

Pickle Buckets Can Cause Foodborne Illness!

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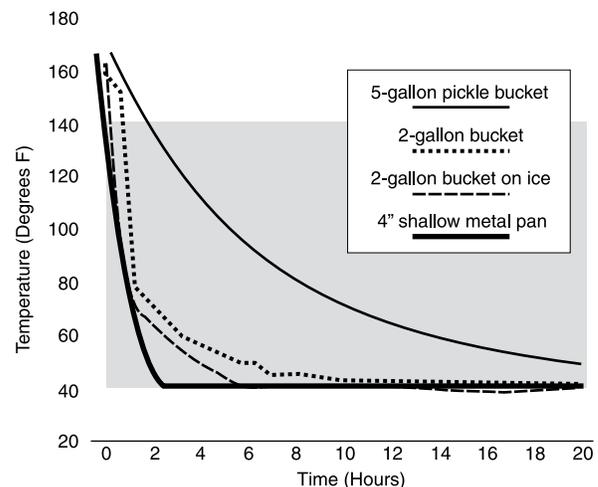
Using five-gallon pickle buckets and other types of large deep containers for cooling hot foods should be avoided at all costs. While convenient for storage, these containers are much too large to be used for cooling food safely. Food may be stored in these buckets only after it has been properly cooled to refrigeration temperatures.

Temperature abuse of foods is one of the leading causes of foodborne illness outbreaks. Food can be considered unsafe any time it is left in the temperature range of 140 degrees Fahrenheit to 41 F for more than six hours. The most rapid bacterial growth occurs in the 60 F to 120 F range.

To be safe, cool foods from 140 F to 70 F in less than two hours and then to 41 F in less than four hours.

Even if the food has been heated to boiling, spores of bacterial pathogens such as *Clostridium perfringens*, *Clostridium botulinum* and *Bacillus cereus* can survive. When temperatures get near 100 F, these spores can germinate, and the bacteria start reproducing very rapidly. For example, if there were just 10 *Clostridium* spores in a food and optimal conditions existed for four hours, the organism could multiply to levels well above 100 million. This is more than enough to cause sickness.

The following graph shows cooling curves of chili in different containers. Chili cooled in a pickle bucket in a 40 F cooler did not cool to 41 F even after 20 hours in the cooler. Chili cooled in a two-gallon plastic container cooled more rapidly but required about 10 hours to reach 41 F.



Acceptable cooling occurred when chili (at a depth of 2 inches) was placed in a shallow metal pan in a 40 F cooler. Chili (at a depth of 10 inches) in a two-gallon plastic bucket cooled within acceptable limits *only when an ice bath was used and the mixture was stirred periodically*.

Leftovers and pre-prepared foods that have been properly cooled should reach 165 F within two hours during the reheating process.

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Cool foods rapidly by following some simple procedures:

Divide food into small batches.

- Liquid foods should be no more than 3 inches deep. Chunky or thickened foods should be no more than 2 inches deep because they take longer to cool.
- Set open pans of food on the top shelves of the cooler; cover the food after it has cooled. Leaving the lid off helps the food cool faster. Prevent cross contamination by placing cooked foods above raw food.
- Adjust cooler thermostat if the temperature of the food is not maintained at 41 F during storage.

Use an ice water bath.

- Set containers of hot food in an ice bath containing a 50:50 mixture of ice and water. Food temperatures drop very rapidly in this mixture. Stir food periodically with a clean, sanitized utensil to promote cooling. Monitor cooling by measuring the temperature periodically with a calibrated thermometer.

Regardless of the cooling method, foods cool more quickly in metal pans than in plastic containers.

Table 1. Characteristics of Bacteria that May Survive Cooking

| Organism/Illness | Foods Involved | Symptoms | Characteristics | Prevention |
|---|---|--|---|--|
| <i>Bacillus cereus gastroenteritis</i> | Vegetables, salads, meat dishes, casseroles, puddings, sauces, soups, rice, macaroni, cheese and dry mixes. | Diarrhea or vomiting. | Transmitted by eating food containing the toxin. Diarrheal form Onset: 6 to 16 hours Duration: Less than 24 hours Vomiting form Onset: 1/2 to 6 hours Duration: Less than 24 hours | Cool foods rapidly and store at 41 F or below. Do not store starchy foods at room temperature. |
| <i>Clostridium botulinum</i> (botulism) | Canned low-acid food, smoked fish, perishable vacuum-packed food, foods packed in oil, baked potatoes stored in foil, onions left on grill. | Double vision, inability to swallow, speech difficulty, progressive respiratory paralysis. | Transmitted by eating food containing the toxin. Bacteria responsible for producing the toxin require a low oxygen (or vacuum) environment. Onset: Usually within 12 to 36 hours but can be longer. Seed medical help immediately. Duration: 3 to 6 days, but can be fatal. | Bacterial spores in food are destroyed by high temperatures obtained only in pressure canning. The toxin is destroyed by boiling for 10 to 20 minutes (time required depends on kind of food). Proper refrigeration (below 41 F) of perishable vacuum-packed foods is essential. |
| <i>Clostridium perfringens</i> | Stews, soups or gravies made from poultry or red meat. | Nausea without vomiting, diarrhea, acute inflammation of stomach and intestines. | Transmitted by eating food contaminated with abnormally large numbers of the bacteria. Onset: Usually with 8 to 10 hours. Duration: May persist for 24 hours. | To prevent growth of surviving bacteria in cooked meats, gravies and meat casseroles that are to be eaten later, cool foods rapidly and refrigerate promptly at 41 F or below, or hold them above 140 F. |

*Original table developed by W. Schafer, University of Minnesota Extension Service, 1988.

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