

## *Preserving Food:* **Freezing Animal Products**

Freezing is an excellent way to preserve animal products such as meat, poultry, fish and shellfish. In some instances, eggs and dairy foods can also be frozen for later use.

Freezing does not sterilize food. The extreme cold simply retards the growth of microorganisms and slows down the changes that affect quality or cause spoilage in food.

The quality and safety of the final product depends on how the product is handled before, during and after freezing. Freezing affects the texture, color, juiciness and flavor of foods. Be sure to start with high quality food. Freezing does not improve food quality. Follow the directions in this fact sheet for handling each individual food.

For highest quality, foods need to be tightly sealed in moisture-vapor resistant materials and then frozen quickly at 0°F or below. Don't freeze too much food at one time because the food will freeze slowly, resulting in a mushy final product. Add only the amount of unfrozen food that will freeze within 24 hours. This is usually two to three pounds of food per cubic foot of freezer space. If you have a large amount of food to freeze at one time, plan to have it frozen for you by a meat-packing plant or by another commercial freezer.

Once the food is frozen, keep it solidly frozen at 0°F or below. Even slight fluctuations in temperature can cause the food to thaw slightly, resulting in a mushy product. Don't place unfrozen food on top of frozen food; it could cause the frozen food to thaw.

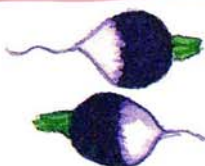
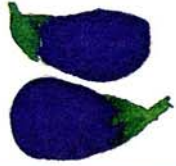
Because animal products are very susceptible to the growth of microorganisms that can cause foodborne illness, it's important to handle them carefully. Never leave animal products at room temperature for more than two hours. Also, be sure to clean surfaces and utensils used for preparing the products for freezing.

### **PACKAGING MATERIALS**

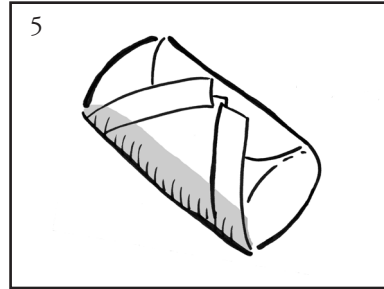
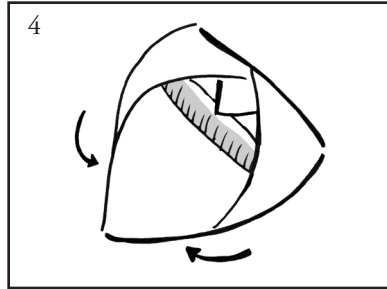
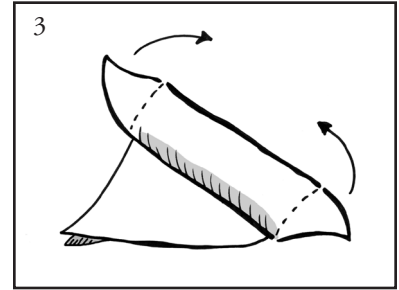
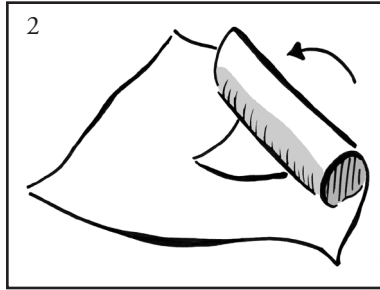
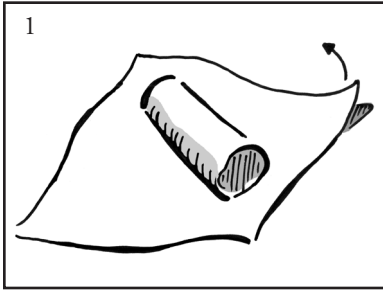
Before preparing animal products for freezing, assemble the packaging materials you will use. The type of packaging material depends on the type of food being frozen, personal preferences and the types of material readily available. The packaging material should be moisture-vapor resistant, durable, and easy to seal and should not become brittle at low temperatures.

Special freezer paper is best for packaging meats, poultry or fish. Heavy-duty aluminum foil or freezer wrap can be used, but they tear more easily. If enough air can be excluded, freezer bags or containers can also be used.

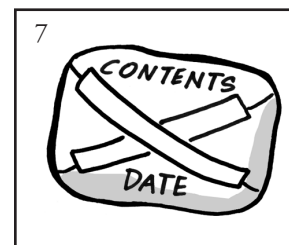
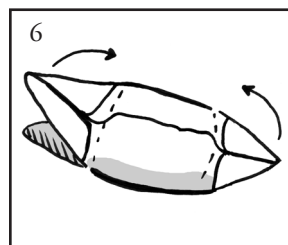
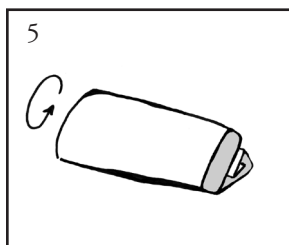
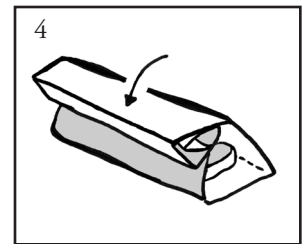
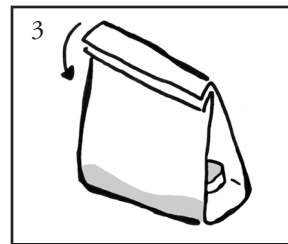
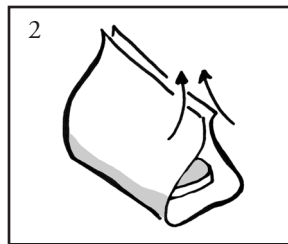
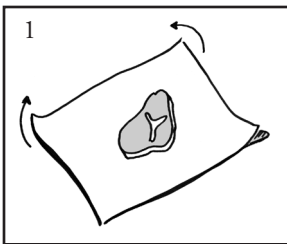
When packaging meat, poultry or fish for freezing, either the "drugstore wrap" or the "butcher wrap" can be used (see the illustrations on the next page). The drugstore wrap is preferable except for irregular cuts of meat. These are best wrapped using the butcher wrap. Don't forget to label and date all frozen products.



## BUTCHER WRAP



## DRUGSTORE WRAP



## MEATS

### *Beef, Veal, Lamb or Pork*

Select only high quality, fresh meats to freeze. Cured meats such as ham and bacon can only be frozen for a short period of time (1 to 3 months) because the salt in them hastens rancidity.

CHILLING AND AGING — Freshly slaughtered meat carcasses or primal cuts need to be cooled to below 40°F within 24 hours to prevent souring or spoiling. The meat should be chilled at 32° to 36°F. Variety meats (liver, heart or sweetbreads) are ready to be wrapped and frozen after they are cold. After 24 hours, pork, veal and lamb are ready to be cut, wrapped and frozen. Beef may be left at the 32° to 36°F temperature for a total of 5 to 7 days to age

the meat, making it more tender and flavorful. Meat purchased from grocery stores is ready to be frozen as is, or cut into serving-size portions and frozen.

**CUTTING THE MEAT** — Depending on individual preferences for the number of servings and cooking methods, the meat can be cut into roasts, rolled roasts, steaks, chops, stew meat, ground meat, etc., before freezing.

**PACKAGING** — Package the meat in freezer paper or wrap, using either the drugstore or butcher wrap. Freezer bags or containers can be used for ground beef, stew beef or other meats frozen in small portions.

Store-bought meats need to be over-wrapped, since their clear packaging is not moisture-vapor resistant. If you purchase film-wrapped meats from a meat packer, check to see if the wrap is a new heavy-duty film. If so, it needs no over-wrapping.

Package the meat in meal-size portions, removing as many bones as possible (they take up freezer space). Place two layers of freezer paper or wrap between slices or patties of meat so they are easier to separate when frozen. This will help speed thawing.

### ***Large Game***

Deer, moose, antelope and other large game can be handled for freezing like any other meat or carcass. Trim and discard bloodshot meat before freezing. Package meat, seal and freeze.

### ***Small Game***

Rabbit, squirrel and other game should be skinned, dressed and then chilled. Refrigerate for 24 to 36 hours until meat is no longer rigid. Cut into serving-size pieces or leave whole. Package, seal and freeze.

## **POULTRY AND GAME BIRDS**

Select only high quality, fresh poultry to freeze. The tender young bird is best for roasting, frying and broiling. Choose the more flavorful older birds for braising or stewing.

Package poultry in freezer paper or wrap using the drugstore or butcher wrap, or place in freezer bags. Store-bought poultry needs to be over-wrapped before freezing because its clear wrap is not moisture-vapor resistant. When packaging pieces, arrange them to form a compact, square, flat package so they will stack better in the freezer. After packaging, seal and freeze immediately.

Quail, dove, duck, pheasant and other game birds should be dressed and gutted as soon as possible after shooting. Cool and clean properly. Remove excess fat on wild ducks and geese since it becomes rancid very quickly. Freeze as directed for poultry.

Do not stuff poultry or game birds before freezing them. During freezing or thawing times, bacteria that cause foodborne illness could easily grow in the stuffing. Commercially stuffed frozen poultry is prepared under special safety conditions that cannot be duplicated at home.

## **SEAFOOD**

### ***Fish***

Fish for freezing should be as fresh as possible.

**PREPARATION** — Wash fish, and remove scales by scraping fish gently from tail to head with the dull edge of a knife or spoon.

Remove entrails after cutting entire length of belly from vent to head. Remove head by cutting above collarbone. Break backbone over edge of cutting board or table.

Remove dorsal or large back fin by cutting flesh along each side and pulling fin out. Do not trim fins with shears or a knife because bones will be left at the base of the fin.

Wash fish thoroughly in cold running water. Fish is now dressed or pan dressed, depending on size. Large fish should be cut into steaks or fillets for easier cooking. For steaks, cut fish crosswise into ¾-inch thick steaks. For fillets, cut down back of fish from tail to head. Then cut down to backbone just above collarbone. Turn knife flat and cut flesh along backbone to tail, allowing knife to run over rib bones. Lift off entire side of fish in one piece, freeing fillet at tail. Turn fish over and cut fillet from other side.

**PRETREATING** — Fish are categorized as either fat or lean fish, by the amount of fat in their flesh. “Fat fish” includes varieties such as mullet, mackerel, trout, tuna and salmon. “Lean fish” includes flounder, cod, whiting, red-fish, croaker, snapper, grouper, sheepshead and most freshwater fish.

Before freezing, fish can be pretreated to improve the quality of the stored fish. Fat fish should be dipped for 20 seconds in an ascorbic acid solution made from 2 tablespoons crystalline ascorbic acid to one quart of cold water to control rancidity and flavor change. Lean fish may be dipped for 20 seconds in a brine of  $\frac{1}{4}$  cup salt to 1 quart of cold water to firm the fish and to decrease drip loss from thawing. (These pretreatments are not needed if a lemon-gelatin glaze is used.)

**PACKAGING** — Fish may be frozen using any of the following methods. If several fish are placed in the same package, place freezer paper or wrap between them for easier separation.

*Lemon-Gelatin Glaze* — To prepare glaze, mix  $\frac{1}{4}$  cup of lemon juice and  $1\frac{3}{4}$  cups of water. Dissolve one packet of unflavored gelatin in  $\frac{1}{2}$  cup of the lemon juice-water mixture. Heat the remaining  $1\frac{1}{2}$  cups of liquid to boiling. Stir the dissolved gelatin mixture into the boiling liquid. Cool to room temperature. When cool, dip the cold fish into the lemon-gelatin glaze and drain. Wrap the fish in moisture-vapor resistant packaging, label and freeze.

*Ice Glaze* — Place unwrapped fish in the freezer to freeze. As soon as it is frozen, dip fish in near-freezing ice water. Place fish again in the freezer a few minutes to harden the glaze. Take fish out, and repeat the glazing until a uniform cover of ice is formed. Wrap the fish in moisture-vapor resistant paper or place in freezer bags, label and freeze.

*Water* — Place fish in a shallow metal, foil or plastic pan; cover with water and freeze. To prevent evaporation of the ice, wrap the container in freezer paper after it is frozen, label and freeze. Freezing fish in a block of ice will produce a poorer quality product than using the glaze methods.

**FISH ROE** — Thoroughly wash and package in freezer containers or bags and boxes, leaving  $\frac{1}{4}$ -inch headspace. Seal and freeze.

### ***Clams***

Clams can be frozen either in the shell or shucked. To freeze the clams in the shell, simply place the live clams in moisture-vapor resistant bags. Press out excess air and freeze.

To freeze the clam meat, shuck the clams, then clean and wash the meat thoroughly. Drain and pack in freezer containers, leaving  $\frac{1}{2}$ -inch headspace. Seal, label and freeze.

### ***Crab***

Select only live crab to prepare for freezing. Crab freezes better if not “picked” before freezing. Simply remove the back, legs, entrails and gills either before or after boiling the crab for 5 minutes. (Be sure to cool the crab quickly after it is cooked.) The claws and body or core of the crab that still contains the meat should then be wrapped or ice-glazed and wrapped in freezer wrap or paper. Seal, label and freeze.

### ***Lobster***

For best quality, lobster should be frozen uncooked. Freeze the lobster whole, or clean it and freeze just shell portions that contain the edible meat. (Some lobsters have large front claws that contain edible meat, while others have edible meat mainly in the tail section.)

Freeze lobster in the shell to help keep the meat from drying out. Simply wrap the whole lobster or lobster portions in moisture-vapor resistant wrapping and freeze. Lobster can be cooked and then frozen, but the quality will not be as good.

### ***Oysters***

Oysters that are still in the shells should only be frozen live. A live oyster will keep its shell tightly closed or will close it when tapped. If you have plenty of freezer space and want to freeze the oysters in the shells, simply wash the shells thoroughly and place in moisture-vapor resistant bags.

To save freezer space, wash the oyster shells, discarding any oysters that have died. Shuck oysters into a strainer (save the liquor) and remove any pieces of shell or sand. If necessary, the oysters can be rinsed to remove any sand. Place oysters and liquor in a plastic container or freezer bag, leaving ½-inch headspace, seal and freeze. Shucked oysters can also be frozen by this method.

Freezing does change the texture and flavor of oysters. These oysters may be best used in casseroles or stews.

### ***Scallops***

Scallops for freezing should be live until shucked. A live scallop will keep its shell tightly closed or will close it when tapped.

To freeze, place shucked scallops in a freezer container, leaving ½-inch headspace, seal and freeze.

### ***Shrimp***

Select high quality, fresh shrimp for freezing. Shrimp can be frozen cooked or raw, in or out of the shell. For maximum storage life and quality, freeze shrimp raw, with heads removed but shells still on. Be sure to wash and drain the shrimp if frozen raw.

Quickly chill shrimp cooked before freezing. Package in freezer containers or bags, leaving ¼-inch headspace, seal and freeze.

## **EGGS**

Eggs can be stored for at least 1 month, covered in the refrigerator. Freezing is often unnecessary, but it can be done.

**PREPARATION** — Select fresh eggs and break each separately into a clean saucer. Examine each for freshness and remove any pieces of shell before mixing with other eggs.

**WHOLE EGGS** — Thoroughly mix yolks and whites. Do not whip in air. To prevent graininess of the yolks, add 1½ tablespoons sugar, 1½ tablespoons corn syrup OR ½ teaspoon salt per cup whole eggs, depending on intended use. Strain through a sieve or colander to improve uniformity. Package, allowing ½-inch headspace. Seal and freeze.

Another method of freezing a whole-egg mixture is to use ice trays. Measure 3 tablespoons of egg mixture into each compartment of an ice tray. Freeze until solid. Remove frozen cubes, and package in moisture-vapor resistant containers. Seal and freeze. Three tablespoons of the egg mixture (one cube) equal one whole egg.

**EGG YOLKS** — Separate eggs. Stir yolks gently. To prevent graininess, add 1½ tablespoons sugar, 1½ tablespoons corn syrup OR ½ teaspoon salt per cup of egg yolks, depending on intended use. Strain through a sieve. Package, allowing ½-inch headspace. Seal and freeze. One tablespoon of the yolk mixture equals one egg yolk.

**EGG WHITES** — Gently mix whites; do not whip. Strain through a sieve. No sugar or salt is needed. Package, leaving ½-inch headspace. Seal and freeze. Two tablespoons of the egg-white mixture equal one egg white.

## **DAIRY FOODS**

### ***Butter***

Freeze only high quality butter made from pasteurized cream. Mold into squares, patties or other desired shapes, and wrap tightly in aluminum foil, transparent film or freezer paper, or seal in moisture-vapor resistant containers.

### ***Cheese***

Cheese keeps well in the refrigerator. If necessary, hard or semi-hard cheese can be frozen if cut in ½- to 1-pound sizes and packaged in moisture-vapor resistant material. This cheese may become crumbly and mealy when frozen, but will retain its flavor. Cream cheese and cottage cheese do not freeze well. However, if combined with heavy cream, cream cheese can be frozen for later use in dips or as icing on frozen sandwich loaves.

### ***Cream***

Freeze only heavy cream containing 40% or more butterfat. Heat to 170 to 180°F for 15 minutes. For storage longer than 2 months, add ½ cup sugar per quart of cream. Cool quickly. Place in moisture-vapor resistant containers, leaving ½-inch headspace.



### ***Whipped Cream***

Cream whipped after freezing and thawing does not become as stiff as never-frozen cream. Individual whipped cream garnishes can be satisfactorily frozen by whipping cream before freezing. Place dollops of whipped cream on baking sheet and freeze. Once solidly frozen, remove dollops and store in the freezer in freezer containers.

### ***Ice Cream***

Store-bought ice cream should be stored no longer than 1 month in its original container because its container is not moisture-vapor resistant. If stored longer than 1 month, it loses volume and the surface becomes waxy and sticky. The flavor may also change. If ice cream must be stored longer, over-wrap the container with freezer paper or plastic wrap. Homemade ice cream is difficult to store for any length of time because it becomes grainy. (Commercial producers of ice cream add extra milk solids and/or gelatin to their products to prevent this.)

### ***Milk and Buttermilk***

Use pasteurized homogenized milk. Place in moisture-vapor resistant containers for freezing. If packaged in wide-mouth containers, leave ½-inch headspace for pints, 1 inch for quarts. If packaged in narrow-mouth containers, leave 1½ inches headspace for either pints or quarts. Freezing may change the texture of the milk and cause some separation. Stir well before using.

### ***Sour Cream***

Sour cream should not be frozen. Freezing causes the sour cream to separate, and it will not blend back together acceptably.

### ***Yogurt***

Package in freezer containers. Seal and freeze. The fruit and sugar in flavored yogurt help to preserve and stabilize the yogurt. When thawed, it may taste more acidic. Home-frozen yogurt will have a different texture than dessert-type commercially frozen yogurt.

## **THAWING INSTRUCTIONS**

### ***Meat, Fish and Poultry***

Meat, fish and poultry can be cooked from the frozen or thawed stage. Frozen meats, fish and poultry are best when thawed in the refrigerator at 40°F or lower in their original wrappings. For faster thawing, place meat or fish in waterproof wrapping in cool (70°F) running water. Running water should be kept moving over the surface the whole time of thawing.

Frozen meat, fish or poultry can also be thawed in a microwave oven. After microwave thawing, cook thawed meat, poultry or fish to completion immediately.

Do not thaw frozen meat, seafood or poultry at room temperature unless the cool running water method is used.

If meat, fish or poultry is cooked without thawing, additional cooking time must be allowed, depending on the size and shape of the product. Large frozen roasts could take up to 1½ times as long.

When frozen meat, fish or poultry is to be breaded and fried, at least partially thaw first for easier handling. All poultry that is to be stuffed should be thawed completely for safety.

Use a food thermometer to check final minimum safe cooking temperatures of all meat, fish and poultry.

### ***Butter, Eggs, Milk and Cheese***

Place the frozen product in the refrigerator to thaw. After thawing, it can be used as fresh.

### ***Cream***


Thaw the same as butter, but before using the thawed cream, it should be mixed or blended slightly.

## STORAGE TIMES

Recommended storage times for home-frozen products held at 0°F are given below. For best quality, use the shorter storage times when a range is given. After these storage periods, the food should still be safe, but lower in quality.

PRODUCT	STORAGE PERIOD
Margarine	9 months
Cheese	
dry-curd cottage cheese, ricotta	2 weeks
natural, process	3 months
Cream (all kinds)	2 months
whipped	1 month
Egg whites or yolks	1 year
Fish or shellfish	
fatty fish	3 months
lean fish	6 months
shellfish	3 months
Ice cream or sherbet	1 month
Meat	
bacon	1 month
frankfurters	2 months
ground or stew meat	3 months
ham	2 months
roasts	
beef or lamb	1 year
pork or veal	8 months
steak or chops	
beef	1 year
lamb or veal	9 months
pork	4 months
variety meats	4 months
Milk, fresh fluid	1 to 3 months
Poultry	
cooked, with gravy	6 months
cooked, no gravy	1 month
uncooked (whole) chicken or turkey	1 year
duck or goose	6 months
uncooked (parts)	
chicken	9 months
turkey	6 months
Yogurt (regular)	
plain	1 month
flavored	5 months

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