



CALLEBAUT®

BELGIUM 1911

# THE A-Z FOR PERFECT CHOCOLATE ICE CREAM





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# From **Italy** with love, to **Belgium** with **passion**



Italy has a delightful love affair with ice cream that dates all the way back to the Roman empire, when the Arabs decided to mix snow from Mount Etna with fruit juice to create their own version of sorbet. Years later, the court of Catherine de' Medici in Florence introduced the very first ice cream made with milk and cream, and instigated a delicious revolution that was to become a real 'gelato culture'. Today, ice cream has become one of the most popular desserts in the world, charming fans of all ages with its pleasant flavours and genuine ingredients.

Another favourite indulgence all over the world is Callebaut chocolate. Made in Belgium from bean to chocolate with a passion for craftsmanship and great taste, Callebaut chocolate has fantastic workability and a potential to present heavenly confectionery, pastry and... ice cream.

So, when both traditions come together, there is definitely plenty of excitement and creativity in the air. This book presents all the essentials for chocolate ice cream making – from ingredients and varieties to techniques and recipes - opening doors to great new opportunities and delicious discoveries. From you to your customers.

I wish you many marvellous moments of inspiration and lots of luscious scoops of chocolate ice cream.

Leonardo Di Carlo



# Leonardo Di Carlo

## The Great Gelatician

Leonardo Di Carlo has the passion for delicious creativity running through each part of his body. From the first steps as an apprentice in his parents' pastry shop, Leonardo eagerly cultivated his knowledge and experience at the most renowned schools and in the workshops of both Italian and foreign master pastry chefs. At the age of twenty, he won the Italian Pastry Championship. In 2004 he was crowned World Champion Pastry-Chocolate-Confectionery-Ice Cream.

Inspired by the famous Italian 'gelato culture' – with its innovative semifreddos, traditional parfais, frozen soufflés, famous zuccotto trifle, excellent sorbets and amazing ice cream desserts – Leonardo Di Carlo became a much-appreciated pastry and ice cream consultant, writer and instructor.

His style values the importance of understanding ingredients and how they behave in different recipes, using various technologies. That is why he is continuously in touch with the latest techniques, flavours and textures. The objective always remains the same: to create the perfect chocolate indulgence.

*Leonardo Di Carlo*

  
**CALLEBA**  
BELGIUM

Leonardo Di Carlo



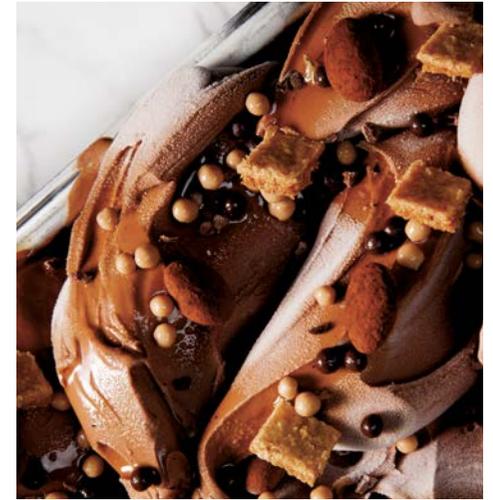
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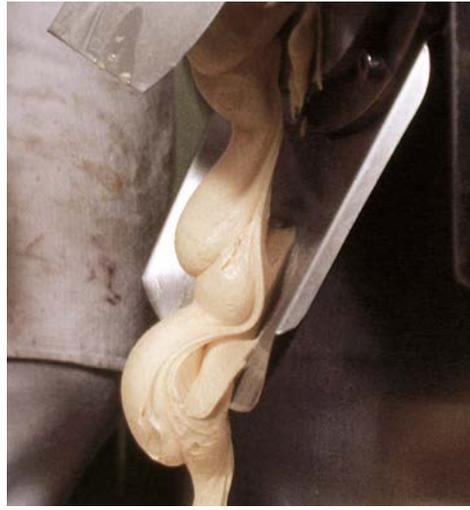
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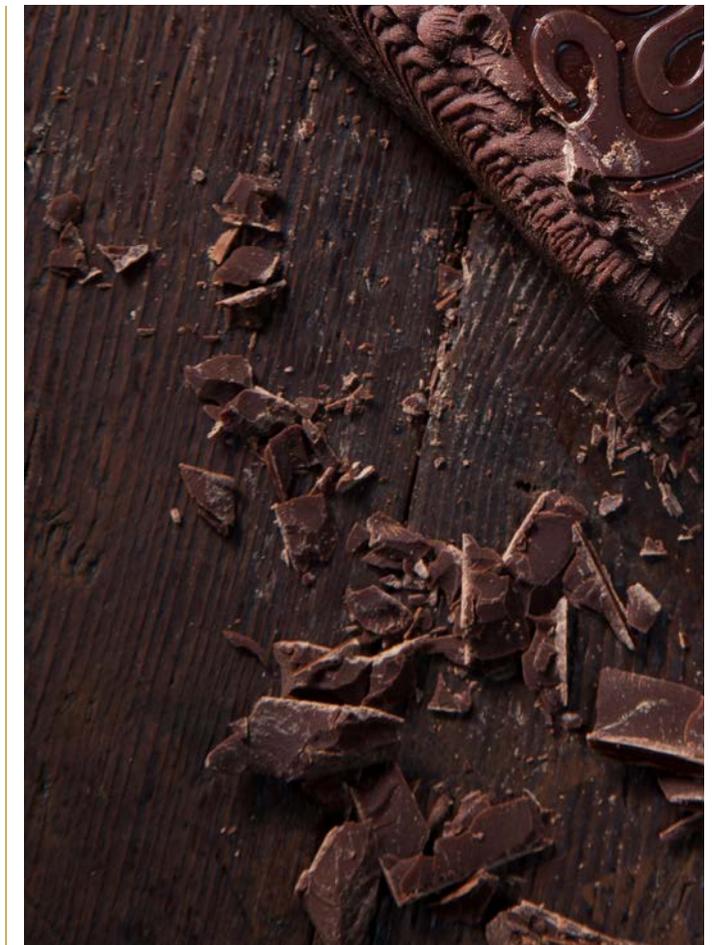
1. Meticulous bean selection to define the iconic Callebaut taste
2. In-house blending for the body and soul of your chocolate
3. Roasting the whole bean to release the full flavour potential
4. Multiple-stage grinding to create the darkest and finest of cocoa liquors
5. Adding the finest ingredients to complement the sublime chocolate taste
6. Conching is the art of patiently balancing full cocoa body and fine flavours
7. Packed for great workability and taste

get the story  
[www.callebaut.com](http://www.callebaut.com)

# The right Callebaut chocolate for perfect ice cream



Are you looking for an accessible chocolate in your ice cream that works like a charm and pairs easily with other ingredients? Or do you want to add very specific flavour notes of spices, flowers, fruits and so much more? Whatever delicious creativity inspires you, Callebaut will give your ice cream the perfect chocolate taste.





# Finest Belgian Chocolate

Crafted in Belgium from bean to chocolate, Callebaut Finest Belgian Chocolate presents a wide range of delicious dark, milk and white chocolate varieties to indulge your customers with a great all-round taste. Its versatile character makes Finest Belgian Chocolate easy to pair with the most diverse ingredients and takes your creativity to the next level. Made with sustainable cocoa, each recipe guarantees a constant quality and excellent workability for the perfect ice cream – time and time again.



# Origin Collection CHOCOLATE

# Single Origin Chocolate

Do you want to give your chocolate ice cream a shot of the extraordinary? Callebaut Single Origin Chocolate invites you to the most amazing flavour pairings. Made with cocoa beans from one particular country or region, each Single Origin chocolate will astonish you with an exciting taste sensation and aromatic character – reflecting the soil, the climate and the environment of its ‘native home’. From floral notes to hints of herbs or fruity flavours and aromas: each variety is thrilling and unique at the same time. Single Origin Chocolate will turn each scoop of chocolate ice cream into an unforgettable sensorial experience.



## Origin Collection CHOCOLATE

# Blend of Origins Chocolate

How to combine a touch of the familiar with a hint of the exotic? Callebaut Blend of Origins brings together fine flavour beans from three different regions or countries, offering a balanced and intense flavour – meticulously composed by the Callebaut Master Blender.

# Discover all great ice cream varieties



# Gelato

## Sugars: granulated sugar, dextrose, glucose syrup, invert sugar

Milk, cream	Milk powder	Stabilisers, emulsifiers and thickening agents	Various couvertures
<p><b>Ingredients</b></p> <p>Italian ice cream or 'gelato' can be divided into two basic recipes:</p> <ul style="list-style-type: none"> <li>• water-based gelato (fruit, tea infusions, etc.)</li> <li>• milk-based gelato (creams, etc.)</li> </ul> <p>The basic ingredients are:</p> <p>water, sugars, milk, cream, eggs, fresh fruit, natural flavouring ingredients and additives in compliance with food legislation.</p>	<p><b>Production</b></p> <p>Ice cream is a mixture of raw materials (milk, cream, eggs, sugar, fruit, etc.) that, under the influence of cold, thickens and obtains a paste-like consistency. The technical level of your ice cream mixture determines the number of raw materials you need.</p>	<p><b>Proportions</b></p> <p>Fats: 8-10%</p> <p>Non-fat milk solids: 7-9%</p> <p>DCS: 4.5-5.5%</p> <p>Total sugar content: 18-22%</p> <p>Total solids content: 39-43%</p> <p>FP (Freezing Point): 250-280</p> <p>SP (Sweetening Power): 17-19%</p> <p>Used couverture: 15-20%</p>	<p><b>Composition</b></p> <p><b>Fats:</b> the proportion of fat in ice cream should be perfectly balanced to create a creamy mouthfeel. Too much fat will render your ice cream greasy, whereas too little fat will make your ice cream lack body and very cold.</p> <p><b>DCS (Dry Cocoa Solids):</b> the total amount of dry cocoa solids is important to determine the colour and cocoa flavour of your chocolate gelato. An average of 5% dry cocoa solids is the rule of thumb.</p> <p><b>Note:</b> if you increase the total amount of dry cocoa solids, remember to increase the total amount of fat and rebalance the amount of sugar (invert sugar or dextrose) accordingly. Otherwise the ice cream will dry during storage, making it very hard and difficult to scoop shortly afterwards.</p> <p><b>Total sugars:</b> sugars create sweetness and firmness, and optimise scoopability. But excessive amounts will render your ice cream too soft and too sweet. Sugars are an important ingredient to convey the flavours in your ice cream.</p> <p><b>FP (Freezing Point):</b> the freezing point of your chocolate ice cream depends on the type of couverture you use. E.g.: if you use a white or milk chocolate couverture, the FP will be 250. The FP of a couverture with a lot of dry cocoa solids will run up to 280. All this will influence the temperature of your display counter.</p> <p><b>SP (Sweetening Power):</b> knowing the sweetening power of your ingredients is important to keep your ice cream from becoming too sweet or too bitter.</p>



# American Ice Cream

## Sugars: granulated sugar, dextrose, glucose syrup, invert sugar

### Milk, cream, egg yolks

### Milk powder

### Stabilisers, emulsifiers and thickening agents

### Various couvertures

#### Ingredients

Ice cream consists of the following ingredients: milk, cream, sugars, egg yolk, couverture, stabilisers and emulsifiers.

The difference between American ice cream and gelato:

- Gelato has a fat content of 8-10%, American ice cream 12-16%
- Gelato has a sugar content of 18-22%, American ice cream 15-18%

#### Production

The process of artisanal ice cream making is similar to that of classic gelato making. It is essential to create a homogenous mixture before you churn it, as it contains a significant amount of fat.

In the catering industry, the Pacojet system is a widely used kitchen appliance to create ice cream.

#### Proportions

Fats: 12-16%

Non-fat milk solids: 8-10%

DCS: 4.5-5.5%

Total sugar content: 15-18%

Total solids content: 40-43%

FP (Freezing Point): 240-250

SP (Sweetening Power): 17-20%

Used couverture: 10-25%

#### Composition

**Fats:** ice cream contains a significant amount of fat that gives it a warm and creamy mouthfeel.

**DCS (Dry Cocoa Solids):** the total amount of dry cocoa solids is important to determine the colour and cocoa flavour of your chocolate ice cream. An average of 5% dry cocoa solids is the rule of thumb.

**Note:** if you increase the total amount of dry cocoa solids, remember to increase the total amount of fat and rebalance the amount of sugar (invert sugar or dextrose) accordingly. Otherwise the ice cream will dry during storage, making it very hard and difficult to scoop shortly afterwards.

**Total sugars:** sugars create sweetness and firmness, and optimise scoopability. But excessive amounts will render your ice cream too soft and too sweet.

**FP (Freezing Point):** the freezing point of your chocolate ice cream depends on the type of couverture you use. E.g.: if you use a white or milk chocolate couverture, the FP will be 250. The FP of a couverture with a lot of dry cocoa solids will run up to 280. All this will influence the serving and storage temperature of your ice cream

**SP (Sweetening Power):** knowing the sweetening power of your ingredients is important to keep your ice cream from becoming too sweet or too bitter.



# Soft-Serve Ice Cream

Sugars: granulated sugar, dextrose, glucose syrup, invert sugar

## Milk, cream

## Milk powder, whey protein concentrate

## Stabilisers, emulsifiers and thickening agents

## Various couvertures

### Ingredients

The ingredients to make soft-serve ice cream are the same as the ones used for artisanal ice cream. The difference is in the method of cooling.

**Note:** to create soft-serve ice cream with more volume add 1 / 1.5% whey protein concentrate (WPC 80%).

### Production

The production of soft-serve ice cream is the result of a continuous process, where the ice cream is cooled during the extrusion phase.

Some soft-serve ice cream machines even let you determine the amount of air in the product. It's always opportune to adjust the parameters of your soft-serve ice cream machine to obtain a product that best fits your desires.

### Proportions

Fats: 8-10%

Non-fat milk solids: 8-11%

DCS: 4.5-6%

Total sugar content: 18-20%

Total solids content: 39-43%

FP (Freezing Point): 220-250

SP (Sweetening Power): 14-17%

Used couverture: 10-18%

### Composition

**Fats:** soft-serve ice cream contains between 8 and 10% fats. They give your soft-serve ice cream its creaminess during the extrusion phase and create a pleasantly warm mouthfeel.

**DCS (Dry Cocoa Solids):** the total amount of dry cocoa solids is important to determine the colour and cocoa flavour of your soft-serve ice cream. An average of 5% dry cocoa solids is the rule of thumb.

**Note:** if you increase the total amount of dry cocoa solids, some soft-serve ice cream machines will not be able to dispense the ice cream. Therefore, it is important to increase the amount of fat and the total solids accordingly.

**Total sugars:** sugars create sweetness, freshness (dextrose) and creaminess in your soft-serve ice cream. Excessive amounts will render your soft-serve ice cream doughy, shiny and too sweet. Too little sugar will make it difficult for your ice cream machine to dispense the product.

**FP (Freezing Point):** the freezing point of your chocolate ice cream depends on the type of couverture you use. E.g.: if you use a white or milk chocolate couverture, the FP will be 250. The FP of a couverture with a lot of dry cocoa solids will run up to 280. All this will influence the serving temperature of your soft-serve ice cream.

**SP (Sweetening Power):** the sweetening power must be low enough for your soft-serve ice cream to be complemented with sweet sauces or toppings.



# Sorbet

**Sugars: granulated sugar, dextrose, glucose syrup, invert sugar**

**Fruit and derivatives, water, stabilisers, thickening agents**

**Cocoa, dried fruit, alcohol**

**Dark chocolate couverture, herbs, flavours**

## Ingredients

Sorbet is essentially sugar syrup that can be flavoured with wine, spices, liquor, fruit purees, etc. It doesn't contain cream, milk or any of its derivatives.

Chocolate sorbet, which we can basically call 'lactose-free water-based ice cream', must contain a very small amount of fat (cocoa butter) to obtain a very fresh mouthfeel that is not too warm.

## Production

The production process of sorbet is comparable to that of milk-based ice cream. It is a very delicate product with a short shelf life that can't be stored in a display counter for too long. That's why sorbet is more of a frozen dessert offered by caterers and restaurant owners than a real over-the-counter delicacy.

## Proportions

Fats: 5-8%

DCS: 4.5-5.5%

Total sugar content: 26-28%

Total solids content: 37-40%

FP (Freezing Point): 265-270

SP (Sweetening Power): 17-19%

Used couverture: 10-20%

## Composition

**Fats:** a sorbet must contain a minimal amount of fat to give a fresh mouthfeel and at the same time guarantee the creaminess of the product.

**DCS (Dry Cocoa Solids):** the total amount of dry cocoa solids is important to determine the colour and cocoa flavour of your sorbet. An average of 4.5% dry cocoa solids is the rule of thumb.

**Note:** if you increase the total amount of dry cocoa solids, remember to increase the total amount of fat and the amount of sugar accordingly. Otherwise the sorbet will lose its creaminess and become difficult to scoop.

**Total sugars:** sugars, along with the used couverture, give your sorbet a firm body.

**FP (Freezing Point):** it is important to know the freezing point of your sorbet to keep it from becoming too hard or too soft.

**SP (Sweetening Power):** the sweetening power of your sorbet must be balanced. An average SP of 18% is the rule of thumb.



# The importance of sugar



The sugar varieties used in the production of ice cream are:

- granulated sugar
- glucose syrup
  - dextrose
- invert sugar
  - honey
  - fructose
  - lactose

And let's not forget the sugars in your couverture (sugar and lactose).

The 3 main features of sugar in ice cream:

1. Creating a firm body
2. Sweetening power (SP)
3. Influencing its freezing point (FP)

Too much sugar will make your ice cream too sweet, soft and too consistent. Too little sugar will result in almost tasteless, too solid and little consistent ice cream.



## Granulated sugar

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
<p>White granulated sugar</p> <p>Mainly from beet and sugar cane</p>	100	100	~14-22%	<p>Most widely used in the production of ice cream (approx. 70 to 85% off all sugars). It is possible to use granulated sugar, powdered sugar, sugar syrup or special sugars like brown sugar, cane sugar, vanilla sugar and muscovado for their aromatic and colouring effect.</p> <p>It is used to:</p> <ul style="list-style-type: none"> <li>• create a sweet taste and enhance flavours</li> <li>• <b>Important note:</b> excessive use of sugar will make it more difficult to distinguish the flavours.</li> <li>• add structure and texture to the ice cream</li> </ul> <p>Granulated sugar is the sugar that adds most of the dry solids to the ice cream mixture. It is sucrose, blended into the liquid ice cream mixture, that directly affects its structure and, most importantly, its freezing point.</p>

## Powdered glucose syrup DE 30

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
<p>Glucose syrup: liquid and viscous</p> <p>Derived from starch (of any botanical origin)</p> <p>The starch may be subjected to a series of industrial processes (acid hydrolysis, enzymatic hydrolysis, filtration, etc.) to obtain glucose syrup.</p>	22.5	54	0-8%	<p>Atomised or powdered glucose syrup is ideal for ice cream making:</p> <ul style="list-style-type: none"> <li>• its dried form is perfect for handling and storage</li> <li>• it adds a lot to the total dry solids in your mixture</li> <li>• its ability to bind with water slows down its dissolution and affects the fineness of its crystals</li> <li>• it has a weak SP</li> <li>• it has an anticrystallising effect</li> <li>• it possesses little maltodextrin, a polysaccharide that makes ice cream viscous</li> </ul> <p>The quantities needed to replace sucrose range from 15 to 25% of the total weight of the sugars or 3-6% of the total weight of the mixture.</p>

## Dextrose

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
<p>White powder</p> <p>Extracted from starch and obtained by means of hydrolysis of amylose and amylopectin (the main components in starch).</p>	75	180	~3-6%	<p>Used to partially replace the sucrose – especially to lower the freezing point of the mixture – taking its molecular weight into account. The freezing point of a mixture with sucrose and dextrose will be lower compared to a mixture that only contains sucrose. It is also perfect for raising the total amount of dry solids in your mixture, without raising its sweetening power too much, given that dextrose is less sweet than granulated sugar.</p>

## Invert sugar

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
<p>Liquid and dense</p> <p>Transparent or opaque</p> <p>Composed of a mixture of equal parts glucose and fructose</p> <p>Obtained by acid hydrolysis or enzymatic hydrolysis of sucrose</p>	130	190	0-6%	<p>In general preferred for its wetting properties in ice cream (chocolate, pistachio, praline...). The benefits:</p> <ul style="list-style-type: none"> <li>• a stronger sweetening power than sucrose</li> <li>• its anticrystallisation properties: invert sugar has the capability to place itself between sucrose molecules and prevents the formation of crystals</li> <li>• a high hygroscopic power that curbs the formation of crystals in the ice cream, thanks to its ability to stabilise the water molecules in the mixture, giving your ice cream its softness and elasticity</li> <li>• an active effect on the structure of the mixture, lowering its freezing point after churning</li> </ul>



# Honey

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
Liquid or granular Transparent or opaque	95-130	190	0-5%	<p>Honey is a natural sweetener with high nutritional value. It is a great source of energy that is easily digestible, because it consists of non-complex substances - mainly pure glucose (dextrose) and fructose.</p> <p>It is favoured for:</p> <ul style="list-style-type: none"> <li>• its characteristic flavour. Replace half of the sucrose in your mixture with honey to create honey-flavoured ice cream. Don't forget to rebalance the FP in the final mixture.</li> <li>• the rich properties of the invert sugar in it (74.5%).</li> </ul> <p>Note: honey is composed of more than 300 substances (enzymes-sugar-water-mineral salts) in proportions that can vary widely, depending on the source of the nectar or honeydew (which explains its strongly variable SP). The main components of honey are sugars, 90% of which are pure glucose (dextrose) and fructose. Their ratio will eventually determine the crystallisation: a high percentage of pure glucose facilitates crystallisation.</p>

# Fructose

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
White crystalline powder Obtained through hydrolysis of sucrose	~140	190	0-5%	<p>Main characteristics:</p> <ul style="list-style-type: none"> <li>• high sweetness</li> <li>• hygroscopic properties, that's why it requires a very low FP</li> <li>• good solubility</li> </ul>

# Lactose

Appearance and origin	SP	FP	Quantity used in mixture	Characteristics
Powder Extracted from milk (it's the only sugar of animal origin)	16	100	< 6%	<p>Lactose has the distinctive feature of being able to absorb up to 10 times its weight in water. This is the main reason why an excess of lactose causes ice cream to become dry and grainy.</p> <p>Lactose is introduced in the ice cream mixture through certain widely used raw materials:</p> <ul style="list-style-type: none"> <li>• milk (4.5% lactose)</li> <li>• cream (3.4% lactose)</li> <li>• milk powder (52% lactose)</li> <li>• white chocolate couverture and milk chocolate couverture (8-10% lactose)</li> </ul>



# The importance of fat



The fats in ice cream mainly come from:

- milk
- cream
- cocoa
- egg yolk

But it is important to know that your couverture also contains fats (cocoa butter/milk fats in whole milk powder).

The 3 main features of fats in ice cream:

1. Creating a firm body
2. Producing a creamy texture
3. Realising a velvety mouthfeel

Too much fat will make your ice cream too greasy, too consistent and warm to the palate.

Too little fat will result in non-creamy ice cream that is cold to the palate.

The main functions of fats:

- Create structure: fats crystallise at cold temperature and therefore affect the texture of your ice cream, making it soft, creamy, delicate and shiny. Note: fats play an important roll during the churning phase at  $-5^{\circ}\text{C}$ , because they prevent ice crystals from expanding.
- Act as a stabiliser: fats have the ability to form air bubbles and infuse the ice cream mixture with them by reducing the surface tension between air and water.
- Convey flavour: fats absorb and retain the aromas in your ice cream mixture.



# Fresh whole milk

Origin	SP	FP	Fat content	Characteristics
<p>EU regulations define milk as the product of full and uninterrupted regular milking of the udders of a cow that is in full health, well-fed and doesn't suffer from fatigue by physical strain.</p>	16%	100	3,5%	<p>Milk consists of water (87.5%), fats (3.5%) and non-fat milk solids (9%), the latter of which are made up of lactose (4.5%), proteins (3.5%) and mineral salts (1%). So, the total solids in milk amount to 12.5%.</p> <p>Milk is often used in the preparation of so-called 'bases', which can be white (non-egg-based) or yellow (egg-based), and is ideal for chocolate ice cream. It adds the taste of fresh milk to the ice cream mixture. That's why it is important to use fresh milk of a high quality.</p> <p>You can use whichever type of milk you want in your ice cream mixture: fresh milk, UHT milk, (semi-)skimmed milk, raw milk (make sure to pasteurise it first) or even even the superb buffalo milk.</p>

# Cream (35%)

Origin	SP	FP	Fat content	Characteristics
<p>Apart from water, cream mainly consists of milk fats. It is a liquid white substance that is obtained by centrifuging milk or by skimming its top layer before the milk is homogenised.</p> <p>In ice cream making, either shelf-stable or freshly centrifuged cream is used. The difference between the two is the method of heat treatment they are subjected to.</p>	16%, calculated on the amount of lactose in it.	100	35%	<p>Cream has multiple functions in the ice cream mixture:</p> <ul style="list-style-type: none"> <li>• Since cream has a water content of about 60%, it acts as a sugar solvent, and adds volume and structure to the mixture.</li> <li>• The fats in it crystallise at low temperatures, affecting the density of the ice cream mixture and giving the ice cream its creaminess.</li> <li>• The proteins in cream (2.3%) have an influence on the stability of the mixture along with the amount of air bubbles in it. They determine the mixture's overrun rate and its structure during storage.</li> <li>• Cream gives the finished product its round taste, thanks to its full flavour and the lactose (3.4%) it contains.</li> </ul>

# Egg yolk

Origin	Total solids	Proteins	Fat content	Characteristics
<p>In Europe, people prefer to work with chicken eggs, which on average weigh 60 g (20 g egg yolk, 30 g egg white and 10 g shell), and are composed of water, lecithin and proteins. An egg is one of the fullest and highest-energy foodstuffs on the market.</p> <p>For milk- or egg-based ice cream you can use fresh egg yolk or off-the-rack egg products such as pasteurised liquid egg yolk, frozen egg yolk or egg yolk powder.</p>	45-48%	16%	28-30%	<p>The main features of egg yolk in your ice cream mixture are:</p> <ul style="list-style-type: none"> <li>• Binding the protein content, forming a gel at high temperature (the denaturation of proteins starts at 68°C, and in the case of egg yolk has a maximum temperature of 80°C), which makes the ice cream denser.</li> <li>• Since it contains lecithin, egg yolk also functions as an emulsifier. It stabilises the dispersion of fat globules in the mixture and keeps them from merging together, giving your ice cream its fineness. Egg yolk also affects the overrun rate of your ice cream and facilitates the incorporation of air bubbles in the mixture during churning.</li> </ul> <p><b>Note:</b> the average amount of lecithin in egg yolk amounts to 6-8% of its total fat content. Lecithin gives structure to the fats in the egg yolk (~28%), has a profound influence on the viscosity of the ice cream (together with the milk fats in it) and conveys flavour thanks to the ability of fats to absorb aromas. Lecithin also contains a pigment called xanthophyll, which gives the ice cream mixture a yellow colour.</p>

# The importance of aerating



Air is a very important natural ingredient in your ice cream and is incorporated into your mixture during the final churning phase at -5°C. It has two important functions:

1. Creating the right, soft structure
2. Making the ice cream less cold to the palate

In fact, the minuscule air bubbles place themselves between the cold ice crystals and the other particles of the various solids in your ice cream mixture, which makes the ice cream less cold to the palate.

Consequently, introducing too little air in your ice cream will make it too cold to the palate.

The amount of air that's incorporated into the ice cream is determined by several factors with regard to both the type and quantity of certain raw materials and semi-finished products in the mixture. But the quality of some important processing steps has to be taken into account as well:

- The quality of the mixture itself
- Effective low homogenisation or emulsification
- Correct maturation
- Correct churning

The amount of air that you have to incorporate into your ice cream mixture is called 'overrun'. Ice cream on average has a variable overrun rate of 30-45%. Fruit sorbets on the other hand only have an average overrun rate of 20-35%.

## Overrun: calculating the amount of air to incorporate into your ice cream

Air should be considered as a fully fledged raw material for your ice cream. Air bubbles are incorporated into the ice cream mixture during the final churning phase and give your ice cream its soft texture.

Remember:

20-35% overrun for fruit-based ice cream

30-45% overrun for milk-based ice cream

The following formula lets you calculate the overrun rate of your ice cream recipe:

$$\frac{(\text{WEIGHT OF YOUR ICE CREAM MIXTURE} - \text{WEIGHT OF YOUR ICE CREAM}) \times 100}{\text{WEIGHT OF YOUR ICE CREAM}}$$

### Example:

- The initial weight of your ice cream mixture is 1,000 g
- The weight you want your churned ice cream to have, amounts to 720 g

$$1,000 - 720 = 280$$

$$280 \times 100 = 28,000$$

$$28,000 / 720 = \mathbf{38.8\% \text{ overrun rate}}$$

# The importance of solids



## Skimmed milk powder 0%

Origin	Total solids	Lactose	Proteins	Characteristics
<p>Milk powder is a cow's milk derivative obtained by evaporating the water in it. There are two methods of producing it:</p> <ol style="list-style-type: none"> <li>1. Roller drying (also known as the Just-Hatmaker process)</li> <li>2. Spray drying (also known as atomisation)</li> </ol> <p>The market offers three types of milk powder:</p> <ol style="list-style-type: none"> <li>3. Whole milk powder (26% fat content)</li> <li>4. Semi-skimmed milk powder (13-17% fat content)</li> <li>5. Skimmed milk powder (&lt; 0.5% fat content)</li> </ol> <p>The sole difference between the three is the amount of fat they contain.</p>	95%	52%	16%	<p>Milk powder has the ability to absorb up to 10 times its weight in water, which makes it perfect for giving your ice cream more body and rendering it more solid.</p> <p>Milk powder consists of water (5%) and non-fat milk solids (95%). It is considered a dry powder, since it is made up of 95% dry solids.</p> <p>Note: milk powder adds 50% lactose to your mixture, which is very difficult to rehydrate. A good rule is not to exaggerate with the amount of milk powder you add. This way you'll avoid nasty surprises during recrystallisation: your ice cream might become rather grainy.</p>

Non-fat milk solids basically consist of proteins, lactose and mineral salts. Milk proteins facilitate the incorporation of air bubbles in the ice cream mixture and act as a thickening agent.

Fresh milk contains about 9% non-fat milk solids, which is the sum of the proteins (3.5%), lactose (4.5%) and mineral salts (1%) in it. Skimmed milk powder on the other hand contains no less than 95% non-fat milk solids, half of which is lactose. An ice cream mixture ideally contains a total of 7-12% non-fat milk solids.

### Other solids

'Other solids' is a term used to describe all the components in your ice cream mixture that are not sugars, fats, non-fat milk solids or water. It comprises all stabilisers, emulsifiers, thickening agents, cocoa solids, fruit, hazelnut paste etc. In other words: all fibres.

### Total solids

Total solids are the sum of all the solids in your ice cream mixture. As a rule, the total amount of solids in your mixture should range between 32% and 42%. In fact, ice cream with few solids has little body, tends to become quite hard and has ice crystals covering its surface. Ice cream that contains too many solids on the other hand has a very grainy texture and mouthfeel. Again, balance is key.

# The parameters to **balance** out your ice cream mixture



## Sugars

	Minimum	Maximum	Too many	Too few
<p>Sucrose, dextrose, glucose syrup, invert sugar, honey, fructose etc.</p> <p>The sugars in sugar-based flavouring pastes should also be taken into account.</p>	16%	22%	<ul style="list-style-type: none"> <li>• Very sweet to the palate</li> <li>• Very soft texture</li> <li>• Poor incorporation of air bubbles</li> </ul>	<ul style="list-style-type: none"> <li>• Not sweet enough</li> <li>• Rather hard texture</li> <li>• Poor scoopability</li> <li>• Hardly conveying flavours</li> </ul>

## Fats

	Minimum	Maximum	Too many	Too few
<p>Milk derivatives (cream, butter, mascarpone, ricotta...), vegetable fats, egg yolk, dried fruit pastes, couvertures, fat-based flavouring pastes (praline pastes, almond paste...)</p>	8%	12%	<ul style="list-style-type: none"> <li>• Greasy mouthfeel</li> <li>• Non-homogenous structure</li> <li>• Poor incorporation of air bubbles</li> </ul>	<ul style="list-style-type: none"> <li>• Poor creaminess</li> </ul>

## Non-fat milk solids

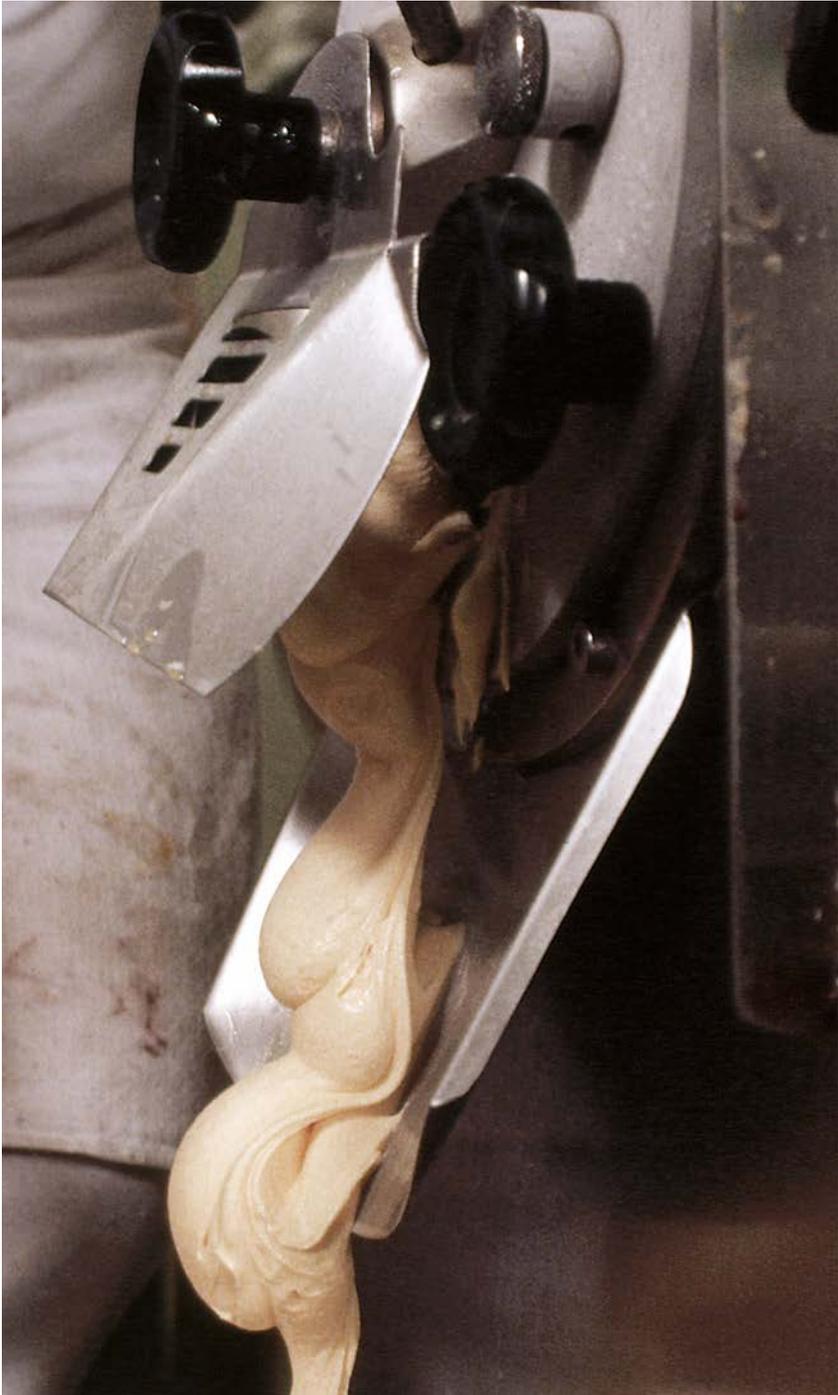
	Minimum	Maximum	Too many	Too few
<p>Contained in milk and its derivatives (cream, butter, skimmed milk). Mainly consist of proteins, lactose and mineral salts.</p>	6%	8%	<ul style="list-style-type: none"> <li>• Grainy texture (due to crystallised lactose)</li> </ul>	<ul style="list-style-type: none"> <li>• Not very solid</li> <li>• Non-homogenous structure</li> <li>• Poor incorporation of air bubbles</li> </ul>

## Other solids

	Minimum	Maximum	Too many	Too few
<p>Egg components, cocoa solids, dried fruit pastes, stabilisers, emulsifiers etc.</p>	2%	3%	<ul style="list-style-type: none"> <li>• Strong taste</li> <li>• Non-homogenous structure</li> <li>• Little overrun</li> </ul>	<ul style="list-style-type: none"> <li>• Feeble taste</li> <li>• Poor stability</li> </ul>

## Total solids

	Minimum	Maximum	Too many	Too few
<p>The sum of all solids: non-fat milk solids, fibres, fats etc.</p>	32%	45%	<ul style="list-style-type: none"> <li>• Heavy texture</li> <li>• Little overrun</li> </ul>	<ul style="list-style-type: none"> <li>• Poor nutritional value</li> <li>• Feeble taste</li> </ul>



# Hardening your ice cream after extruding it from the ice cream machine



This process consists of storing your ice cream in a blast freezer in order to lower its temperature even further (to  $-18/-20^{\circ}\text{C}$ ) without stirring it.

Not all water in your ice cream is frozen after the final churning process in your ice cream machine (at a temperature of  $-7/-8^{\circ}\text{C}$  only 50% of the water has turned into ice), so you need to bring the temperature of your ice cream down to  $-14^{\circ}\text{C}$  for storage in a display counter or even down to  $-18^{\circ}\text{C}$  if you want to store it in a freezer.

That gives you two ways of doing this:

- Place your ice cream mixture in a blast freezer for a few minutes before storing it in a display counter.
- Place your ice cream mixture in a blast freezer until it reaches a core temperature of  $-18^{\circ}\text{C}$  before storing it in a freezer at  $-18^{\circ}\text{C}$ .

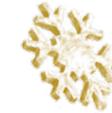
A good hardening of your ice cream, brought about in the shortest time possible, has many benefits:

1. It permanently sets your ice cream's structure
2. Your ice cream maintains its consistency
3. Your ice cream maintains its 'overrun'

Generally, hardening is only applied when the situation requires a considerable amount of ice cream to be preserved for a certain amount of time, maintaining its structure, texture and flavour characteristics with it.



# The importance of calculating the Freezing Point



**FP (Freezing Point)**, is the sum of all sugars present in the ice cream mixture, including granulated sugar, dextrose, glucose syrup and invert sugar, but also those present in dairy products (lactose) and semi-finished products, such as your couverture chocolate, ice cream base and flavouring pastes.

Knowing the FP of ice cream, means knowing at which temperature you should cool your display counter. This, of course, is completely empirical, but it helps keeping your ice cream from getting too hard or too soft.

### Example 1:

1,000 g water crystallises at 0°C

If we add sugar, the crystallisation temperature will be lower.

### Example 2:

2.5% sugar is added

975 g water + 25 g sugar crystallise at -2°C

## How to calculate the FP?

To obtain ready-to-serve ice cream at -18°C, increase the FP to 360.

Total sugars in the solution

2.5%

Crystallisation temperature of sugar solution

-2°C

Product type

Ice cream (25% sugars)

### Calculation

25% (sugar content) = total FP of 250

$$\frac{250}{20} = 12.5$$

(crystallisation temperature of sugar solution: 20°C)

(-12.5°C serving and display temperature)

# The necessity of pasteurisation and sterilisation



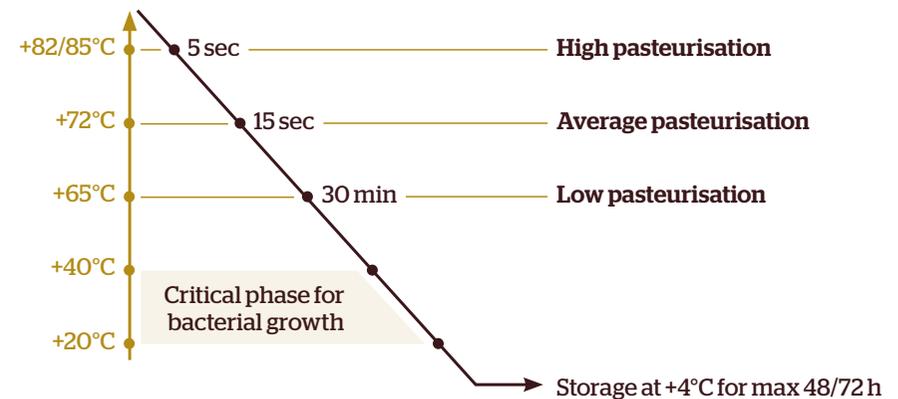
## Pasteurisation

Named after the French biologist Louis Pasteur, this heat treatment is necessary to destroy all microorganisms in food, without damaging the product.

There are three types of pasteurisation.

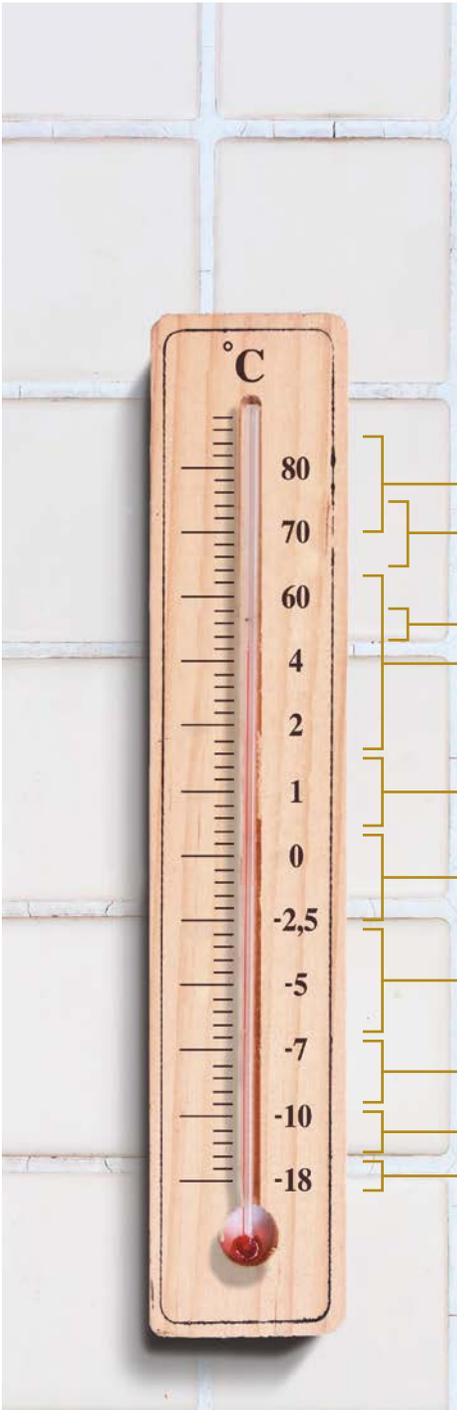
1. **High pasteurisation:** the ice cream mixture is quickly heated up to 85°C and stabilises for about 5 seconds. Its temperature is then lowered to 4°C before being stored in maturation tanks.
2. **Average pasteurisation:** the ice cream mixture is quickly heated up to 72°C and stabilises for about 10-15 seconds. Its temperature is then lowered to 4°C before being stored in maturation tanks.
3. **Low pasteurisation:** the temperature of the ice cream mixture climbs up to 65°C in 30 minutes' time and is subsequently lowered to 4°C.

It is essential to monitor the temperature in order to keep the mixture from remaining in the critical phase of 20°C to 40°C for too long. This could increase the bacterial load in your ice cream mixture. Remember that pasteurisation not always completely eliminates all bacteria. It is therefore important to use fresh raw materials (milk, cream, eggs...). Never interrupt the cold chain and use pasteurised eggs to avoid the risk of a higher bacterial load.



Pasteurisation is absolutely necessary for all ice cream mixtures because of two very important reasons

1. The heat will destroy a large part of the microorganisms in the ingredients. It is important that the pasteurisation process is done in a sanitised environment, with hygienically perfect raw materials and equipment.
2. Heating allows the ingredients to bind: sugar dissolves, proteins hydrate, stabilisers swell, fats blend and the emulsifier allows all ingredients to form a smooth mixture, creating the perfect ice cream base.



## Sterilisation

Sterilisation (UHT) is subjecting ingredients to high temperatures between 140°C and 145°C for 1 to 2 seconds before rapidly cooling them and packing them under sterile conditions using sterilised containers.

## Production process of ice cream

80 — **Actual pasteurisation phase of the ice cream mixture**

70 — **Add desired couverture (not melted)**

60 — **Temperature of bacterial proliferation**

4 — **Rapid cooling curve**

1 — **Preservation temperature of the mixture for max. 48/72 h**

0 — **• Start chilling the mixture**  
**• Optimal temperature to incorporate air**

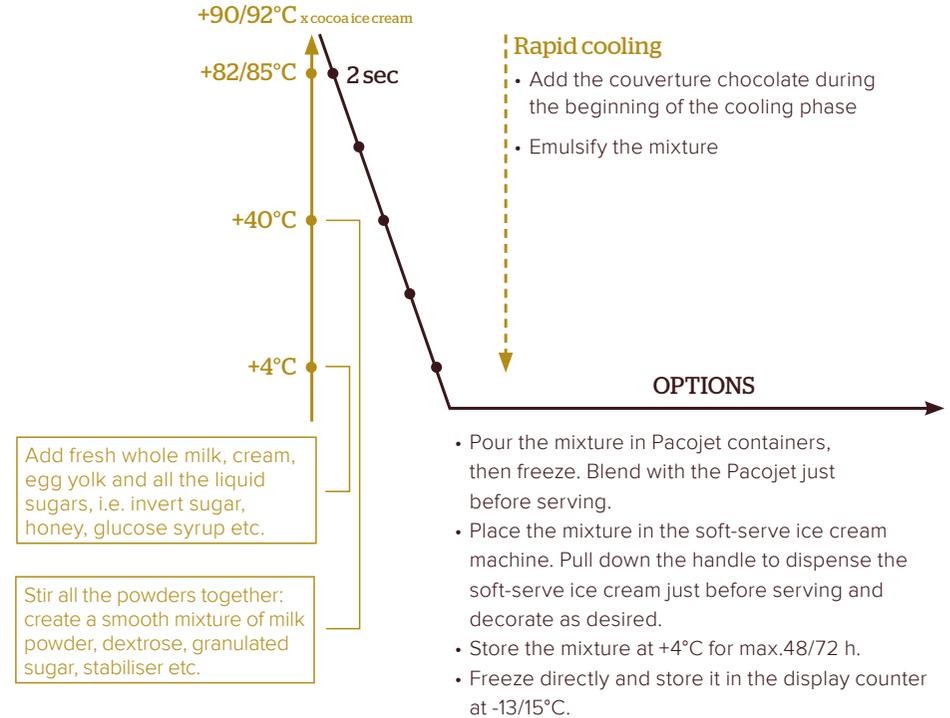
-2,5 — **Add alcohol to the mixture during the churning phase**

-7 — **Take the ice cream out of the ice cream machine**

-10 — **Display/selling temperature**

-18 — **Storage temperature**

## Pasteurisation process scheme for egg-based ICE CREAM



## Salmonella and eggs

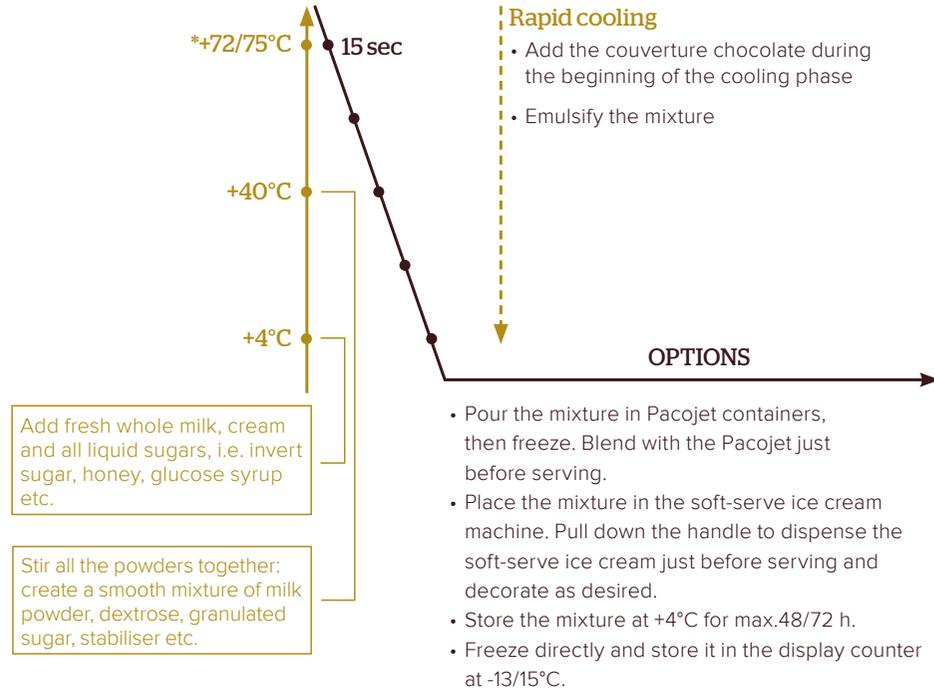
Salmonella bacteria can be found inside the egg. That's because they are present in the ovary or oviduct before the shell is formed around the yolk and the egg white. The optimum growth temperature for salmonella bacteria ranges from 35 to 43°C. To prevent these organisms from multiplying inside the egg, refrigeration at +4°C is recommended. This will not eliminate the bacteria, but it will slow down their growth process.

Bakery products, for instance, reach a core temperature of over 70°C, which kills salmonella bacteria. But for the pasteurisation of egg-based ice cream it is crucial that the average temperature climbs up to 80/85°C in order to avoid the presence of salmonella. It is however very important to rapidly cool the product to +3°C to prevent an exponential growth of the bacteria.

**Note:** if the recipe requires alcohol, add it to the ice cream mixture during the churning phase at -5°C.



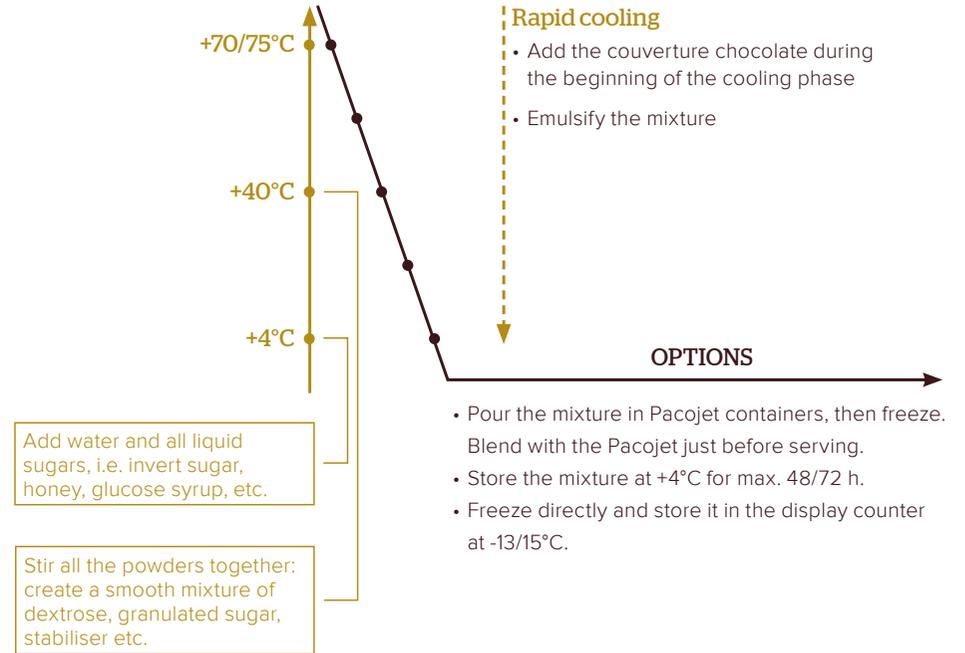
## Pasteurisation process scheme for milk-based ICE CREAM



\*You can pasteurise milk-based ice cream mixtures (without egg yolk) for 15 seconds at 72/75°C, the same temperature at which milk is pasteurised. This way you make sure that the organoleptic and nutritional characteristics remain the same.

**Note:** if the recipe requires alcohol, add it to the ice cream mixture during the churning phase at -5°C.

## Pasteurisation process scheme for water-based SORBET



**Note:** if the recipe requires alcohol, add it to the ice cream mixture during the churning phase at -5°C.

# Emulsifying, stabilising and thickening agents



Emulsifiers, stabilisers, thickeners and gelling agents are all examples of food additives that ‘stabilise’ a mixture. They generally serve two main purposes:

1. **Thickening/gelling:**  
Thickening and gelling agents either cause a mixture to thicken or cause the water in a mixture to congeal.
1. **Emulsifying:**  
Emulsifying agents make it possible to mix two immiscible liquids together (e.g. water and oil).

Stabilisers are primarily used for:

1. Enabling and facilitating the dispersion of air through the ice cream mixture, making it soft and creamy.
1. Creating a better structure, enabling the formation of small and regular-shaped ice crystals, and producing a homogeneous melting behaviour.
1. Improving the stability and structure during storage.
1. Preventing ice cream from melting too fast when serving it.

**Thickening agents** are usually of vegetable origin (e.g. locust bean gum (E410), guar gum (E412), carrageenan (E407) and pectin (E440)). It’s interesting to point out that the main stabilisers used by the artisan ice cream maker are locust bean gum and guar gum.

**Emulsifiers** are additives that increase the kinetic stability between water and the fatty/oily ingredients in a mixture, making them both stable and enabling them to be mixed together. The ones most commonly used by ice cream manufacturers are monoglycerides, diglycerides and lecithin.

## **Stabilisers and neutro for ice cream**

Thickeners and emulsifiers make up the so-called stabilisers or neutro for both ice cream and sorbets. The main difference is in their composition:

- stabilisers for sorbets:
  - consist primarily of thickeners (flour of locust bean gum, guar and often alginates as well)
  - dosage is 3 g per litre of mixture
- stabilisers for ice cream:
  - consist of both thickeners (flour of locust bean gum, guar gum alginates) and emulsifiers (sucrose esters and mono- or di-glycerides)
  - dosage is 5 g per litre of mixture

In the market, a variety of stabilisers for creams and fruit is available. It is recommended to ask the vendor for a technical sheet with their precise composition.

## **The basic “semi-finished product in powder”**

Specialised suppliers of ice cream ingredients also offer semi-compounds, called bases (in various weights of use). These are ideal when the ice cream



maker prefers to use minimal quantities of stabilisers. They exist in various densities (from 30 g to 400 g per litre of mixture). The ones most widely used are the Base 50 or 100 g – mainly composed of thickeners, emulsifiers, milk powder, sugar, flavouring and milk proteins.

And they exist in specific varieties for fruit bases or cream bases. They're made for hot and cold applications, with various formulations and compositions, which allow different dosages. The final goal is to obtain a balanced mixture and a perfect texture for your ice cream or sorbet.

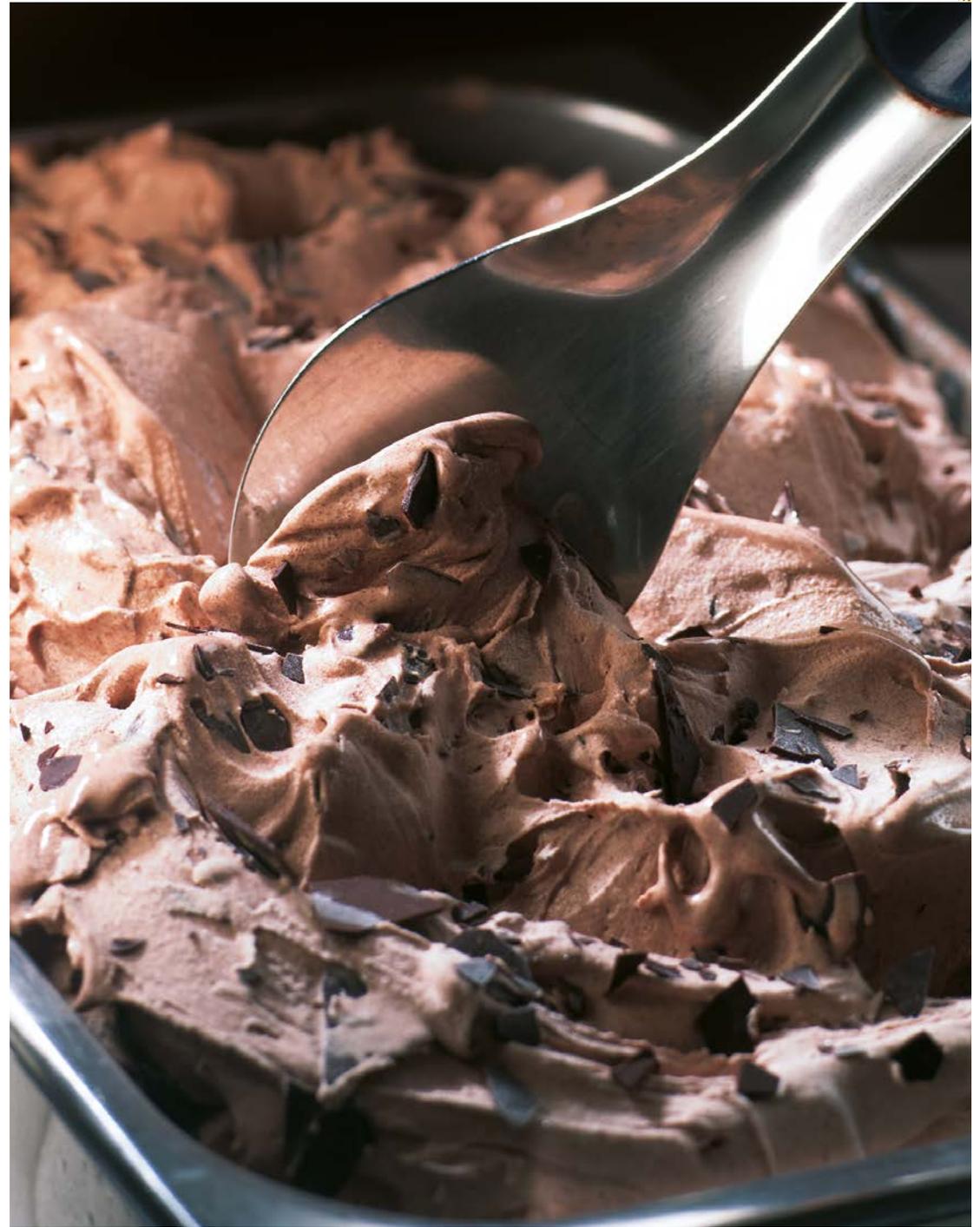
### Example of a recipe

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	Freezing Point	Sweetening Point
<b>Gelato with: 811 Cocoa solids: 54.5% with Base 50</b>	65.50	Whole milk	655 g	22.93	22.93	29.48	58.95	/	/	81.88	29.48	4.72
	2.90	Sugar	29 g	/	/	/	/	29.00	/	29.00	29.00	29.00
	6.00	Dextrose	60 g	/	/	/	/	55.20	/	55.20	99.36	45.00
	5.00	Base milk 50	50 g	6.50	4.60	6.90	12.75	26.75	/	49.00	27.50	10.75
	20.60	Callebaut recipe n° 811 (54.5%)	206 g	74.37	/	/	/	90.64	40.79	205.79	90.64	90.64
	100.00	TOTAL	1,000 g	10.38	2.75	3.64	7.17	20.16	4.08	42.09	275.98	180.11

Note: Ask your vendor or supplier for the technical sheet that comes with your stabiliser. It will help you get your recipe breakdown just right.

### Some tips that will definitely come in handy:

- Always mix one part stabiliser with ten parts sugar before adding them to your ice cream mixture. This way you'll avoid lumps in the mixture and the stabiliser will disperse more easily through it.
- Always mix in your stabilisers at a temperature of 40°C. At that temperature, stabilisers become most active: they'll absorb more and display better swelling characteristics.



## E412 Guar gum

Origin	Function	Use
<p><b>Vegetable</b> Derived from a tropical plant (mainly found in India and Pakistan) that produces pods containing guar seeds.</p>	Thickening agent	<p>Guar gum is both hot and cold-soluble. It is recommended to mix it with one part sugar to avoid lumps in the mixture during emulsifying.</p> <p>Larger amounts create a very high viscosity.</p> <p>Guar gum is completely tasteless.</p> <p><b>Caution:</b> guar proteins are slightly toxic, which is why dosage should be minimal.</p>

## E410 Locust bean gum

Origin	Function	Use
<p><b>Vegetable</b> Derived from an evergreen tree that grows on the Mediterranean coast. Locust bean gum flour is produced with the seeds found in the dark brown pods that the tree produces.</p>	Thickening agent	<p>Locust bean gum is a commonly used stabiliser/thickening agent for gelato.</p> <p>It is completely tasteless.</p> <p>Locust bean gum is not cold-soluble. It is recommended to mix it with one part sugar to avoid lumps in the mixture during emulsifying.</p> <p>The thickening agent properties of locust bean gum are heat-triggered. It guarantees excellent results when mixed with carrageenan and guar gum.</p>

## E407 Carrageenan

Origin	Function	Use
<p><b>Vegetable</b> A gelatinous compound derived from carrageen moss (or <i>Chondrus crispus</i>), a red alga commonly found in the temperate waters of the Atlantic coast. The plant is named after the Irish village of Carrageen, where it is found in abundance.</p> <p>There are three main varieties of carrageenan, which differ in their degree of sulphation:</p> <ul style="list-style-type: none"> <li>• Kappa-carrageenan (most common)</li> <li>• Lambda-carrageenan</li> <li>• Iota-carrageenan</li> </ul>	Stabilising agent	<p>Carrageenan is tasteless, water-soluble (at 50°C) and regains its gel form when cooled. It is commonly used in milk-based ice cream that contains locust bean gum. Locust bean gum is incompatible with milk proteins, which is resolved by adding carrageenan to the mix.</p> <p><b>Sodium carrageenan</b> is cold-soluble (i.e. suitable for cold mixtures) and does not cause milk proteins to separate.</p> <p>Carrageenan has a very short hydration time.</p>

## E400/405 Alginates

Origin	Function	Use
<p><b>Vegetable</b> Alginates are derived from alginic acid, a natural constituent of certain brown algae. The resulting salts (i.e. sodium alginate, ammonium salts, calcium salts and potassium alginate) are known as alginates and have excellent solubility.</p> <p>E405 propylene glycol alginate is a chemically modified derivative of alginic acid that is both hot and cold soluble. It has pH values ranging between 2.8 and 10, and is soluble in high sugar concentrations.</p>	Thickening agent	<p>Alginates dissolve easily in water. They can absorb 200-300 times their own weight in water, which is why they are commonly used as a thickening agent in the food industry to give the right consistency to jams, marmalades, ice cream, sweets, etc.</p> <p>Their properties as a thickening agent in ice cream mixtures are heat-triggered.</p> <p>Some ice cream base mixes already contain alginates.</p> <p>Use propylene glycol alginate in very acidic ice cream bases (e.g. fruit sorbets or frozen yoghurt).</p>

## E471 Mono- and diglycerides

Origin	Function	Use
<b>Chemical</b> Synthetic fats produced with glycerol and natural fatty acids derived from either animal or vegetable products (e.g. lard or palm oil). They consist of approximately 55-60% mono- and 30-35% diglycerides.	Emulsifying agent	Mono- and diglycerides are the most widely used emulsifying agent in the ice cream industry.  They are mainly used to create a smooth, even ice cream mixture by reducing the surface tension between two immiscible ingredients. Mono- and diglycerides must be heated up to at least 50°C to disperse evenly through the ice cream mixture.

## E322 Lecithin

Origin	Function	Use
<b>Animal or vegetable</b> Found in high concentrations in egg yolk (about 6-8%) and soy.  In fact, ice cream makers actually benefit from the use of egg yolk.	Emulsifying agent	Lecithin isn't water-soluble. It dissolves in fats and oils. It mainly functions as: <ul style="list-style-type: none"><li>• an emulsifying agent: lecithin allows two immiscible ingredients to bind (e.g. water and oil)</li><li>• an emollient: lecithin reduces the viscosity of the product it is added to (e.g. when added to chocolate lecithin replaces part of the cocoa butter)</li><li>• an antioxidant: lecithin slows down the oxidation of oils and fats</li></ul>

## E473 Sucrose esters

Origin	Function	Use
<b>Chemical</b> Sucrose esters are obtained by making edible fats and oils react with sucrose.  There are many different types of sucrose esters and sucroglycerides (E474).	Emulsifying agent	The use of sucrose esters is similar to that of mono- and diglycerides: they make it possible to emulsify fat with water.  Sucrose esters need to be heated in water at 70-80°C to obtain perfect solubility.  Sucrose esters are a common ingredient in biscuits, pastries and bread.

# How to create a balanced ice cream recipe?

## A step-by-step calculation method



### The table of ingredients

In order to calculate the ingredient proportions for your ice cream mixture, you need to know their composition. The table below lists the data for the ingredients most commonly used in ice cream:

Ingredient (100g)	Fat	Proteins	Lactose	Mineral Salts	Non-fat milk solids	Sugar	Dry Cocoa Solids	Other solids	Total solids	Water	Freezing Point	Sweetening Power
<b>DARK CHOCOLATE</b>												
Callebaut Blend of Origins Kumabo 80.1%	47.50	1.80	/	0.20	/	16.00	34.00	34.00	99.50	0.50	16.00	16.00
Callebaut Blend of Origins Satongo 72.2%	43.10	1.80	/	0.20	/	24.50	30.20	30.20	99.80	0.20	24.50	24.50
Callebaut Blend of Origins Fortina 65.1%	38.80	0.60	/	0.20	/	32.00	28.40	28.40	100.00	/	32.00	32.00
Callebaut Single Origin Brazil 66.8%	40.00	0.60	/	0.20	/	30.10	28.60	28.60	99.50	0.50	30.10	30.10
Callebaut Single Origin Sao Thomé 70%	39.40	0.60	/	0.20	/	27.00	32.60	32.60	99.80	0.20	27.00	27.00
Callebaut Single Origin Ecuador 70.4%	41.40	1.60	/	0.20	/	26.50	30.20	30.20	99.90	0.10	26.50	26.50
Callebaut Single Origin Madagascar 67.4%	39.50	1.60	/	0.20	/	29.50	29.00	29.00	99.80	0.20	29.50	29.50
Callebaut Finest Belgian Chocolate 811   54.5%	36.10	/	/	/	/	44.00	19.80	19.80	99.90	0.10	44.00	44.00
Callebaut Finest Belgian Chocolate 60-40-38   60.1%	38.90	/	/	/	/	37.00	24.10	24.10	100.00	/	37.00	37.00
Callebaut Finest Belgian Chocolate 70-30-38   70.5%	38.70	2.80	/	1.00	/	26.50	30.80	30.80	99.80	0.20	26.50	26.50
Callebaut Finest Belgian Chocolate 80-20-44   80%	44.00	/	/	/	/	16.00	40.60	40.00	100.00	/	16.00	16.00
<b>MILK CHOCOLATE</b>												
Callebaut Single Origin Java 33%	34.60	5.70	8.40	1.30	15.40	44.50	5.00	5.00	99.50	0.50	52.90	45.84
Callebaut Single Origin Arriba 39%	39.10	6.90	10.00	1.60	18.50	33.00	6.50	6.50	97.10	2.90	43.00	34.60
Callebaut Finest Belgian Chocolate 823   34%	36.30	5.85	8.50	1.35	15.70	42.00	5.20	5.20	99.20	0.80	50.50	43.36
<b>WHITE CHOCOLATE</b>												
Callebaut Finest Belgian Chocolate W2   28%	36.00	6.35	9.00	1.41	16.76	46.50	/	/	99.26	0.74	55.50	47.94
Callebaut Finest Belgian Chocolate Velvet 33%	42.10	6.10	8.90	1.40	16.40	41.50	/	/	100.00	/	50.40	42.92

Ingredient (100g)	Fat	Proteins	Lactose	Mineral Salts	Non-fat milk solids	Sugar	Dry Cocoa Solids	Other solids	Total solids	Water	Freezing Point	Sweetening Power
<b>OTHER INGREDIENTS</b>												
Water	/	/	/	/	/	/	/	/	/	100.00	/	/
Butter 82%	82.00	/	/	1.00	1.00	/	/	/	84.00	16.00	/	/
Anhydrous butter	99.00	/	/	/	/	/	/	/	99.00	1.00	/	/
Cocoa 22-24% fat content	23.00	18.00	/	5.00	/	/	/	49.00	95.00	5.00	/	/
Defatted cocoa 12% fat content	12.00	/	/	/	/	/	/	83.00	95.00	5.00	/	/
Dextrose	/	/	/	/	/	92.00	/	/	92.00	8.00	165.60	75.00
Dulce de leche	6.00	8.64	12.96	2.40	24.00	40.00	/	/	70.00	30.00	70.96	47.07
Fructose	/	/	/	/	/	100.00	/	/	100.00	/	190.00	140.00
Inulin	/	/	/	/	/	95.00	/	/	95.00	5.00	9.50	9.50
Sweetened condensed milk	9.00	8.00	13.00	1.80	22.80	42.00	/	/	73.80	26.20	73.90	49.33
Buffalo milk	8.50	4.50	5.10	0.70	10.30	/	/	/	18.80	81.20	5.10	0.82
Whole milk	3.50	3.50	4.50	1.00	9.00	/	/	/	12.50	87.50	4.50	0.72
Semi-skimmed milk	1.80	3.50	4.50	1.00	9.00	/	/	/	10.80	89.20	4.50	0.72
Skimmed milk	0.20	3.50	4.50	1.00	9.00	/	/	/	9.20	90.80	4.50	0.72
Whole milk powder	26.00	28.00	38.00	5.00	71.00	/	/	/	97.00	3.00	38.00	6.08
Whole milk powder 26%	26.00	28.00	38.00	5.00	71.00	/	/	/	97.00	3.00	38.00	6.08
Skimmed milk powder 0%	1.00	36.00	52.00	8.00	96.00	/	/	/	97.00	3.00	52.00	8.32
Lactose	/	/	100.00	/	/	100.00	/	/	100.00	/	100.00	16.00
Maltodextrin 18 DE	/	/	/	/	/	95.00	/	/	95.00	5.00	30.78	13.50
Mascarpone	47.00	7.60	/	1.40	9.00	/	/	/	56.00	44.00	/	/
Cocoa liquor	55.00	/	/	/	/	/	45.00	/	100.00	/	/	/
Honey	/	1.00	/	/	/	81.00	/	/	82.00	18.00	153.90	130.00
Neutro 5	60.00	/	/	/	/	/	/	40.00	100.00	/	/	/
Olive oil	100.00	/	/	/	/	/	/	/	100.00	/	/	/
Cream 35% fat content	35.00	2.30	3.40	0.30	6.00	/	/	/	41.00	59.00	3.40	0.54
Philadelphia	31.00	8.60	0.40	1.00	10.00	/	/	/	41.00	59.00	0.40	0.06
Whey protein	/	100.00	/	/	100.00	/	/	/	100.00	/	/	/
Rhum 40°	/	/	/	/	/	5.00	/	/	5.00	95.00	105.00	5.00
Ricotta (sheep milk)	25.00	8.50	3.20	0.70	12.40	/	/	/	37.40	62.60	3.20	0.51
Ricotta (cow milk)	8.00	2.50	4.50	1.00	8.00	/	/	/	16.00	84.00	4.50	0.72
Salt	/	/	/	/	/	/	/	100.00	100.00	/	300.00	/
Glucose syrup 30.2 DE	/	/	/	/	/	80.00	/	/	80.00	20.00	73.20	22.50
Glucose syrup 42 DE	/	/	/	/	/	80.00	/	/	80.00	20.00	60.48	31.50
Glucose syrup 42 DE	/	/	/	/	/	80.00	/	/	80.00	20.00	60.48	31.50
Glucose syrup 62 DE	/	/	/	/	/	80.00	/	/	80.00	20.00	89.28	46.50
Glucose syrup 74 DE	/	/	/	/	/	80.00	/	/	80.00	20.00	106.56	55.50
Dehydrated glucose syrup 30 DE	/	/	/	/	/	95.00	/	/	95.00	5.00	51.30	22.50
Dehydrated glucose syrup 38 DE	/	/	/	/	/	95.00	/	/	95.00	5.00	64.98	28.50
Egg yolk	28.00	16.00	/	1.00	/	/	/	/	45.00	55.00	/	/
Whole eggs	10.00	15.00	/	1.00	/	/	/	/	26.00	74.00	/	/
Egg white	/	11.00	/	1.00	/	/	/	1.00	13.00	87.00	/	/
Whole yoghurt	4.00	4.70	4.50	0.80	10.00	/	/	/	14.00	86.00	4.50	0.72
Invert sugar	/	/	/	/	/	72.50	/	/	72.50	27.50	137.75	130.00
Granulated sugar	/	/	/	/	/	100.00	/	/	100.00	/	100.00	100.00



## The Calculation, step-by-step

Suppose we want to create a balanced chocolate gelato made with Callebaut Finest Belgian Dark Chocolate 811. This is how it would be done, step by step.

First we need to find out what our chocolate is made of. As for our example, all the data on dark chocolate 811 can be found in the table on the previous page. Based on our table of ingredients, this is what the parameters for our gelato ingredients would look like:

Ingredients	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Whole milk	3.50	3.50	4.50	9.00	-	-	12.50	4.50	0.72
Skimmed milk powder 0%	1.00	36.00	52.00	96.00	-	-	97.00	52.00	8.32
Granulated sugar	-	-	-	-	100.00	-	100.00	100.00	100.00
Dextrose	-	-	-	-	92.00	-	92.00	165.60	75.00
Glucose syrup 30 DE	-	-	-	-	95.00	-	95.00	51.30	22.50
Neutro 5	60.00	-	-	-	-	-	100.00	-	-
<b>Dark chocolate 811 – 54.5% cocoa solids</b>	<b>36.10</b>	-	-	-	<b>44.00</b>	<b>19.80</b>	<b>99.90</b>	<b>44.00</b>	<b>44.00</b>

The ideal total proportions for our gelato ice cream are the following:

- Dry Cocoa Solids (DCS): 4% → 1000 g ice cream: 40 g
- Fat: 10% → 1000 g ice cream: 100 g
- SP: 18
- FP: 260

## Step 1

100 g of dark chocolate 811 – 54.5% cocoa solids contains 36.1 g of fat and 19.8 g of dry cocoa solids.

**We decide to calculate our recipe on 206 g of chocolate, resulting in:**

Dry cocoa solids	206 * 19.80%	= 40.79 g → to obtain the 4% DCS we need on our total of 1,000 g of ice cream
Fat	206 * 36.1%	= 74.37 g
Sugar	206 * 44.00%	= 90.64 g
Total solids	206 * 99.00%	= 205.79 g
FP	206 * 44.00% (the sugar in the chocolate)	= 90.64
SP	206 * 44.00% (the sugar in the chocolate)	= 90.64

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
<b>Dark chocolate 811 – 54.5% cocoa solids</b>	<b>206 g</b>	<b>74.37 g</b>				<b>90.64 g</b>	<b>40.79 g</b>	<b>205.79 g</b>	<b>90.64</b>	<b>90.64</b>
<b>TOTAL</b>	<b>206 g</b>	<b>74.37 g</b>				<b>90.64 g</b>	<b>40.79 g</b>	<b>205.79 g</b>	<b>90.64</b>	<b>90.94</b>

## Step 2

Now we calculate the result of adding the Neutro 5 on fat and total solids:

### 5 g of neutro 5 adds:

Fat 5 \* 60.00% = 3.00 g

Total solids 5 \* 100.00% = 5.00 g

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Dark chocolate 811 – 54.5% cocoa solids	206.00 g	74.37 g				90.64 g	40.79 g	205.79 g	90.64	90.64
<b>Neutro 5</b>	<b>5.00 g</b>	<b>3.00 g</b>						<b>5.00 g</b>		
<b>TOTAL</b>	<b>211.00 g ▲</b>	<b>77.37 g ▲</b>				<b>90.64 g</b>	<b>40.79 g</b>	<b>210.79 g ▲</b>	<b>90.64</b>	<b>90.94</b>

## Step 3

10% is the total fat content that we are aiming for. We already have 77.37 g (combined fat content of the chocolate and the Neutro 5 stabiliser). So to get to 100 g (10% of 1,000 g of ice cream), we're still missing 22.63 g.

### This can be achieved by mixing in 646 g of whole milk:

22.63 / 3.5 (fat content of whole milk) = 646 g

Milk Protein 646 \* 3.50% = 22.63 g

Lactose 646 \* 4.50% = 29.07 g

Non-fat milk solids 646 \* 9.00% = 58.14 g

Total milk solids 646 \* 12.50% = 80.75 g

FP 646 \* 4.50% (lactose in milk) = 29.07

SP 646 \* 0.72% (sweetening power of lactose 16) = 4.65

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Dark chocolate 811 – 54.5% cocoa solids	206.00 g	74.37 g				90.64 g	40.79 g	205.79 g	90.64	90.64
Neutro 5	5.00 g	3.00 g						5.00 g		
<b>Whole milk</b>	<b>646.00 g</b>	<b>22.63 g</b>	<b>22.63 g</b>	<b>29.07 g</b>	<b>58.14 g</b>			<b>80.75 g</b>	<b>29.07</b>	<b>4.65</b>
<b>TOTAL</b>	<b>857 g ▲</b>	<b>100 g ▲</b>	<b>22.63 g ▲</b>	<b>29.07 g ▲</b>	<b>58.14 g ▲</b>	<b>90.64 g</b>	<b>40.79 g</b>	<b>291.51 g ▲</b>	<b>119.71 ▲</b>	<b>95.29 ▲</b>

## Step 4

We add 13 g of skimmed milk powder, which brings:

Fat	13 * 1.00%	= 0.13 g
Protein	13 * 36.00%	= 4.68 g
Lactose	13 * 52.00%	= 6.76 g
Non-fat milk solids	13 * 96.00%	= 12.48 g
Total solids	13 * 97.00%	= 12.61 g
FP	13 * 52.00% (lactose in skimmed milk powder)	= 6.76
SP	13 * 8.32% (sweetening power of skimmed milk powder)	= 1.08

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Dark chocolate 811 – 54.5% cocoa solids	206.00 g	74.37 g				90.64 g	40.79 g	205.79 g	90.64	90.64
Neutro 5	5.00 g	3.00 g						5.00 g		
Whole milk	646.00 g	22.63 g	22.63 g	29.07 g	58.14 g			80.75 g	29.07	4.65
<b>Skimmed milk powder</b>	<b>13.00 g</b>	<b>0.13 g</b>	<b>4.68 g</b>	<b>6.76 g</b>	<b>12.48 g</b>			<b>12.61 g</b>	<b>6.76</b>	<b>1.08</b>
<b>TOTAL</b>	<b>870.00 g ▲</b>	<b>100.13 g ▲</b>	<b>27.31 g ▲</b>	<b>35.83 g ▲</b>	<b>70.62 g ▲</b>	<b>90.64 g</b>	<b>40.79 g</b>	<b>304.15 g ▲</b>	<b>126.47 ▲</b>	<b>96.37 ▲</b>

## Step 5

We still need to add sugars to obtain the required FP (Freezing Point). And we're 130 g short of our 1,000 g of ice cream mixture.

We could obtain the right FP by adding 130 g of sugar: 126.47 (the FP of our recipe) + 130 (the FP of sugar) = 256 total FP. But our SP (Sweetening Power) would amount to 22.6, which is way too high. For this reason, it is recommended to add both dextrose and dehydrated glucose syrup.

Given that the chocolate already brings ± 90 g of sugar to the mixture, we only have to add 40 g of granulated sugar in order to reach a sugar total of 130 g (or 13% of granulated sugar on our total volume).

**Adding 40 g of granulated sugar makes:**

Sugar	40 * 100.00%	= 40.00 g
Total solids	40 * 100.00%	= 40.00 g
FP	40 * 100.00%	= 100.00
SP	40 * 100.00% (SP granulated sugar)	= 100.00

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Dark chocolate 811 – 54.5% cocoa solids	206.00 g	74.37 g				90.64 g	40.79 g	205.79 g	90.64	90.64
Neutro 5	5.00 g	3.00 g						5.00 g		
Whole milk	646.00 g	22.63 g	22.63 g	29.07 g	58.14 g			80.75 g	29.07	4.65
Skimmed milk powder	13.00 g	0.13 g	4.68 g	6.76 g	12.48 g			12.61 g	6.76	1.08
<b>Granulated Sugar</b>	<b>40.00 g</b>					<b>40.00 g</b>		<b>40.00 g</b>	<b>40.00</b>	<b>40.00</b>
<b>TOTAL</b>	<b>910.00 g ▲</b>	<b>100.13 g</b>	<b>27.31 g</b>	<b>35.83 g</b>	<b>70.62 g</b>	<b>130.64 g ▲</b>	<b>40.79 g</b>	<b>344.15 g ▲</b>	<b>166.47 ▲</b>	<b>136.37 ▲</b>

Next we'll balance out the FP by adding dextrose and dehydrated glucose syrup to the mixture.

## Step 6

Each 100 g of dextrose adds 165.6 of FP to the mixture.

**So, adding 42 g of dextrose corresponds to:**

Sugar	42 * 92.00%	= 38.64 g
Total solids	42 * 92.00%	= 38.64 g
FP	42 * 165.60%	= 69.55
SP	42 * 75.00%	= 31.50

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Dark chocolate 811 – 54.5% cocoa solids	206.00 g	74.37 g				90.64 g	40.79 g	205.79 g	90.64	90.64
Neutro 5	5.00 g	3.00 g						5.00 g		
Whole milk	646.00 g	22.63 g	22.63 g	29.07 g	58.14 g			80.75 g	29.07	4.65
Skimmed milk powder	13.00 g	0.13 g	4.68 g	6.76 g	12.48 g			12.61 g	6.76	1.08
Granulated Sugar	40.00 g					40.00 g		40.00 g	40.00	40.00
<b>Dextrose</b>	<b>42.00 g</b>					<b>38.64 g</b>		<b>38.64 g</b>	<b>69.55</b>	<b>31.50</b>
<b>TOTAL</b>	<b>952.00 g ▲</b>	<b>100.13 g</b>	<b>27.31 g</b>	<b>35.83 g</b>	<b>70.62 g</b>	<b>169.28 g ▲</b>	<b>40.79 g</b>	<b>382.79 g ▲</b>	<b>236.02 ▲</b>	<b>167.87 ▲</b>

## Step 7

Each 100 g of dehydrated glucose syrup 30 DE adds 51.3 of FP to the mixture.

**Consequently, adding 48 g of dehydrated glucose syrup 30 DE brings in:**

Sugar	48 * 95.00%	= 38.64 g
Total solids	48 * 95.00%	= 38.64 g
FP	48 * 51.30%	= 24.62
SP	48 * 22.50%	= 10.80

Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Dry Cocoa Solids	Total solids	FP	SP
Dark chocolate 811 – 54.5% cocoa solids	206.00 g	74.37 g				90.64 g	40.79 g	205.79 g	90.64	90.64
Neutro 5	5.00 g	3.00 g						5.00 g		
Whole milk	646.00 g	22.63 g	22.63 g	29.07 g	58.14 g			80.75 g	29.07	4.65
Skimmed milk powder	13.00 g	0.13 g	4.68 g	6.76 g	12.48 g			12.61 g	6.76	1.08
Granulated Sugar	40.00 g					40.00 g		40.00 g	40.00	40.00
Dextrose	42.00 g					38.64 g		38.64 g	69.55	31.50
<b>Dehydrated glucose syrup 30 DE</b>	<b>48.00 g</b>					<b>45.60 g</b>		<b>45.60 g</b>	<b>24.62</b>	<b>10.80</b>
<b>TOTAL</b>	<b>1000.00 g ▲</b>	<b>100.13</b>	<b>27.31 g</b>	<b>35.83 g</b>	<b>70.62 g</b>	<b>214.88 g ▲</b>	<b>40.79 g</b>	<b>428.39 g ▲</b>	<b>260.65 ▲</b>	<b>178.67 ▲</b>

This makes our recipe complete – ready for a test run. The methodology we used leaves room for some creative editing: it allows you to create and fine-tune your own recipe until it's just perfect.

# RECIPES



How to read the recipes?

*Gelato*

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*American  
Ice Cream*

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*Soft-serve  
Ice Cream*

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*Sorbet*

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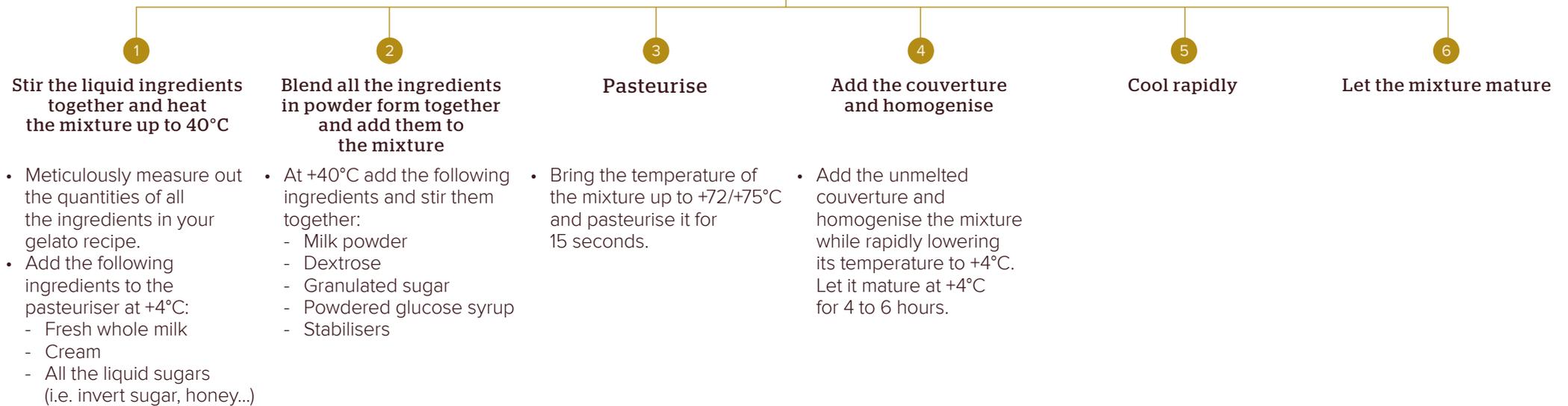




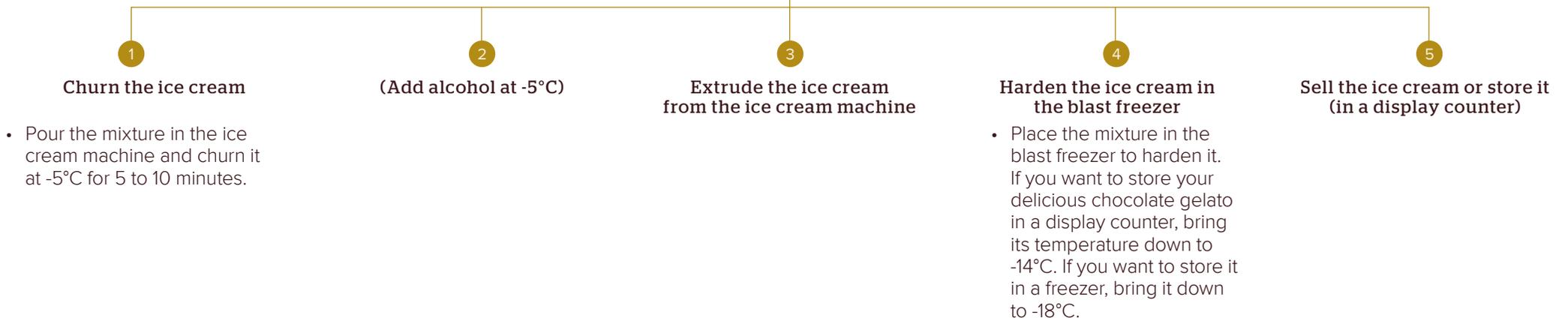
# *Gelato*

# A step-by-step guide to delicious chocolate gelato

## Phase 1: Pasteurisation of the mixture



## Phase 2: Making the ice cream



The recipes below will give you a great and balanced end result. If you would love to add your own twist or create your own recipe, we refer to the step-by-step calculation model on page 34 in this book.

# Gelato

## Finest Belgian Chocolate **DARK**



**Gelato with:**  
**811**  
**Cocoa solids: 54.5%**  
**Order code:**  
**811NV**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	65.50	Fresh whole milk	655 g	22.93	22.93	29.48	58.95	/	/	81.88	29.48	4.72
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	3.90	Granulated sugar	39 g	/	/	/	/	39.00	/	39.00	39.00	39.00
	5.90	Dextrose	59 g	/	/	/	/	54.28	/	54.28	97.70	44.25
	2.30	Powdered glucose syrup DE 30	23 g	/	/	/	/	21.85	/	21.85	11.80	5.18
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	20.60	Callebaut recipe n° 811 (54.5%)	206 g	74.37	/	/	/	90.64	40.79	205.79	90.64	90.64
	100	TOTAL	1,000 g	10.04	2.76	3.62	7.14	20.58	4.08	42.04	275.38	184.86



**Gelato with:**  
**60-40-38**  
**Cocoa solids: 60.1%**  
**Order code:**  
**60-40-38NV**

	65.10	Fresh whole milk	651 g	22.79	22.79	29.30	58.59	/	/	81.38	29.30	4.69
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	5.90	Granulated sugar	59 g	/	/	/	/	59.00	/	59.00	59.00	59.00
	5.60	Dextrose	56 g	/	/	/	/	51.52	/	51.52	92.74	42.00
	2.10	Powdered glucose syrup DE 30	21 g	/	/	/	/	19.95	/	19.95	10.77	4.73
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	19.50	Callebaut recipe n° 60-40-38 (60.1%)	195 g	75.86	/	/	/	72.15	47.00	195.00	72.15	72.15
	100	TOTAL	1,000 g	10.18	2.75	3.61	7.11	20.26	4.70	42.45	270.71	183.64



**Gelato with:**  
**70-30-38**  
**Cocoa solids: 70.5%**  
**Order code:**  
**70-30-38NV**

	64.40	Fresh whole milk	644 g	22.54	22.54	28.98	57.96	/	/	80.50	28.98	4.64
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	7.40	Granulated sugar	74 g	/	/	/	/	74.00	/	74.00	74.00	74.00
	6.40	Dextrose	64 g	/	/	/	/	58.88	/	58.88	105.98	48.00
	2.60	Powdered glucose syrup DE 30	26 g	/	/	/	/	24.70	/	24.70	13.34	5.85
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	17.40	Callebaut recipe n° 70-30-38 (70.5%)	174 g	67.34	4.87	/	/	46.11	53.59	173.65	46.11	46.11
	100	TOTAL	1,000 g	9.30	3.21	3.57	7.04	20.37	5.36	42.93	275.17	179.68

# DARK



**Gelato with:**  
**80-20-44**  
**Cocoa solids: 80%**  
**Order code:**  
**80-20-44NV**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	64.60	Fresh whole milk	646 g	22.61	22.61	29.07	58.14	/	/	80.75	29.07	4.65
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	9.00	Granulated sugar	90 g	/	/	/	/	90.00	/	90.00	90.00	90.00
	7.10	Dextrose	71 g	/	/	/	/	65.32	/	65.32	117.58	53.25
	2.60	Powdered glucose syrup DE 30	26 g	/	/	/	/	24.70	/	24.70	13.34	5.85
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	14.90	Callebaut recipe n° 80-20-44 (80%)	149 g	65.56	/	/	/	23.84	60.49	149.00	23.84	23.84
	100	TOTAL	1,000 g	9.13	2.73	3.58	7.06	20.39	6.05	42.74	280.58	178.67

# DARK



**Gelato with:**  
**Madagascar**  
**Cocoa solids: 67.4%**  
**Order code:**  
**CHD-Q67MAD**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	63.50	Fresh whole milk	636 g	22.23	22.23	28.58	57.15	/	/	79.38	28.58	4.57
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	7.90	Granulated sugar	79 g	/	/	/	/	79.00	/	79.00	79.00	79.00
	5.70	Dextrose	57 g	/	/	/	/	52.44	/	52.44	94.39	42.75
	2.20	Powdered glucose syrup DE 30	22 g	/	/	/	/	20.90	/	20.90	11.29	4.95
	0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
	19.00	Callebaut single origin Madagascar (67.4%)	190 g	75.05	3.04	/	/	56.05	55.10	189.62	56.05	56.05
	100	TOTAL	1,000 g	9.98	2.99	3.53	6.96	20.84	5.51	43.79	276.06	188.40



**Gelato with:**  
**Brazil**  
**Cocoa solids: 66.8%**  
**Order code:**  
**CHD-Q68BRA**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	64.40	Fresh whole milk	644 g	22.54	22.54	28.98	57.96	/	/	80.50	28.98	4.64
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	6.40	Granulated sugar	64 g	/	/	/	/	64.00	/	64.00	64.00	64.00
	6.80	Dextrose	68 g	/	/	/	/	62.56	/	62.56	112.61	51.00
	2.20	Powdered glucose syrup DE 30	22 g	/	/	/	/	20.90	/	20.90	11.29	4.95
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	18.40	Callebaut single origin Brazil (66.8%)	184 g	73.60	1.10	/	/	55.38	52.62	183.08	55.38	55.38
	100	TOTAL	1,000 g	9.93	2.83	3.57	7.04	20.28	5.26	42.87	279.02	181.05

Single Origin  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
<b>Gelato with:</b>  <b>Ecuador</b> <b>Cocoa solids: 70.4%</b> <b>Order code:</b> <b>CHD-R731EQU</b>	64.40	Fresh whole milk	644 g	22.54	22.54	28.98	57.96	/	/	80.50	28.98	4.64
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	6.40	Granulated sugar	64 g	/	/	/	/	64.00	/	64.00	64.00	64.00
	7.10	Dextrose	71 g	/	/	/	/	65.32	/	65.32	117.58	53.25
	2.30	Powdered glucose syrup DE 30	23 g	/	/	/	/	21.85	/	21.85	11.80	5.18
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	18.00	Callebaut single origin Ecuador (70.4%)	180 g	74.52	2.88	/	/	47.70	54.36	179.82	47.70	47.70
	100	TOTAL	1,000 g	10.02	3.01	3.57	7.04	19.89	5.44	42.91	276.82	175.84



<b>Gelato with:</b>  <b>São Tomé</b> <b>Cocoa solids: 70%</b> <b>Order code:</b> <b>SAOTHOME</b>	65.30	Fresh whole milk	653 g	22.86	22.86	29.39	58.77	-	-	81.63	29.39	4.70
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	-	-	12.61	6.76	1.08
	6.50	Granulated sugar	65 g	-	-	-	-	65.00	-	65.00	65.00	65.00
	7.20	Dextrose	72 g	-	-	-	-	66.24	-	66.24	119.23	54.00
	2.20	Powdered glucose syrup DE 30	22 g	-	-	-	-	20.90	-	20.90	11.29	4.95
	0.50	Neutro 5	5 g	3.00	-	-	-	-	-	5.00	-	-
	17.00	Callebaut single origin São Tomé (70%)	170 g	66.98	1.02	-	-	45.90	55.42	169.66	45.90	45.90
	100	TOTAL	1,000 g	9.30	2.86	3.61	7.13	19.80	5.54	42.10	277.56	175.63

Blend of Origins  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
<b>Gelato with:</b>  <b>Fortina</b> <b>Cocoa solids: 65.1%</b> <b>Order code:</b> <b>CHD-Q6539FORNV</b>	63.60	Fresh whole milk	636 g	22.26	22.26	28.62	57.24	/	/	79.50	28.62	4.58
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	7.60	Granulated sugar	76 g	/	/	/	/	76.00	/	76.00	76.00	76.00
	5.40	Dextrose	54 g	/	/	/	/	49.68	/	49.68	89.42	40.50
	2.50	Powdered glucose syrup DE 30	25 g	/	/	/	/	23.75	/	23.75	12.83	5.63
	0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
	19.20	Callebaut blend of origins Fortina (65.1%)	192 g	74.50	1.15	/	/	61.44	54.53	192.00	61.44	61.44
	100	TOTAL	1,000 g	9.93	2.81	3.54	6.97	21.09	5.45	43.75	275.07	189.23

# DARK



	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
<b>Gelato with:</b>  <b>Satongo</b> <b>Cocoa solids: 72.2%</b> <b>Order code:</b> <b>CHD-L7243STGNV</b>	64.00	Fresh whole milk	640 g	22.40	22.40	28.80	57.60	/	/	80.00	28.80	4.61
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	/	/	12.61	6.76	1.08
	8.30	Granulated sugar	83 g	/	/	/	/	83.00	/	83.00	83.00	83.00
	6.10	Dextrose	61 g	/	/	/	/	56.12	/	56.12	101.02	45.75
	2.60	Powdered glucose syrup DE 30	26 g	/	/	/	/	24.70	/	24.70	13.34	5.85
	0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
	17.30	Callebaut blend of origins Satongo (72.2%)	173 g	74.56	3.11	/	/	42.39	52.25	172.65	42.39	42.39
	100	TOTAL	1,000 g	9.95	3.02	3.56	7.01	20.62	5.22	43.31	275.30	182.67



<b>Gelato with:</b>  <b>Kumabo</b> <b>Cocoa solids: 80.1%</b> <b>Order code:</b> <b>CHD-H8047KMBNV</b>	64.60	Fresh whole milk	646 g	22.61	22.61	29.07	58.14	-	-	80.75	29.07	4.65
	1.30	Skimmed milk powder 0%	13 g	0.13	4.68	6.76	12.48	-	-	12.61	6.76	1.08
	9.00	Granulated sugar	90 g	-	-	-	-	90.00	-	90.00	90.00	90.00
	7.10	Dextrose	71 g	-	-	-	-	65.32	-	65.32	117.58	53.25
	2.60	Powdered glucose syrup DE 30	26 g	-	-	-	-	24.70	-	24.70	13.34	5.85
	0.50	Neutro 5	5 g	3.00	-	-	-	-	-	5.00	-	-
	14.90	Callebaut blend of origins Kumabo (80.1%)	149 g	70.78	2.68	-	-	23.84	50.66	148.26	23.84	23.84
	100	TOTAL	1,000 g	9.65	3.00	3.58	7.06	20.39	5.07	42.66	280.58	178.67



Finest Belgian  
Chocolate

# MILK



**Gelato with:**  
**823**  
**Cocoa solids: 33.6%**  
**Order code:**  
**823NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Total solids	FP	SP
65.90	Fresh whole milk	659 g	23.07	23.07	29.66	59.31	/	82.38	29.66	4.74
7.30	Granulated sugar	73 g	/	/	/	/	73.00	73.00	73.00	73.00
1.30	Dextrose	13 g	/	/	/	/	11.96	11.96	21.53	9.75
5.20	Powdered glucose syrup DE 30	52 g	/	/	/	/	49.40	49.40	26.68	11.70
0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
19.80	Callebaut recipe n° 823 (33.6%)	198 g	71.78	11.58	16.83	31.09	83.16	196.42	99.99	85.85
100	TOTAL	1,000 g	9.79	3.46	4.65	9.04	21.75	41.82	250.85	185.05

Single Origin  
Chocolate

# MILK



**Gelato with:**  
**Java**  
**Cocoa solids: 32.6%**  
**Order code:**  
**JAVA**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Total solids	FP	SP
66.10	Fresh whole milk	661 g	23.14	23.14	29.75	59.49	/	82.63	29.75	4.76
7.00	Granulated sugar	70 g	/	/	/	/	70.00	70.00	70.00	70.00
1.30	Dextrose	13 g	/	/	/	/	11.96	11.96	21.53	9.75
5.30	Powdered glucose syrup DE 30	53 g	/	/	/	/	50.35	50.35	27.19	11.93
0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
19.80	Callebaut single origin Java (32.6%)	198 g	68.51	11.29	16.63	30.49	88.11	197.01	104.74	90.77
100	TOTAL	1,000 g	9.46	3.44	4.64	9.00	22.04	41.69	253.20	187.21



**Gelato with:**  
**Arriba**  
**Cocoa solids: 39%**  
**Order code:**  
**CHM-Q415AR**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Total solids	FP	SP
58.60	Fresh whole milk	586 g	20.51	20.51	26.37	52.74	/	73.25	26.37	4.22
6.50	Water	65 g	/	/	/	/	/	/	/	/
7.20	Granulated sugar	72 g	/	/	/	/	72.00	72.00	72.00	72.00
2.60	Dextrose	26 g	/	/	/	/	23.92	23.92	43.06	19.50
5.10	Powdered glucose syrup DE 30	51 g	/	/	/	/	48.45	48.45	26.16	11.48
0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
19.50	Callebaut single origin Arriba (39%)	195 g	76.25	13.46	19.50	36.08	64.35	189.35	83.85	67.47
100	TOTAL	1,000 g	9.98	3.40	4.59	8.88	20.87	41.20	251.44	174.66

# WHITE



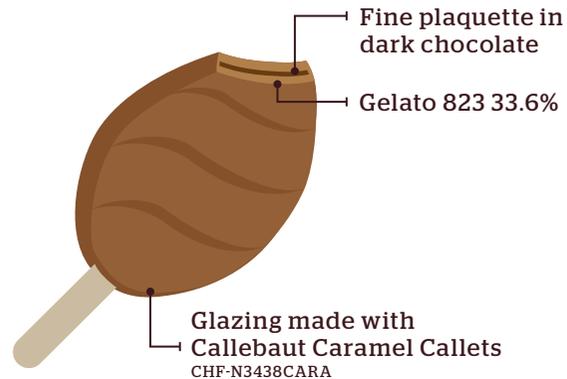
	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Total solids	FP	SP
<b>Gelato with:</b> <b>W2</b> <b>Cocoa solids: 28%</b> <b>Order code:</b> <b>W2NV</b>	66.50	Fresh whole milk	665 g	23.28	23.28	29.93	59.85	/	83.13	29.93	4.79
	6.70	Granulated sugar	67 g	/	/	/	/	67.00	67.00	67.00	67.00
	1.00	Dextrose	10 g	/	/	/	/	9.20	9.20	16.56	7.50
	5.30	Powdered glucose syrup DE 30	53 g	/	/	/	/	50.35	50.35	27.19	11.93
	0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
	20.00	Callebaut recipe n° W2 (28%)	200 g	72.00	12.70	18.00	33.52	93.00	198.52	111.00	95.88
	100	TOTAL	1,000 g	9.83	3.60	4.79	9.34	21.96	41.32	251.67	187.09



<b>Gelato with:</b> <b>Velvet</b> <b>Cocoa solids: 33.1%</b> <b>Order code:</b> <b>CHW-R2241NV</b>	52.00	Fresh whole milk	520 g	18.20	18.20	23.40	46.80	/	65.00	23.40	3.74
	13.00	Water	130 g	/	/	/	/	/	/	/	/
	8.80	Granulated sugar	88 g	/	/	/	/	88.00	88.00	88.00	88.00
	1.00	Dextrose	10 g	/	/	/	/	9.20	9.20	16.56	7.50
	5.20	Powdered glucose syrup DE 30	52 g	/	/	/	/	49.40	49.40	26.68	11.70
	0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
	19.50	Callebaut recipe n° Velvet (33.1%)	195 g	82.10	11.90	17.36	31.98	80.93	195.00	98.28	83.70
	100	TOTAL	1,000 g	10.33	3.01	4.08	7.88	22.75	41.16	252.92	194.65

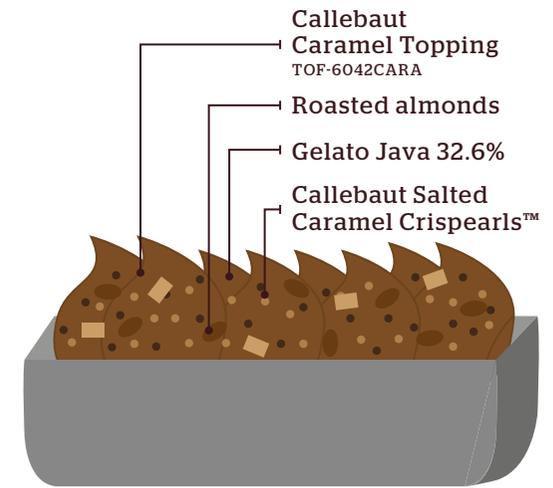
# Gelato Inspiration

## Gelat-sicle

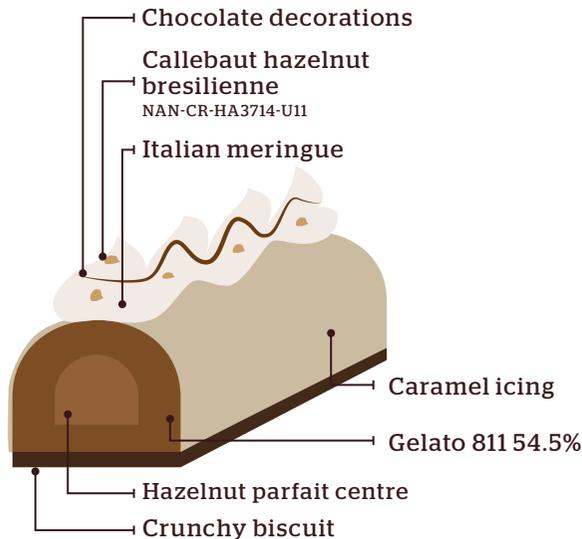


Use a Pavoni ice cream mould and Pavoni PL01 ice cream sticks

## Caramelia

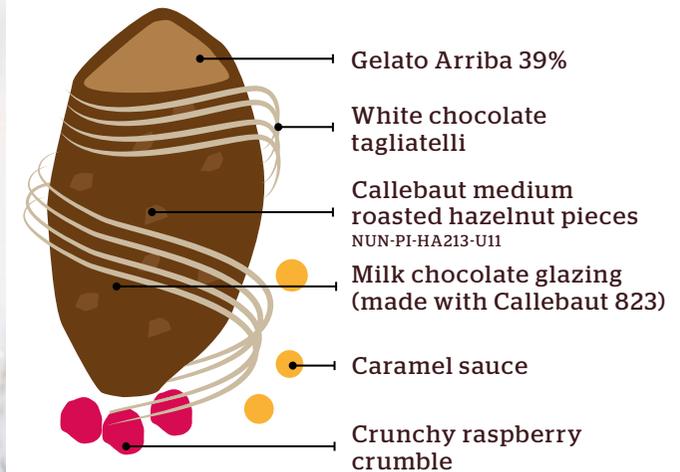


## Gelato Yule Log



Use a Pavoni PX060 Tronchetto mould

## Struck-tures





# Recipe Struck-tures



## Gelato Arriba 39%

### Ingredients

### Quantity



Fresh whole milk	586 g
Water	65 g
Granulated sugar	72 g
Dextrose	26 g
Powdered glucose syrup DE 30	51 g
Neutro 5	5 g
Callebaut single origin Arriba (39%)	195 g
<b>TOTAL</b>	<b>1,000 g</b>

## Milk chocolate glazing

Ingredients	Quantity	Method
Callebaut recipe n° 823 (33.6%)	1,000 g	Melt the couverture and the cocoa butter, and mix them together. Glaze at a temperature of 35-40°C. Use the same recipe to create a white and a dark chocolate couverture glazing.
Callebaut Cocoa Butter NCB-HD706	500 g	
TOTAL	1,500 g	

## Crunchy raspberry crumble

Ingredients	Quantity	Method
Butter (82% fat content)	225 g	Mix all the ingredients together until you obtain a lumpy mass. Spread the mass out on a baking tray and bake at 150-160°C with an open valve until it has a beautiful hazelnut colour.
Granulated sugar	200 g	
Almond powder	80 g	
Grated coconut	90 g	
Raspberry powder	35 g	
Flour (00 w 150-160)	220 g	
Fine grain salt	2 g	
Vanilla bean	1 g	
TOTAL	853 g	

## Caramel sauce

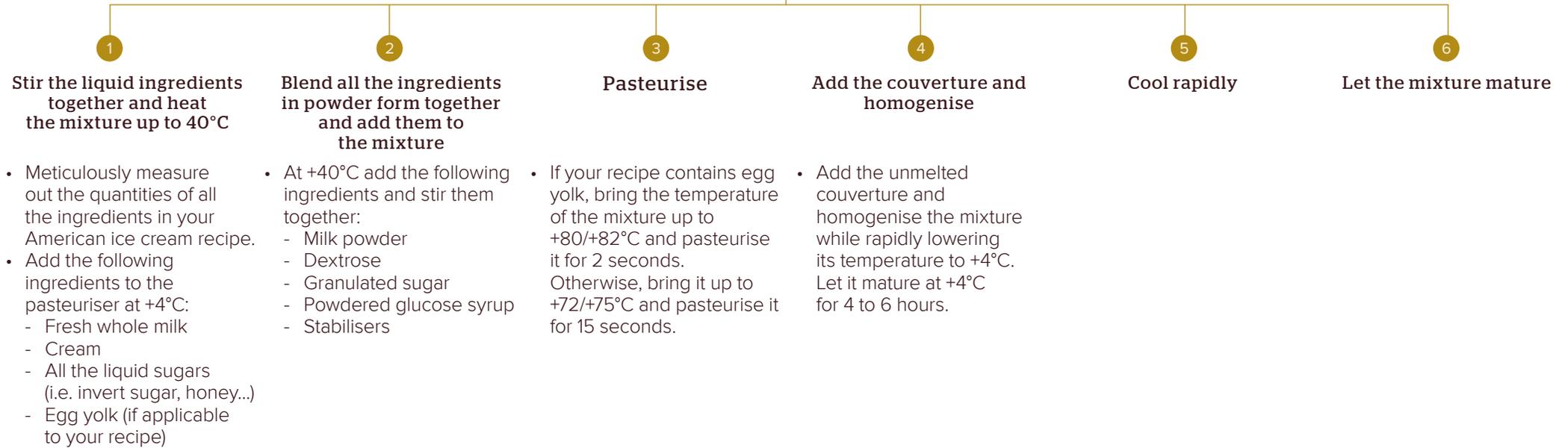
Ingredients	Quantity	%	Method
Granulated sugar	500 g	62.4	Dry cook the granulated sugar, add the boiling water bit by bit, followed by the vanilla bean. Check with the refractometer: 77-78°Brix is the ideal serving temperature of the sauce.
Water	300 g	37.5	
Vanilla bean	1 g	0.1	
TOTAL	801 g	100	

A top-down photograph of various ice cream items on a rustic wooden surface. In the upper left, a chocolate ice cream scoop sits in a dark bowl. Below it, a silver spoon with a twisted handle lies on the wood. In the lower left, a vanilla ice cream scoop is in another dark bowl. The center and right of the image feature a rectangular metal tray containing a mix of vanilla and chocolate ice cream, with a silver ice cream scoop resting inside. A white cloth napkin is tucked under the tray. The background is a dark, weathered wooden plank.

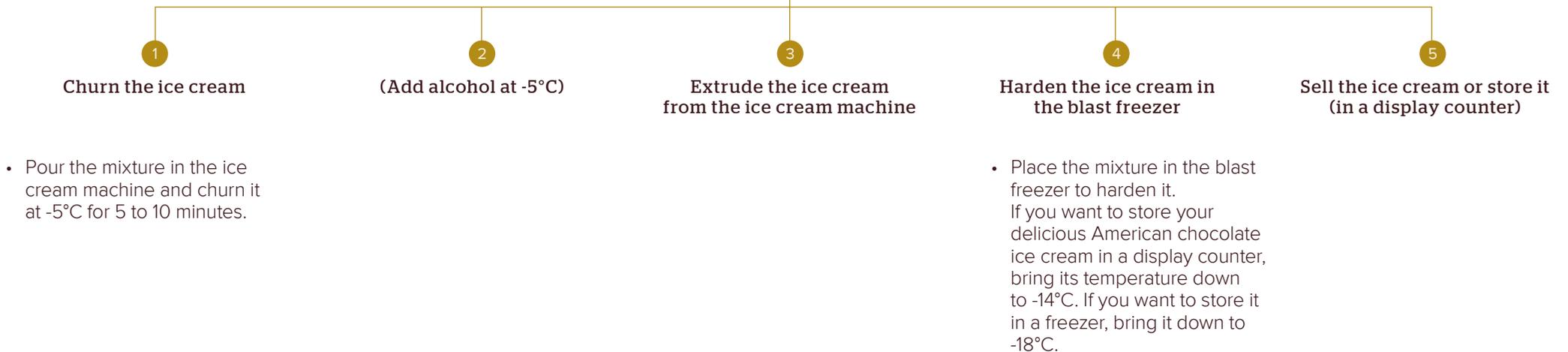
# *American Ice Cream*

# A step-by-step guide to delicious American chocolate ice cream

## Phase 1: Pasteurisation of the mixture



## Phase 2: Making the ice cream



The recipes below will give you a great and balanced end result. If you would love to add your own twist or create your own recipe, we refer to the step-by-step calculation model on page 34 in this book.

# American Ice Cream

Finest Belgian  
Chocolate

## DARK



American Ice Cream with:

**811**

Cocoa solids: 54.5%

Order code:

**811NV**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	54.60	Fresh whole milk	546 g	19.11	19.11	24.57	49.14	/	/	68.25	24.57	3.93
	13.60	Cream (35%)	136 g	47.60	3.13	4.62	8.16	/	/	55.76	4.62	0.74
	2.70	Granulated sugar	27 g	/	/	/	/	27.00	/	27.00	27.00	27.00
	1.70	Dextrose	17 g	/	/	/	/	15.64	/	15.64	28.15	12.75
	4.80	Invert Sugar	48 g	/	/	/	/	34.80	/	34.80	66.12	62.40
	0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
	22.20	Callebaut recipe n° 811 (54.5%)	222 g	80.14	/	/	/	97.68	43.96	221.78	97.68	97.68
100		TOTAL	1,000 g	14.93	2.22	2.92	5.73	17.51	4.08	42.72	248.15	204.50



American Ice Cream with:

**60-40-38**

Cocoa solids: 60.1%

Order code:

**60-40-38NV**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	56.70	Fresh whole milk	567 g	19.85	19.85	25.52	51.03	/	/	70.88	25.52	4.08
	10.60	Cream (35%)	106 g	37.10	2.44	3.60	6.36	/	/	43.46	3.60	0.58
	3.50	Granulated sugar	35 g	/	/	/	/	35.00	/	35.00	35.00	35.00
	2.50	Dextrose	25 g	/	/	/	/	23.00	/	23.00	41.40	18.75
	5.00	Invert sugar	50 g	/	/	/	/	36.25	/	36.25	68.88	65.00
	0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
	21.30	Callebaut recipe n° 60-40-38 (60.1%)	213 g	82.86	/	/	/	78.81	51.33	213.00	78.81	78.81
100		TOTAL	1,000 g	14.22	2.23	2.91	5.74	17.31	5.13	42.56	253.20	202.22



American Ice Cream with:

**70-30-38**

Cocoa solids: 70.5%

Order code:

**70-30-38NV**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	56.10	Fresh whole milk	561 g	19.64	19.64	25.25	50.49	/	/	70.13	25.25	4.04
	10.50	Cream (35%)	105 g	36.75	2.42	3.57	6.30	/	/	43.05	3.57	0.57
	3.50	Granulated sugar	35 g	/	/	/	/	35.00	/	35.00	35.00	35.00
	4.20	Dextrose	42 g	/	/	/	/	38.64	/	38.64	69.55	31.50
	4.20	Invert sugar	42 g	/	/	/	/	30.45	/	30.45	57.86	54.60
	0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
	21.10	Callebaut recipe n° 70-30-38 (70.5%)	211 g	81.66	5.91	/	/	55.92	64.99	210.58	55.92	55.92
100		TOTAL	1,000 g	14.04	2.80	2.88	5.68	16.00	6.50	43.18	247.14	181.63

# DARK



**American Ice Cream with:**  
**80-20-44**  
**Cocoa solids: 80%**  
**Order code:**  
**80-20-44NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
55.00	Fresh whole milk	550 g	19.25	19.25	24.75	49.50	/	/	68.75	24.75	3.96
12.00	Cream (35%)	120 g	42.00	2.76	4.08	7.20	/	/	49.20	4.08	0.65
3.40	Skimmed milk powder 0%	34 g	0.34	12.24	17.68	32.64	/	/	32.98	17.68	2.83
8.30	Granulated sugar	83 g	/	/	/	/	83.00	/	83.00	83.00	83.00
3.10	Dextrose	31 g	/	/	/	/	28.52	/	28.52	51.34	23.25
3.10	Invert sugar	31 g	/	/	/	/	22.48	/	22.48	42.70	40.30
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
10.40	Callebaut recipe n° 80-20-44 (80%)	104 g	45.76	/	/	/	16.64	42.22	104.00	16.64	16.64
4.30	Egg yolk	43 g	12.04	6.88	/	/	/	/	19.35	/	/
100	TOTAL	1,000 g	12.18	4.11	4.65	8.93	15.06	4.22	41.23	240.19	170.63

# DARK



**American Ice Cream with:**  
**Madagascar**  
**Cocoa solids: 67.4%**  
**Order code:**  
**CHD-Q67MAD**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
54.00	Fresh whole milk	540 g	18.90	18.90	24.30	48.60	/	/	67.50	24.30	3.89
13.50	Cream (35%)	135 g	47.25	3.11	4.59	8.10	/	/	55.35	4.59	0.73
6.40	Granulated sugar	64 g	/	/	/	/	64.00	/	64.00	64.00	64.00
2.40	Dextrose	24 g	/	/	/	/	22.08	/	22.08	39.74	18.00
4.70	Invert sugar	47 g	/	/	/	/	34.08	/	34.08	64.74	61.10
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
18.60	Callebaut single origin Madagascar (67.4%)	186 g	73.47	2.98	/	/	54.87	53.94	185.63	54.87	54.87
100	TOTAL	1,000 g	14.20	2.50	2.89	5.67	17.50	5.39	43.26	252.25	202.59



**American Ice Cream with:**  
**Brazil**  
**Cocoa solids: 66.8%**  
**Order code:**  
**CHD-Q68BRA**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
54.00	Fresh whole milk	540 g	18.90	18.90	24.30	48.60	/	/	67.50	24.30	3.89
13.50	Cream (35%)	135 g	47.25	3.11	4.59	8.10	/	/	55.35	4.59	0.73
6.80	Granulated sugar	68 g	/	/	/	/	68.00	/	68.00	68.00	68.00
1.70	Dextrose	17 g	/	/	/	/	15.64	/	15.64	28.15	12.75
4.40	Invert sugar	44 g	/	/	/	/	31.90	/	31.90	60.61	57.20
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
19.20	Callebaut single origin Brazil (66.8%)	192 g	76.80	1.15	/	/	57.79	54.91	191.04	57.79	57.79
100	TOTAL	1,000 g	14.54	2.32	2.89	5.67	17.33	5.49	43.34	243.44	200.36

Single Origin  
Chocolate

# DARK



American Ice Cream with:  
**Ecuador**  
Cocoa solids: 70.4%  
Order code:  
CHD-R731EQU

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
54.20	Fresh whole milk	542 g	18.97	18.97	24.39	48.78	/	/	67.75	24.39	3.90
13.60	Cream (35%)	136 g	47.60	3.13	4.62	8.16	/	/	55.76	4.62	0.74
6.80	Granulated sugar	68 g	/	/	/	/	68.00	/	68.00	68.00	68.00
1.70	Dextrose	17 g	/	/	/	/	15.64	/	15.64	28.15	12.75
4.70	Invert sugar	47 g	/	/	/	/	34.08	/	34.08	64.74	61.10
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
18.60	Callebaut single origin Ecuador (70.4%)	186 g	77.00	2.98	/	/	49.29	56.17	185.81	49.29	49.29
100	TOTAL	1,000 g	14.60	2.51	2.90	5.69	16.70	5.62	43.10	239.20	195.78



American Ice Cream with:  
**São Tomé**  
Cocoa solids: 70%  
Order code:  
SAOTHOME

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
54.20	Fresh whole milk	542 g	18.97	18.97	24.39	48.78	/	/	67.75	24.39	3.90
13.60	Cream (35%)	136 g	47.60	3.13	4.62	8.16	/	/	55.76	4.62	0.74
6.80	Granulated sugar	68 g	/	/	/	/	68.00	/	68.00	68.00	68.00
1.70	Dextrose	17 g	/	/	/	/	15.64	/	15.64	28.15	12.75
4.70	Invert sugar	47 g	/	/	/	/	34.08	/	34.08	64.74	61.10
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
18.60	Callebaut single origin São Tomé (70%)	186 g	73.28	1.12	/	/	50.22	60.64	185.63	50.22	50.22
100	TOTAL	1,000 g	14.23	2.32	2.90	5.69	16.79	6.06	43.09	240.13	196.71

Blend of Origins  
Chocolate

# DARK



American Ice Cream with:  
**Fortina**  
Cocoa solids: 65.1%  
Order code:  
CHD-Q6539FORNV

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
54.30	Fresh whole milk	543 g	19.01	19.01	24.44	48.87	/	/	67.88	24.44	3.91
13.60	Cream (35%)	136 g	47.60	3.13	4.62	8.16	/	/	55.76	4.62	0.74
6.80	Granulated sugar	68 g	/	/	/	/	68.00	/	68.00	68.00	68.00
1.70	Dextrose	17 g	/	/	/	/	15.64	/	15.64	28.15	12.75
4.20	Invert sugar	42 g	/	/	/	/	30.45	/	30.45	57.86	54.60
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
19.00	Callebaut blend of origins Fortina (65.1%)	190 g	73.72	1.14	/	/	60.80	53.96	190.00	60.80	60.80
100	TOTAL	1,000 g	14.27	2.33	2.91	5.70	17.49	5.40	43.17	243.87	200.80

# DARK



**American Ice Cream with:**  
**Satongo**  
**Cocoa solids: 72.2%**  
**Order code:**  
**CHD-L7243STGNV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
54.00	Fresh whole milk	540 g	18.90	18.90	24.30	48.60	/	/	67.50	24.30	3.89
13.50	Cream (35%)	135 g	47.25	3.11	4.59	8.10	/	/	55.35	4.59	0.73
0.70	Skimmed milk powder 0%	7 g	0.07	2.52	3.64	6.72	/	/	6.79	3.64	0.58
7.10	Granulated sugar	71 g	/	/	/	/	71.00	/	71.00	71.00	71.00
3.40	Dextrose	34 g	/	/	/	/	31.28	/	31.28	56.30	25.50
4.10	Invert sugar	41 g	/	/	/	/	29.73	/	29.73	56.48	53.30
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
16.80	Callebaut blend of origins Satongo (72.2%)	168 g	72.41	3.02	/	/	41.16	50.74	167.66	41.16	41.16
100	TOTAL	1,000 g	14.10	2.75	3.25	6.34	17.32	5.07	43.33	257.47	196.16



**American Ice Cream with:**  
**Kumabo**  
**Cocoa solids: 80.1%**  
**Order code:**  
**CHD-H8047KMBNV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
52.50	Fresh whole milk	525 g	18.38	18.38	23.63	47.25	/	/	65.63	23.63	3.78
11.50	Cream (35%)	115 g	40.25	2.65	3.91	6.90	/	/	47.15	3.91	0.63
1.60	Skimmed milk powder 0%	16 g	0.16	5.76	8.32	15.36	/	/	15.52	8.32	1.33
7.90	Granulated sugar	79 g	/	/	/	/	79.00	/	79.00	79.00	79.00
3.30	Dextrose	33 g	/	/	/	/	30.36	/	30.36	54.65	24.75
3.90	Invert sugar	39 g	/	/	/	/	28.28	/	28.28	53.72	50.70
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
14.80	Callebaut blend of origins Kumabo (80.1%)	148 g	70.30	2.66	/	/	23.68	50.32	147.26	23.68	23.68
4.10	Egg yolk	41 g	11.48	6.56	/	/	/	/	18.45	/	/
100	TOTAL	1,000 g	14.30	3.60	3.59	6.95	16.13	5.03	43.56	246.91	183.87



# MILK



American Ice Cream with:  
**823**  
Cocoa solids: 33.6%  
Order code:  
**823NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
60.10	Fresh whole milk	601 g	21.04	21.04	27.05	54.09	/	/	75.13	27.05	4.33
9.40	Cream (35%)	94 g	32.90	2.16	3.20	5.64	/	/	38.54	3.20	0.51
1.70	Granulated sugar	17 g	/	/	/	/	17.00	/	17.00	17.00	17.00
3.80	Dextrose	38 g	/	/	/	/	34.96	/	34.96	62.93	28.50
1.50	Invert sugar	15 g	/	/	/	/	10.88	/	10.88	20.66	19.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
23.00	Callebaut recipe n° 823 (33.6%)	230 g	83.49	13.46	19.55	36.11	96.60	11.96	228.16	116.15	99.73
100	TOTAL	1,000 g	14.04	3.67	4.98	9.58	15.94	1.20	40.97	246.98	169.57

# MILK



American Ice Cream with:  
**Java**  
Cocoa solids: 32.6%  
Order code:  
**JAVA**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
58.90	Fresh whole milk	589 g	20.62	20.62	26.51	53.01	/	/	73.63	26.51	4.24
12.00	Cream (35%)	120 g	42.00	2.76	4.08	7.20	/	/	49.20	4.08	0.65
0.70	Granulated sugar	7 g	/	/	/	/	7.00	/	7.00	7.00	7.00
3.70	Dextrose	37 g	/	/	/	/	34.04	/	34.04	61.27	27.75
2.20	Invert sugar	22 g	/	/	/	/	15.95	/	15.95	30.31	28.60
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
22.10	Callebaut single origin Java (32.6%)	221 g	76.47	12.60	18.56	34.03	98.35	11.05	219.90	116.91	101.32
100	TOTAL	1,000 g	14.15	3.60	4.91	9.42	15.53	1.11	40.37	246.07	169.56



American Ice Cream with:  
**Arriba**  
Cocoa solids: 39%  
Order code:  
**CHM-Q415AR**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
59.50	Fresh whole milk	595 g	20.83	20.83	26.78	53.55	/	/	74.38	26.78	4.28
9.30	Cream (35%)	93 g	32.55	2.14	3.16	5.58	/	/	38.13	3.16	0.51
1.70	Granulated sugar	17 g	/	/	/	/	17.00	/	17.00	17.00	17.00
3.70	Dextrose	37 g	/	/	/	/	34.04	/	34.04	61.27	27.75
3.00	Invert sugar	30 g	/	/	/	/	21.75	/	21.75	41.33	39.00
0.40	Neutro 5	4 g	2.40	/	/	/	/	/	4.00	/	/
22.40	Callebaut single origin Arriba (39%)	224 g	87.58	15.46	22.40	41.44	73.92	14.56	217.50	96.32	77.50
100	TOTAL	1,000 g	14.34	3.84	5.23	10.06	14.67	1.46	40.68	245.85	166.04

# WHITE



**American Ice Cream with:**  
**W2**  
**Cocoa solids: 28%**  
**Order code:**  
**W2NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Total solids	FP	SP
60.90	Fresh whole milk	609 g	21.32	21.32	27.41	54.81	/	76.13	27.41	4.38
9.50	Cream (35%)	95 g	33.25	2.19	3.32	5.70	/	38.95	3.23	0.52
0.60	Granulated sugar	6 g	/	/	/	/	6.00	6.00	6.00	6.00
3.80	Dextrose	38 g	/	/	/	/	34.96	34.96	62.93	28.50
1.50	Invert sugar	15 g	/	/	/	/	10.88	10.88	20.66	19.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
23.20	Callebaut recipe n° W2 (28%)	232 g	83.52	14.73	20.88	38.88	107.88	230.28	128.76	111.22
100	TOTAL	1,000 g	14.11	3.82	5.15	9.94	15.97	40.22	248.99	170.12

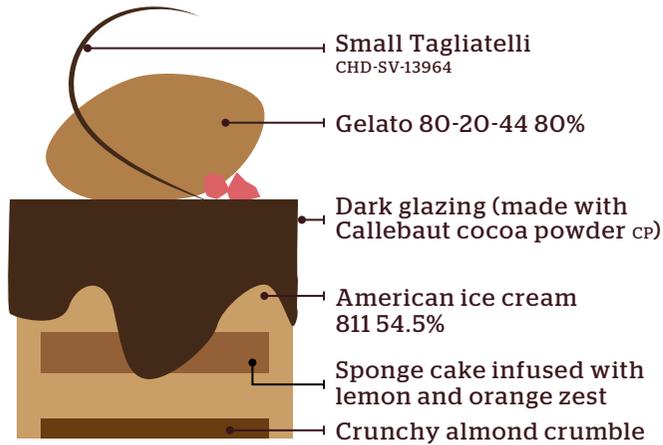


**American Ice Cream with:**  
**Velvet**  
**Cocoa solids: 33.1%**  
**Order code:**  
**CHW-R2241NV**

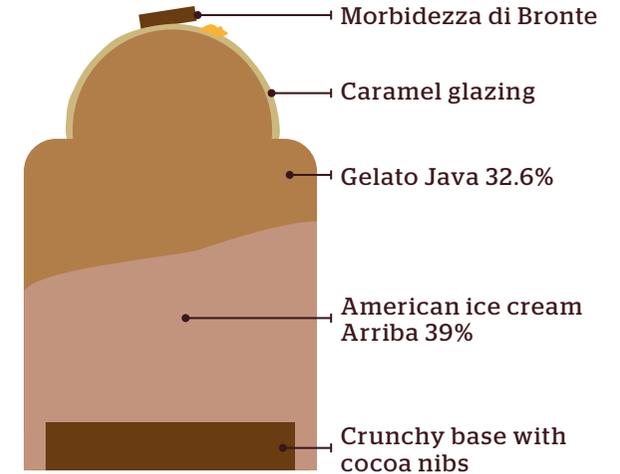
64.90	Fresh whole milk	649 g	22.72	22.72	29.21	58.41	/	81.13	29.21	4.67
3.60	Cream (35%)	36 g	12.60	0.83	1.22	2.16	/	14.76	1.22	0.20
0.60	Granulated sugar	6 g	/	/	/	/	6.00	6.00	6.00	6.00
4.10	Dextrose	41 g	/	/	/	/	37.72	37.72	67.90	30.75
1.60	Invert sugar	16 g	/	/	/	/	11.60	11.60	22.04	20.80
0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
24.70	Callebaut recipe n° Velvet (33.1%)	247 g	103.99	15.07	21.98	40.51	102.51	247.00	124.49	106.02
100	TOTAL	1,000 g	14.23	3.86	5.24	10.11	15.78	40.32	250.85	168.44

# American Ice Cream Inspiration

## Power Shock

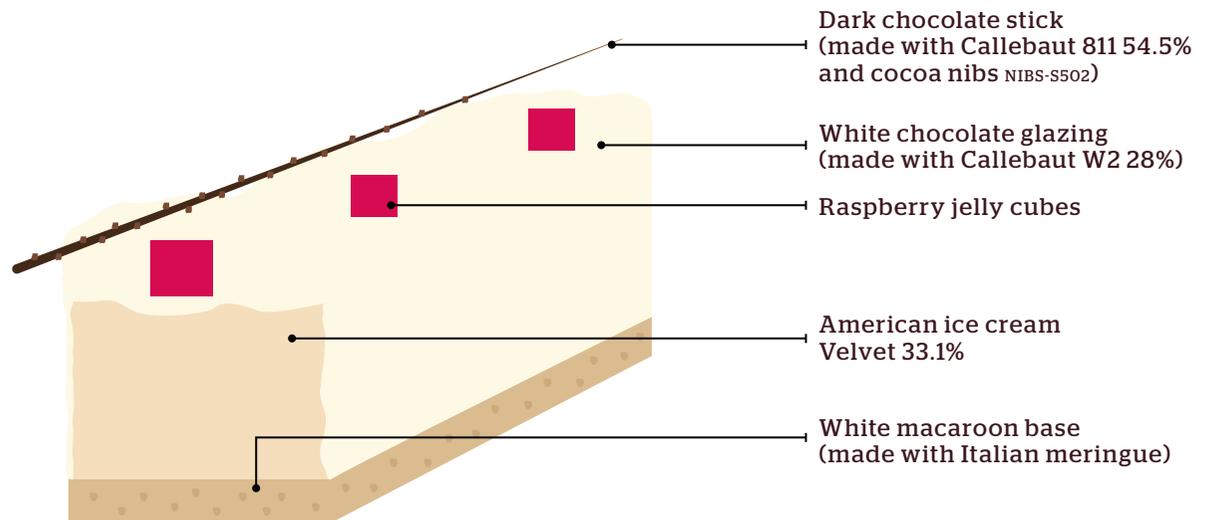


## Milky Chill



Use a Pavoni PX070 Tango mould

## Raspberry Velvet





# Recipe Power Shock



## Gelato 80-20-44 80%



Ingredients	Quantity
-------------	----------

Fresh whole milk	646 g
Skimmed milk powder 0%	13 g
Granulated sugar	90 g
Dextrose	71 g
Powdered glucose syrup DE 30	26 g
Neutro 5	5 g
Callebaut recipe n° 80-20-44 (80%)	149 g
<b>TOTAL</b>	<b>1000 g</b>

## American Ice Cream 811 54.5%



Ingredients	Quantity
-------------	----------

Fresh whole milk	546 g
Cream (35%)	136 g
Granulated sugar	27 g
Dextrose	17 g
Invert sugar	48 g
Neutro 5	4 g
Callebaut recipe n° 811 (54.5%)	222 g
<b>TOTAL</b>	<b>1,000 g</b>





# Recipe Milky Chill



## American Ice Cream Arriba 39%

### Ingredients

### Quantity



Fresh whole milk	595 g
Cream (35%)	93 g
Granulated sugar	17 g
Dextrose	37 g
Invert sugar	30 g
Neutro 5	4 g
Callebaut recipe n° 811 (54.5%)	224 g
<b>TOTAL</b>	<b>1,000 g</b>

## American Ice Cream Java 32.6%

### Ingredients

### Quantity



Fresh whole milk	661 g
Granulated sugar	70 g
Dextrose	13 g
Powdered glucose syrup DE 30	53 g
Neutro 5	5 g
Callebaut single origin Java (32.6%)	198 g
<b>TOTAL</b>	<b>1,000 g</b>

## Crunchy base with cocoa nibs

Ingredients	Quantity	Method
Callebaut cocoa nibs NIBS-S	150 g	Gently mix together all the ingredients with the ground cocoa nibs. Lay out a layer with a thickness of 2 mm between two sheets of baking parchment.  Bake at 150°C in a fan oven with an open valve for about 25 minutes.
Granulated sugar	300 g	
Flour (00 w 150-160)	300 g	
Vanilla bean	2 g	
Butter (82% fat content)	300 g	
Roasted hazelnut powder	150 g	
Fleur de sel	5 g	
TOTAL	1,207 g	

## Morbidezza di Bronte

Ingredients	Quantity	Method
Almond powder	430 g	Blend the first seven ingredients together, and gently mix them with the egg white that has been whisked together with the sugar.
Icing sugar	180 g	
Invert sugar	140 g	Spread 1,200 g of the mixture out on a 40 x 60 baking tray. Bake at 190°C for 10-12 minutes.
Potato starch	70 g	
Liquid egg white	350 g	
100% Callebaut Pure Pistachio Paste NPO-PI1-T62	300 g	
Maize oil	160 g	
Egg white	300 g	
Granulated sugar	300 g	
TOTAL	2,230 g	

## Caramel glazing

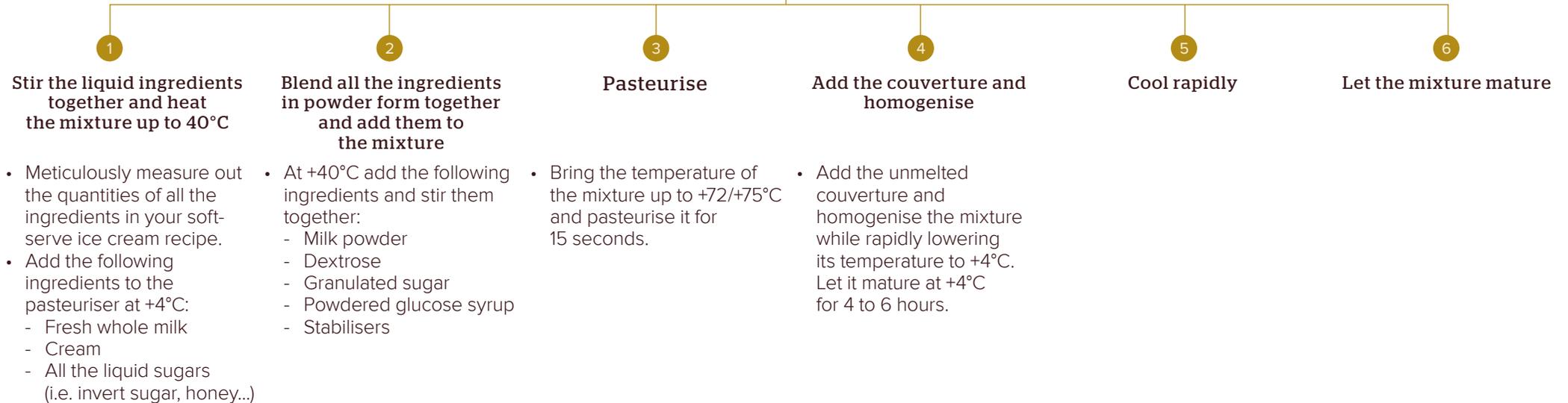
Ingredients	Quantity	Method
Granulated sugar	300 g	Whisk the first four ingredients together, add them to the liquid cream while stirring, and then add the salt and the flavouring ingredients. Finally, stir the whole together by hand with all the ingredients in powder form. Spread 900 g of the mixture out on a 40 x 60 baking tray.
Water	300 g	
Dextrose	200 g	
Invert sugar	125 g	
Powdered glucose syrup DE 30	125 g	Bake in a fan oven with a closed valve at 200°C for 8-10 minutes.  Note: very soft, excellent structure.
Golden animal gelatine sheets	24 g	
Deodorised cocoa butter Callebaut NCB-HD706	120 g	
TOTAL	1,194 g	



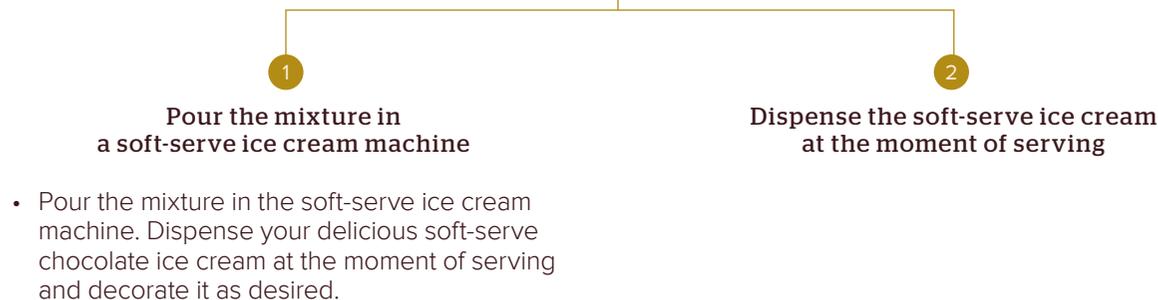
*Soft-serve  
Ice Cream*

# A step-by-step guide to delicious soft-serve chocolate ice cream

## Phase 1: Pasteurisation of the mixture



## Phase 2: Making the ice cream



The recipes below will give you a great and balanced end result. If you would love to add your own twist or create your own recipe, we refer to the step-by-step calculation model on page 34 in this book.

# Soft-serve Ice Cream

Finest Belgian  
Chocolate

## DARK



Soft-serve Ice Cream with:

**811**  
Cocoa solids: 54.5%  
Order code:  
**811NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
70.20	Fresh whole milk	702 g	24.57	24.57	31.59	63.18	/	/	87.75	31.59	5.05
1.90	Skimmed milk powder 0%	19 g	0.19	6.84	9.88	18.24		/	18.43	9.88	1.58
3.40	Granulated sugar	34 g	/	/	/	/	34.00	/	34.00	34.00	34.00
3.80	Dextrose	38 g	/	/	/	/	34.96	/	34.96	62.93	28.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
20.20	Callebaut recipe n° 811 (54.5%)	202 g	72.92	/	/	/	88.88	40.00	201.80	88.88	88.88
100	TOTAL	1,000 g	10.07	3.14	4.15	8.14	15.78	4.00	38.19	227.28	158.02



Soft-serve Ice Cream with:

**70-30-38**  
Cocoa solids: 70.5%  
Order code:  
**70-30-38NV**

68.90	Fresh whole milk	689 g	24.12	24.12	31.01	62.01	/	/	86.13	31.01	4.96
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
3.00	Granulated sugar	30 g	/	/	/	/	30.00	/	30.00	30.00	30.00
4.40	Dextrose	44 g	/	/	/	/	40.48	/	40.48	72.86	33.00
2.50	Invert sugar	25 g	/	/	/	/	18.13	/	18.13	34.44	32.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
18.70	Callebaut recipe n° 70-30-38 (70.5%)	187 g	72.37	5.24	/	/	49.56	57.60	186.63	49.56	49.56
100	TOTAL	1,000 g	9.97	3.66	4.14	8.12	13.82	5.76	38.58	228.26	151.68



Soft-serve Ice Cream with:

**80-20-44**  
Cocoa solids: 80%  
Order code:  
**80-20-44NV**

67.00	Fresh whole milk	670 g	23.45	23.45	30.15	60.30	/	/	83.75	30.15	4.82
3.20	Skimmed milk powder 0%	32 g	0.32	11.52	16.64	30.72	/	/	31.04	16.64	2.66
9.20	Granulated sugar	92 g	/	/	/	/	92.00	/	92.00	92.00	92.00
5.00	Dextrose	50 g	/	/	/	/	46.00	/	46.00	82.80	37.50
1.70	Powdered glucose syrup DE 30	17 g	/	/	/	/	16.15	/	16.15	8.72	3.83
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
13.40	Callebaut recipe n° 80-20-44 (80%)	134 g	58.96	/	/	/	21.44	54.40	134.00	21.44	21.44
100	TOTAL	1,000 g	8.57	3.50	4.68	9.10	17.56	5.44	40.79	251.75	162.25

# DARK



Soft-serve Ice Cream with:

**Madagascar**  
Cocoa solids: **67.4%**  
Order code:  
**CHD-Q67MAD**

	%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
	69.70	Fresh whole milk	697 g	24.40	24.40	31.37	62.73	/	/	87.13	31.37	5.02
	2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
	3.00	Granulated sugar	30 g	/	/	/	/	30.00	/	30.00	30.00	30.00
	4.50	Dextrose	45 g	/	/	/	/	41.40	/	41.40	74.52	33.75
	2.30	Invert sugar	23 g	/	/	/	/	16.68	/	16.68	31.68	29.90
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	18.00	Callebaut single origin Madagascar (67.4%)	180 g	71.10	2.88	/	/	53.10	52.20	179.64	53.10	53.10
	100	TOTAL	1,000 g	9.87	3.45	4.18	8.19	14.12	5.22	37.92	231.07	153.43



Soft-serve Ice Cream with:

**Brazil**  
Cocoa solids: **66.8%**  
Order code:  
**CHD-Q68BRA**

	69.00	Fresh whole milk	690 g	24.15	24.15	31.05	62.10	/	/	86.25	31.05	4.97
	2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
	2.90	Granulated sugar	29 g	/	/	/	/	29.00	/	29.00	29.00	29.00
	3.60	Dextrose	36 g	/	/	/	/	33.12	/	33.12	59.62	27.00
	4.00	Invert sugar	40 g	/	/	/	/	29.00	/	29.00	55.10	52.00
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	18.00	Callebaut single origin Brazil (66.8%)	180 g	72.00	1.08	/	/	54.18	51.48	179.10	54.18	54.18
	100	TOTAL	1,000 g	9.94	3.24	4.15	8.13	14.53	5.15	38.09	239.35	168.81



Soft-serve Ice Cream with:

**Ecuador**  
Cocoa solids: **70.4%**  
Order code:  
**CHD-R731EQU**

	70.00	Fresh whole milk	700 g	24.50	24.50	31.50	63.00	/	/	87.50	31.50	5.04
	2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
	1.50	Granulated sugar	15 g	/	/	/	/	15.00	/	15.00	15.00	15.00
	4.00	Dextrose	40 g	/	/	/	/	36.80	/	36.80	66.24	30.00
	5.00	Invert sugar	50 g	/	/	/	/	36.25	/	36.25	68.88	65.00
	0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
	17.00	Callebaut single origin Ecuador (70.4%)	170 g	70.38	2.72	/	/	45.05	51.34	169.83	45.05	45.05
	100	TOTAL	1,000 g	9.81	3.44	4.19	8.22	13.31	5.13	36.98	237.07	161.75

Single Origin  
Chocolate

# DARK



Soft-serve Ice Cream with:

**São Tomé**  
Cocoa solids: 70%  
Order code:  
**SAOTHOME**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
67.90	Fresh whole milk	679 g	23.77	23.77	30.56	61.11	/	/	84.88	30.56	4.89
3.00	Skimmed milk powder 0%	30 g	0.30	10.80	15.60	28.80	/	/	29.10	15.60	2.50
1.10	Granulated sugar	11 g	/	/	/	/	11.00	/	11.00	11.00	11.00
4.00	Dextrose	40 g	/	/	/	/	36.80	/	36.80	66.24	30.00
5.00	Invert sugar	50 g	/	/	/	/	36.25	/	36.25	68.88	65.00
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
18.50	Callebaut single origin São Tomé (70%)	185 g	72.89	1.11	/	/	49.95	60.31	184.63	49.95	49.95
100	TOTAL	1,000 g	10.00	3.57	4.62	8.99	13.40	6.03	38.77	242.22	163.33

Blend of Origins  
Chocolate

# DARK



Soft-serve Ice Cream with:

**Fortina**  
Cocoa solids: 65.1%  
Order code:  
**CHD-Q6539FORNV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
69.30	Fresh whole milk	693 g	24.26	24.26	31.19	62.37	/	/	86.63	31.19	4.99
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
2.00	Granulated sugar	20 g	/	/	/	/	20.00	/	20.00	20.00	20.00
3.70	Dextrose	37 g	/	/	/	/	34.04	/	34.04	61.27	27.75
4.60	Invert sugar	46 g	/	/	/	/	33.35	/	33.35	63.37	59.80
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
17.90	Callebaut blend of origins Fortina (65.1%)	179 g	69.45	1.07	/	/	57.28	50.84	179.00	57.28	57.28
100	TOTAL	1,000 g	9.69	3.25	4.16	8.16	14.47	5.08	37.74	234.50	171.48



Soft-serve Ice Cream with:

**Satongo**  
Cocoa solids: 72.2%  
Order code:  
**CHD-L7243STGNV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
69.30	Fresh whole milk	693 g	24.26	24.26	31.19	62.37	/	/	86.63	31.19	4.99
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
3.00	Granulated sugar	30 g	/	/	/	/	30.00	/	30.00	30.00	30.00
3.70	Dextrose	37 g	/	/	/	/	34.04	/	34.04	61.27	27.75
4.50	Invert sugar	45 g	/	/	/	/	32.63	/	32.63	61.99	58.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
17.00	Callebaut blend of origins Satongo (72.2%)	170 g	73.27	3.06	/	/	41.65	51.34	169.66	41.65	41.65
100	TOTAL	1,000 g	10.07	3.45	4.16	8.16	13.83	5.13	37.74	236.49	164.55



Soft-serve Ice Cream with:

**Kumabo**  
Cocoa solids: **80.1%**  
Order code:  
**CHD-H8047KMBNV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
69.50	Fresh whole milk	695 g	24.33	24.33	31.28	62.55	/	/	86.88	31.28	5.00
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
3.50	Granulated sugar	35 g	/	/	/	/	35.00	/	35.00	35.00	35.00
5.50	Dextrose	55 g	/	/	/	/	50.60	/	50.60	91.08	41.25
3.50	Invert sugar	35 g	/	/	/	/	25.38	/	25.38	48.21	45.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
15.50	Callebaut blend of origins Kumabo (80.1%)	155 g	73.63	2.79	/	/	24.80	52.70	154.23	24.80	24.80
100	TOTAL	1,000 g	10,12	3,43	4,17	8,18	13,58	5,27	37,65	240,77	153,22



# MILK



Soft-serve Ice Cream with:  
**823**  
Cocoa solids: **33.6%**  
Order code:  
**823NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
70.00	Fresh whole milk	700 g	24.50	24.50	31.50	63.00	/	/	87.50	31.50	5.04
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	/	/	19.40	10.40	1.66
2.00	Granulated sugar	20 g	/	/	/	/	20.00	/	20.00	20.00	20.00
4.50	Dextrose	45 g	/	/	/	/	41.40	/	41.40	74.52	33.75
2.00	Powdered glucose syrup DE 30	20 g	/	/	/	/	19.00	/	19.00	10.26	4.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	/	5.00	/	/
19.00	Callebaut recipe n° 823 (33.6%)	190 g	68.97	11.12	16.15	29.80	79.80	9.88	188.48	95.95	82.38
100	TOTAL	1,000 g	9.67	4.28	5.81	11.20	16.02	0.99	38.08	242.63	147.34

# MILK



Soft-serve Ice Cream with:  
**Java**  
Cocoa solids: **32.6%**  
Order code:  
**JAVA**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
70.00	Fresh whole milk	700 g	24.50	24.50	31.50	63.00	-	-	87.50	31.50	5.04
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	-	-	19.40	10.40	1.66
1.00	Granulated sugar	10 g	-	-	-	-	10.00	-	10.00	10.00	10.00
4.50	Dextrose	45 g	-	-	-	-	41.40	-	41.40	74.52	33.75
2.00	Powdered glucose syrup DE 30	20 g	-	-	-	-	19.00	-	19.00	10.26	4.50
0.50	Neutro 5	5 g	3.00	-	-	-	-	-	5.00	-	-
20.00	Callebaut single origin Java (32.6%)	200 g	69.20	11.40	16.80	30.80	89.00	10.00	199.00	105.80	91.69
100	TOTAL	1,000 g	9.69	4.31	5.87	11.30	15.94	1.00	38.13	242.48	146.64



Soft-serve Ice Cream with:  
**Arriba**  
Cocoa solids: **39%**  
Order code:  
**CHM-Q415AR**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	DCS	Total solids	FP	SP
68.60	Fresh whole milk	685 g	23.98	23.98	30.83	61.65	-	-	85.63	30.83	4.93
2.00	Skimmed milk powder 0%	20 g	0.20	7.20	10.40	19.20	-	-	19.40	10.40	1.66
4.50	Granulated sugar	45 g	-	-	-	-	45.00	-	45.00	45.00	45.00
4.50	Dextrose	45 g	-	-	-	-	41.40	-	41.40	74.52	33.75
2.00	Powdered glucose syrup DE 30	20 g	-	-	-	-	19.00	-	19.00	10.26	4.50
0.50	Neutro 5	5 g	3.00	-	-	-	-	-	5.00	-	-
18.00	Callebaut single origin Arriba (39%)	180 g	70.38	12.42	18.00	33.30	59.40	11.70	174.78	77.40	62.28
100	TOTAL	1,000 g	9.76	4.36	5.92	11.42	16.48	1.17	39.02	248.41	152.13

# WHITE



**Soft-serve Ice Cream with:**  
**W2**  
**Cocoa solids: 28%**  
**Order code:**  
**W2NV**

%	Ingredients	Quantity	Fat	Proteins	Lactose	Non-fat milk solids	Sugar	Total solids	FP	SP
69.80	Fresh whole milk	698 g	24.43	24.43	31.41	62.82	/	87.25	31.41	5.03
2.00	Granulated sugar	20 g	/	/	/	/	20.00	20.00	20.00	20.00
2.70	Dextrose	27 g	/	/	/	/	24.84	24.84	44.71	20.25
6.00	Powdered glucose syrup DE 30	60 g	/	/	/	/	57.00	57.00	30.78	13.50
0.50	Neutro 5	5 g	3.00	/	/	/	/	5.00	/	/
19.00	Callebaut recipe n° W2 (28%)	190 g	68.40	12.07	17.10	31.84	88.35	188.59	105.45	91.09
100	TOTAL	1,000 g	9.58	3.65	4.85	9.47	19.02	38.27	232.35	149.86



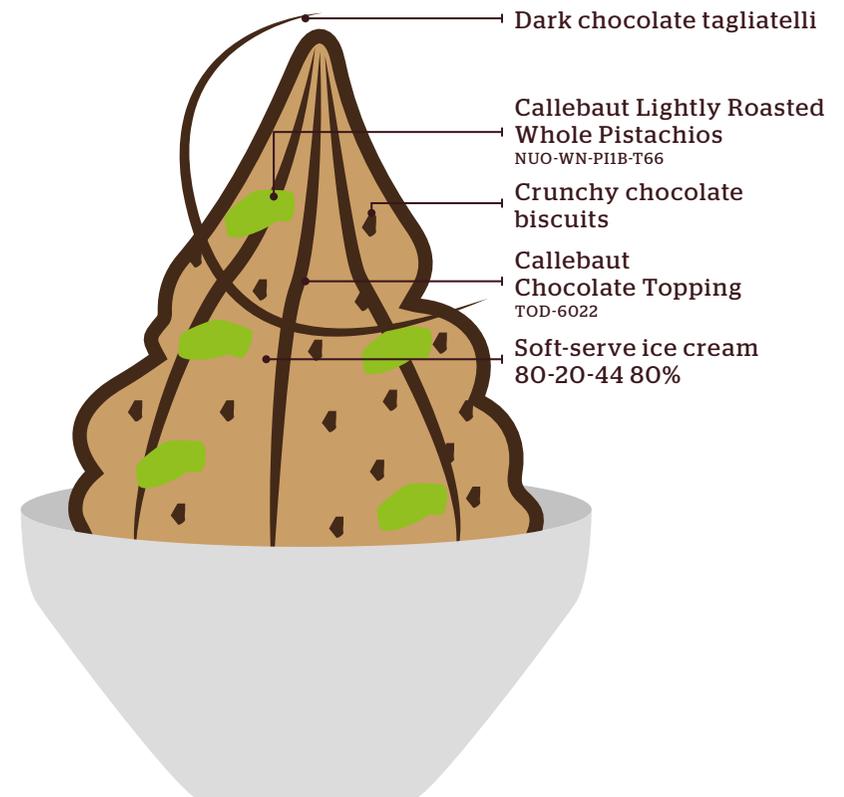
**Soft-serve Ice Cream with:**  
**Velvet**  
**Cocoa solids: 33.1%**  
**Order code:**  
**CHW-R2241NV**

68.50	Fresh whole milk	685 g	23.98	23.98	30.83	61.65	/	85.63	30.83	4.93
4.20	Granulated sugar	42 g	/	/	/	/	42.00	42.00	42.00	42.00
2.80	Dextrose	28 g	/	/	/	/	25.76	25.76	46.37	21.00
6.00	Powdered glucose syrup DE 30	60 g	/	/	/	/	57.00	57.00	30.78	13.50
0.40	Neutro 5	4 g	2.40	/	/	/	/	4.00	/	/
18.10	Callebaut recipe n° Velvet (33.1%)	181 g	76.20	11.04	16.11	29.68	75.12	181.00	91.22	77.69
100	TOTAL	1,000 g	10.26	3.50	4.69	9.13	19.99	39.54	241.20	159.12

*Soft-serve  
Ice Cream  
Inspiration*



**Heavenly Soft**

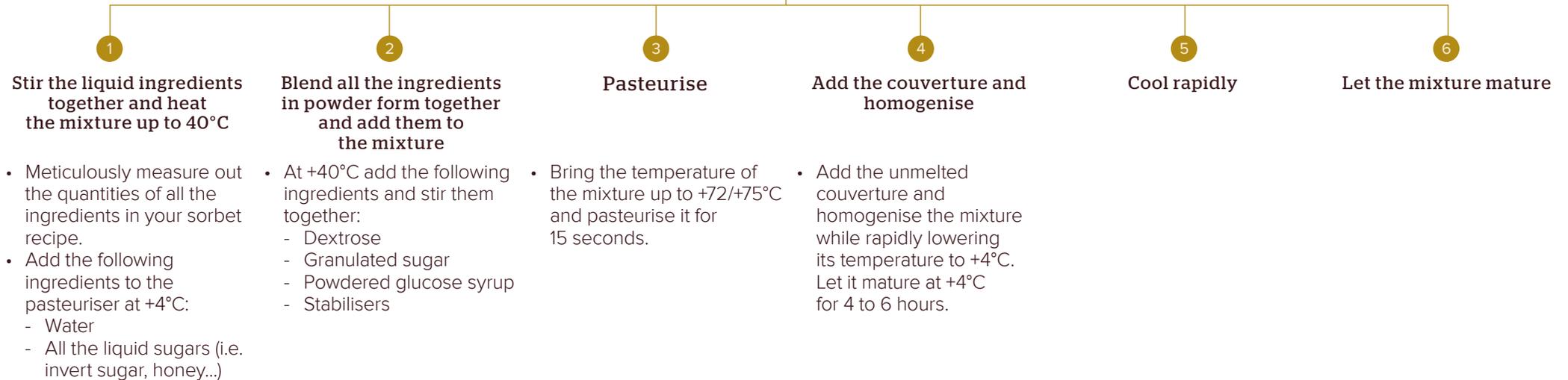




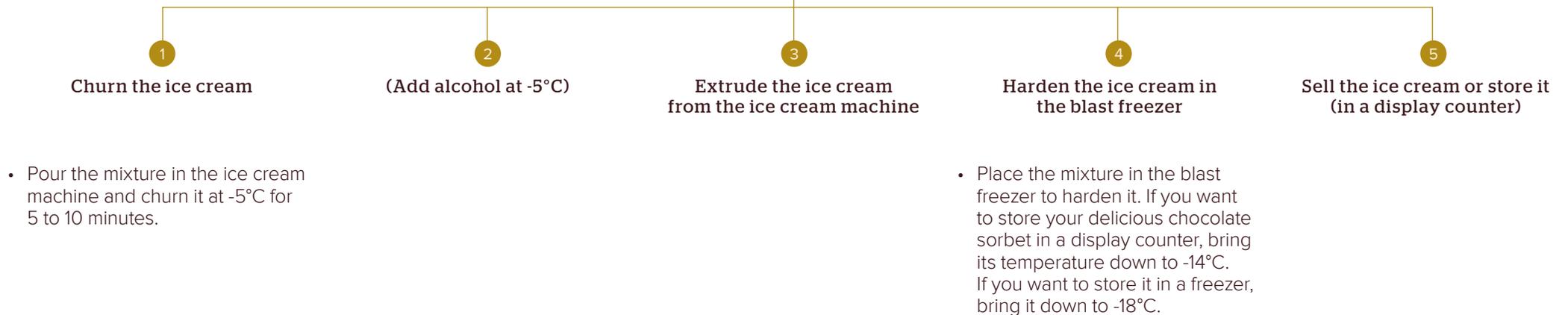
# Sorbet

# A step-by-step guide to delicious chocolate sorbet

## Phase 1: Pasteurisation of the mixture



## Phase 2: Making the ice cream



The recipes below will give you a great and balanced end result. If you would love to add your own twist or create your own recipe, we refer to the step-by-step calculation model on page 34 in this book.

Finest Belgian  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
<b>Sorbet with</b>	59.50	Water	595 g	/	/	/	/	/	/
	3.10	Granulated sugar	31 g	/	/	31.00	31.00	31.00	31.00
<b>811</b>	4.90	Dextrose	49 g	/	/	45.08	45.08	81.14	36.75
<b>Cocoa solids:</b>	10.70	Powdered glucose syrup DE 30	107 g	/	/	101.65	101.65	54.89	24.08
<b>54.5%</b>									
<b>Order code:</b>	21.40	Callebaut recipe n° 811 (54.5%)	214 g	77.25	42.37	94.16	213.79	94.16	94.16
<b>811NV</b>	0.40	Neutro 5	4 g	2.40	/	/	4.00	/	/
	100	TOTAL	1,000 g	7.97	4.24	27.19	39.55	261.20	185.99



<b>Sorbet with</b>	60.40	Water	604 g	/	/	/	/	/	/
	3.60	Granulated sugar	36 g	/	/	36.00	36.00	36.00	36.00
<b>60-40-38</b>	6.40	Dextrose	64 g	/	/	58.88	58.88	105.98	48.00
<b>Cocoa solids:</b>	10.90	Powdered glucose syrup DE 30	109 g	/	/	103.55	103.55	55.92	24.53
<b>60.1%</b>									
<b>Order code:</b>	18.20	Callebaut recipe n° 60-40-38 (60.1%)	182 g	70.80	43.86	67.34	182.00	67.34	67.34
<b>60-40-38NV</b>	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	7.38	4.39	26.58	38.54	265.24	175.87



<b>Sorbet with:</b>	59.30	Water	593 g	/	/	/	/	/	/
	5.80	Granulated sugar	58 g	/	/	58.00	58.00	58.00	58.00
<b>70-30-38</b>	6.70	Dextrose	67 g	/	/	61.64	61.64	110.95	50.25
<b>Cocoa solids:</b>	10.70	Powdered glucose syrup DE 30	107 g	/	/	101.65	101.65	54.89	24.08
<b>70.5%</b>									
<b>Order code:</b>	17.10	Callebaut recipe n° 70-30-38 (70.5%)	171 g	66.18	52.67	45.32	170.66	45.32	45.32
<b>70-30-38NV</b>	0.40	Neutro 5	4 g	2.40	/	/	4.00	/	/
	100	TOTAL	1,000 g	6.86	5.27	26.66	39.59	269.16	177.64

Finest Belgian  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
<b>Sorbet with</b>  <b>80-20-44</b> <b>Cocoa solids:</b> <b>80%</b>  <b>Order code:</b> <b>80-20-44NV</b>	60.40	Water	604 g	/	/	/	/	/	/
	9.10	Granulated sugar	91 g	/	/	91.00	91.00	91.00	91.00
	6.40	Dextrose	64 g	/	/	58.88	58.88	105.98	48.00
	10.90	Powdered glucose syrup DE 30	109 g	/	/	103.55	103.55	55.92	24.53
	12.70	Callebaut recipe n° 80/20/44 (80%)	127 g	55.88	51.56	20.32	127.00	20.32	20.32
	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	5.89	5.16	27.38	38.54	273.22	183.85

Single Origin  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
<b>Sorbet with</b>  <b>Madagascar</b> <b>Cocoa solids:</b> <b>67.4%</b>  <b>Order code:</b> <b>CHD-Q67MAD</b>	60.00	Water	600 g	/	/	/	/	/	/
	5.00	Granulated sugar	50 g	/	/	50.00	50.00	50.00	50.00
	6.60	Dextrose	66 g	/	/	60.72	60.72	109.30	49.50
	10.80	Powdered glucose syrup DE 30	108 g	/	/	102.60	102.60	55.40	24.30
	17.10	Callebaut single origin Madagascar (67.4%)	171 g	67.55	49.59	50.45	170.66	50.45	50.45
	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	7.05	4.96	26.38	38.90	265.15	174.25



	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
<b>Sorbet with</b>  <b>Brazil</b> <b>Cocoa solids:</b> <b>66.8%</b>  <b>Order code:</b> <b>CHD-Q68BRA</b>	59.60	Water	596 g	/	/	/	/	/	/
	5.80	Granulated sugar	58 g	/	/	58.00	58.00	58.00	58.00
	6.30	Dextrose	63 g	/	/	57.96	57.96	104.33	47.25
	10.80	Powdered glucose syrup DE 30	108 g	/	/	102.60	102.60	55.40	24.30
	17.10	Callebaut single origin Brazil (66.8%)	171 g	68.40	48.91	51.47	170.15	51.47	51.47
	0.40	Neutro 5	4 g	2.40	/	/	4.00	/	/
	100	TOTAL	1,000 g	7.08	4.89	27.00	39.27	269.20	181.02

Single Origin  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
<b>Sorbet with</b>	59.80	Water	598 g	/	/	/	/	/	/
	6.50	Granulated sugar	65 g	/	/	65.00	65.00	65.00	65.00
<b>Ecuador</b>	6.30	Dextrose	63 g	/	/	57.96	57.96	104.33	47.25
<b>Cocoa solids:</b>	10.80	Powdered glucose syrup DE 30	108 g	/	/	102.60	102.60	55.40	24.30
<b>70.4%</b>									
<b>Order code:</b>	16.10	Callebaut single origin Ecuador (70.4%)	161 g	66.65	48.62	42.67	160.84	42.67	42.67
<b>CHD-R731EQU</b>	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	6.97	4.86	26.82	39.14	267.40	179.22



<b>Sorbet with</b>	60.00	Water	600 g	/	/	/	/	/	/
	9.20	Granulated sugar	92 g	/	/	92.00	92.00	92.00	92.00
<b>São Tomé</b>	5.00	Dextrose	50 g	/	/	46.00	46.00	82.80	37.50
<b>Cocoa solids:</b>	10.80	Powdered glucose syrup DE 30	108 g	/	/	102.60	102.60	55.40	24.30
<b>70%</b>									
<b>Order code:</b>	14.50	Callebaut single origin São Tomé (70%)	145 g	57.13	47.27	39.15	144.71	39.15	39.15
<b>SAOTHOME</b>	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	6.01	4.73	27.98	39.03	269.35	192.95

Blend of Origins  
Chocolate

# DARK



	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
<b>Sorbet with</b>	60.00	Water	600 g	/	/	/	/	/	/
	5.40	Granulated sugar	54 g	/	/	54.00	54.00	54.00	54.00
<b>Fortina</b>	6.10	Dextrose	61 g	/	/	56.12	56.12	101.02	45.75
<b>Cocoa solids:</b>	10.80	Powdered glucose syrup DE 30	108 g	/	/	102.60	102.60	55.40	24.30
<b>65.1%</b>									
<b>Order code:</b>	17.20	Callebaut blend of origins Fortina (65.1%)	172 g	66.74	48.85	55.04	172.00	55.04	55.04
<b>CHD-Q6539FORNV</b>	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	6.97	4.88	26.78	38.97	265.46	179.09

# DARK



**Sorbet with**  
**Satongo**  
**Cocoa solids: 72.2%**  
**Order code:**  
**CHD-L7243STGNV**

	%	Ingredients	Quantity	Fat	DCS	Sugar	Total solids	FP	SP
	58.80	Water	588 g	/	/	/	/	/	/
	7.10	Granulated sugar	71 g	/	/	71.00	71.00	71.00	71.00
	6.20	Dextrose	62 g	/	/	57.04	57.04	102.67	46.50
	10.60	Powdered glucose syrup DE 30	106 g	/	/	100.70	100.70	54.38	23.85
	16.80	Callebaut blend of origins Satongo (72.2%)	168 g	72.41	50.74	41.16	167.66	41.16	41.16
	0.50	Neutro 5	5 g	3.00	/	/	5.00	/	/
	100	TOTAL	1,000 g	7.54	5.07	26.99	40.14	269.21	182.51



**Sorbet with**  
**Kumabo**  
**Cocoa solids: 80.1%**  
**Order code:**  
**CHD-H8047KMBNV**

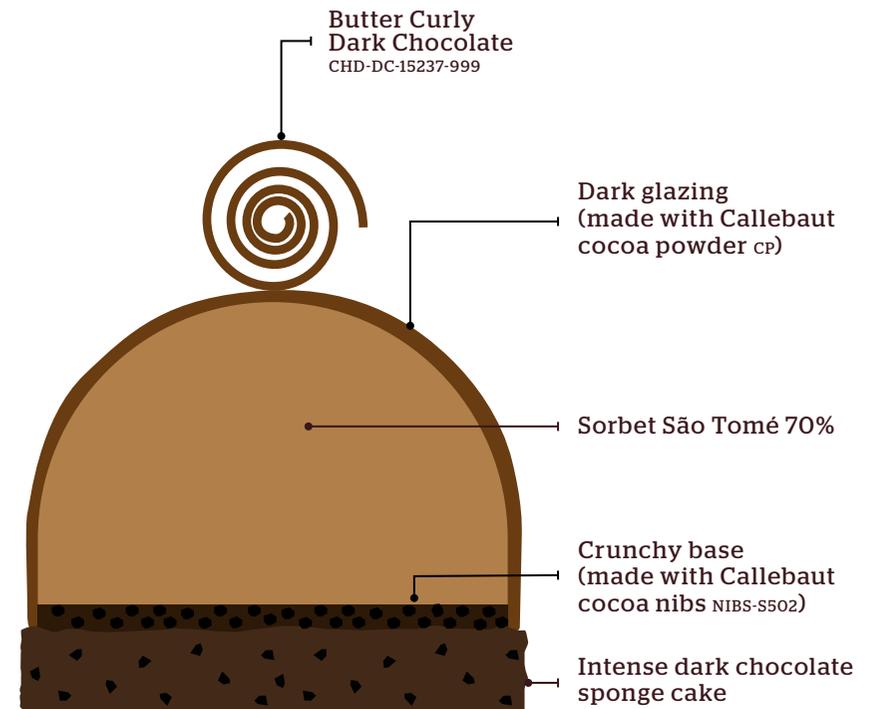
	59.10	Water	591 g	/	/	/	/	/	/
	8.90	Granulated sugar	89 g	/	/	89.00	89.00	89.00	89.00
	6.20	Dextrose	62 g	/	/	57.04	57.04	102.67	46.50
	10.70	Powdered glucose syrup DE 30	107 g	/	/	101.65	101.65	54.89	24.08
	14.70	Callebaut blend of origins Kumabo (80.1%)	147 g	69.83	49.98	23.52	146.27	23.52	23.52
	0.40	Neutro 5	4 g	2.40	/	/	4.00	/	/
	100	TOTAL	1,000 g	7.22	5.00	27.12	39.80	270.08	183.10



# Sorbet Inspiration



## São Tomé Dôme



Use a Pavoni PX060 Tronchetto mould



# Recipe São Tomé Dôme



## Sorbet São Tomé 70%

### Ingredients

### Quantity



Water	600 g
Granulated sugar	92 g
Dextrose	50 g
Powdered glucose syrup DE 30	108 g
Callebaut single origin São Tomé (70%)	145 g
Neutro 5	5 g
<b>TOTAL</b>	<b>1,000 g</b>

## Dark glazing

### Ingredients

### Quantity

### Method

Cream (35%)	348 g
Water	348 g
Granulated sugar	417 g
Glucose syrup DE 60	700 g
Callebaut cocoa powder CP	200 g
Animal gelatine sheets	30 g
<b>TOTAL</b>	<b>2,043 g</b>

Mix the first five ingredients and cook them at 105°C. Filter and add the gelatine at 60°C (soften the gelatine sheets in cold water first). Stir slowly until the gelatine is completely dissolved. Refrigerate overnight and use the next day after heating up to 32-36°C.

Final Brix: 70.34°

Apply at 28°C on sweet ice cream. It is very fluid and glossy, and has a rounded cocoa taste.

# Intense dark chocolate sponge cake

Ingredients	Quantity	Method
Whole eggs	2,000 g	Whisk the first four ingredients together, add them to the liquid cream while stirring and then mix the whole together with the ingredients in powder form.
Sugar	1,000 g	
Invert sugar	650 g	
Salt	4 g	
Cream (35%)	600 g	Spread 1,200 g of the mixture out on a 40 x 60 baking tray. Bake at 190°C for 10-12 minutes until it is deliciously soft.
Callebaut Cocoa powder CP	450 g	
Almond powder	750 g	
Potato starch	100 g	
Flour	500 g	
Baking powder	45 g	
TOTAL	6,099 g	

# Crunchy base with cocoa nibs

Ingredients	Quantity	Method
Callebaut cocoa nibs NIBS-S	150 g	Gently mix together all the ingredients with the ground cocoa nibs. Lay out a layer with a thickness of 2 mm between two sheets of baking parchment.
Granulated sugar	300 g	
Flour (00 w 150-160)	300 g	Bake at 150°C in a fan oven with an open valve for about 25 minutes.
Vanilla bean	2 g	
Butter (82% fat content)	300 g	
Roasted hazelnut powder	150 g	
Fleur de sel	5 g	
TOTAL	1,207 g	

# Top off your ice cream with great taste



Who wouldn't melt for a great presentation? Especially when good looks also taste great. With Callebaut®'s decorations, you can create your own special touch and add a delightful bite and crunch to any ice cream dessert.

Discover the full choice of decorations at [www.callebaut.com](http://www.callebaut.com)

## Caramelised nut pieces: crunchy goes nuts

With Callebaut®'s caramelised nut pieces or 'brésiliennes', you add the best of both worlds. The sweet taste of golden caramel, fused with the intense taste of freshly roasted nuts. These nut decorations remain crunchy – even mixed into ice cream or sprinkled on top. They come in 3 nut flavours: almond, hazelnut and pistachio.



## Roasted nut pieces: the 100% nutty crisp for ice cream

These roughly broken quality grade almonds and hazelnuts are perfectly roasted to bring out their fruity nut taste. Just sprinkle them on top before serving to add a delightful and natural crisp to your ice cream.



## Butter Curly™ chocolate: looks like butter curls, tastes like chocolate

These decorations are purely made of delicious Callebaut® chocolate and shaped like handmade butter curls. Each curl is different, which makes them ideal for creating a true artisanal look. Available in dark, milk or marbled chocolate, and in 2 sizes.





### Chocolate Blossoms: great taste comes in many colours

With their irregular and handmade look, these tiny curls are great for decorating: just sprinkle them on top or create special effects and highlights. Callebaut's chocolate blossoms are available in a wide variety of colours and flavours. And, as they are made of 100% Callebaut chocolate, they not only look great, but also taste the part.



### Crispearls™: mini chocolate pearls with a crispy cookie inside

Looking like tiny beads of caviar (only 3-4 mm diameter), each Crispearl™ has a crunchy toasted biscuit heart enrobed with Callebaut® chocolate. It's a combination that makes them completely irresistible. They come in dark, milk and white chocolate. Or try the 2 latest additions to the range: Strawberry and Salted Caramel.



# Recurring difficulties in ice cream making



Problem	Cause	Solution
You discover bacteria after a microbiological analysis of your ice cream	<ul style="list-style-type: none"> <li>• Unsanitary tools</li> <li>• Poor personal hygiene</li> <li>• Contaminated raw materials</li> <li>• Unsanitary processing</li> </ul>	<ul style="list-style-type: none"> <li>• Pay more attention to your personal hygiene and the cleanliness of your instruments, raw materials and workshop.</li> </ul>
Your ice cream is too hard and dense	<ul style="list-style-type: none"> <li>• A low amount of sugars and total solids in the ice cream mixture</li> <li>• Inadequate stabilisers and emulsifiers</li> <li>• Storage in a dry display counter</li> <li>• A low amount of proteins in the ice cream mixture</li> </ul>	<ul style="list-style-type: none"> <li>• The quantity of sugars in your ice cream mixture should amount to min. 16% while the amount of total solids may not be less than 32%. You can use dextrose, glucose syrup or invert sugar to replace part of the sucrose in order to raise the FP of your ice cream mixture.</li> <li>• Use the correct emulsifiers and stabilisers for your type of ice cream (e.g. fruit-flavoured or milk-based ice cream).</li> <li>• Readjust the relative humidity of your display counter.</li> </ul>
Your ice cream is too soft	<ul style="list-style-type: none"> <li>• Your final FP is too high</li> <li>• Your ice cream is extruded from the ice cream machine at a temperature close to -5/-6°C</li> </ul>	<ul style="list-style-type: none"> <li>• Re-evaluate the quantities and types of sugar you use in your mixture.</li> <li>• Lower the final FP of your ice cream mixture.</li> </ul>
Your ice cream is too cold to the palate	<ul style="list-style-type: none"> <li>• Your ice cream recipe contains little fat</li> <li>• The sugar content of your ice cream mixture is too high</li> <li>• Water is a substantial ingredient in your ice cream recipe</li> <li>• Little overrun during churning</li> <li>• Your ice cream recipe contains few proteins</li> <li>• The total amount of solids in your ice cream mixture is too low</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the amount of fats and total solids in your ice cream mixture.</li> <li>• Increase the amount of proteins in your ice cream mixture to facilitate the incorporation of air bubbles.</li> </ul>



Problem	Cause	Solution
Your ice cream melts too easily	<ul style="list-style-type: none"><li>• Your ice cream mixture contains too few proteins</li><li>• The proteins in your ice cream mixture don't hydrate well</li><li>• The sugar content of your ice cream mixture is too high</li><li>• Your ice cream mixture contains alcohol</li><li>• The temperature of your display counter is off</li></ul>	<ul style="list-style-type: none"><li>• Lower the amount of sugars in your ice cream mixture.</li><li>• Increase the total amount of solids in your ice cream mixture.</li><li>• Reduce the amount of alcohol in your ice cream mixture.</li><li>• Use a thermometer to make sure that the temperature inside your display counter ranges between -13 and -15°C.</li></ul>
Your ice cream is spongy	<ul style="list-style-type: none"><li>• Your ice cream mixture isn't balanced out</li><li>• Your ice cream mixture contains too much egg yolk or too many stabilisers</li><li>• The stabilisers in your ice cream mixture are inadequate</li></ul>	<ul style="list-style-type: none"><li>• Rebalance your ice cream mixture.</li><li>• Decrease the amount of egg yolk or stabilisers in your ice cream mixture.</li><li>• Use other stabilising agents in your ice cream mixture.</li></ul>
Your ice cream is grainy	<ul style="list-style-type: none"><li>• The amount of lactose in your ice cream mixture is too high</li><li>• The amount of milk powder in your ice cream mixture is too high</li><li>• Your display counter suffers from abrupt temperature swings</li><li>• The amount of sucrose in your ice cream mixture is too high</li><li>• Other possibilities: structural defects</li></ul>	<ul style="list-style-type: none"><li>• Lactose has low solubility and part of the water in which it is dissolved passes into solid state during the freezing phase, causing crystallisation. Therefore, use milk powder moderately. It contains more than 50% lactose.</li><li>• Replace part of the sucrose with dextrose, glucose syrup or invert sugar.</li></ul>
Your ice cream is too greasy	<ul style="list-style-type: none"><li>• An excessive amount of fat in your ice cream mixture</li><li>• Too few non-fat milk solids in your ice cream mixture</li><li>• Inadequate homogenisation</li></ul>	<ul style="list-style-type: none"><li>• Re-evaluate the amount of fats and non-fat milk solids in your ice cream mixture.</li><li>• Cool your ice cream mixture properly before freezing.</li></ul>
Your ice cream is rubbery	<ul style="list-style-type: none"><li>• Excessive amount of stabilisers in your ice cream mixture</li><li>• Inadequate stabilisers</li><li>• Too much protein in your ice cream mixture</li></ul>	<ul style="list-style-type: none"><li>• Reduce the amount of stabilisers in your ice cream mixture.</li><li>• Use other stabilising agents in your ice cream mixture.</li><li>• Re-evaluate the amount and the quality of the proteins in your ice cream mixture.</li></ul>
Your ice cream tastes stale	<ul style="list-style-type: none"><li>• Oxidation of the milk fats in your ice cream mixture</li><li>• Stale or poorly preserved ingredients in your ice cream mixture</li><li>• Lengthy storage in the metal trays of the display counter</li></ul>	<ul style="list-style-type: none"><li>• Use stainless steel trays.</li><li>• Check the freshness and storage conditions of your ingredients.</li><li>• Prepare your ice cream just before serving.</li></ul>
Your ice cream has a metallic taste to it	<ul style="list-style-type: none"><li>• Rust in the ice cream containers</li><li>• Use of old machinery or machinery that is in bad shape</li><li>• Use of new tools or new ice cream containers that are badly washed</li><li>• The dairy products in your ice cream mixture have been in contact with metallic materials</li></ul>	<ul style="list-style-type: none"><li>• Use adequate equipment and ice cream containers.</li><li>• Wash your new equipment with detergent.</li><li>• Check the storage conditions of your raw materials.</li></ul>
Your ice cream has a cooked taste to it	<ul style="list-style-type: none"><li>• Pasteurisation at a temperature that is too high or inadequate stirring during the pasteurisation phase</li><li>• Repasteurisation</li><li>• Use of dairy products with a cooked taste, e.g. some UHT products</li></ul>	<ul style="list-style-type: none"><li>• Check the temperature and stir the mixture uninterruptedly during the pasteurisation phase.</li><li>• Check the taste of your raw materials.</li><li>• Use fresh milk or fresh cream.</li></ul>
Your ice cream tastes of milk powder	<ul style="list-style-type: none"><li>• Too much milk powder in your ice cream recipe</li><li>• Use of low-quality or stale milk powder</li></ul>	<ul style="list-style-type: none"><li>• Reduce the amount of milk powder in your ice cream recipe.</li><li>• Check the quality of your milk powder and keep it in optimal storage conditions, away from light and oxygen.</li></ul>

# Master the Arts of Ice Cream Making and perfect your chocolate skills



#Callebaut

From now on, you can perfect your chocolate skills in the brand-new home of the Finest Belgian Chocolate. The Callebaut® Chocolate Academy – built on the same spot where the Callebaut family crafted its first chocolate more than 100 years ago – warmly welcomes you to take part in the many workshops and confectionery, pastry and cooking classes. Especially for ice cream, we organise Master Classes each year that will immerse you in the theory and practice of ice cream making. Inspiring recipes, hands-on experience and know-how from the experts are the key ingredients of these classes



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For a full overview of  
all workshops and classes:

[www.chocolate-academy.com](http://www.chocolate-academy.com)