



## Meal Preparation and Food Safety during and after a Power Failure



### Preparing Food during a Power Failure

During a power failure, cooking and eating habits must change. You may have no heat, no refrigeration, and limited water. Health risks from contaminated or spoiled food may increase. When preparing food during a power outage follow these guidelines.

### Conserve Fuel

- Consider the amount of cooking time needed for particular foods. If you have limited heat for cooking, choose foods which cook quickly. Prepare casseroles and one-dish meals, or serve no-cook foods.
- Alternative cooking methods include:
  - Fireplace—Many foods can be skewered, grilled or wrapped in foil and cooked in the fireplace.
  - Electric utensils—If gas is cut off but you still have electricity, use electric skillets, hot plates or coffee makers to heat food.
  - Candle warmers—Devices using candle warmers such as fondue pots may be used if no other heat sources are available.
  - Camp stoves and charcoal burners—These may be used outside your home. Never use fuel-burning camp stoves or charcoal burners inside your home, even in a fireplace. Fumes from these stoves can be deadly.
- Do not cook frozen foods unless you have ample heat for cooking. Some frozen foods require much more cooking time and heat than canned goods. Also, if power is off, it is best to leave the freezer door closed to keep food from thawing.
- Commercial canned foods can be eaten straight from the can. Do not use home canned vegetables unless you have the means to boil them for 10 minutes before eating.

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## Conserve Water

- Save liquids from canned vegetables. Substitute these for water in cooked dishes.
- Drain and save juices from canned fruits. Substitute these for water in salads and beverages.

## Observe Health Precautions

- Boil all water used in food preparation for at least 10 minutes.
- If you are without refrigeration, open only enough food containers for one meal. Some foods can be kept a short time without refrigeration. If available, packaged survival or camping foods are safe. Do not serve foods that spoil easily, such as ground meats, creamed foods, hash, custards and meat pies. These are potential sources of food-borne illness.
- If necessary, substitute canned and powdered milk for fresh milk. Canned milk will keep safely for many hours after you open the can. If you are using canned milk to feed a baby, however, open a fresh can for each bottle. Use only boiled or disinfected water to mix powdered milk. Use reconstituted milk immediately after it is mixed if you have no refrigeration. If safe water or water disinfectants are not available, use canned or bottled fruit juices instead of water.
- Prepare and eat foods in their original containers, if possible. This will help if dishwashing facilities are limited.



## Safety of Frozen Foods after a Power Failure or Flood

- When anticipating a power failure (as prior to a flood warning), set the refrigerator and freezer temperature to the coldest setting to build up a cooling reserve.
- If flood water enters your freezer or refrigerator, dispose of all food not sealed in metal airtight cans or glass jars.

## Keep Freezer Closed!

With the freezer closed, foods usually will stay frozen at least a day, or perhaps two or three days depending on the quantity of insulation. Food in well-fitted, well-insulated 4-cubic-foot home freezers will not begin to spoil in fewer than three days; in 12- to 36-cubic-foot freezers, food will not begin to spoil in fewer than five days, and may be all right seven or eight days if the food is very cold.



Open the freezer only to take out the food for moving to a locker plant or to add dry ice.

## Thawing Rate

With the door closed, food in most freezers will stay below 40°F up to three days, even in summer. Thawing rate depends on:

- The amount of food in the freezer. A full freezer stays cold longer than a partially-full one.
- The kind of food. A freezer filled with meat stays cold longer than a freezer filled with baked goods.
- The temperature of the food. The colder the food, the longer it will stay frozen.
- The freezer. A well-insulated freezer keeps food frozen longer than one with little insulation.
- Size of freezer. The larger the freezer, the longer food stays frozen.

NOTE: Do not put hot foods in the freezer since this will increase the temperature (Keep hot foods covered and discard if not eaten within 2 hours. Keep meat above 140°F.).

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## Emergency Measures

- Keep the door closed.
- If possible, move food to a locker plant.

Call the locker plant to see if it is operating and if so, whether it has room for your food. If space is available, wrap the food in plenty of newspapers and blankets or use insulated containers, such as camping coolers. Then rush the food to the locker plant.

It is best to make arrangements well in advance with your local locker plant to take care of food in an emergency.

- If you can't take food to a locker plant, leave it in your freezer and cover the freezer with blankets, quilts, crumpled newspaper or excelsior. Do not cover air vent openings.
- Use dry ice if it is available. Wear gloves to handle dry ice and proceed as recommended.
- Can the food if it is possible to do so under sanitary conditions and with proper equipment.

### When Food Has Thawed

Partial thawing and re-freezing does reduce the quality of foods, particularly fruits, vegetables and prepared foods. Red meats are affected less than many other foods.



You may safely re-freeze foods if they still contain ice crystals or if they have been kept at 40°F or below for no more than 2 days. If the temperature is above 50°F throw food away. Foods that cannot be re-frozen but are safe may be canned immediately.

Treat completely thawed foods as follows:

- Fruits. Re-freeze fruits if they taste and smell good. Fruit that is beginning to ferment is safe to eat, but will have an off flavor. Such fruit could be used in cooking.
- Frozen dinners. Do not re-freeze frozen dinners that have thawed.
- Vegetables. Do not re-freeze thawed vegetables. Bacteria in these foods multiply rapidly. Spoilage may begin before bad odors develop. Such spoilage may be very toxic. Re-freeze vegetables only if ice crystals remain throughout the package. If you question the condition of any vegetables, discard them.
- Meat and Poultry. Meat and poultry become unsafe to eat when they start to spoil. If any package of meat has an offensive or questionable odor or if the freezer temperature has exceeded 40°F for 2 hours or longer, don't use. It may be dangerous! Discard all stuffed poultry. Immediately cook thawed but unspoiled meat or poultry. Cooked meat can be re-frozen.
- Fish and Shellfish. These are extremely perishable. Do not re-freeze unless ice crystals remain throughout the package. Seafood may be spoiled even if it has no offensive odor.
- Ice Cream. Do not re-freeze melted ice cream. Discard or consume it in the liquid form before off flavor develops.
- Cook thawed frozen foods and frozen dinners immediately if they are still cold. Do not re-freeze. If any foods have an offensive or questionable odor, do not eat.



## Using Dry Ice during a Power Failure

If it seems likely that your freezer will not be operating properly within one or two days, dry ice may help keep some frozen food from spoiling. The more dry ice you use, the longer the food will stay frozen. However, dry ice is very expensive and is not easy to obtain in some areas. If a flood is predicted and you decide to use dry ice, locate a source in advance and obtain it quickly.

You may be able to buy dry ice from a local dairy or cold-storage warehouse or your power company may be able to direct you to a source of dry ice. Follow these guidelines for using and handling dry ice:

- Wear gloves when handling dry ice. Do not touch it with your bare hands; it causes severe frostbite and tissue damage.
- Allow 2½ to 3 pounds of ice per cubic foot of freezer space (More will be needed for an upright freezer, because ice should be placed on each shelf.).
- Move any food from the freezing compartment to the storage compartment of the freezer. Place boards or heavy cardboard on top of packages. Place dry ice on top of boards. In an upright freezer, place ice on each shelf.
- You may cover the freezer with blankets, quilts or some other covering, but do not lock it or cover air vent openings. It will help to put crumpled newspaper or excelsior between the cabinet and the blankets.

Gas given off by the dry ice needs a place to escape. Open basement or room windows or doors to vent out gas from dry ice.

## Safety of Refrigerated Food after a Power Failure

- Most chopped meats, poultry and seafood sandwich fillings should not be left unrefrigerated longer than 2 hours. If you have to leave your home without an ice chest containing ice, take cold salad ingredients to mix and eat as soon as you arrive. If any salad is left, throw it away.
- You can extend your food supply by cooking all unspoiled meat immediately. Cooked meat needs to be kept above 140°F if it cannot be cooled below 45°F within two hours. Large, solid, unboned pieces of fresh beef or lamb such as rump roast or leg of lamb are least susceptible to quick spoilage.

- Uncured sausage is vulnerable to contamination because it is free of preservatives. Keep frozen until you must leave, and then cook before it is completely thawed.
- Raw chopped meats, like hamburger, spoil quickly. Pork, fish and poultry spoil quickly. Dispose of them if they have been in the refrigerator without power for 12 hours or more. Do not trust your sense of smell.
- Hard cheese usually keeps well at room temperatures. Other cheeses, such as cream cheese, opened containers of cheese spreads and cottage cheese spoil quickly. Throw out when off flavor develops. If surface mold develops on blocks of cheese, slice 1-inch below the surface and discard.
- Milk spoils quickly without refrigeration. Throw out spoiled milk. Sour milk may be used in baking.
- Custard, gravies, creamed foods, chopped meats, poultry and seafood sandwich fillings spoil quickly when unrefrigerated and provide ideal growing places for organisms causing food-borne illness. Dispose of these foods if they have warmed to room temperatures. Spoilage is difficult to detect since there may be no offensive odor or taste.
- Commercially-made baked goods with cream fillings are not safe to take when evacuating unless you have a cold place to keep them. It is best to leave cream pies and all foods containing high protein and moisture at home unless you store them in a cooler with ice.