

Packing Methods for Freezing Foods

A Guide to Packing Foods before Freezing

There are several ways to pack fruits, vegetables, and meats for freezing. Packing helps to retain the flavor of the foods and minimizes textural changes in foods during freezing.

There are three recommended packing methods for individual food groups.

1. Freezing fruits
2. Freezing vegetables
3. Freezing meat, poultry, and fish

1. Packs for Freezing Fruits

Regardless of the method used, it is important to freeze foods in meal-size packages. Foods frozen in big batches takes longer to thaw. It can also expose frozen foods to temperature fluctuations, which can lead to freezer burns, ice crystal formation, compromised taste and undesirable textural changes.

i. Sweetened Fruit packs

a) *Syrup Pack*

The syrup proportions should be determined by the sweetness of the fruits that will be frozen. Most fruits are frozen using 40% syrup, also known as heavy syrup.

To make a syrup, dissolve sugar in lukewarm water. Mix until the resulting syrup is clear. Chill the syrup

before using it to pack fruits. Use the table below as a guide to prepare syrups of different strengths.

Table 1- Syrup proportions for packing fruit for freezing

Type of syrup	Percent syrup	Amount of sugar in cups	Amount of water in cups	Yield in cups
Very Light	10	½	4	4 ½
Light	20	1	4	4 ¾
Medium	30	1 ¾	4	5
Heavy	40	2 ¾	4	5 1/3
Very Heavy	50	4	4	6

Use enough syrup to cover fruits for freezing and pour the mixture into freezer-friendly containers or bags. It is essential to keep the fruits submerged below the syrup level to avoid freezer burns. To do so, place crumpled parchment paper or other water-resistant wrapping material on top of the fruit mixture. Press down the fruits into the syrup before placing the lid.

Lighter syrups are recommended for fruits with milder flavors so that the syrup will not overpower the actual flavor of the fruit. Use heavier syrups for very sour fruits. Adding ascorbic acid helps to prevent darkening/browning of light colored fruits.

Use just enough cold syrup (about $\frac{1}{2}$ to $\frac{3}{8}$ cup of syrup per pint) to cover the prepared fruit in the container or bag. Leave appropriate headspace (space between food surface and the lid of a container or bag) and keep the fruit submerged with plastic wrap and crumpled waxed paper. Seal container tightly, label and freeze.

b) Sugar Pack

Combining sugar and fruit is another way to pack fruits for freezing. Sugar can be adjusted according to personal preference. To create better yield and texture, add $\frac{1}{4}$ cup to 1 cup of sugar to a quart of fruit.

After mixing, leave the fruit and sugar mixture for 15 minutes. Sugar allows juices to leak out from the fruit and create a physical barrier that prevents freezer burn.

ii. Unsweetened Fruit Packs

A. Pectin Syrup Pack

Combine one pack of pectin with 1 cup of water. Boil this mixture for one minute. Add 1 $\frac{3}{4}$ cup of cool water and wait until the mixture forms a stable gel. Add water if you want a thinner syrup.

B. Pack with Ascorbic Acid

Ascorbic acid helps to prevent darkening of the fruit and fruit products throughout the freezing process. Ascorbic acid is available in powder and tablet forms. For ascorbic acid pre-treatment, use manufacturer's guidelines suggested on the package. There are three different ways ascorbic acid can be used to pack fruits for freezing.

Puree or Juice Pack

Combine pureed fruit and ascorbic acid. Add sugar if desired. Pack leaving $\frac{1}{2}$ -inch headspace.

In Syrup or liquid Packs

Add ascorbic acid to cold sugar syrup just before packing. Stir in gently to avoid letting air into the mixture. Keep syrup refrigerated until it is ready to be used for packing fruits.

In Sugar or Dry pack

Dissolve ascorbic acid in 2-3 tablespoons of cold water and sprinkle the mixture over the fruit before adding sugar.

C. Citric Acid and Lemon Juice

Citric acid and lemon juice are sometimes used instead of ascorbic acid. However, this method is not as effective as ascorbic acid. In addition, when used in higher quantities, lemon juice and citric acid interfere with the natural taste of fruits and can sometimes mask their flavors.

D. Dry and Loose Pack

Dry pack is good for cut, sliced or small whole fruits such as mangoes, peaches, berries etc. Wash the fruits, dry them on a paper towel and pack, seal, label and freeze them.

Spread a single layer of fruit in a shallow container or on a tray and freeze. Leave it in the freezer for $\frac{1}{2}$ to 1 hour (until firm). Pour the frozen fruits into a freezer-friendly container or bag. Extended freezing with this method can lead to excessive moisture loss and affect the quality of the texture of the fruit product. The advantage of this method is that the fruit stays separated while frozen, making it easier to pour for further use.

E. Artificial Sweeteners

Artificial sweeteners can be used with dry, water, pectin, and juice packs. However, most fruits have a better texture, flavor and color when packed using syrup or sugars. Raspberries, blueberries, blanched apples, gooseberries, cranberries, and rhubarb freeze well without sugar.

Read the guidelines from the artificial sweetener package to determine the amount needed to replace the sugar.

2. Packs for Freezing Vegetables

There are two types of packing methods recommended for freezing vegetables.

i) Dry pack

Place blanched and drained vegetables into a meal-size freezer container or bags. Pack them tightly to prevent air from entering. Allow $\frac{1}{2}$ inch in a freezer container or bag. Vegetables such as broccoli, sprouts, and asparagus do not need headspace when freezing in a container or bag.

Leave approximately three inches of headspace when filling freezer bags. Twist, fold, and tie the top of the bag leaving $\frac{1}{2}$ to $\frac{3}{4}$ inches space.

ii) Tray Pack

After blanching and draining the vegetables, spread them on a tray in a single layer. Keep the tray in the freezer until the vegetables are firm. Package the product immediately as soon it is frozen. This step will prevent freezer burns and other textural changes in the food. This method also allows the product to stay separated and avoid clumping, making it easier to pour.

3. Packs For Freezing Meat, Poultry, and Seafood

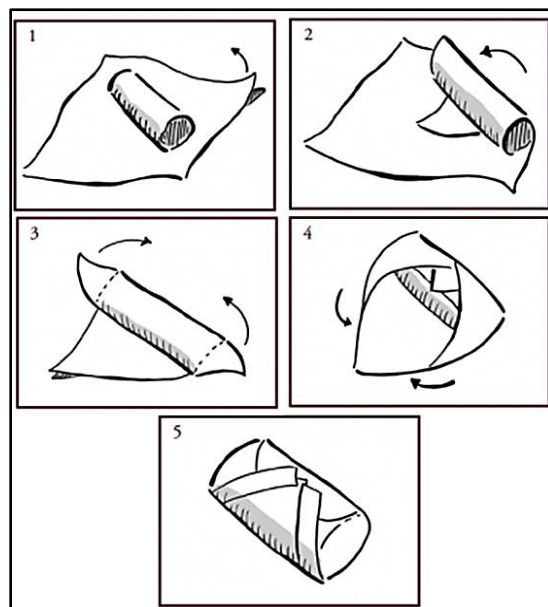
Heavy-duty aluminum foil, freezer wraps, freezer bags, vacuum-seal packaging, and freezer containers can be used to freeze animal products. However, aluminum foil and wraps tear easily. Allow the recommended headspace when using freezer bags and containers.

i) Wraps

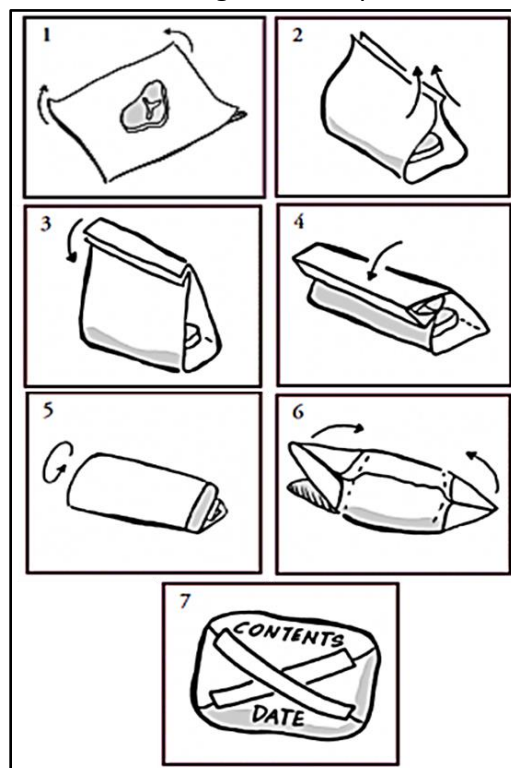
Special freezer papers are best suited to wrap meat, fish, and poultry. When packaging animal products, you can either use “drugstore wrap” or “butcher

wrap. However, butcher wrap does not work well with irregularly shaped meat pieces. See the illustration below on how to use both methods of wrapping.

Butcher Wrap



Drugstore Wrap



Fish can also be wrapped using good quality packaging, such as double wrapping or vacuum sealing. Small fish that are whole and cleaned (entrails removed), freeze well immersed in water. However, fish can also be frozen using glaze and roe methods.

ii) Packing Fish

Fish can be packed using the following methods:

A. *Lemon- Gelatin Glaze*

Mix ¼ cup lemon juice and 1¾ cup of water. Add one packet of unflavored gelatin in ½ cup lemon juice and water mixture. Heat the remaining lemon juice mixture to a boil. Combine both mixtures and let it cool to room temperature. Dip the cold fish into the glaze and drain. Wrap the fish in moisture and vapor-resistant packaging, label and freeze.

B. *Ice Glaze*

Place unwrapped fish into the freezer. As soon as it is frozen, dip it in ice-cold water and refreeze. Keep repeating this process until there is a hardened ice coating on the fish. Wrap the fish in moisture- and vapor-resistant packaging, label it, and freeze.

C. *Water*

Place unwrapped fish into a flat metal, foil, or plastic pan. Cover the fish with water and freeze. To prevent evaporation, seal the container with moisture- and vapor-resistant paper after the fish is frozen, label it, and refreeze.

D. *Fish Roe*

Wash roe thoroughly and package it in freezer-friendly containers, bags or boxes, leaving ¼-inch headspace. Seal and freeze.

Labeling Frozen foods

Frozen foods stored for a longer period may not be harmful for human consumption. However, it does affect the quality of frozen foods.

Labels should contain information such as the name of the product, type and parts of the foods (sliced carrots or chicken thigh), date of processing, number of servings, and “use by” date. This information can also be recorded near the freezer to create an inventory of the items stored in the freezer. Keeping an inventory helps in rotating frozen food items in the freezer (bringing older products to the front of the freezer while placing newly frozen products in the back).

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