

Ice Cream

The below information is meant to be educational. Please consult [CFR 135.110](#) for the complete standard of identity.

What is ice cream? Well, it depends on who you ask.

If you ask Average Joe:

Ice cream can be used as a colloquial term to cover everything found on the “ice cream aisle.” To some it means everything that is cold, creamy, sweet, comes on a stick or looks like traditional ice cream, even if it doesn’t contain any dairy ingredients.

Depending on which country you live or are making product for, it’s important to know if there are legal requirements for these sweet treats: Ice cream, frozen custard, sherbet, Italian ice, gelato, frozen dairy desserts, etc.

If you ask the United States Government:

Ice cream has a legal definition, called a standard of identity (SOI). This definition sets requirements for allowable ingredients, overall composition, and what a frozen dessert may or may not be called. Many products have standards of identity, from tomato paste to cheddar cheese. These legal standards exist in order to protect consumers from buying poor quality product and to avoid confusion when making purchasing decisions. All of these legal food definitions can be found in the Code of Federal Regulations Title 21, the standard identity for ice cream, frozen custard, sherbet, and water ices can be found in [Section 135](#).

Requirements to be called ice cream (in the USA):

- Minimum of 10% milkfat
- Minimum 20% milk solids (including milkfat and nonfat milk solids)
 - Can divide this between milkfat and various sources of nonfat milk sources
 - Whey ingredients can only make up 25% by weight of the nonfat milk solids content
 - You can decrease nonfat milk solids in 1% increments if you also increase the milkfat content in 1% increments:

% Milkfat	Minimum % Nonfat Milk Solids
10	10
11	9
12	8
13	7
14	6

- Minimum of 1.6 lbs/gal of total solids in finished ice cream
 - Works out to around 36% total solids by weight

- This includes the 20% total milk solids and the solids from sweeteners (sugar, corn syrup, etc), stabilizers, bulky flavors, etc
- Minimum weight of 4.50 lbs/gallon finished ice cream
 - This throttles the total amount of air that can be added during the freezing process called overrun
 - For a basic formula, the maximum allowable overrun is usually around 100%

What about ice cream with a bulky flavor, like chocolate ice cream

- In general, the formula must comply with all requirements of ice cream listed above when the weight of the bulky flavor is subtracted
- However, the SOI does allow for formula adjustments to accommodate the bulky flavor. Below are the adjustment factors that can be used to determine what percent of the formula is exempt from solids/fat requirements
- Chocolate or cocoa solids
 - The weight of solids may be multiplied by 2.5
- Fruit or nuts
 - The weight may be multiplied by 1.4
- Partially or wholly dried fruits or fruit juices
 - The weight may be multiplied by appropriate factors to obtain the original weights before drying and this weight may be multiplied by 1.4.
- In no case can the final formula specs to be less than 8% milkfat and 16% total milk solids by weight.
- Bulky flavor examples
 - Cocoa powder
 - Chocolate
 - Chocolate liquor
 - Fruits and fruit juices
 - Nuts
 - Flavorings and flavor bases

What about Frozen Custard, aka French ice cream, aka French custard ice cream

- Must comply with all requirements of ice cream listed above
- Must also contain at least 1.4% egg yolk solids by weight
- If a bulky flavor is present, the egg yolk solids must be at least 1.12% by weight in the finished formula

Approved ingredients

| For a complete list, consult [CFR 135.110](#)

- Approved milkfat ingredients

- Cream, dried cream, plastic cream (sometimes known as concentrated milkfat), butter, butter oil, milkfat from sources listed below.
- Approved nonfat milk ingredients
 - Milk- fluid, dry, concentrated, evaporated, and sweetened condensed
 - Sweet cream buttermilk- dry, concentrated
 - Certain types of treated skim milk
 - Whey and modified whey products- sweet whey, reduced lactose whey, reduced minerals whey, and whey protein concentrate
 - Cannot use more than 25% by weight of the total nonfat milk solids content of the finished formula.
 - Caseinates- Casein prepared by precipitation with gums, ammonium caseinate, calcium caseinate, potassium caseinate, and sodium caseinate.
 - Hydrolyzed milk proteins
 - May be added as a stabilizer at a level not to exceed 3% by weight