
Introduction Cooling cooked foods properly is a critical defense in preventing food borne illness. The improper cooling of foods has long been a concern as it is one of the top ten reasons for foodborne illness. Cooked foods that are not being served immediately need to be cooled quickly and stored in a refrigerator or freezer.

Factors that Influence cooling The primary factor that influences the rate at which food cools is mass and density. Generally, the more dense the food and the greater the amount of food, the longer the food will take to cool.

Methods for Cooling Here are some effective ways to cool food quickly and properly:

1. Reduce food mass
2. Use shallow pans
3. Use ice water baths
4. Change recipes
5. Use a "blast chill" unit
6. Use chilling utensils such as cold paddles

Reduce Food Mass Reduce the mass of the food. Large portions, such as a whole turkey, roast, or stews, should be divided into smaller portions to help cool the food faster. The smaller the portions, the quicker the cool down time will be.

Use Shallow Pans Use shallow pans to cool foods, especially foods that are thick, like refried beans.

- The pan should be no more than four inches high and the food depth should be no more than two inches deep (often times the depth of food must be less than two inches due to the food products density).
- During cool-down phase, keep food uncovered if safe, or loosely covered to allow heat to escape.
- Do not stack pans on top of one another. Stacking not only increases mass, but also prevents the air from flowing around the pans so heat can be removed quickly from the food product.

Use Ice Bath An ice water bath is effective for cooling foods. This method helps decrease the food temperature quickly and safely.

1. Fill a large container or sink with ice and a small amount of water to make slush.
2. Place the food dish to be cooled into the ice bath.
3. Stir the food frequently to avoid hot spots and to enhance cooling.

Change Recipes

You can reduce cooling time by adapting your recipes. When cooling foods like soups:

1. Reduce the original amount of liquid required for the recipe.
2. Add ice at the final preparation step.

If further cooling is required prior to storage, use an ice bath or shallow containers.

Use a Blast Chill Unit

A blast chill unit uses advanced technology to cool foods quickly. Although this method is more expensive than other methods, some facilities may have access to a commercial blast chill unit that can cool foods fast and efficiently. Usually hot foods can be cooled to a temperature of 37 degrees F within 90 minutes.

Use Cooling Utensils

Some utensils can be filled with water then frozen, and these utensils can then be used to stir foods and quickly chill them down to the proper cold storage temperature. Make sure that you use utensils that are properly designed (smooth, easily cleanable, durable, and non-absorbent).

Helpful Hints

Here are some additional hints to remember when cooling foods.

- Verify temperatures. Use a thermometer to record temperatures when cooling to make sure the internal food temperature is cooled from:

**135 degrees F to 70 degrees F within two hours; and then
70 degrees F to 41 degrees F or below, within four hours.**

- Use stainless steel containers instead of plastic containers to store divided portions of food. The metal helps cool food faster than plastic.
 - Always label food containers with important information such as the time and date of preparation.
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