

# PROCESSING OF CAKE



**AATMANIRBHAR BHARAT**

**PM Formalisation of Micro Food Processing  
Enterprises Scheme (PM FME Scheme)**

# INTRODUCTION

## Industrial Overview: Bakery

- Bakery goods are an integral component of a modern lifestyle.
- Bakery products are not limited to, bread, rolls, cookies, pies, pastries and muffins.
- Categories of bakery and baked goods-
  - Such as bars, breads (bagels, buns, rolls, biscuits and loaf breads),
  - Cookies, sweets (cakes, cheesecakes and pies)
  - Muffins
  - Pizza, snack cakes, tortillas and tortillas (doughnuts, Danish, sweet rolls, cinnamon rolls and coffee cake).



- Items from bakeries are commonly viewed as detrimental to health.
- Health-based bakery products are the products which, when consumed in sufficient quantities, result in special health benefits other than the usual nutritional supply.
- Bakery owners are also selling bakery items with healthy choices.
- In order to preserve good health while enjoying the taste and comfort provided by bakery items, customers need to become aware of the healthier choices.

## ➤ Types of Bakery Products

- Bread
- Cakes
- Bun
- Pastries
- Biscuits
- Cookies
- Doughnuts
- Crackers



# INTRODUCTION

## Product Description:



- Cake is a type of sweet food that is typically baked, made from flour, sugar, and other ingredients.
- Flour, sugar, eggs, butter or oil or margarine, a liquid, and leavening agents such as baking soda or baking powder are the most widely used cake ingredients.
- . Fruit preserves, nuts or dessert sauces (such as pastry cream), iced butter cream or other icing, and decorated with marzipan, piped border or candied fruit may also be filled with cakes.

- Two main types of cakes are available: butter cakes (also referred to as shortened cakes) and sponge cakes.
- **Sponge Cakes-**
  - Sponge cakes have little to no fat and typically have a higher percentage of eggs.
  - This gives them an airy, lighter texture (think angel food and sponge cake).



### ➤ **Butter Cakes-**

- On the other hand, butter cakes contain butter, margarine, or shortening of vegetables, giving you the dense, moist cakes.
- If it says "cream butter and sugar," in the recipe, it's a butter cake.
- You'll usually add egg, flour, and baking powder or baking soda for leavening once the creaming is complete.
- To name a couple, butter cakes will come in chocolate, white, yellow and marble.
- Other cakes in this type, such as carrot cake or red velvet cake, can be "shortened" with oil.

## MARKET POTENTIAL:

- Global bread market is projected to register a CAGR of 1.43% during the forecast period, 2019 - 2024.
- During the forecast period, 2019 - 2024, the global bread market is expected to register a CAGR of 1.43%.
- Since the nineties, the Indian bread industry has come a long way.
- The Indian bread market stood at \$640.73 million in 2017, and is projected to rise to \$1024.54 million by 2024 at a CAGR of over 10.70 percent, in value terms, during 2019-2024.



- Market factors and demographic patterns are increasingly affecting supply and demand; India's bread market is aided by an expanding working population and a rising number of health-conscious consumers.
- In addition, some of the other factors expected to propel demand for bread over the next five years are rising disposable income along with shifting lifestyle and knowledge of eating a good and safe diet to minimize health problems.
- The bread industry in India is dominated by unorganized players, leading to about 55% of the total market.

## Raw Material Description:

- The raw materials required for Cake is as follow:
  - Baking Powder
  - Castor Sugar
  - Eggs
  - All Purpose Flour (Maida)
  - Vanilla Essence
  - Corn Starch
  - Oil
  - RO Water



- Whipping Cream:
  - Whipping Cream
  - Icing Sugar
  
- Decoration, Icing & Soaking: (Optional)
  - Pineapple Juice
  - Chopped Canned Pineapples
  - Canned Cherry



- Usually, a traditional cake recipe contains flour, a kind of sweetener, eggs, some sort of fat, a liquid, a leavening agent to make it rise and flavour (like vanilla, cocoa powder or cinnamon).
- The key instigators of cakes being their own category (separate from breads) were **leavening agents**, as these allowed baked products to grow literally.
- To enhance texture, moisture and overall flavour, a **fat** source is commonly used.

- For cakes, **sweeteners** are very important.
- **Eggs** play a major role, as their intrinsic proteins function to shape the cake's structure with other ingredients.
- **Flour**, thanks to its proteins which mix with water to form gluten, gives the cake its strength and keeps all the ingredients together.
- The **protein**, starch and leavening agents are hydrated by liquids, enabling the chemical changes necessary to create the cake's structure.

## Types of Raw Material:

### ➤ **Chiffon Cakes-**

- Chiffon cakes are sponge cakes with moisture-enhancing vegetable oil.

### ➤ **Chocolate Cakes-**

- Chocolate cakes are melted chocolate or cocoa powder flavoured butter cakes, sponge cakes, or other cakes.
- German chocolate cake is a type of cake made from chocolate. Chocolate cakes that contain fudge are fudge cakes.

➤ **Coffee Cake-**

- Coffee cake is normally a cake for breakfast or a coffee break, eaten with coffee or tea.
- Yeast is used as a leavening agent in some forms, while others use baking soda or baking powder.
- A crumb topping called streusel or a soft glaze drizzle is also present in these cakes.

➤ **Baked Flourless-**

- Cakes Baked flourless cakes include flourless chocolate cakes and baked cheesecakes.
- Cheesecakes are not a cake at all, despite their name.
- Cheesecakes are custard pies, often made from some kind of cheese.

➤ **Butter or Oil Layer Cakes-**

- Most of the popular cakes used as wedding cakes, etc., contain butter or oil layer cakes, and those sold as frozen cakes.
- To provide both lift and a moist feel, baking powder or soda bicarbonate is used.
- It is possible to incorporate many flavourings and ingredients; examples include the devil's food cake, carrot cake, and banana bread.

➤ **Yeast Cakes-**

- Yeast cakes are very similar to yeast bread and are the oldest.
- These cakes are also very traditional in style and include baked and stollen pastries such as babka.



## Raw Material Aspects:

### **Maida**

- Maida is Indian subcontinent white flour made of wheat. Fine milled, processed, and bleached without any bran, it closely resembles cake flour.
- Maida is commonly used for the processing of fast food, baked goods such as pastries, bread, and various forms of sweet foods.
- It is often labelled and sold as "All-purpose Flour," although distinct from all-purpose Meal, due to this vast range of uses.



- The endosperm is Maida and it is formed by the starchy white portion of the grain.
- The bran is isolated and refined with the germ by passing through 80 mesh per inch (31 mesh per centimeter).
- Though yellowish by default because of wheat pigments, Midget is normally blanketed by either of the floral bleaching agents, either naturally due to atmospheric oxygen.

- While it is milled from winter wheat that has a high gluten content, the heat generated during the milling process results in denaturing of the protein, limiting its use in the preparation of leavened bread.

### **Castor Sugar**

- Powdered sugar is a finely ground sugar made by milling the granulated sugar to a powdered state.
- It is often referred to as 10X sugar or icing sugar.
- It normally contains 2% to 5% of an anti-caking agent, such as maize starch, potato starch, or tricalcium phosphate.

Except the castor sugar and all-purpose flour the other raw material used for cake is given below:

- Baking Powder
- Castor Sugar
- Eggs
- All Purpose Flour (Maida)
- Vanilla Essence
- Corn Starch
- Oil
- RO Water

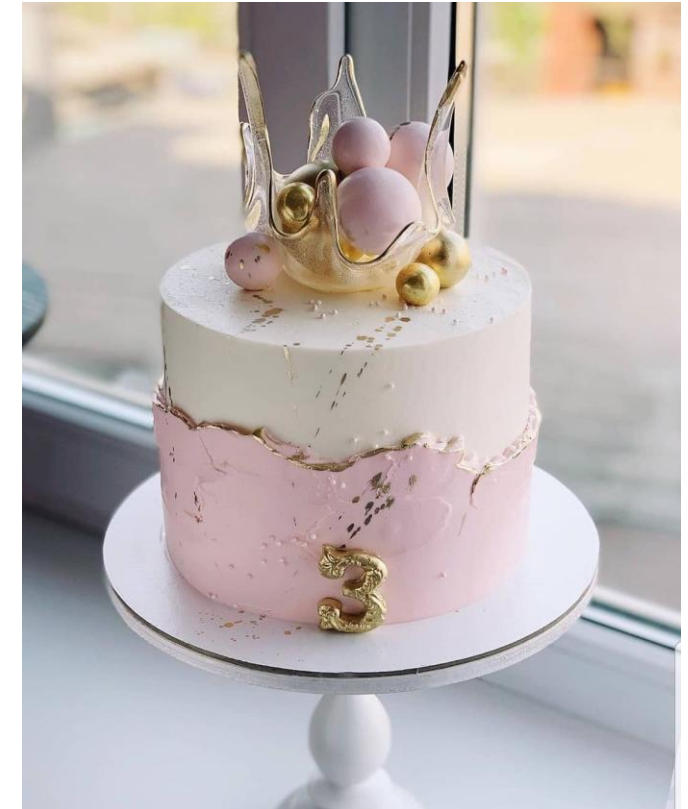


### Whipping Cream:

- Whipping Cream
- Icing Sugar

### Decoration, Icing & Soaking: (Optional)

- Pineapple Juice
- Chopped Canned Pineapples
- Canned Cherry



## Source of Raw Material:

- Uttar Pradesh is the largest producer of wheat in an area with 9.75 million hectares (32%), followed by Madhya Pradesh (18.75%), Punjab (11.48%), Rajasthan (9.74%), Haryana (8.36%), and Bihar (6.82%).
- As wheat is a major grown crop the availability of wheat grain is easy in the northern states of India.
- Various mandis are available in every district for wheat. Raw material can be procured from these local vendors, or direct from the farm milled to form the Maida.

## Technologies:

### ➤ **Creaming Method**

- With this method, the butter and sugar are beaten together using plenty of elbow grease until the mix turns pale and creamy.
- At this time, gradually the eggs and dry ingredients can be added.
- The tricky thing is to prevent curdling after the eggs have been added to the mixture which can separate the mixture into a hard or secure baking process.
- A good example of one of the most delicious cakes using a creaming process is Victoria Sponge Cake.

## TECHNOLOGIES

### ➤ **Melting Method**

- Another very easy way is to create moist and densest cakes such as a rich chocolate cake or fruit cake since the mix is not aerated by beating or whisking.
- Instead, butter is normally melted before eggs, then dry ingredients are added, and the cake is increased with a chemical raising agent, like baking powder.
- Again, don't be over-enthusiastic about it - overwork can lead to dry and tough baking.



### ➤ Whisking Method

- The whisking method uses whisking at the place of raising agent to work air into the mix and is ideal for a low fat lighter sponge because of contains no butter.
- Eggs and sugar are whisked together and then Folded through the egg mixture gently in batches until the dry ingredients are tamed and the air is not removed - otherwise, it loses the lightweight, airy texture you like.
- A perfect example of the whisking process is this chocolate recite.

## Manufacturing Process:

### ➤ **Mixing (hot/cold process)**

In the drum of the batter mixing machine, all raw materials are added in the amount needed according to the required sequence.

### ➤ **Depositing**

The baking tray is appropriately greased with oil and a butter paper of appropriate shape i.e. shape of the bottom is placed at bottom of the tray.

➤ **Baking**

- Bake at 360–425°F (182–218°C) to an internal temperature of 204°F (95°C).
- The hot processed batter should have a shorter baking time.

➤ **De-panning**

- De-pan from the oven onto dusted paper pan liners while the cakes are still warm.

➤ **Cooling**

- Cool product to loaf internal temperature of 95–105°F (35–40°C) before icing and packaging.



➤ **Icing**

- Simultaneously Whipping Cream and Icing Sugar are beaten by a simple beater until sufficiently stiff, which is then fed to holding tank of cake decorating machine.

➤ **Storage and Packaging or serving**

- When all layers are added, the last layer is filled with only one layer of whipping cream and then easily decorated by the machine, then finished manually.

## Flow Chart:

Machine Name	Description	Machine Image.
Weighing scale	Weighting Scales are used to measure the weight of an item	
Batter mixer machine	A machine that uses a gear-driven mechanism to rotate a set of "beaters" in a bowl.	

Machine Name	Description
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**Depositing**

It's used to fill batters within baking pans or mold for the baking process.



**Baking Oven**

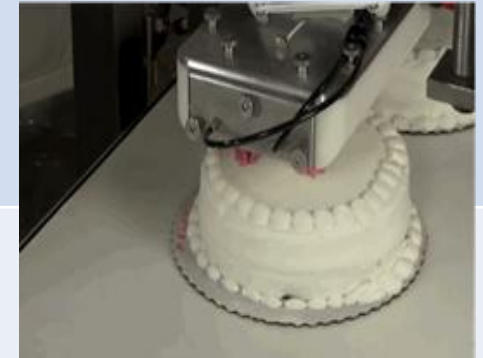
An oven is a thermally insulated chamber used for the heating, baking, or drying of a substance.



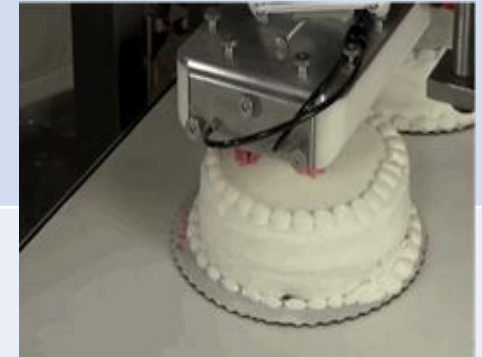


**Display Refrigerator**



It's a refrigerator designed to store the given product in temperature controlled space with at least one transparent wall, so as to display stored content.





Machine Name	Description	
<b>Baking Oven</b>	An oven is a thermally insulated chamber used for the heating, baking, or drying of a substance	
<b>De- panning</b>	De-panning is generally done manually by using different tools.	
<b>Cake Icing &amp; Decorating Machine</b>	As the name suggests, this machine is used to decorate the cake with appropriate cream or icing.	

## Additional Machine & Equipment:

Machine and Equipment	Uses	Pictures
<b>Material handling Equipments</b> <b>handling</b>	<p>These set of tools are specifically used for decorating cakes and other bakery items with appropriate design with cream, chocolate etc.</p>	
<b>Food Grade Conveyor</b>	<p>Generally used to move objects from one location to another.</p>	



## General Failures & Remedies:

General Failures	Remedies
Ball bearing failure of various machine	1. Proper periodic lubrication of all bearings in various machines.
Power Drive Overload	1. Ensure proper weighing & metering specially in case of semi-automatic plant.
Mechanical Key Failure	1. Ensure that mechanical keys are replaced as per there pre-defined operational life. 2. Prevent Overloading.
Loss of Interface	1. Provide proper physical shielding for the connections.

## PROCESS & MACHINERY REQUIREMENT

100 gram of piece of cake can provide the following nutrient:

S. No	1 Cake slice (100 grams)	
1.	<b>Calories</b>	393 kcal
2.	<b>Saturated Fat</b>	3 gram
3.	<b>Polyunsaturated Fat</b>	6.4g
4.	<b>Monounsaturated Fat</b>	7.6g
5.	<b>Cholesterol</b>	75mg

6.	<b>Total Carbohydrates</b>	57g
7.	<b>Dietary Fibre</b>	0.3g
8.	<b>Sodium</b>	270mg
9.	<b>Potassium</b>	54mg
10.	<b>Sugars</b>	42g
11.	<b>Vitamin A</b>	2.1%

## Export Potential & Sales Aspect:

- The Cake demands in India will increase by 12.5% in the forecast period 2020-2025 with a CAGR items from bakeries have long been basic nutrition food items.
- The cake is being traded worldwide.
- There are almost 103 countries and territories that actively import Cake from India.
- Total exports have a combined value of US\$ 330.31 million.
- While a total of US\$ 273.87 million of the top five countries exports the total value of Cake's exports, representing 82.91% of its export value.

Country	Value (USD Million)
USA	170.54
Bangladesh	45.87
Canada	22.18
United Kingdom	21.47
Rep. of Korea	13.81

## PM-FME SCHEME

- Support for capital investment for up-gradation and formalization with registration for GST, FSSAI hygiene standards and Udyog Aadhar;
- Capacity building through skill training, imparting technical knowledge on food safety, standards & hygiene and quality improvement;
- Hand holding support for preparation of DPR, availing bank loan and up-gradation;
- Support to Farmer Producer Organizations (FPOs), Self Help Groups (SHGs), producers cooperatives for capital investment, common infrastructure and support branding and marketing.

## CONTACT DETAILS



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