

BAKERY AND CONFECTIONERY:

Icings and toppings:

Icings , also called frostings, are sweet coatings for cakes and other baked goods.

*The use of an icing mean the difference between a plain baked product and a more elaborate pastry or dessert.

OR

A sweet , creamy mixture used to cover, coat or decorate baked goods, cakes ,pastries and petit fours

FUNCTION OF ICING

Basically, cake icing has three separate and important functions.

- First, cake icing, of course, makes a cake look nice. Cake icing is the pretty shimmer on the cake, the thing that holds it all together.
- The second main function of cake icing is to reflect the theme or design of the cake. The cake icing helps to hold together the overall design of the cake.
- Finally, cake icing can help prolong the cake. Many people don't realize it, but cake icing can help keep the cake fresh.

Types of Icing:

There are **six** basic types of icings and other cake coatings

- Fondant
- Buttercreams
- Foam type icings
- Fudge type Icings
- Flat type Icings
- Royal or decorator's icing

OTHERS

- Glazes
- Rolled coatings

SIX BASIC KINDS OF ICING

1. FONDANT

- is a sugary syrup that is crystallized to a smooth, creamy white mass.



★ GUIDELINE FOR USING FONDANT

1. Heat fondant over a warm bath, stirring constantly to thin the icing and make it pourable. Do not heat over 100°F or it will lose shine.
2. If the fondant is still too thick, thin it with a little simple sugar syrup.
3. Add flavorings and colorings as desired.
4. To make chocolate fondant, stir melted bitter chocolate into warm fondant until desired colors and flavor are reached. Chocolate thickens the fondant so the icing may require more thinning with sugar syrup.
5. Apply fondant by pouring it over the items or by dipping items into it.

2. BUTTER CREAM

-icing are light, smooth mixtures of fat and confectioners sugar. They may also contain eggs to increase their smoothness or lightness.



3 basic kinds of Butter creams

1. Simple Butter cream - are made by creaming together fat and sugar to the desired consistency and lightness a small quantity of egg white may be whipped in
Decorator Butter cream - is a simple butter cream used for making flowers and other cake decorations. It is creamed only a little because if too much air is beaten in it would not be able to hold delicate shapes.
2. Meringue - type of butter creams are prepared by first beating egg whites and adding a boiling syrup or just sugar soft butter is then mixed into the meringue. This is a very smooth, light icing.
3. French Butter creams - are similar to the meringue type, but the foam is made w/ egg yolks and sometimes whole eggs and boiling syrup.



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3. FOAM TYPE ICING

- sometimes called boiled icings are simply meringues made with a boiling syrup some also contain stabilizing ingredients like gelatin.



4. FLAT ICING

- also called water icings; are simply mixture of 10x sugar, waters and sometimes can syrup and flavoring. They are used mostly for coffee cakes and sweet rolls. Flat icings are warmed to 100°F(38°C) for application and are handled like fondant.



5. FUDGE TYPE ICING

- are rich cooked icings, heavy and thick. They may be flavored w/ a variety of ingredients They are used on cup cakes; layer cakes and loaf cakes.

- are stable and hold up well on cakes and in storage stored icings must be covered tightly to prevent drying and crusting.



6. ROYAL ICING

- also called decorating or decorators icing is similar to flat icing except that it is much thicker and is made w/ egg whites w/c makes it hold and brittle when dry.



Glaze:

- Glazes are thin, glossy, transparent coatings that give a shine to baked products and help prevent drying.
- The simplest glaze is a sugar syrup or diluted corn syrup brushed while hot onto coffee cakes or Danish pastries. Syrup glazes may also contain gelatin or waxy maize starch.
- Fruit glazes for pastries, the most popular of which are apricot and red currant, are available commercially prepared. They are melted, thinned with a little water, syrup, or liquor, and brushed on while hot. Fruit glazes may also be made by melting apricot or other preserves and forcing them through a strainer. It helps to add melted, strained preserves to commercial glazes because these products usually have little flavor.
- The glaze recipes are of two types: chocolate and gelatin-based.
- Chocolate glazes are usually melted chocolate containing additional fats or liquids, or both.
- They are applied warm and set up to form a thin, shiny coating. Gelatin-based glazes, which include many fruit glazes, are usually applied only to the tops of cakes and charlottes made in ring molds

Chocolate Glaze

- Heavy cream 150 g
- Semisweet or bittersweet chocolate, chopped 150 g
- Butter 50 g

PROCEDURE

1. Prepare a ganache with the cream and chocolate: Heat the cream to boiling and pour over the finely chopped chocolate. Stir until the chocolate is melted and the mixture is uniformly blended.
2. Add the butter and stir to mix in. Use as soon as possible.

Chocolate Ganache

- Heavy cream 250 g
- Sugar 50 g
- Glucose 50 g
- Semisweet or bittersweet chocolate couverture 250 g

1. Heat the cream, sugar, and glucose to the boiling point. Remove from the heat.
2. Finely chop the chocolate and place in a bowl.
3. Pour the hot cream over the chocolate. Stir until the chocolate is melted and well blended with the cream.
4. Allow to cool slightly before use. This makes a thin, shiny coating when poured over cakes and charlottes.

Rolled Coatings:

The three commonly used rolled cake coatings are rolled fondant, marzipan, and modeling chocolate. Rather than being applied by spreading or pouring like the other products discussed, these are rolled into thin sheets, using a rolling pin, and draped over the cake to cover it. To ensure the coating adheres to the cake, the cake is first brushed with apricot glaze or a similar product, or iced with a thin layer of buttercream before the rolled coating is applied.

- *Marzipan* is a paste made of ground almonds and sugar.
- *Rolled fondant* is a dough like product consisting primarily of confectioner's sugar combined with small quantities of glucose, water, gelatin, and other ingredients to give it the proper consistency. It is firm and stiff enough to be kneaded, and pliable enough to be rolled out in thin sheets. Like poured fondant, it is almost always purchased ready prepared.

Modeling chocolate is a stiff paste made of melted chocolate and corn syrup.

Frozen Desserts

- Base-Crème Anglaise mostly
- Churn frozen desserts-mixed constantly while being frozen
- Churning prevents solidification of ice blocks and crystals
- Churning incorporates air into dessert and keeps crystals micro small.

Types:

• **ICE CREAM**

- ✓ Smooth frozen mixture of milk, cream, sugar, flavourings and sometimes eggs.
- ✓ Eggs add richness and make a smoother product because of emulsifying properties of yolks.

• **FROZEN YOGHURT**

Contains yoghurt in addition to ice cream ingredients

• **SORBETS (French for Sherbets)**

- ✓ Made from fruit juices, water and sugar
- Egg white increases smoothness and volume

• **GRANITE(gra nee TAY) (Italian-granite)**

✓ Coarse crystalline ice without egg whites

• **GELATO(Italian Ice Creams)**

✓ Lower in fat than Ice creams

✓ No cream only milk

✓ Made without yolks and emulsifiers thus quick melting and light textured.

✓ Mixed less than ice creams

✓ Low over-run thus denser (20%)

✓ Rich mouth feel

Production and Quality

BASIC ICE CREAM MIX=CRÈME ANGLAISE(WITH 4 PARTS MILK)+2PARTS HEAVY CREAM



FLAVOURED WITH VANILLA,MELTED CHOCOLATE,INSTANT COFFEE,SWEETENED CRUSHED STRAWBERRIES



CHILLED THOROUGHLY AND FROZEN ACCORDING TO THE EQUIPMENT INSTRUCTIONS



TRANSFERRED TO CONTAINERS AND DEEP FROZEN AT -18 CELCIUS TO HARDEN

Ice cream Quality Factors

• **SMOOTHNESS**- REFERS TO CRYSTAL SIZE OF ICE

- SHOULD BE RAPIDLY FROZEN AND CHURNED WELL TO AVOID BIG CRYSTAL FORMATION

- RAPID HARDENING KEEPS CRYSTAL SMALL, SO DO EGGS AND EMULSIFIERS OR STABILIZERS
- LARGE CRYSTALS FORMED IF ICE CREAM NOT KEPT BELOW -18 DEGREE CELCIUS
-
- **OVER RUN** - INCREASE IN VOLUME DUE TO AIR INCORPORATION
 - EXPRESSED AS % OF ORIGINAL VOLUME
 - EX. IF MIXTURE DOUBLES IN VOLUME OVERRUN IS 100%
 - NECESSARY FOR SMOOTHNESS AND LIGHTNESS
 - TOO MUCH OVERRUN TOO FOAMY AND LACKS FLAVOR
 - DEPENDS ON THE EQUIPMENT, CHURNING TIME, FAT CONTENT OF MIX AND FREEZER VOLUME
 - **PREFERABLE-40-60%**

MOUTH FEEL - BODY OF THE ICE CREAM

- DEPENDS ON SMOOTHNESS AND OVERRUN
- GOOD ICE CREAM IS MOUTH MELTING
- NOT TOO HEAVY
- TOO MANY STABILIZERS RUIN THE MOUTHFEEL
- CREAM BUTTER FAT CONTRIBUTES TO RICHNESS
- TOO HIGH BUTTER FAT ALSO BAD AS IT PRODUCES BUTTER GRAINS WHILE FREEZING PROCESS

GELATOS HAVE THE BEST MOUTHFEEL OWING TO LOW FAT CONTENT AND NO EMULSIFIERS AND LOW OVERRUN

Storage and Service:

- TEMPERATURE BELOW -18 DEGREE CELCIUS TO AVOID LARGE CRYSTAL FORMATION
- TEMPER TO -9 DEGREES FOR 24 HOURS TO SERVE

Ice cream Stabilisers:

- ICE CREAM AN EMULSION OF WATER AND BUTTERFAT
- DURING SHIPPING AS TEMPERATURE FLUCTUATES WATER IN THE ICE CREAM MELTS AND REFREEZES DAMAGING THE EMULSION
- THUS ARISES THE NEED FOR STABILIZERS
- EXAMPLES: **AGAR AGAR,CARRAGEENAN,GUAR GUM,GELATIN,PECTIN AND SODIUM ALGINATE**
- 0.5% CONCENTRATION USED
- HELP PREVENT CRYSTALLISATION ON TEMPERATURE FLUCTUATION

MISCELLANEOUS:

- TOO MUCH SUGAR IN ICE CREAM MIX DOESN'T HARDEN THE ICE CREAM
- TOO LESS SUGAR DOESN'T PRODUCE A SMOOTH ICE CREAM
- MATURING THE MIX FOR 12 HOURS IN THE REFRIGERATOR BEFORE FREEZING PRODUCES BETTER RESULTS AS THE PROTEINS IN THE EGGS AND MILK COMBINE WITH MORE WATER MOLECULES IN THE MIX LEAVING LESS FREE WATER TO CRYSTALLISE
- ALSO IT FREEZES RAPIDLY THEN
- USE SS EQUIPMENTS MAINTAINING HYGIENE AT ALL TIMES

INGREDIENTS IMPORTANCE IN ICE CERAM:

- **EGGS**
 - THE FATS AND EMULSIFIERS IN EGG YOLKS MAKE THE ICE CREAM SMOOTHER AND RICHER THAN EGGLESS ICE CREAMS
 - COOKING THE PROTEINS BIND THE MOISTURE , INTERFERING WITH THE FORMATION OF ICE CRYSTALS,LEADING TO A SMOOTHER TEXTURE
- **CREAM**

- INCORPORATES AIR IN ICE CREAM MAKING THE ICE CREAM LIGHTER AND SMOOTHER
- THE SOLIDS PRESENT IN MILK AND CREAM PREVENT CRYSTAL FORMATION WHILE THEIR EMULSIFIERS BIND THE LIQUIDS AND FATS LEADING TO BETTER MOUTHFEEL

INGREDIENT AND ITS ROLE IN ICE CREAM:

- MILK POWDER ADDED TO NO EGGS ICE CREAM
- MILK POWDER BINDS EXCESS LIQUID AND PREVENTS LARGE CRYSTAL FORMATION
- USE A MIX OF MILK AND CREAM RATHER THAN JUST CREAM AS EXCESS BUTTERFAT MAY RESULT IN A GRAINY TEXTURE
- SIMILARLY ADDING WHITE CHOCOLATE MIGHT RESULT IN THE SAME EFFECT OF TEXTURE

BASIC ICE CREAM FREEZERS

- REFRIGERATION PROVIDED BY MIX OF ICE , WATER AND SALT
- SALT LOWERS THE MELTING POINT OF ICE BELOW FREEZING POINT OF WATER
- ICE CREAM MIX PLACED IN CYLINDER SURROUNDED BY ICE AND SALT
- A PADDLE OR *DASHER* CONTINUOUSLY SCRAPES THE FREEZING ICE CREAM MIXTURE OFF THE WALLS OF THE CYLINDER AND INCORPORATES AIR INTO IT
- IN MODERN FREEZERS ELECTRIC REFRIGERATION IS USED

BASIC ICE CREAM RECIPE:

EGG YOLKS	=12
SUGAR	=400GM
MILK	=1LT
HEAVY CREAM	=500ML
VANILLA EXTRACT	=10ML

METHOD

- WHIP EGG YOLKS WITH SUGAR UNTIL LIGHT AND THICK
- HEAT MILK AND GRADUALLY ADD TO THE YOLK MIX
- HEAT MIX OVER DOUBLE BOILER STIRRING CONSTANTLY TILL IT THICKENS
- REMOVE FROM HEAT AND MIX CREAM

- CHILL THOROUGHLY IN REFRIGERATOR AND MATURE THE MIX
- FREEZE IN ICE CREAM FREEZER

SORBET AND GRANITA:

- A BASIC SORBET MIXTURE IS SIMPLY A SUGAR SYRUP MIXED WITH FLAVOURING AGENTS
- SORBETS DO NOT CONTAIN EGGS OR CREAM FOR SMOOTHNESS
- GRANITAS ARE CHARACTERISED BY LARGE CRYSTALS
- MADE OF SORBET MIXTURE
- SORBETS ARE CHURNED GRANITAS ARE STILL FROZEN AND STIRRED PERIODICALLY
- THIS FREEZING METHOD GIVES GRANITAS THE ICY TEXTURE

BASIC SORBET RECIPE:

SUGAR =375GM

WATER =250ML

FRUIT JUICE

METHOD OF PREPARATION

- MAKE SUGAR SYRUP
- COOL
- ADD FLAVOR
- CHILL

FREEZE ICE CREAM FREEZER

STILL FROZEN DESSERTS:

- WITHOUT CHURNING AIR DOES NOT INCORPORATE
- IT MAKES THE ICE CREAM HARD AND HEAVY
- STILL FROZEN DESSERTS HAVE AIR MIXED BEFORE FREEZING
- ADDED WHIPPED CREAM OR WHIPPED EGG WHITES OR BOTH
- FREEZING STABILIZES AND SOLIDIFIES , GELATIN NOT USED
- TOO MUCH SUGAR INHIBITS FREEZING
- EXMAPLES ----PARFAITS, SOUFFLES, BOMBES



IHM NOTES

MERINGUES

Definition

Meringue, is a type of [dessert](#), often associated with French, Swiss, and Italian cuisine, made from [whipped egg whites](#) and [sugar](#), and occasionally an [acid](#) such as [cream of tartar](#) or a small amount of [vinegar](#).

History

It has been claimed that meringue was invented in the [Swiss](#) village of [Meiringen](#) and improved by an [Italian](#) chef named Gasparini in the 18th century. It is sure nevertheless that the name meringue for this confection first appeared in print in [François Massialot](#)'s cookbook of 1692. The word meringue first appeared in English in 1706 in an English translation of Massialot's book. Two considerably earlier seventeenth-century English manuscript books of recipes give instructions for confections that are recognizable as meringue, though called "white biskit bread" in the book of recipes started in 1604 by Lady Elinor [Fettiplace](#) (c. 1570 – c. 1647) of [Appleton](#) in [Berkshire](#) (now in [Oxfordshire](#)), and called "pets" in the manuscript of collected recipes written by Lady Rachel Fane (1612/13–1680), of [Knole](#), Kent. Slowly baked meringues are still referred to as "[pets](#)" (meaning [farts](#) in French) in the Loire region of France due to their light and fluffy texture.

Meringues were traditionally shaped between two large spoons, as they are generally at home today. Meringue piped through a [pastry bag](#) was introduced by [Antonin Carême](#).

Types of meringue

There are several types of meringue: the sweetened, beaten egg whites that form the "islands" of Floating Island (also known in French as *île flottante*); the partly cooked toppings of lemon meringue pie and other meringue-topped desserts; and the classic dry featherweight meringue. Different preparation techniques produce these results.

- **French meringue** is the method best known to home cooks. Fine white sugar is beaten into egg whites.
- **Italian meringue** is made with boiling sugar syrup, instead of caster sugar. This leads to a much more stable soft meringue which can be used in various pastries without collapsing. In an Italian meringue, a hot sugar syrup is whipped into softly whipped egg whites till stiff. This type of meringue is safe to use without cooking. It will not deflate for a long while and can be either used on pies and Baked Alaska, or spread on a sheet and baked for meringues.
- **Swiss meringue** is whisked over a bain-marie to warm the egg whites, and then whisked steadily until it cools. This forms a dense, glossy marshmallow-like meringue. It is usually then baked.

Chemistry



Beaten egg whites

When [egg whites](#) are beaten, some of the [hydrogen bonds](#) in the [proteins](#) break, causing the proteins to unfold ("denature") and to aggregate non-specifically. This change in structure leads to the stiff consistency required for meringues. The use of a copper bowl, or the addition of [cream of tartar](#) is required to additionally denature the proteins to create the firm peaks, otherwise the whites will not be firm. Plastic bowls, wet or greasy bowls will likely result in the meringue mix being prevented from becoming peaky. Wiping the bowl with a wedge of lemon to remove any traces of grease can often help the process.

When beating egg whites, they are classified in three stages according to the peaks they form when the beater is lifted: soft, firm, and stiff peaks.

[Sugar substitutes](#) are not useful in meringue. The sugar is necessary to the structure.

Egg whites and sugar are both [hygroscopic](#) (water-attracting) chemicals. Consequently, meringue becomes soggy when refrigerated or stored in a high-humidity environment. This quality also

explains the problem called "weeping" or "sweating", in which beads of moisture form on all surfaces of the meringue. Sweating is a particular problem for French meringues in which the granulated sugar is inadequately dissolved in the egg whites, and for high-moisture pie fillings.

Uses



[Pavlova](#) is a meringue-based [dessert](#) and an icon of [Australian](#) and [New Zealand](#) cuisine.

Meringues eaten like biscuits are baked at a very low heat for a long time.^[8] One name for them is "Forgotten Cookies" as they can be left in a gas oven for long periods of time after the cooking is done. They are not supposed to be "tanned" at all, but they need to be very crisp and dry. They will keep for at least a week if stored in an airtight container.

Meringue can be used as the basis for various desserts including [baked Alaska](#), [dacquoise](#), [Eton mess](#), [floating island](#), [key lime pie](#), [Kyiv cake](#), [lemon meringue pie](#), [pavlova](#), [Queen of Puddings](#), [sans rival](#), and [silvana](#). In some recipes, the meringue may be cooked at a higher temperature for a shorter amount of time, resulting in a soft meringue with slightly browned peaks on top.

Another dish is "Meringue de Angel, which consists of shortbread biscuits layered with meringue and lemon curd, topped off with drizzled lemon glaze. Variations include raspberries, peaches, mangos, blueberries, blackberries, pineapple, papayas, honeydew, oranges, cantaloupe, or cherries and strawberries.

Meringue may be used for embellishment. It can be formed into whimsical shapes, like mushrooms, or piped into a crisp basket that is baked and filled



later with cake, fruit, or flowers.

Meringue tart (tortada).

A meringue [tart](#) is a [sponge cake](#) covered with meringue.

Nutritional content

Meringue is a [fat-free](#) food, because the presence of even small amounts of fat before the meringue is baked causes the beaten egg whites to collapse. The principal nutritional components are protein from the egg whites and simple carbohydrates from the refined sugar.

BREAD MAKING

INGREDIENTS IN BREAD MAKING:

- **FLOUR**

- Provides structure to the bread

- **YEAST**

- Fermentation

- **SALT**

- Flavor
- Tightens the gluten structure
- Controlling yeast activity
- Helps in colour crusting
- Preserves colour and flavour

- **MILK**

- Softens the structure

- **SUGAR**

- Add sweetness and flavor
- Create tenderness and fineness of texture by weakening the gluten
- Give crust colour
- Retain moisture and increase shelf life
- Provide food for yeast

DOUGH MIXING METHODS

- **Straight dough**

- All ingredients combined and mixed until dough is smooth and well developed

- **Sponge and dough**

- Liquid, yeast, part of flour, part of sugar mixed into batter or dough called a (liquid sponge) or preferment and allowed to ferment; added to remaining ingredients and mixed until dough is smooth and well developed.

- Breads made with poolish(liquid sponge), biga (Italian sponge usually stiff) levain (naturally fermented sponge) or other sponge or preferment

STEPS IN BREAD MAKING:

- 1. Scaling ingredients

- 2. Mixing
- 3. Bulk fermentation
- 4. Folding
- 5. Dividing (scaling or portioning of dough)
- 6. Preshaping or rounding
- 7. Bench-proofing or intermediate proofing
- 8. Makeup and panning
- 9. Proofing
- 10. Baking
- 11. Cooling
- 12. Storing

DOUGH CONDITIONER:

- also called *dough improvers* .
- off-white dry, granular products that look similar to flour.
- used in the production of yeast-raised products.
- useful when good gluten development is necessary for high volume and a fine crumb, especially when flour quality is poor.
- Emulsifiers for increasing water absorption and gluten strength.
- Salts and acids, such as calcium carbonate or monocalcium phosphate, for optimizing gluten development by adjusting water hardness and pH Calcium carbonate increases both water hardness and pH; monocalcium phosphate increases water hardness while it decreases pH.
- Maturing agents that strengthen, such as potassium bromate, ascorbic acid, potassium
- iodate for increasing gluten strength.
- Enzymes, such as amylase, to improve yeast fermentation and browning, and to delay staling.
- Reducing agents, such as L-cysteine, that break or block bonds in gluten. These agents increase the extensibility and reduce the strength of doughs. They are the opposite of maturing agents that strengthen.

Pizza dough, for example, can benefit from the addition of L-cysteine, so that it stretches and handles easily, and doesn't shrink.



IHM NOTES

GLUTEN POWDER:

- Contains a high amount—about 75percent—of protein that is vital, that is, protein that forms gluten when mixed with water.
- Purchased as a creamy yellow powder.
- Added to yeast-raised doughs to improve flour quality, to increase mixing and fermentation tolerances, for a finer crumb, and for improving volume.
- Extend shelf life by keeping the bread softer longer.
- Too much gluten can make a product tough and chewy.

BREAD FAULTS

Poor volume:

- Too much salt
- Too little yeast
- Too little liquid
- Weak flour
- Under- or over mixing
- Oven too hot

Too much volume:

- Too little salt
- Too much yeast
- Too much dough scaled
- Over proofed

Poor shape:

- Too much liquid
- Flour too weak
- Improper molding or makeup
- Improper fermentation or proofing
- Too much oven steam

Split or burst crust:

- Over mixing
- Under fermented dough
- Improper molding—seam not on bottom
- Uneven heat in oven
- Oven too hot
- Insufficient steam

Flat tast:

- Too little salt
- Poor flavor Inferior, spoiled, or rancid ingredients
- Poor bakeshop sanitation
- Under or Over fermented

Too dense or close-grained:

- Too much salt
- Too little liquid
- Too little yeast
- Under fermented
- Under proofed

Too coarse or open:

- Too much yeast
- Too much liquid
- Incorrect mixing time
- Improper fermentation
- Over proofed
- Pan too large

Streaked crumb:

- Improper mixing procedure

- Poor molding or makeup techniques
- Too much flour used for dusting
- Poor texture of flour too weak

CHOCOLATE

- Cacao tree-Theobroma cacao
- Cacao-raw tree and raw products from that
- Cocoa-once the cacao pod is opened and beans are fermented
- Fermentation and drying done on independent plots before reaching the manufacturer so no control of manufacturer on that
- Only control is to evaluate beans on arrival

BEANS:

- 3 cacao varieties-Criollo,Forastero,Trinitario
- Finest-Criollo but low yielding (10%of annual harvest)
- Forastero-maximum yield(70%)
- Trinitario-hybrid (20% yield)
- Bean quality depends mostly on cultivation and climatic conditions
- Out of the total cultivation only 5 % is the best therefore the high cost of the best chocolates

FERMENTATION:

- Cocoa beans and pulp extracted from pods
- Fermented in wooden boxes or wrapped in banana leaves
- Fermentation time-5 days
- Initial days-high temperature rise-live bean dies,preventing germination
- Fermentation produces flavor precursors that allow chocolate flavor development on roasting
- Under fermented beans do not contain flavor compounds

Fermentation carried out by yeasts,bacteria and enzymes.

- Fermentation causes pulp to liquefy and to separate from the beans

- Polyphenols, proteins and polysaccharides are broken into smaller compounds which reduces the bitterness and astringency and provides raw material for Maillard reaction

Both under and over fermentation is bad for chocolate production

DRYING:

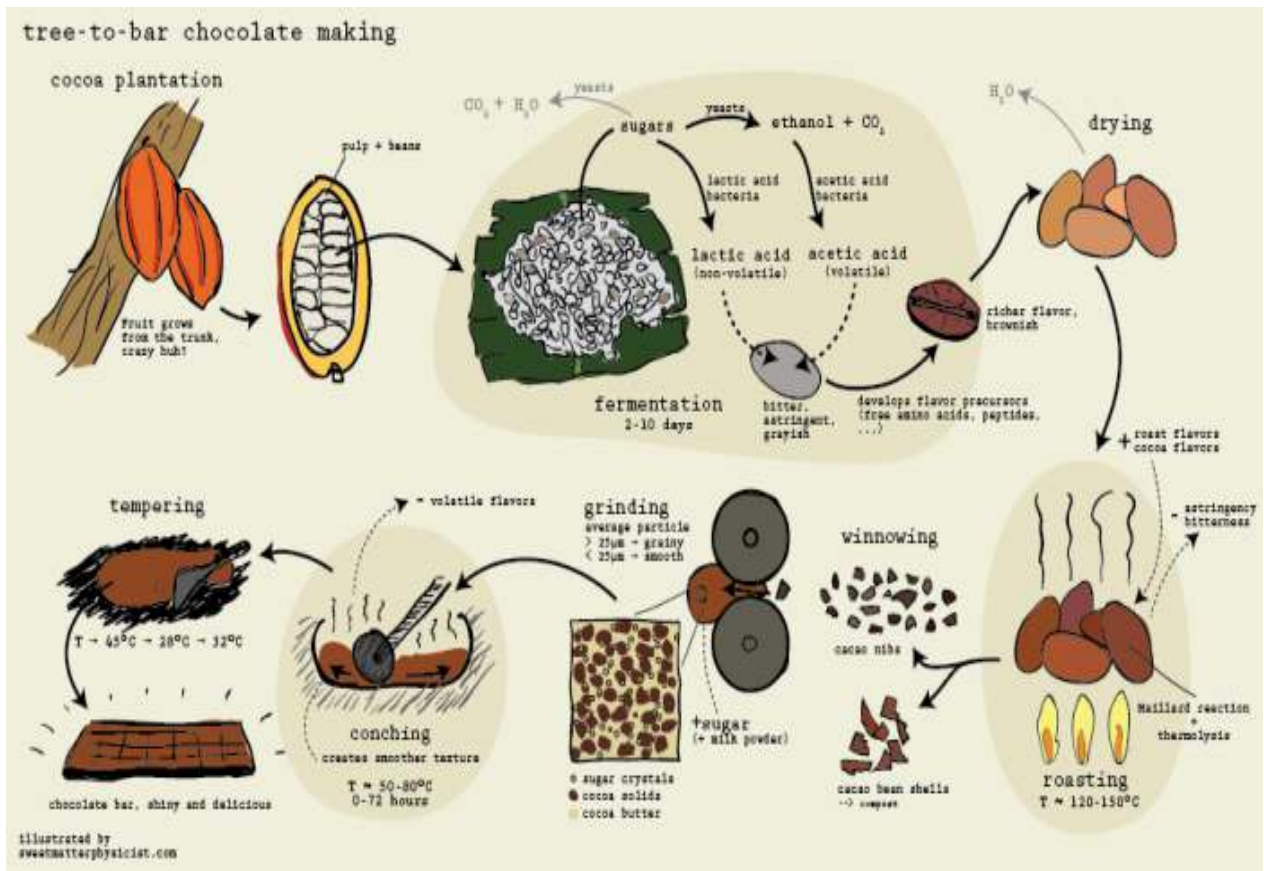
- To stop fermentation
- To make stable for shipping and transportation
- More than 8% moisture results in mold formation
- Sun drying is the best (slow and even drying)
- Artificial drying involving heat from fire
- Smoke contamination (smoky flavor)
- Case hard beans (outside quickly dries with still soft interior)

Over drying (brittle beans break during shipping)



IHM NOTES

FROM BEAN TO BAR:



- **Cleaning and Blending Cocoa beans**
 - ✓ Sieving to remove dust and other impurities
 - ✓ Blending beans from different origins (Optional)
- **ROASTING**
 - ✓ To develop flavor
 - ✓ Deep brown coloured
 - Removes moisture too.
- **MICRONIZING**
 - ✓ Breaking beans into pieces
 - ✓ Two parts----NIB and SHELL
- **WINNOWING**
 - ✓ Separation of nibs from shells

- **GRINDING (MILLING)**

- ✓ Nibs crushed to form-----CHOCOLATE LIQUOR

- **MIXING**

- ✓ Additional ingredients—sugar, cocoa butter, vanilla, lecithin, milk solids are mixed homogeneously

- **REFINING**

- ✓ Reducing coarse texture and particle size in chocolate liquor
- ✓ Running the batch through rollers

- **CONCHING**

- ✓ Long term exposure to heat, oxygen and agitation
- ✓ Removal of volatile acids produced in fermented beans
- ✓ Remaining water removed
- ✓ Viscosity increased
- ✓ Sour smell removed
- ✓ Particles equally coated with cocoa butter

- **TEMPERING, DEPOSITING AND COOLING**

- ✓ To ensure proper gloss and snap
- ✓ Gradual cooling

- **DUTCHING AND PRESSING**

- ✓ Removes extra acidity for the cocoa butter
- ✓ Darkens the colour of the cocoa powder