

The Key to Smooth, Rich, Homemade Ice Cream

An ice-cream pro shares his recipes and a secret ingredient—skim milk powder

BY ANDREW HINGSTON

Super-rich, I'd-kill-for-another-spoonful ice cream usually comes in pint cartons, but it's also available in your home ice-cream maker. You may never have found it there, however, because most recipes don't include an ingredient that's guaranteed to make the difference between good and great ice cream. I made this discovery as a student at Penn State's Ice Cream School (the one that gave Ben & Jerry their start), and I'll show you how to make ice cream that's extraordinary every time.

MAKING GREAT ICE CREAM IS A SCIENCE

People are passionate about ice cream, but the main ingredients that make it are pretty mundane: butterfat (from cream), sugar, and water. These basic elements form an emulsion—a mixture in which particles of fat are dispersed in liquid. This ice-cream base is frozen while air is whipped into it during churning.

Lots of cream, however, doesn't necessarily mean great ice cream. While ice cream that's creamy and smooth should contain 14% to 20% butterfat, too much butterfat will make it stiff and greasy.

You also need to use ingredients that will stabilize the emulsion, keeping the fat well distributed for the creamiest confection. Egg yolks are the classic

For deeply flavored caramel ice cream, add caramel sauce to the ice cream as it freezes.



Inspirations for flavoring ice cream

Great ice creams need a practical formula, but flavor is an area where fantasies can take flight. Below is a list of flavors to get you started.

| Fresh Fruit | Dried Fruit | Candies & Confections | Nuts | Spirits |
|--------------------|--------------------|----------------------------------|-------------|---------------------|
| Bananas | Apricots | | Almonds | Amaretto |
| Blueberries | Blueberries | Chocolate chunks | Brazil nuts | Armagnac |
| Cherries | Cherries | Heath bars | Cashews | Cointreau |
| Mangoes | Cranberries | Peppermints | Hazelnuts | Crème de cassis |
| Oranges | Dates | Brownies | Pecans | Crème de menthe |
| Peaches | Peaches | Caramel sauce | Walnuts | Frangelico |
| Raspberries | Prunes | Fudge sauce | | Kahlua or Tia Maria |
| Strawberries | Raisins | | | Rum or whiskey |

ingredient for this. Eggs' protein helps hold the emulsion of fat and water together, and while egg yolks have a high fat content, that type of fat adds a pleasant richness and doesn't add to the butterfat. But egg yolks alone aren't enough of a stabilizing influence.

WHY SKIM MILK POWDER IS IN THE BEST ICE CREAMS

Skim milk powder is the key to the quality of all-natural ice creams. Together with egg yolks, skim milk powder helps create ice cream that's smooth, dense, and rich.

The protein in skim milk powder helps stabilize the emulsion without adding fat. It does this by absorbing most of the extra water in the ice-cream mixture. Too little water gives ice cream a peculiarly sandy feel on the tongue, but too much unabsorbed water results in iciness. Instead of turning icy after two or three days in the freezer, ice cream that's made with skim milk powder should last a few weeks.

Cocoa also absorbs excess water without adding fat; this is one of the reasons it's used instead of chocolate in many "chocolate" ice creams. Chocolate contains a lot of cocoa butter, a fat that quickly hardens when chilled, which can create an ice cream that's difficult to scoop. But chocolate provides flavor that cocoa alone can't match. One solution is to use a small amount of the most intense chocolate you can

find, such as Callebaut or Valrhôna. Since imported chocolate can cost \$20 a pound, I sometimes use unsweetened baker's chocolate and increase the sugar in the recipe.

YOU HAVE TO COOK ICE CREAM BEFORE YOU CAN FREEZE IT

The first step toward a great ice cream is to combine sugar, milk, cream, skim milk powder, and egg yolks and then cook the mixture to make a custard. Use a stainless-steel bowl set over a saucepan of simmering water so you can keep the heat low and constant.

There are two measures of the custard's readiness: temperature and time. The custard should thicken noticeably as it cooks, though it should be very smooth. (Lumps would mean that it has gotten too hot and curdled.) Even more important, you should keep the custard between 165° and 180°F for at least 10 to 15 minutes. Maintaining this temperature range is vital. Anything under 165° is too low to be effective, and even one degree above 180° can mean curdling.

After cooking, cool the custard immediately in an ice bath until it reaches 65°. Not only does this heating and cooling procedure improve the ice cream's texture, it also comes as close as possible in a home environment to pasteurizing your mixture. Since egg yolks can contain salmonella bacteria, you should never skip these steps.

When the custard has cooled, add any flavorings that contain alcohol, such as vanilla extract or a liqueur. This ensures that the alcohol won't evaporate in the custard's heat, leaving a little spirited kick. Refrigerate the mixture for at least four hours, preferably overnight, in a tightly covered plastic or stainless-steel container. This storage time improves the ice cream's texture and flavor, but make sure the custard isn't near any aromatic foods in your refrigerator. The custard can quickly pick up the flavors of garlic, onions, and spices. After the base has been refrigerated overnight, you should churn and freeze it that day.



A thermometer shouldn't be optional equipment. Be certain that the custard has reached 165°F, not only to help ensure the recipe's success, but also to protect against salmonella contamination from the egg yolks.



In this delicious ice cream, three powders make the difference: cocoa, espresso, and skim milk. The first two powders provide flavor, while the skim milk powder gives the ice cream its silky texture.

Photo: Mary Ellen Bartley



CHURN IT BY HAND OR BY MOTOR

The world's best ice cream can be made in any kind of ice-cream maker. I currently use a Krups model, but since all models work pretty much the same way, I think the only real mistake you can make is choosing one that costs too much.

Before you pour the custard into the ice-cream maker, be sure the machine is large enough to contain your batch; ice cream swells as it freezes. (My recipes are designed for a 1½-quart maker.) Freshly made ice cream will be soft. Once it has been churned, scoop it into a resealable plastic or stainless-steel container to harden in the freezer for a few hours.

Keep ice cream as cold as possible. If you've ever opened a container of ice cream and found that it had become mysteriously gooey, your freezer was probably responsible. Frost-free freezers repeatedly warm and cool by a few degrees, which encourages the ice cream's water and fat molecules to separate and clump

with their own kind. That's why you shouldn't refreeze ice cream after it has been brought up to serving temperature. The best solution is to eat homemade ice cream as soon as you can—but I don't think that will be a problem.

Orange Ice Cream with Dried Cherries & Toasted Pecans

Yields 1½ quarts.

- 2 medium navel oranges*
- 2 cups heavy cream*
- 1 cup skim milk*
- ½ cup sugar*
- ½ cup light brown sugar, packed*
- Large pinch salt*
- ¼ cup skim milk powder*
- 5 large or 4 extra-large egg yolks*
- ½ vanilla bean, split lengthwise*
- ½ tsp. natural vanilla extract*
- ½ cup dried cherries*
- ¼ cup orange juice*
- 2½ Tbs. Cointreau or other orange liqueur*
- ¾ cup large pecan pieces*

Peel the oranges. Use a vegetable peeler to pare off the peel in thick, smooth strips. Turn the peel over so the white pith faces you. Scrape away the pith with the peeler or the edge of a sharp knife. Set the zest aside.

Make the ice-cream base. Fill a medium saucepan halfway with water and set it over medium heat. Combine the cream, milk, sugars, salt, skim milk powder, egg yolks, vanilla bean, and orange zest in a medium stainless-steel bowl and whisk to mix completely.

Put the bowl on the saucepan and cook the mixture, stirring constantly with a wooden spoon or spatula, until it reaches between 165° and 180°F. Test the temperature with a candy thermometer. Keep the temperature in that range for at least 10 to 15 min., still stirring. The mixture will thicken.

Cool the ice-cream base. At the end of the cooking period, put the bowl in an ice bath to cool. Add the vanilla extract. Stir frequently, replenishing the ice as necessary, until the mixture cools to 65° (about 15 min.). Cover the bowl and refrigerate for at least 4 hours, preferably overnight.

Plump the cherries and toast the pecans. Meanwhile, soak the dried cherries in the orange juice and Cointreau for a few hours until plump.

Toast the pecans on a baking sheet in a 350° oven for about 10 min., shaking the sheet occasionally to prevent burning. The nuts are ready when they color

For a full-flavored mixture, infuse and then strain. The author simmers orange zest in the custard to release its fragrance and flavor. After the mixture chills, he strains out the zest and freezes the ice cream.



slightly and become fragrant. Allow them to cool to room temperature.

Freeze the ice cream. When you're ready to freeze the ice cream, pour the mixture through a sieve to remove the orange zest and vanilla bean. Add half the marinated cherries and any excess liquid from the cherries.

Begin freezing according to your ice-cream maker's directions. After 8 to 10 min., the ice cream should be semisolid—about the stiffness of cake batter. At this point, add the remaining cherries and the toasted pecans. Continue freezing until the ice cream holds stiff

Customize the recipe with fruits, nuts, and flavorings

For some people, ice cream isn't worth eating if it doesn't have "chunks." These ingredients should be added about 8 to 10 minutes after the ice cream has begun freezing; at this point, the mixture will be thick enough to prevent the chunks from sinking to the bottom. Some additions need a little preparation before they can be added to the ice cream, and some ice-cream bases need adjustment to accept the additions.

FRESH AND DRIED FRUITS—Fruit contains a lot of water, which will always result in iciness. One solution is to use a little more cream and a little less milk in the base and to add a little extra skim milk powder to the mixture. You also can remove some of the fruit's water by partially dehydrating the fruit in a very low oven for an hour or two. While this diminishes the fruit's fresh flavor, it also prevents the chunks of fruit from turning into icy fruit pebbles in your ice cream.

On the other hand, dried fruits such as raisins or dried cherries need some liquid before they can be added to ice cream. Plump them in fruit juice or a spirit (such as rum, brandy, or kirsch) for an hour or two. You won't need much liquid—perhaps two tablespoons for half a cup of dried fruit.

NUTS—For the best flavor, nuts should be toasted before adding them to ice cream. Pistachios are trouble-makers; they absorb a lot of water and quickly become soft in ice cream.

ALCOHOL—Alcohol reduces the freezing point and makes ice cream easier to scoop. And of course there's the flavor alcohol can add—Chocolate-Triple Sec ice cream is one of my favorites. After you cool the custard base, try adding a tablespoon of alcohol for each pint of base. For stronger flavor, add two to three tablespoons alcohol to the mixture as it cooks. The heat will cook out the some of the alcohol that would make the ice cream too soft. Still, that extra liquid means you'll need to add a little more skim milk powder (start with one teaspoon) to make up the difference.

peaks. Transfer the ice cream to a resealable plastic or stainless-steel container and freeze overnight until firm.

Caramel Ice Cream with Toasted Almonds

Yields 1 generous quart.

*2 cups heavy cream
1 cup skim milk
½ cup light brown sugar, packed
Large pinch salt
¼ cup skim milk powder
5 large or 4 extra-large egg yolks
½ cup caramel sauce (see recipe at right)
½ vanilla bean, split lengthwise
1½ tsp. natural vanilla extract
½ cup whole blanched almonds*

Make the ice-cream base. Fill a medium saucepan halfway with water and set it over medium heat. Combine the cream, milk, brown sugar, salt, skim milk powder, and egg yolks in a stainless-steel bowl. Whisk to mix completely.

Put the bowl on the saucepan and cook the mixture, stirring constantly, until the base reaches between 165° and 180°F. Test the temperature with a candy thermometer. Keep the temperature in that range for 5 min. Add the caramel sauce and the split vanilla bean. Continue maintaining the temperature, stirring frequently, for another 5 to 10 min. The mixture will thicken.

Cool the ice-cream base. At the end of the cooking period, put the bowl in an ice bath to cool. Add the vanilla extract. Stir frequently, replenishing the ice as necessary, until the mixture cools to 65° (about 15 min.). Cover the bowl and refrigerate for at least 4 hours, preferably overnight.

Toast the almonds. Toast the almonds on a baking sheet in a 350° oven for about 10 min., shaking the sheet occasionally to prevent burning. The nuts are ready when they color slightly and become fragrant. Chop the almonds coarse and set aside.

Freeze the ice cream. Remove the vanilla bean from the base. Freeze the base following your ice-cream maker's directions. After 8 to 10 min., the ice cream should be semisolid—about the stiffness of cake batter. At this point, add the almonds. Continue freezing until the ice cream holds stiff peaks. Transfer the ice cream to a resealable plastic or stainless-steel container and freeze overnight.

Hazelnut-Mocha Ice Cream

Yields 1 generous quart.

*4 oz. good-quality semisweet chocolate, chopped
1¾ cups heavy cream
1½ cups skim milk
½ cup light brown sugar, packed
5 large or 4 extra-large egg yolks
½ cup skim milk powder
Large pinch salt
1 Tbs. unsweetened cocoa powder
2 Tbs. coffee powder (preferably espresso style)
½ cup whole blanched hazelnuts
½ tsp. natural vanilla extract
1½ Tbs. Frangelico*

Prepare the chocolate. Melt the chocolate slowly in a small bowl set over (not in) a pan of simmering water.



This pale ice cream is intensely flavored. Triple-infused with the flavor of oranges (zest, juice, and Cointreau liqueur), the creaminess is memorably contrasted with toasted pecans and tart, chewy cherries.

Photo: Mary Ellen Bartley



Stir often. When melted, take it from the heat and set it aside.

Make the ice-cream base. Fill a medium saucepan half-way with water and set it over medium heat. Combine the cream, milk, brown sugar, egg yolks, skim milk powder, and salt in a stainless-steel bowl. Add the melted chocolate, cocoa powder, and coffee powder. Whisk to mix completely. Don't worry if the chocolate appears to "curdle"; it will smooth out.

Put the bowl on the saucepan and cook the mixture, stirring constantly, until the base reaches between 165° and 180°F. Test the temperature with a candy thermometer. Keep the temperature in that range for 10 to 15 min. The mixture will thicken.

Cool the ice-cream base. At the end of the cooking period, put the bowl in an ice bath to cool. Add the

vanilla extract and the Frangelico. Stir frequently, replenishing the ice as necessary, until the mixture cools to 65° (about 15 min.). Cover the bowl and refrigerate for at least 4 hours, preferably overnight.

Prepare the hazelnuts. Toast the hazelnuts on a baking sheet in a 350° oven for about 10 min., shaking the sheet occasionally to prevent burning. The nuts are ready when they color slightly and become fragrant. Chop the nuts coarse and set aside.

Freeze the ice cream. Freeze the base according to your ice-cream maker's instructions. After 8 to 10 min., the ice cream should be semisolid—about the stiffness of cake batter. At this point, add the hazelnuts. Continue freezing until the ice cream holds stiff peaks. Transfer the ice cream to a resealable plastic or stainless-steel container and freeze overnight until firm.

Caramel Sauce

This is a great ice-cream topping, or use it to make Caramel Ice Cream with Toasted Almonds (see recipe at left). *Yields 1½ cups.*

*1 cup sugar
1 cup heavy cream*

Melt the sugar. Put the sugar in a heavy 3- or 4-qt. saucepan. Set the pan over medium-high heat until the sugar melts. Shake the pan occasionally to distribute the unmelted sugar, but do not stir; this can encourage lumps. When the sugar is melted and bubbly, continue cooking, shaking the pan occasionally.

For a sweet caramel sauce, cook until the sugar turns light brown; for a richer, less-sweet sauce, let the caramel become medium or dark brown. (For more on caramelizing sugar, see *Fine Cooking* #1, pp. 35–39.)

Add the cream. As soon as the sugar reaches the correct color, remove the pan from the heat and begin whisking in the cream, about ¼ cup at a time. Be extremely careful; the cream will make the caramel foam dramatically, and you can burn yourself on the steam or overflow.

Cook the sauce. After all the cream has been added, return the sauce to a low flame for about a minute. If the sauce is too thick, whisk in more cream. While still warm, transfer the sauce to a Pyrex or stainless-steel container. Use it immediately, or let it cool to room temperature and rewarm it in a water bath or in the microwave.

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Give hot caramel plenty of room. When you add cream to the hot sugar, the sauce will boil furiously. Hot caramel can burn terribly, so be sure your pot is large enough to contain the sauce.

