



CHOCOLATE BASICS

TEMPER, MOLD, MASTER

PREVIEW ONLY


CALLEBAUT®
BELGIUM 1911

THEORY

TEMPERING ON THE TABLETOP

Tempering on the Tabletop (Lesson 0.4)

Pre-crystallisation requires three things:

- Time
- Temperature
- Movement

We heat the chocolate, transfer it to a cold surface and spend some time moving the chocolate on the surface, reducing its temperature. Then we warm the chocolate slightly to "loosen" the crystal structure and bring it to a good working temperature. A combination of time, temperature, and movement alters the structure of the fat as it solidifies, creating the desired crystal structure.

The Pre-Crystallisation Process

To begin the process, we need to warm the chocolate. This can be done in a microwave, a warming cabinet, or by another method. In order to start fresh, with fully and entirely melted cocoa butter, we'll need to warm our chocolate to between 40 and 45°C, generally speaking.

Dark chocolate can be warmed to a temperature of up to 50°C. Chocolates that contain milk, such as milk, white, Gold, or Ruby chocolate, should be heated to a lower temperature to avoid burning the milk solids. Heat these chocolates to no more than 42°C.

The cocoa butter will begin to crystallise again at around 27°C. This is why using a thermometer is so important. It's like using a GPS app when we drive - knowing the temperature of our chocolate helps us determine where we are in the pre-crystallisation process.

It's also important not to allow the chocolate to get too cold. Checking the temperature regularly will let us know when to stop moving the chocolate on the table. If chocolate gets too cold during the pre-crystallisation, it will be too thick. It will be what we refer to as over-crystallised. The coldest you can allow the chocolate to get without worrying about over-crystallisation is 27°C. In fact, most manufacturers will instruct users to cool their chocolate to 28°C, allowing for a small margin of error.

Once we've cooled the chocolate, it's full of solidified fat crystals. If we are not careful, these crystals will clump together, and we will not achieve the smooth, shiny end product we are aiming for. So we need, now, to warm the chocolate again, but just a little. For dark chocolates, reheat the crystallised chocolate to 31-32°C; for milk and white chocolate, heat the crystallised chocolate to 29-30°C.



When we have executed this process successfully, the chocolate will continue to harden as it cools and will be shiny, with good flavour and texture. It will contract as it cools, allowing us to unmold tablets and similar moulded products easily.

It's clear why a thermometer is the most important tool for successful crystallisation. However, to return to our GPS comparison, if your driving app tells you to make a right turn in a spot where you cannot make a right turn, don't do it! Tempering is the same - even our best tools need to be used thoughtfully. Imagine that we pre-crystallise chocolate in our workshop one morning with great results. The next day, it's a little warmer in the shop - 26°C - and our table is not as cold as it was yesterday. We might spend 30 minutes moving the chocolate on the table to cool it down and even succeed in bringing it to the required temperature, but because the tabletop was not cold enough to create the right fat crystals, our pre-crystallisation attempt will have failed. In this case, we met only two of our three requirements: we spent sufficient time moving the chocolate, but our table was not at the right temperature (20°C). We need to meet all three criteria to achieve successful pre-crystallisation.

A Note on Surfaces

You may have noticed that many chocolatiers prefer a granite or marble surface when working with chocolate. Why is this? Granite and marble maintain their temperature very well. Suppose you pour warm chocolate onto a stainless steel tabletop, for example. In that case, the temperature of the table immediately becomes warmer and may no longer provide the cold point necessary for creating the right fat crystals in your chocolate. Granite and marble, however, will maintain their cool temperature, making it possible to successfully pre-crystallise the chocolate.



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EQUIPMENT LIST

Most of the tools our chefs use in the videos are standard equipment in any kitchen. However, there are a few specialty items that you may wish to seek out before beginning to recreate the recipes. It is not necessary to have each of the tools listed here, and you may adapt your technique to the tools you have, but you will find that these items make the job of perfecting the recipes much easier.

Tablets: Polycarbonate tablet moulds

Swiss Rocks: Rock dispenser or 3 cm silicone moulds

Lemon and Mint Tea Moulded

Bonbons: Semi-sphere chocolate moulds of 3 cm diameter

Crunchy Gianduja Framed Bonbons:

Frame measuring 18 x 36 cm and 0.8 cm deep

Chocolate Truffles with Rum: 13 mm diameter nozzle

Caramelised Hazelnut Praliné and Milk Chocolate Spread: 8 jars with lids, 240 grams each

Hollow Chocolate Figures: Moulds with the desired shape

Standard Kitchen Equipment

- ✓ Baking parchment
- ✓ Brush
- ✓ Chopping boards
- ✓ Cling film
- ✓ Convection oven
- ✓ Food processor
- ✓ Freezer (-20°C) or Blast freezer
- ✓ Gloves
- ✓ Guitar sheets
- ✓ Guitar cutter
- ✓ Hand blender
- ✓ Induction burner
- ✓ Knives
- ✓ Micro scale
- ✓ Microwave
- ✓ Offset palette knife
- ✓ Piping bags
- ✓ Piping tips
- ✓ Probe thermometer
- ✓ Rasp-style zester
- ✓ Refrigerator
- ✓ Rolling pin
- ✓ Scale
- ✓ Scissors
- ✓ Sieves
- ✓ Silicone baking mats
- ✓ Silicone baking mats, perforated
- ✓ Spatulas
- ✓ Spoons
- ✓ Stand mixer
- ✓ Strainers
- ✓ Trays 60 x 40 cm
- ✓ Whisks

Optional

- ✓ Air gun
- ✓ Chocolate grinder
- ✓ Chocolate enrobing belt for tempering machines
- ✓ Chocolate fridge (16°C)
- ✓ Chocolate machines for tempering
- ✓ Heated vibrating table for the chocolate tempering machine
- ✓ Infrared thermometer

Specific to This Course, Required

- ✓ Flat plaque, 60 x 40 cm, Methacrylate or similar
- ✓ Refractometer



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Get a taste of our "Chocolate basics" with this preview featuring the "Lemon and Mint Moulded Bonbon" recipe.

LEMON AND MINT TEA MOULDED BONBON



Yield: Approximately 96 half-sphere bonbons

Equipment: Polycarbonate chocolate moulds: half-spheres of 3 cm diameter

Component 1: Lemon Jelly

Ingredient	Qty (g)	Qty (%)	Method
Lemon juice	200 g	38.17%	1. Before you begin, finely chop the lemon zest.
Water	50 g	9.54%	2. Heat the lemon juice combined with the water.
Yellow pectin	3 g	0.57%	3. Combine pectin and sugar #1.
Sucrose #1	18 g	3.44%	4. Whisk the pectin mixture into the warm liquid.
Glucose syrup DE44	40 g	7.63%	5. Bring the mixture to a boil, then add the glucose and sugar #2.
Sucrose #2	205 g	39.12%	6. Cook to about 75° Brix and reserve.
Lemon zest	8 g	1.53%	7. Pour the gel into a shallow container and allow it to cool and set.
			8. Pass through a coarse sieve to break down the gel structure.
			9. Stir in the lemon zest.
			10. Cover the jelly with plastic wrap touching the surface, and set it aside until you are ready to assemble the bonbons.

Yield: 845 g

Component 2: Mint Tea and Milk Chocolate Ganache

Ingredient	Qty (g)	Qty (%)	Method
Mint Tea Infusion	220 g	17.42%	1. Dissolve the sugars and salt in the infusion. 2. Pour the warm syrup over the couverture. Use a spatula to combine and emulsify the ingredients.
Invert sugar	60 g	4.75%	3. Add the fats and emulsify with a hand blender.
Glucose syrup DE44	52 g	4.12%	4. Pre-crystallise the ganache by transferring it to a shallow container and cooling it to 29-30°C.
Dextrose	82 g	6.49%	5. Transfer the ganache to a piping bag and set aside until ready to assemble the bonbons.
Salt	2 g	0.16%	
Callebaut Velvet Ecuador Milk Chocolate 39%	712 g	56.37%	
Clarified butter	85 g	6.73%	
Callebaut Cocoa Butter	50 g	3.96%	

Yield: 1903 g



Component 3: Dark Chocolate Paint

Ingredient	Qty (g)	Qty (%)	Method
Callebaut Rustic Fleur de Cao Dark Chocolate 70%	375 g	75%	1. Before you begin, pre-crystallise the dark chocolate paint. 2. Spray droplets of the paint onto the semi-sphere moulds. 3. Using a brush, apply a thin layer of gold powder.
Callebaut Cocoa Butter	125 g	25%	4. Finally, fill the moulds with pre-crystallised chocolate and proceed with creating the bonbon shells.

Yield: 500 g



CALLEBAUT RUSTIC FLEUR DE CAO DARK CHOCOLATE 70%
Bittersweet-and-Sour with Warm Spiced, Floral and Yellow Fruits Notes.

[View product](#)

Component 4: Filling the bonbons

Method

1. Before you begin, ensure that the temperature of the Mint Tea Ganache is around 28°C.
2. Pipe a small amount of Lemon Jelly into the bottom of each prepared shell.
3. Pipe the Mint Tea Milk Chocolate Ganache on top of the jelly, filling the shells nearly to the top. It is important to leave about one millimetre of space at the top for closing the moulds.
4. Allow the ganache to crystallise overnight.
5. Gently heat the moulds with a heat gun.
6. Pipe pre-crystallised chocolate on top of the mould, distributing it evenly and focusing on covering each bonbon.
7. Smooth and remove excess chocolate with a chocolate scraper.
8. Set aside until the chocolate has crystallised.
9. Unmold and package for sale or storage.

OUR CHEF'S PRODUCT RECOMMENDATIONS



CHOCOLATE

Callebaut Selection



Callebaut Velvet White Chocolate 32%
2.5 kg

[View product](#)



Callebaut Gold Chocolate 30%
2.5 kg

[View product](#)



Callebaut Ruby Chocolate 33%
2.5 kg

[View product](#)



Callebaut Power 41 Milk Chocolate 41%
2.5 kg

[View product](#)



Callebaut 823 Milk Chocolate 33%
2.5 kg

[View product](#)



Callebaut 70-30-38 Extra Bitter Dark Chocolate 70%
2.5 kg

[View product](#)



Callebaut Power 80 Dark Chocolate 80%
2.5 kg

[View product](#)

Callebaut Origin Collection

Blend of Origins



Callebaut Rustic Fleur de Cao Dark Chocolate 70% Single Origin
2.5 kg

[View product](#)

Single Origin



Callebaut Velvet Ecuador Milk Chocolate 39%
2.5 kg

[View product](#)

OUR CHEF'S PRODUCT RECOMMENDATIONS



COCOA PRODUCTS



Callebaut Cocoa Nibs

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Callebaut Cocoa Butter

[View product](#)



Callebaut Mycryo
0.6 kg

[View product](#)

COCOA POWDER



Callebaut Botanical Experience
Extra Brute Cocoa Powder
5 kg

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NUT PRODUCTS



Callebaut Hazelnut Praliné 50%
5 kg

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INCLUSIONS



Callebaut Pailleté Feuilletine
2.5 kg

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DECORATIONS



Mona Lisa Crispearls Ruby

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Mona Lisa Gold Powder

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