Safety of Refrigerated Foods After a Power Outage

The information on the next five pages is derived from the University of Maine Cooperative Extension, the Land Grant University of the state of Maine and the U.S. Department of Agriculture cooperating. This is information to share with consumers. This can also serve as useful reference information for regulators.

> *Note that temperature recommendations are for consumers (40ºF & 140ºF). If applied to food establishments, use appropriate commercial, regulatory temperature standards.*

Keep the refrigerator and freezer doors closed as much as possible to maintain the cold temperature.

All chopped meats, poultry and seafood sandwich fillings should not be left without refrigeration for more than two hours. If any perishable or potentially hazardous foods have exceeded 40 degrees F for more than two hours, throw it away.

> ***Do not trust your eyes and sense of smell. Food may be unsafe, even if it doesn't smell bad or even if it looks safe.***

You can extend your food supply by cooking all unspoiled meat immediately. Cooked meat needs to be kept above 140 degrees F if it cannot be cooled below 40 degrees F within four hours. A food thermometer will help you check food temperatures.

Here are some tips on popular perishable foods.

- **Large, solid, unbound 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 it frozen as long as possible, then cook before it completely thaws.
- **Raw chopped meats, like hamburger,** spoil quickly. Pork, fish and poultry spoil quickly, too. Dispose of these foods if they have been in a well-insulated, good working refrigerator without power for 12 hours or more and have exceeded 40 degrees F. **Do not trust your sense of smell.** Food may be unsafe, even if it doesn't small bad.

- **Hard cheese** (like Romano, Cheddar, and Parmesan) usually keeps well at room temperatures. Throw them out when an off-flavor or unusual mold develops. Other cheeses, such as cream cheese, opened containers of cheese spreads and cottage cheese, brie, and gouda spoil quickly.
- **Milk** spoils quickly without refrigeration. Throw out spoiled milk. Soured milk may be used in baking.
- **Custard, gravies, creamed foods, chopped meats, poultry and seafood sandwich fillings** spoil quickly when unrefrigerated. They are ideal growing places for organisms that can make you sick. Dispose of these foods if they have warmed to over 40 degrees for two hours. Spoilage is hard to detect since they may not smell or taste bad.
- **Commercially made baked goods with cream fillings** are not safe if unrefrigerated. Keep them cold, and eat as quickly as possible.
- **Accidentally frozen canned goods** can present health problems. If they are merely swollen — and you are sure the swelling was caused by freezing — the cans may still be usable. Let the can thaw in the refrigerator before opening it. If the product does not look or smell normal, throw it out. **Do not taste it!** If the seams have rusted or burst, throw the cans out immediately.

Safety of Frozen Food After a Power Outage

If you think you might lose power, turn the freezer and refrigerator thermostats to the coldest settings. If you've already lost power, use these tips to keep food cold and safe to eat.

Keep the Freezer Closed

With the freezer closed, foods usually will stay frozen at least a day, perhaps two or three days, depending on the quantity of insulation. Food in well-fitted, well-insulated four-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 for seven or eight days if the food is very cold.

Open the freezer only to take out the food, to move it to a cooler or to add dry ice. With the door closed, food in most unopened freezers will stay below 40 degrees F up to three days, even in the summer.

Thawing rate depends on:

- the amount of food in the freezer (a full freezer stays cold longer than one half full);
- 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. Never put hot or warmed foods into the freezer since this will increase the temperature. Keep hot food covered, and throw out if you don't eat it within two hours. Meat should be kept above 140 degrees F);
- the freezer (a well-insulated freezer keeps food frozen longer than one with little insulation); and
- the size of freezer (the larger the freezer, the longer food stays frozen).

Use Emergency Measures

Cover the freezer with blankets, quilts, or crumpled newspaper. Do not cover the air vent openings. If alternate working mechanical refrigeration is available, use it. Use dry ice if it is available. (See section on **Using Dry Ice**.)

Use Caution if Food has Thawed

Partial thawing and re-freezing can ruin the quality of foods, like fruits, vegetables and prepared foods. Red meats are affected less than many other foods. However, it may still be safe to eat. If a frozen, potentially hazardous food is thawed and still at or below 40 degrees, the food may be cooked and used immediately.

You may safely re-freeze some foods if they still contain ice crystals or if they have been kept at 40 degrees F or below for no more than two days.

Follow these guidelines for completely thawed foods:

- **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. Use off-flavor fruit in cooking.
- **Frozen dinners.** Do not re-freeze frozen dinners that have thawed. Cook and eat thawed frozen foods and frozen dinners right away if they are still cold. If any foods are warm or smell bad, don't eat them.
- **Vegetables.** Do not re-freeze thawed vegetables. Bacteria in these foods grow fast. Spoilage may begin before bad odors develop. Some spoilage may be very toxic. Re-freeze vegetables only if ice crystals remain throughout the package. But, **when in doubt, throw them out.**
- **Meat and Poultry.** Meat and poultry become unsafe to eat when they start to spoil. Examine each package of thawed meat or poultry. If odor is offensive or questionable or if the freezer temperature has exceeded 40 degrees F for two hours or longer, don't use the meat. It may be dangerous! Discard all stuffed poultry. Cook thawed but unspoiled meat or poultry right away. After cooking, meat can be re-frozen, but it's not recommended.
- **Fish and shellfish.** These spoil easily. Do not re-freeze unless there are ice crystals throughout the package. Seafood may be spoiled, even if it doesn't smell bad.
- **Ice cream.** Do not re-freeze melted ice cream. Throw it out or eat it as a liquid before an off-flavor develops.

Using Dry Ice

If it seems likely that your freezer will not be on for several days, dry ice may help keep frozen food from spoiling. The more dry ice you use, the longer the food will stay frozen. However, dry ice is very costly and may not be easy to get. If a flood or power outage is predicted, and you want to use dry ice, find a source in advance. 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. Follow these guidelines for using and handling dry ice:

- **Wear gloves when handling dry ice.** Do not touch it with your bare hands, because it causes severe frostbite and tissue damage.
- **Allow 2 1/2 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.
- **Cover the freezer with blankets, quilts or some other covering**: it will help to put crumpled newspaper or wood shavings between the freezer and the blankets. Do not lock the freezer or cover the air vent openings: the gas given off by dry ice could cause an airtight container to explode.
- **The carbon dioxide gas given off by the dry ice** can cause suffocation if inhaled in large amounts. Open windows or doors for ventilation, and use care when opening the freezer or storage compartment.