

## Safe Handling of Milk & Dairy Products

### Milk

Grade A milk is carefully produced, processed and packaged in order to protect the safety of the consumer. Grade A milk must be pasteurized to be sold by retailers in interstate commerce. Raw milk is usually pasteurized either by low temperature pasteurization in which the milk is heated to 145 °F or higher for at least 30 minutes, or by high temperature pasteurization in which the milk is heated to 161 °F or higher for at least 15 seconds and then quickly cooled. Pasteurization destroys disease-causing bacteria and extends the shelf life of milk. However, pasteurized milk can readily spoil and could cause foodborne illness if not properly protected and handled.

**Maintaining the Safety of Milk:** Refrigeration is the single most important factor in maintaining the safety of milk. By law, Grade A milk must be maintained at a temperature of 45 °F or below. Bacteria in milk will grow minimally below 45 °F. However, temperatures well below 40 °F are necessary to protect the milk's quality. It is critical that these temperatures be maintained through warehousing, distribution, delivery and storage.

The cooler refrigerated milk is kept, the longer it lasts and the safer it is. As the product is allowed to warm, the bacteria grow more rapidly. Properly refrigerated, milk can withstand about two weeks' storage.

Infants, pregnant women, the elderly and the chronically ill (such as those undergoing cancer treatments and individuals with AIDS, diabetes or kidney disease) are most at risk from serious illness due to eating any unsafe food. These individuals and those who care for them must be especially careful to handle milk safely.

**Fresh Fluid Milk:** Fresh milk is categorized mainly by the amount of butterfat it contains. In November 1997, the FDA announced a new rule for milk labeling that helps consumers clarify the difference between 1- and 2-percent milk and reinforces the fact that skim milk is fat-free. Under the new rule, 2-percent milk is renamed reduced fat; 1-percent milk is renamed low-fat; and skim milk is called fat-free or nonfat, although it may contain up to 0.5 grams of fat in a one cup serving.

**Buying Fresh Fluid Milk:** When selecting milk at the store, make sure it is properly displayed and pay close attention to the date on the label. All fresh fluid milks should be stored at temperatures below 40 °F and should not be stacked high in the display cases. If stored above 40 °F, milk will begin to develop signs of spoilage, including sour odor, off-flavor and curdled consistency. Remember that milk should be taken from the store and quickly placed in your refrigerator at home so that the temperature does not rise above 40 °F. Once you have purchased milk and refrigerated it promptly, it should retain its fresh taste for one to five days beyond the "sell-by" date if kept at the proper temperature. If it spoils before the date expires, this indicates it was not handled properly, and it should be returned to the store for a refund.

**Storing Fresh Fluid Milk:** Milk should not be left out at room temperature. Pour milk to be used into a serving container and return the original container to the refrigerator. Do not return unused milk that has been sitting out to its original container where it could contaminate the remaining milk. Milk can be stored frozen at 0 °F for up to three months and will be safe to drink if it is thawed in the refrigerator, although it does not retain its smooth texture.

**Buttermilk:** Originally, buttermilk was made as a by-product when making butter. Lactic acid bacteria are added to fresh, fluid pasteurized skim or part-skim milk to produce the thick, tangy buttermilk. Buttermilk should be handled with the same precautions as regular fluid milk.

**Flavored Milk:** Chocolate and other flavors - such as maple, strawberry and coffee - may be used for flavored milks. These milks are stored and used as fresh fluid milk.

### **Concentrated or Dried Milks**

**Evaporated & Evaporated Skimmed Milk:** This type of milk has about 60 percent of the water removed. It may be fortified with vitamins A and/or D. Store cans of evaporated milk in a cool, dry place. It is shelf-stable, but once opened it should be treated as fresh fluid milk, kept refrigerated and used within several days.

**Sweetened Condensed Milk:** This is the milk that results from the evaporation of half the water and the addition of sugar in amounts sufficient for preservation. It is stored like evaporated milk.

**UHT Milk:** Ultra-high temperature (UHT) milk is regular fluid milk that is packed in an airtight, sterilized, cardboard container. The product is treated by flash sterilization at 290 °F (twice the temperature of normal pasteurization). This high temperature kills all bacteria or microorganisms. The milk is then packed into sterilized containers and is shelf-stable for six months. After six months, the flavor and color begin to change and the product thickens. It is still safe, but may not produce the desired effect in a recipe. Once the package of UHT milk is opened, it is treated like fresh fluid milk and used within several days.

**Nonfat Dry Milk:** This dairy product is made by removing water from pasteurized, fat-free milk. Due to its low moisture content, it can be kept for long periods of time. Once reconstituted, it is handled like fresh fluid milk.

### **Cream**

**Basic Facts:** Cream has a very high fat content of between 18 and 40 percent butterfat compared to around 3.25 percent in whole milk. The rich, yellow color associated with cream comes from the

carotene in the fat. The type of cream is determined by its fat content.

- Half-and-half is a combination of milk and cream with a butterfat content of about 11 percent.
- Light cream has between 18 and 30 percent butterfat and may be called coffee or table cream.
- Light whipping cream has between 30 and 36 percent butterfat and can be whipped into solid form, although it tends to be less stable than heavy whipping cream.
- Heavy cream or whipping cream contains 36 to 40 percent butterfat.
- Pressurized whipped cream is sold in aerosol cans and is made from a mixture of cream, sugar and chemical stabilizers.
- Sour cream is made by adding a lactic acid culture to sweet cream. Sour cream usually contains between 18 and 20 percent butterfat.
- Reduced-fat sour cream has skim milk added to lower the fat content.

**Storage:** Store cream at 40 °F or below in its original container in the refrigerator. Do not leave cream at room temperature, and do not mix warm cream with cream that has been kept refrigerated. Use fresh, pasteurized cream within one to five days of the "sell-by" date.

### **Nondairy Dessert Toppings**

Nondairy dessert toppings are made from vegetable oils but may also contain some milk products. The frozen toppings may be stored for up to one year in the freezer, or thawed and kept in the refrigerator for up to two weeks. Do not freeze dessert toppings in aerosol cans. Store the cans in the refrigerator for a maximum of two to three months.

### **Butter**

**Basic Facts:** Butter is made from the sweet or soured cream of cow's milk by agitation or "churning." After churning, the mass of butter is washed and salted. It is worked to distribute the salt and remove extra water. To be sold in stores, butter must contain at least 80 percent milk fat. Water and milk solids make up the other 20 percent. Salt and coloring may be added if desired. Some unsalted butter is sold as sweet butter, but most people prefer the salted product.

The USDA grade label on the butter carton or wrapper means the butter has been tested for quality by a government grader and has been produced under sanitary conditions. The highest possible grade is AA. Grade AA butter is delicate and sweet-flavored with a creamy texture and good spreadability. Most butter sold is grade AA or A. Because of its high fat content, butter contains many calories and therefore should be used sparingly in the diet.

**Storage:** Storing butter properly, lengthens the shelf life so it can be used over a longer period of time. To prevent a type of spoilage called rancidity, protect butter from heat, light and air by storing it covered in the refrigerator. Rancid butter has an unpleasant taste and smell.

Butter absorbs odors from other foods rapidly. To prevent flavor changes, keep butter wrapped in moisture- and vapor-proof material or in tightly covered containers. For refrigerator storage, leave butter in its original wrapper. Opened portions of butter should be refrigerated in a covered dish.

Butter can be stored for up to two weeks at refrigerator temperatures (below 40 °F). Higher temperatures cause off-flavors and unpleasant odors to develop. Butter should not be stored in the butter keeper (set at warmer temperatures) on the refrigerator door longer than two days. For ease in spreading, remove butter from the refrigerator 10 to 15 minutes before using it.

For holding longer than two weeks, butter should be frozen. To store butter in the freezer, wrap it in moisture- and vapor-proof freezer packaging material to keep the butter from absorbing odors from other foods and to prevent freezer burn. Butter in its original carton can be overwrapped. Butter in one-pound blocks can be cut into smaller portions, repackaged and frozen for future use. If properly wrapped and held at 0 °F or lower, butter will keep well in the freezer for six to nine months. Thaw butter in the refrigerator.

## Yogurt

**Basic Facts:** The natural sugar in milk is converted to lactic acid by means of a bacterial culture producing the creamy, pleasantly tart yogurt. Yogurt is pasteurized to destroy disease-causing microorganisms. Fat and calorie content will differ

depending on whether whole, low-fat or fat-free milk is used and whether fruit or sweeteners are added. The label will give the specific information for each yogurt.

**Storage:** Yogurt may be kept well covered in the refrigerator for seven to 10 days past the "sell-by" date. If it is kept longer, it will develop a stronger taste. Freezing yogurt is not recommended because of the variable results in texture.

## Frozen Dairy Products

**Basic Facts:** This category includes ice cream, ice milk, sherbet and frozen yogurt.

- Ice cream has the highest milk fat and milk solids content. The milk fat content in ice cream usually ranges between 10 and 14 percent, but may be as high as 20 percent in specialty ice creams.
- Ice milk often has more sugar than ice cream, but its milk fat ranges from 2 to 7 percent.
- Sherbet also has less milk fat and milk solids than ice cream, but more sugar and usually contains fruit and fruit acid. Milk fat content of sherbet is between 1 and 2 percent.
- Frozen yogurt is made from cultured milk and has less milk fat than ice cream and less sugar than sherbet.

**Storage:** When purchasing ice cream and other frozen desserts at the store, make sure they are frozen solid and that the container is not sticky or frosted which indicates it has partially thawed at some point. Request that the ice cream be placed in an insulated bag or be double bagged to reduce melting on the way home.

Ice cream may be stored unopened for up to two months at 0 °F or below. However, if it will be stored longer than one month, it is best to overwrap the original container with freezer paper or wrap.

Once the container has been opened, place plastic wrap over the surface of the ice cream to minimize the development of large ice crystals and the loss of its creamy texture. Use ice cream within seven to 10 days for best quality. Each time the ice cream is removed from the freezer, and the surface begins to thaw, the ice cream loses quality. If ice cream or other frozen dairy products thaw completely, they should be discarded because of the danger of bacterial growth.

## Safe Cold Storage Times for Milk & Dairy Products

Product	How to Store	Refrigerator (35-40 °F)	Freezer (0 °F)
Pasteurized Fresh Whole or Skimmed Milk	Refrigerate immediately in original container. Keep container closed.	1 to 5 days beyond "sell-by" date	3 months. Freezing may result in change in texture. Thaw in refrigerator.
Sweetened Condensed Milk (Opened)	Refrigerate tightly covered.	1 week	Do not freeze.
Evaporated Milk (Opened)	Refrigerate tightly covered.	1 week	Do not freeze.
Cultured Buttermilk	Refrigerate immediately in original container. Keep container closed.	2 weeks	Do not freeze.
Homogenized, Reconstituted Dry Nonfat and Skimmed Milk	Keep containers tightly closed. Don't return unused milk to original containers.	1 week	Do not freeze.
Sweet and Regular Cream	Refrigerate immediately in original container. Keep container closed.	1 to 5 days beyond "sell-by" date	Do not freeze. (Change of texture, body appearance. Separation of fat emulsion.)
Non-Dairy Whipped Topping	Keep covered.	3 months in aerosol can. 3 days if prepared from mix. 2 weeks if bought frozen and then thawed.	Do not freeze aerosol cans; others may be stored in freezer up to one year.
Butter	Refrigerate immediately in original container. Keep container closed.	2 weeks	Butter made from pasteurized cream: 6 to 9 months.
Sour Cream	Refrigerate immediately in original container. Keep container closed.	2 weeks	Do not freeze.
Ice Cream	Store in original container in freezer.	Do not store here.	2-3 weeks (Opened) 2 months (Unopened)
Yogurt	Keep covered.	7-10 days	Do not freeze.
Soft Custards, Milk Puddings, Cream and Custard Fillings for Cakes and Pies	Cool cooked dishes quickly and refrigerate within 2 hours. Refrigerate cold dishes immediately after preparation.	5-6 days	Do not freeze.

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