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The Flow of Food: Storage

Chapter Overview

Chapter 7 introduces students to methods for preventing cross-contamination and time temperature abuse when storing food.

Learning Objectives

- 7-1** Describe how to properly label and date mark food
- 7-2** Explain time and temperature requirements for food in storage
- 7-3** Describe how to prevent temperature abuse during storage
- 7-4** Describe how to prevent cross-contamination during storage
- 7-5** Explain how to rotate food using the first-in, first-out (FIFO) method
- 7-6** Identify guidelines for storing specific types of food including meat, poultry, fish, shellfish, eggs, produce, and dry food

Opening Case Study

1. What should have been done differently at the operation to prevent the outbreak?

The packages of raw ground beef should have been stored separately from the ready-to-eat rolls and cartons of chocolate milk. If that was not possible, then the ground beef should have been stored below these items. This would have prevented the juices from the raw ground beef from dripping onto ready-to-eat food and causing the outbreak.

Chapter Breakdown

Pages 132 to 138**7.1 General Storage Guidelines**

Resources

PowerPoint Slides 3 to 7

Reinforce and Review:

- Any item not stored in its original container must be labeled. The label must include the common name of the food or a statement that clearly and accurately identifies it.
- If ready-to-eat TCS food was prepped in-house and will be stored longer than 24 hours, it must also be date marked. This food can be stored for only seven days if held at 41°F (5°C) or lower. After that, it must be discarded.
- Food packaged in the operation that is being sold to customers for use at home must be labeled with specific information. This includes the food name, quantity, ingredients, artificial colors and flavors, chemical preservatives, and major allergens. The label must also show the manufacturer's, packer's, or distributor's name and place of business.
- Food, linen, and single-use items should only be stored in designated storage areas. These items should be stored away from walls and at least six inches (15 centimeters) off the floor.
- Stored food items should always be rotated so older items are used first.
- Store TCS food at an internal temperature of 41°F (5°C) or lower, or 135°F (57°C) or higher. Randomly sample the internal temperature of stored food. Follow storage and maintenance guidelines to ensure coolers and freezers can function properly.
- Store items to prevent cross-contamination. Store food only in containers intended for food. Keep raw meat, poultry, and seafood separate from ready-to-eat food. If raw and ready-to-eat food cannot be stored separately, store ready-to-eat food above raw meat, poultry, and seafood.

Key Terms

- **Date marking:** A date placed on ready-to-eat TCS food held for more than 24 hours indicating the date by when the food must be sold, eaten, or thrown out.
- **First-in, first-out (FIFO) method:** Method of stock rotation in which products are shelved based on their use-by or expiration dates, so oldest products are used first.

Knowledge Check Answers

1. Ready-to-eat TCS food must include date marking if it will be held for longer than 24 hours. The label must indicate when the food must be sold, eaten, or thrown out.
2. Many operations use the first-in, first-out (FIFO) method to rotate their refrigerated, frozen, and dry food during storage. Here is one way to use the FIFO method:
 1. Identify the food item's use-by or expiration date.
 2. Store items with the earliest use-by or expiration dates in front of items with later dates.
 3. Once shelved, use those items stored in front first.
 4. Throw out food that has passed its manufacturer's use-by or expiration date.

CLASSROOM ACTIVITY: Stock the Cooler

LO: 7-4 Describe how to prevent cross-contamination during storage

Materials: *Cooler Storage Organizer* or blank paper for each student

1. Create and post a long list of foods that would be stored in a cooler. This can be done before class or during class as a whole group.
2. Give students a blank *Cooler Storage Organizer* and ask them to work independently to:
 - a. fill in the minimal internal temperatures, and
 - b. write in each food at the appropriate level in the cooler.
3. Ask students to get into pairs and partner to compare answers and resolve any discrepancies using their Coursebooks.

Instructor note: If you can't print the cooler storage organizer, upload it to your course site for students to complete electronically or have them create it with a sheet of paper.

Chapter Breakdown

Pages 138 to 143

7.2 Storing Specific Food

Resources

PowerPoint Slides 8 to 14

Reinforce and Review:

- Some food items may have special storage requirements. These items include meat, poultry, fish, shellfish, eggs, fresh produce, ROP food, UHT and aseptically packaged food, canned food, and dry food.

Key Terms

- **Reduced oxygen packaged (ROP) food:** Food packaged in a way that reduces the amount of oxygen available in order to slow microbial growth. ROP methods include sous vide, modified atmosphere packaged (MAP), and vacuum packaging.

Knowledge Check Answers

1. Cut melons, cut tomatoes, and cut leafy greens are TCS food. Store them at 41°F (5°C) or lower.
2. Not all TCS foods need to be stored at 41°F (5°C) or lower. Whole citrus fruit, hard-rind squash, eggplant, and root vegetables—such as potatoes, rutabagas, and onions—may be stored in a cool dry-storage area.

End of Chapter

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Discussion Questions

1. **What is the recommended top-to-bottom order for storing the following food in the same cooler: raw trout, an uncooked beef roast, raw chicken, pecan pie, and raw ground beef?**

The recommended top-to-bottom order for storing the items in the same cooler is:

- Pecan pie
- Raw trout
- Uncooked beef roast
- Raw ground beef
- Raw chicken

2. **What are the requirements for storing live shellfish?**

Live shellfish must be stored in its original container at an air temperature of 41°F (5°C) or lower. Shellstock identification tags must be kept on file for 90 days from the date the last shellfish was sold or served from the container.

3. **Explain the labeling requirements for food packaged on-site for retail sale.**

The label must include the following information:

- Common name of the food or a statement that clearly identifies it
- Quantity of the food
- Ingredients and sub-ingredients in descending order by weight if the item contains two or more ingredients
- Artificial colors and flavors
- Chemical preservatives

- Name and place of business of the manufacturer, packer, or distributor.
- Source of each major food allergen contained in the food. This is not necessary if the source is already part of the common name of the ingredient.

4. What is the maximum time that TCS food that was prepped in-house may be stored?

TCS food that was prepped in-house can be stored for only seven days if held at 41°F (5°C) or lower. After that, it must be discarded.

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Apply Your Knowledge

Storage Problems at Enrico's

1. What storage errors occurred?

Here are the storage errors that occurred:

- A food handler at the restaurant failed to shut the door to the walk-in freezer. This could have warmed the interior of the freezer and allowed products to thaw.
- Alyce placed the case of sour cream into an already overloaded refrigerator. This could prevent good airflow and make the unit work harder to stay cold.
- The stockpot of soup should not have been stored on the floor of the cooler. Food must be stored at least six inches (15 centimeters) off the floor.
- Alyce should not have stored the fresh salmon above the ready-to-eat soup. The salmon could drip fluids into the soup, cross-contaminating it. Ready-to-eat food must always be stored above raw meat, poultry, and seafood.
- Alyce should not have stored the ground beef near the door, which is the warmest part of the unit. Raw meat, poultry, and seafood should be stored in the coldest part of the unit.
- Mary was lining the shelving with aluminum foil. This can restrict airflow in the unit.

A Second Change

1. List some things that Chase and his staff should consider as they conduct a review of the new storage area.

Here are some things that Chase and his staff should consider:

- Determine where meat, poultry, and seafood will be stored. Ideally, they will want to store it in the coldest part of the unit, away from the door.
- Ensure that there is at least one air-temperature measuring device in each storage unit. For coolers and freezers, the device must be located in the warmest part of the unit.
- Install cold curtains in walk-in coolers and freezers to help maintain temperatures in the units.
- Purchase open shelving for walk-in coolers and freezers. This will help ensure good airflow in the units. The shelving should also ensure that food is stored at least six inches (15 centimeters) from the floor.

- Identify the designated storage location for each stored product. This includes both food and non-food items, such as paper napkins and single-use cups.
- Purchase storage containers intended for food.
- Identify the storage location for dirty linen.
- Establish a procedure for the correct storage order for raw and ready-to-eat food.
- Determine how to rotate food using the FIFO method.

Pages 146 to 147**Study Questions**

1. C. Date that the food should be thrown out
2. D. 7 days
3. C. $\pm 3^{\circ}\text{F}$ or $\pm 1.5^{\circ}\text{C}$
4. D. At least 6 inches (15 centimeters)
5. D. Cross-contamination
6. C. According to minimum internal cooking temperatures, with ready-to-eat foods on the top shelf and poultry on the bottom
7. C. July 24
8. A. Lettuce, fresh salmon, fresh pork roast, fresh chicken breasts
9. A. January 3
10. C. 45°F (7°C) or lower