

# NON-DAIRY ICE CREAM

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**N**on-dairy ice cream is a frozen mixture of a combination of components of milk substitute, non-fat milk solid substitute, sweeteners, stabilizer, emulsifiers and flavouring. Other ingredients such as egg products and colourings may be added. The mixture is pasteurized and homogenized before freezing. Freezing involves rapid removal of heat while agitating vigorously to incorporate air, thus imparting the desirable smoothness and softness of the frozen product.

The composition of ice cream varies widely depending on the types and intended market. Typical composition of a product labelled vanilla ice cream is, as an example, 11% milkfat, 11% non-fat milk solids (NMS), 12% sugar, 5% corn syrup solids, and 0.3% stabilizer/emulsifier. This makes the total solids approximately 39%.



Ice cream is a palatable, nutritious, healthful, and relatively inexpensive food. According to Marshall and Arbuckle (1996), one serving of ice cream of average composition 4 fluid ounces, weighs about 70g, and supplies about 130 calories, 3g protein, 100mg

calcium, 70mg phosphorus, 250 international units (IU) vitamin A, 120 µg riboflavin, and 30 µg thiamin.

## PRODUCTION OF NON-DAIRY ICE CREAM

Non-dairy ice cream was developed for the special market where the milk fat and non-fat milk solids are substituted with other non-milk products. This non-dairy ice cream is cholesterol free and come in various types of local fruit flavours and traditional flavours. There is not much difference in the production and equipment used between the normal and non-dairy ice cream.



TABLE 1. PROCESSING CONDITION FOR THE NON-DAIRY ICE CREAM

Steps	Condition
Mixing	High speed mixer, 3mm, 40°C
Pasteurization	30min, 72°C
Homogenization	3mm, 40°C
Cooling and ageing	Overnight with stirring, 4°C
Freezing	45mm, -20°C
Hardening	15 mm with blast freezer, -20°C
Storing	-20°C

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## FORMULATION OF NON-DAIRY ICE CREAM

A wide range of ingredients for non-dairy ice cream is now available from numerous sources. These ingredients may be grouped as milkfat substitute and non-dairy products. The milkfat substitute such as palm oil products and non-fat milk solids substitute furnish the basic ingredients of milkfat and non-fat milk solids, which have essential roles in ice cream. Non-dairy products include sweeteners, stabilizers and emulsifiers, fruits, nuts, flavours and water.



Mixture of Fats, Non-fat Milk Solid Substitute, Sweetener, Emulsifier/Stabiliser

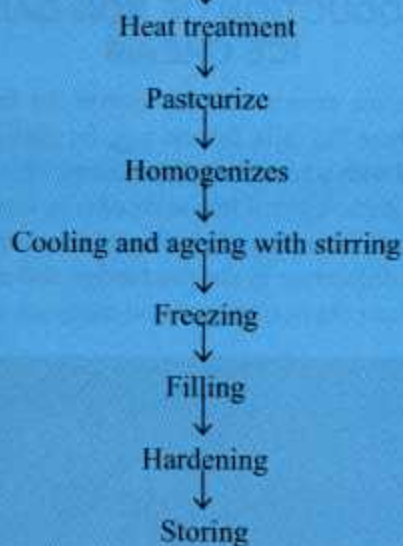


Figure 1. Flow chart of processing of non-dairy ice cream

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