

Reading: How hot does food need to get so that people do not get sick?

Directions: Read through the text and look at the picture below. Determine what information will help us define criteria about the temperature range of our homemade heaters. Underline important text to highlight the areas you think will help us define our temperature range criteria.

Foodborne Germs and Illnesses

Many different disease-causing germs can contaminate foods, so there are many different foodborne infections. These are also called “foodborne diseases”, “foodborne illnesses”, or “food poisoning”.

Researchers have found more than 250 foodborne diseases. Most of them are infections caused by different bacteria, viruses, and parasites. Harmful toxins and chemicals can also contaminate foods and cause foodborne illnesses.

Foods That Can Cause Food Poisoning

Some foods are more likely to cause foodborne illnesses and food poisoning than others. These foods can carry harmful germs that can make you very sick if the food is contaminated:

- chicken, beef, pork, and turkey
- fruits and vegetables
- raw milk and products made from it
- raw eggs
- seafood and raw shellfish
- sprouts
- raw flour

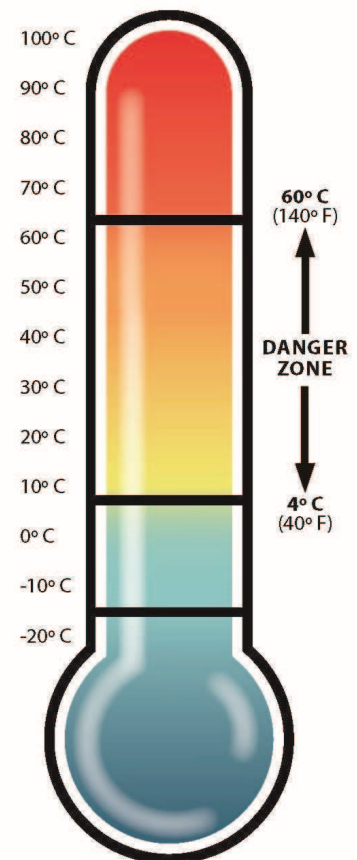
While certain foods are more likely to make you sick, any food can get contaminated. This can happen in the field, during processing, or during other stages of food production. For example, raw meat touching kitchen surfaces can contaminate other foods in the kitchen.

Many of the bacteria that cause foodborne illnesses grow fastest in the temperature range between 5°C and 57°C (41°F and 135°F). This range is known as the “Danger Zone.” To be safe, the internal temperature of potentially hazardous foods must be below 5°C (41°F) when being stored and above 57°C (135°F) when being cooked or held in places like heated buffets or cafeteria lines.

Keeping Prepared Food Safe to Eat

Ever since humans were hunter-gatherers, we have looked for ways to preserve food safely. People living in cold climates learned to freeze food for future use. Since electricity was invented, freezers and refrigerators have been used to keep food safe. But except for drying, packing in sugar syrup, or salting food, keeping perishable food safe without refrigeration is a truly modern invention.

Commercially Processed Foods



Some foods are cooked and packaged at factories to be “ready to eat.” These foods may have been potentially hazardous, but processing them at the factory makes them safe to eat at any temperature. Foods labeled “ready to eat” or “shelf-stable” do not have to be heated to be served.

What does "shelf-stable" mean?

Foods that can safely be stored at room temperature, or "on the shelf," are called "shelf-stable." These nonperishable products include jerky, country hams, canned and bottled foods, rice, pasta, flour, sugar, spices, oils, foods processed in sealed, sterile packages, and other products that do not need refrigeration until after opening. Not all canned goods are shelf-stable. Some canned foods, such as some canned ham and seafood, are not safe at room temperature. These are labeled "keep refrigerated."

How are foods made shelf-stable?

In order to be shelf-stable, perishable foods must be treated by heat and/or dried to destroy foodborne germs or toxins that can cause illness or spoil food. Food can also be packaged in sterile, airtight containers. All foods eventually spoil if not preserved.

Heating and Using Shelf-Stable Foods

Shelf-stable foods are safe to open and eat at any temperature. However, once they are opened, they can be contaminated. Never leave food out of refrigeration for over 2 hours. If the air temperature is above 32°C (90°F), food should not be left out for more than 1 hour.

Sources

- US Centers for Disease Control (2020). *Foodborne germs and illnesses*. Retrieved from <https://www.cdc.gov/foodsafety/foodborne-germs.html>
- FoodSafety.gov. (2019). *Safe minimum cooking temperatures*. Retrieved from <https://www.foodsafety.gov/food-safety-charts/safe-minimum-cooking-temperature>
- US Department of Agriculture. (nd). Food Safety and Inspection Service. Retrieved from <https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/shelf-stable-food-safety>
- Division of Food Safety, Florida Department of Agriculture and Consumer Services. (2016). *Cooking and hot holding food*. Retrieved from <https://www.fdacs.gov/content/download/67385/file/Cooking-and-Hot-Holding-Food.pdf>