refrozen.
2. If a thermometer has not been kept in the freezer, **check each package** of food to determine its safety. 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 or cook.
3. Refrigerated food should be safe as long as the power was out for **no more than 4 hours** and the refrigerator door was kept shut. Discard any perishable food (such as meat, poultry, fish, eggs, or leftovers) that has been at temperatures above 40° F for 2 hours or more (or 1 hour if temperatures are above 90° F).



Perishable food such as meat, poultry, seafood, milk, and eggs that are not kept adequately refrigerated or frozen may cause illness if consumed, even when they are thoroughly cooked.



*Be prepared to safely handle food and water in the event that flooding occurs.*

## If Flooding Occurs

### Keep Water Safe

Follow these steps to keep your **WATER SAFE** during and after flood conditions.

1. Only use **water from a safe source** for drinking and washing or preparing food.
2. Use **bottled water** that has not been exposed to flood waters, if it is available.
3. If you don't have bottled water, you should **boil or disinfect water** to make it safe. (see steps below)
4. If you have a **well** that has been flooded, the water should be **tested and disinfected** after flood waters recede. If you suspect that your well may be contaminated, contact your local or state health department or agricultural extension agent for specific advice.

## How to Boil or Disinfect Water To Make It Safe

If the water is cloudy, first filter it through clean cloths, or allow it to settle and then draw off the clear water for boiling/ disinfecting. Then, follow one of these two procedures:

### Boiling

Boiling water will kill most types of disease-causing organisms that may be present.

1. Boil the water for 1 minute.
2. Let it cool, and store it in clean containers with covers.

### Disinfecting with Bleach

Bleach will kill some, but not all, types of disease-causing organisms that may be in the water.

1. Add 1/8 teaspoon (or 8 drops) of unscented, liquid chlorine bleach per gallon of water.
2. Stir it well and let it stand for at least 30 minutes before you use it.
3. Store disinfected water in clean containers with covers.



## Keep Food Safe

Follow these steps to keep your **FOOD SAFE** during and after flood conditions.

1. **Do not eat** any food that may have come into contact with flood water.
2. **Discard any food and beverage** that is **not in a waterproof container** if there is *any* chance that it has come into contact with flood water.
  - Food containers that are waterproof include undamaged, commercially prepared foods in all-metal cans and “retort pouches” (like flexible, shelf-stable juice or seafood pouches).
  - Food containers that are *not* waterproof include those with screw-caps, snap lids, pull tops, and crimped caps.
  - Also discard cardboard juice/milk/baby formula boxes and home canned foods if they have come in contact with flood water, because they cannot be effectively cleaned and sanitized.
3. **Discard any food in damaged cans.** Damaged cans are those with swelling, leakage, punctures, holes, fractures, extensive deep rusting, or crushing/denting that is severe enough to prevent normal stacking or opening with a manual, wheel-type can opener. *See box on next page for steps to clean/save undamaged packages.*
4. **Thoroughly wash metal pans, ceramic dishes, and utensils** (including can openers) with soap and water, using hot water if available. Rinse and then sanitize them by boiling in clean water or immersing them for 15 minutes in a solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of drinking water (or the cleanest, clearest water available).
5. **Thoroughly wash countertops** with soap and water, using hot water if available. Rinse and then sanitize by applying a solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of drinking water (or the cleanest, clearest water available). Allow to air dry.

## How To Save Undamaged Food Packages Exposed to Flood Water

**Undamaged**, commercially prepared foods in **all-metal cans** and “**retort pouches**” (like flexible, shelf-stable juice or seafood pouches) can be saved if you follow this procedure.

1. Remove the labels, if they are the removable kind, since they can harbor dirt and bacteria.
2. Brush or wipe away any dirt or silt.
3. Thoroughly wash the cans or retort pouches with soap and water, using hot water if it is available.
4. Rinse the cans or retort pouches with water that is safe for drinking, if available, since dirt or residual soap will reduce the effectiveness of chlorine sanitation.
5. Sanitize cans and retort pouches by immersion in one of the two following ways:
  - Place in water and allow the water to come to a boil and continue boiling for 2 minutes.
  - Place in a freshly made solution consisting of 1 tablespoon of unscented liquid chlorine bleach per gallon of drinking water (or the cleanest, clearest water available) for 15 minutes.
6. Air dry cans or retort pouches for a minimum of 1 hour before opening or storing.
7. If the labels were removable, then re-label your cans or retort pouches, including the expiration date (if available), with a permanent marking pen.



**Food in reconditioned cans or retort pouches should be used as soon as possible thereafter.**

### Baby Formula Tip

For infants, try to use prepared, canned baby formula that requires no added water. Otherwise, dilute any concentrated baby formula in reconditioned, all-metal containers with clean drinking water.



## About Foodborne Illness

### Know the Symptoms

Consuming dangerous foodborne bacteria will usually cause illness within 1 to 3 days of eating the contaminated food. However, sickness can also occur within 20 minutes or up to 6 weeks later. Although most people will recover from a foodborne illness within a short period of time, some can develop chronic, severe, or even life-threatening health problems.

Foodborne illness can sometimes be confused with other illnesses that have similar symptoms. The symptoms of foodborne illness can include:

- Vomiting, diarrhea, and abdominal pain
- Flu-like symptoms, such as fever, headache, and body ache

### Take Action

If you think that you or a family member has a foodborne illness, **contact your healthcare provider** immediately. Also, **report** the suspected foodborne illness to FDA in either of these ways:

- Contact the Consumer Complaint Coordinator in your area. Locate a coordinator here: <http://www.fda.gov/Safety/ReportaProblem/ConsumerComplaintCoordinators>
- Contact MedWatch, FDA's Safety Information and Adverse Event Reporting Program:  
**By Phone: 1-800-FDA-1088**  
**Online:** File a voluntary report at <http://www.fda.gov/medwatch>