



Food Science and Technology Notes

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HOMEMADE FROZEN DAIRY DESSERTS

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Making frozen-desserts in the home affords one way to combine family fun with good nutrition. The short time required, and the expense involved will be more than compensated by the enjoyment of preparing one of America's favorite fun foods.

Many recipes and methods of preparation are available. These notes give fundamental information necessary to prepare one or more frozen desserts from previously kitchen-tested recipes. Beginners should follow instructions closely. Those who have prepared frozen desserts and feel proficient, may wish to add their own special homemade ingredients, and use imagination and special techniques.

ADVANCE PREPARATIONS

Prepare the mixture of ingredients according to the directions of the recipe and chill thoroughly. Clean the freezer can, cover, and dasher thoroughly and cool before use.

Weigh and/or measure the salt; use rock or coarse-grained salt. About three cups (2 pounds) of rock salt and twenty pounds of ice will be needed for freezing one gallon of dessert mixture.

GET ACQUAINTED WITH YOUR FREEZER

It is recommended that the instructions which accompanied the freezer at time of purchase be followed. Since freezers are made differently, the size, shape, and type of construction materials may make it necessary to alter the freezing procedure.

In the event that the instruction book for use of your freezer is not available the information given below may be applied to most home freezers.

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Both hand-operated and electrically-driven freezers utilize the same principles. The thoroughly cleaned metal or plastic inner can container is filled to about 1/2 to 2/3 of capacity. (It is suggested that the mixture of ingredients be thoroughly chilled prior to freezing to reduce the freezing time). Lower the can and contents into the bucket and properly seat on the lower spindle. Fasten the drive mechanism tightly to seal the can cover so that no chips of ice or salt get within the can and contents. Secure the drive mechanism to the bucket.

FREEZING

Weigh the ice according to instructions. Before adding ice to the bucket, plug in and run the electric motor, or hand crank the manually-operated dasher, for one minute. Notice that when the can is turned, two things happen. The container revolves in one direction, and the dasher turns in the opposite direction. The spatula-like blades on the outer part of the dasher scrape the contents from the inner surface of the container as the mixture freezes. While the can is being turned, add ice and salt in layers. Begin with a layer of about two inches of ice, then evenly distribute about 1/4 cup of salt on the ice. Alternately add ice and salt until the can container is surrounded and the can is covered; maintain ice level during freezing. Check occasionally to be sure the drain hole in the bucket remains unobstructed so that excess brine can drain.

Electrically-operated freezers have motors that turn at a constant speed. Continue the freezing procedure until the electric motor labors. When a hand-operated freezer is to be used, it should be turned about one revolution per second during initial stages of freezing. This can be judged by counting one-thousand-and-one, one-thousand-and-two, etc. making about one number count per revolution. When the mixture begins to freeze and becomes slightly difficult to turn, increase the speed to cause whipping. Continue cranking until the can is more difficult to turn.

Regardless of the type of freezer used, electrically or hand-operated, when freezing is complete, drain the brine by tilting the freezer. Clear away the ice and salt down to about two inches below the can cover. Remove the motor or hand crank mechanism. Wipe the can cover free of ice and salty water. Carefully remove the cover and dasher, scraping the dasher as it is removed.

RIPENING (HARDENING)

The purpose of ripening is to allow time for the flavors to blend (bloom), and to harden by freezing additional free water from the soft-frozen mixture.

Push the ice cream down from the top sides of the can. Blend the soft and firmly frozen portions. Cover can with foil or heavily waxed paper. Replace the cover, and place the cork in the hole of the can cover.

Repack the freezer bucket with ice and salt, using a larger ratio of salt to ice than was used during freezing. Heap ice and salt on the can cover. Cover and wrap the bucket and contents with layers of newspapers or heavy cloth such as towels. Allow to remain undisturbed in a cool place for two

to three hours. After about an hour drain the brine and check the level of ice-salt mixture; add more if necessary.

Homemade frozen dessert is best when consumed after hardening. However, if it is not to be consumed immediately, transfer to a previously chilled metal or plastic container after the mixture has hardened. Cover the storage container with suitable flexible plastic or similar wrap and seal the container. Keep frozen until ready to use.

The frozen dessert may be hardened in a chest or upright freezer. This can be done in the freezing can, or transferred to suitable smaller container(s). When transferred to another container for hardening, prechill the container and do not fill the container. Allow some space for expansion due to freezing.

Recipes for the Dasher Freezer

The recipes given below are suitable for freezing in dasher type freezer, either hand-or electrically-driven. Each recipe will yield approximately three quarts of finished frozen dessert.

Old Home Vanilla

3 eggs	3 cups pasteurized heavy (whipping) cream
1-3/4 cups sugar	2 tbsp. vanilla extract
3 cups pasteurized milk	1/4 tsp. salt

In a large mixing bowl, beat eggs until foamy. Gradually add sugar and beat until thickened; add other ingredients and mix thoroughly. Heat to scald (160°F). Cool while stirring. Chill and then churn freeze.

French Type

4 eggs	1-1/2 cups sugar
6 cups light cream	2 tbsp. vanilla extract

Separate egg yolks and beat until foamy; gradually add 1/2 the sugar and beat until thickened. Use large mixing bowl and beat egg whites to soft peaks. Fold the egg yolk mixture into the whites. Stir in cream and remaining sugar and vanilla. Transfer to a sauce pan and cook over medium heat, stirring constantly until mixture coats spoon. DO NOT BOIL. Chill and churn freeze.

Junket Ice Cream

2 rennet tablets	2 cups pasteurized heavy cream
4 tbsp. cold water	1-1/2 cups sugar
6 cups pasteurized milk (lukewarm)	2 tbsp. vanilla extract

Dissolve rennet tablets in cold water and add to warm milk; mix well. Mix in other ingredients. Allow to set at room temperature until slightly thickened (gelled). Chill, and churn freeze. (Rennet tablets are available from most drug stores, Junket Brand).

Chocolate Ice Cream

1 tbsp. gelatin	3 cups pasteurized milk
3/4 cup cocoa	1 qt. pasteurized heavy (whipping) cream
2 cups sugar	2 tbsp. vanilla extract
1 cup light corn syrup	

In a sauce pan, blend gelatin and cocoa with dry sugar; add corn syrup and 2 cups of milk. Stirring constantly, bring to a boil. Remove from heat and blend in remainder of milk, cream, and vanilla. Chill and churn freeze.

Strawberry Ice Cream

2 eggs	3 cups pasteurized whipping cream
1 cup sugar	3 cups crushed strawberries
3 cups pasteurized milk	1 tbsp. vanilla extract

Crush and sweeten the strawberries to taste and keep cold until used. In a large mixing bowl, beat eggs until foamy; gradually add sugar and beat until thickened. Add milk, cream, and vanilla. Blend in the strawberry mixture. Chill and churn freeze. NOTE: Some nice ripe, whole strawberries may be chilled and added to the frozen and whipped mixture at the time the dasher is removed.

Flavorings for Ice Cream

Other flavors may be used in any of the basic formulae above.

Chocolate: Make a chocolate syrup by mixing 1 3/4 oz. cocoa, 2 1/4 oz. sugar and adding to 4 oz. (1/2 cup) water. Heat to boiling then cool. Add this to mix prior to freezing.

Fruit & Nut: Chopped nuts may be added. The flavor will be improved if toasted or roasted nuts are used.

Fresh, frozen or canned fruit or berries may be used for flavoring. Best results will be attained if these are cut, diced or crushed and sweetened.

Caramel: Substitute 1/2 cup of sugar with 1/2 cup melted caramel in the basic mix. One cup of chopped, roasted almonds or pecans will add to the appeal of this recipe.

Macaroon: Add 2 cups of macaroons (measured after drying and crushing). Grape nuts may be used in similar manner.

Peanut Butter: 1 1/2 cups of peanut butter thinned with the mix and added back just prior to freezing.

Peppermint Stick: Replace 3/4 cup of sugar in the recipe with 1 cup of crushed peppermint stick candy. Stir in another 1/2 cup just before ripening is started.

Mocha: Add 1/4 cup instant coffee to the Chocolate formula for this exotic flavor.

Recipe for Making in Freezing Compartment of Refrigerator of Home Freezer

The ingredients given below will make slightly less than one quart of frozen dessert.

1 cup milk	1 tbsp. nonfat dry milk
2 tsp. gelatin (plain)	1/8 tsp. salt
2 eggs	1 cup pasteurized heavy cream(whipped)
1/2 cup sugar	1 tsp. vanilla extract

Add the gelatin to cold milk and let soak for 5 minutes; scald milk in double boiler over boiling water, stirring until gelatin is dissolved.

Separate eggs; beat egg yolks slightly; reserve the whites.

Mix nonfat dry milk with sugar and add this mixture to the beaten yolks. Gradually pour in the scalded milk, stirring constantly. Return the mixture to double boiler and cook over hot water, stirring constantly, until the mixture thickens slightly and coats a metal spoon.

Chill the mixture by placing the pan in a container of ice water. The mixture should thicken. Chill several hours in a refrigerator prior to freezing.

Add the salt and vanilla to egg whites and beat until stiff. Fold into the chilled custard mixture. Fold in whipped cream. Pour into a freezing tray without dividers, or into a flat, shallow pan, filling no more than 3/4 full to allow room for subsequent mixing.

Adjust the refrigerator freezer temperature control to the lowest cooling point, since the faster the mixture freezes, the smoother will be the texture. If a home freezer is used, DO NOT ALTER THE CONTROL. Place the tray of mixture in the freezer.

When the mixture has partially frozen so that there is a 1/4 inch thick layer on the sides and bottom of the tray, remove the tray from the freezer and pour the mixture into a well-chilled bowl. Beat the mixture until it is smooth and then pour into tray. Return the tray of mixture to the freezer for an additional 30 minutes (20 minutes in the home freezer). Repeat the mixing and beating procedure and return to the freezer.

When the mixture is frozen stiff, the refrigerator temperature control may be returned half way to the normal setting while the dessert ripens and mellows for one hour or longer. If the tray contents begin to melt, of course, reduce the temperature by changing the freezer compartment control.