



MORE INFORMATION RELATING TO THE HANDMADE CHOCOLATES CAKEFLIX TUTORIAL

Thanks for your interest in the Taystful Chocolate Tutorial!

My tutorials are geared towards the small business or the home chocolatier as I was finding it difficult to find professional information in a small production scale, so I am keen to share my techniques via CakeFlix! It is certainly a lot more than reducing quantities – the equipment you use and the behaviour of the ingredients can differ greatly from a large-scale production.

WHICH CHOCOLATE TO USE

It can be confusing with so many chocolates on the market to decide what to use, but unless otherwise stated, I'm usually referring to 'Chocolate Couverture' and more specifically (for practicality reasons as it is easy to source for all), the 'Callebaut' brand of Belgian Couverture:

1. dark chocolate couverture of 54.5% cocoa solids
2. milk chocolate couverture of 33.6% cocoa solids
3. white chocolate of 28% cocoa solids

There are many other fantastic high quality brands of couverture, for example, Valrhona (French), Amedei (Italian), Cacao Barry (French), Belcolade (Belgian). Callebaut is easily available online and, like the others, is processed to a high consistent quality under strict regulations.

These regulations include laws on how much cocoa butter must be in couverture chocolate (at least 31% of all the cocoa solids present must be cocoa butter), ensuring it is of the correct consistency and quality to produce a high standard of product.

With this in mind, chocolate bought from a supermarket or sweet shop are very unlikely to be the correct standard for you to work with, and you'll often find that buying a few kilograms of Callebaut is a lot more cost effective than buying many bars of supermarket chocolates (with the added risk that the supermarket chocolate may not behave the way you want it to).

Using couvertures for the recipes other than Callebaut can easily be done, but be aware that the results may not be exactly the same, and recipes may need to be adjusted and re-tested to perfect, if using different brands. If working with very different cocoa solid percentages or single origin/estate chocolate couvertures, always test your recipe and tweak before making something very important as they can make big differences to your product!

TEMPERING CHOCOLATE

What is tempering of chocolate?

Tempering brings the chocolate to a stable crystalline form. The element of the chocolate which is being tempered, is the cocoa butter. The cocoa mass particles (the dark part) are suspended in the cocoa butter. There are 6 main 'polymorphs' (crystal formation types) that can form in chocolate. For chocolate to be tempered, it must have predominantly Beta 5 (V) crystal formations within it. There are several ways chocolate can be tempered with the use of heat, time and agitation.

Characteristics of Tempered Chocolate

- Shine
- Snap
- Contraction (releases well from a mould)
- Higher melting point
- Strength
- Fast crystallisation



Characteristics of Non-Tempered Chocolate

- Mottled surface –fat bloom (cocoa butter which has come out of stable form)
- Crumbly
- No contraction (gets stuck in mould)
- Low melting point
- Weak – eg not good for joining parts of a showpiece together
- Slow to crystallise



There are only a few circumstances where chocolate is best not to be tempered, for example, when footing a slab ganache since it is best not to be too crisp, especially when using a guitar cutter.

Likewise, if a job doesn't need a hard crystallisation (and is not visible) when many individual items are being tackled at once, chocolate would be better non-tempered therefore slower to set up, and give more time to finish the job. Chocolate for cake fillings or other applications where it is being added to other ingredients doesn't need to be tempered.

There are various chocolate flavoured coatings available on the market which are not real chocolate, and have vegetable oil instead of cocoa butter, which do not need to be tempered, but of course they do not have the quality, flavour and texture of real chocolate. These cannot be called chocolate by law.

MICROWAVE TEMPERING – as used in the tutorial

Microwave tempering is effectively making the chocolate fluid enough to use without taking it out of temper! For home tempering and small jobs, I've found this is the most straight forward least time consuming method without having to invest in expensive equipment. It is hard to temper very small amounts of chocolate, so it is best work with over 300g. For casting a mould, use 500g, for capping a mould use 300g. More tempering methods will be covered over time.

Equipment and Ingredients Needed

- Plastic bowl (make sure it is very dry and free of condensation – humidity can cause chocolate to seize)
- Plastic Spatula
- Microwave oven (doesn't matter which wattage the microwave is, work on the highest setting)
- A digital temperature probe (not essential with this method, but still handy for the final reading)
- A table knife, piece of parchment or palette knife to check temper
- Over 300g of dark, milk or white chocolate couverture in droplet/Callet form

Method

1. Place the chocolate couverture in to a dry plastic bowl, and place in the microwave for a 20 – 30 seconds at a time on full heat. Check and stir frequently. Lessen the time in the microwave as you go so it does not become fully liquid. We are aiming to have more than half the chocolate in liquid form, but still with chunks of chocolate in it too. Make sure no moisture gets into it (the reason we are not using bowl over water bain mairie).
2. Once it is semi liquid, and still has chunks of chocolate in it, remove from the microwave, and stir until the chunks melt in VERY gradually. If the melted mass has been heated too much, the chunks will melt too quickly and destroy the temper (you'd require to follow the full seeding method to re-temper).
3. If the chocolate is too cool, the chocolate can become over crystallised, and form a solid too quickly. Small bursts in the microwave or using a heat gun can gradually bring this back to a usable consistency (but be careful not to overheat and lose the temper)
4. Only at this stage can a true temperature reading be taken – the working temperature (28- 30°C for milk and white chocolate and 32-34°C for dark chocolate).
5. Check chocolate is tempered with the tip of a knife/palette knife or the edge of a small piece of parchment – dip in and lay aside for 3 minutes – if the chocolate 'sets up' ie. starts to solidify without streaks in that time, it is a good indication that it is tempered.
6. The chocolate should be used straight away, or put in to a chocolate holding unit to keep it at the correct working temperature. A few seconds now and again in the microwave however is another way to keep it workable for a short time.

TEMPERATURE AND HUMIDITY CONTROL

Appropriate working environment is crucial in chocolate making. Humidity and temperature are the main factors to be controlled. Always have a temperature and humidity gauge in your work area and adjust environment as needed.

Temperature

Working area/room temperature: 18–20°C

Cooling area: normal fridge, for short spells up to 15 minutes only, 3–5°C

Cooling area: main chocolate fridge or wine fridge 14–16°C for longer cooling times

Storage area for solid chocolate items: 14–20°C

Storage for ganache filled items: ideally 14–16°C, but can be higher (shorter shelf life)

Ideally, less than 10°C difference in working room temp and cooling environment is required

Humidity

Work area 50–65%

Chocolate fridge for cooling area and storage 45–50%

Temperature Related Problems

- The obvious one – too warm - solid chocolate melts and comes out of temper, or melted chocolate doesn't temper at all – so fat bloom forms.
- Too cold – while working with choc, it crystallises too quickly so castings are too thick, piping chocolate can get air pockets in it, transfer sheet designs don't adhere, and ganache doesn't flow and settle in cavities. Can cause condensation when chocolate gets too cold and borrough in to warmer working temperature– see humidity section below
- If hand dipped ganache squares or hand rolled truffles are too cold, the coating chocolate can contract too quickly and cause cracking. It can also cause softer fillings to squeeze out of weak spots, again as the chocolate contracts. The ganache in these cases should be a stable texture at room temperature before dipping. The coating chocolate can also cool to quickly if cold truffles are dipped in it.

Humidity Related Problems

- Sugar bloom forms – the moisture dissolves the sugar in the chocolate, then as it dries, the sugar crystallises on the surface of the chocolate, creating a grey layer.
- Chocolate seizes – when humidity is combined in to liquid melted chocolate, it makes the cocoa molecules swell and the chocolate seizes in to a thick mass. Chocolate that has seized cannot be use or tempering, but hot water or cream, can be added to make it in to a chocolate sauce or hot chocolate drink. Always make sure your equipment is bone dry. If the workroom in general is humid, you may find that the chocolate is thicker than usual, even if not completely seized.
- Shelf life - if humidity is on the outer surface of ganache (ie, moisture on the surface of a hand rolled truffle before dipping) is encased in the coated chocolates, it can offer conditions suitable for microbial growth. Moisture on a truffle can also contaminate the dipping chocolate leading to unwanted thickening and conditions for bacterial growth.

CASTING MOULDS

Casting moulds is quite a skill in itself, and there are many factors which can affect the quality of the casting. Practice makes perfect as they say! Because chocolate has a long shelf life, several months to a year, moulds can be cast well in advance and stored until needed – make good use of time and cast several at a time for later use.

I always use either polycarbonate moulds or magnetic moulds (these range in price from around £20 for polycarbonate to £50 for magnetic per mould).

There are many silicone moulds on the market; I find them useful only on occasions where shallow solid chocolate shapes are needed. Because silicone moulds are not rigid, they are not suitable to cast for filled chocolates, they don't give such a pristine shine and silicone is an insulator compared to polycarbonate, so it retains heat, which we don't want.

Polycarbonate moulds are usually either white or clear. Some people like the clear ones so they can see if there are any air bubbles in the casting and if the chocolate has contracted before turning them out.

Magnetic moulds have a metal plate that magnetically sticks to the polycarbonate part to form the 'top' of the chocolates, so enables a decorative cocoa butter transfer sheet to be placed inside, which, when the chocolates have been turned out, have the design/pattern visible on top.

You'll find that even although a cast mould doesn't actually hold much chocolate (since just a thin layer of chocolate is in each of the cavities), you'll need to work with a lot more since the mould is initially filled to the top with chocolate before the excess is poured out again to create the space for the filling.

The ideal temperature of the work area should be around 18-20°C, that's warmer than you'd expect I'm sure. If the room is too cold, the chocolate sets up too quickly and can cause casings to be too thick. If too warm and in direct sunlight, the chocolate wouldn't set and contract as well as it should.

The moulds themselves can be warmed SLIGHTLY (mould should be 17-20°C) with a heat gun before casting; this prevents the chocolate setting up too quickly and takes the chill off them if they have been stored in a cool place.

Some moulds have very intricate designs inside them, which look very attractive, but when cast (especially with thick or chocolate that is setting up rapidly) they can capture air bubbles in the design, so bear this in mind when buying moulds. If you have any moulds like this or want to use one, to make air bubbles less likely, warm the tempered chocolate by a couple of degrees (but not so much it becomes non-tempered), or use a more fluid chocolate couverture.

The Callebaut range have a 'drip' rating, so chocolates of 3 or 4 drip ratings are the best fluidity for casting moulds. Alternatively, you can add extra cocoa butter to your chocolate (5% of total weight you are using) before tempering it – this makes it more fluid to use, so is more likely to fill intricate designs and give a nice cast.

The moulds can be dusted with edible metallic powders, airbrushed, or given a splattered or marble effect using coloured cocoa butter, so the options for decoration are plentiful! More on that in the future!

Equipment and Ingredients Needed for Casting

- Tempered chocolate couverture – at least 500g if casting one mould
- Polycarbonate or magnetic chocolate mould
- Heat gun
- Ladle (or dispenser fitting for tempering machine – not essential though)
- Small cranked palette knife
- Chocolate scraper
- Tray to pour excess chocolate on to, if top of the tempering machine or bowl is smaller than the size of the chocolate mould



Method

1. If mould is cold, give a quick waft from a heat gun to warm very slightly.
2. Hold mould in your least dominant hand, and ladle chocolate on to the centre of the chocolate mould, enough so that all the cavities will fill.
3. Use small palette knife to paddle the chocolate over the whole mould, making sure all the cavities are full to the brim, and quickly (not necessarily neatly) scrape the excess off in to the bowl/machine. Give the mould several knocks on the worktop (I use rather vigorous rocking movement of the mould against the worktop) to get rid of any air bubbles; you'll see them rise to the surface. Some chocolatiers use a vibrating table at this stage.
4. Immediately and swiftly turn the mould upside down over the bowl or tempering machine (or over a tray if the mould is bigger than the bowl or machine) and knock the side of the mould with the handle of your scraper so that as much chocolate as possible comes out of the mould. Keep the mould inverted, and use your scraper to scrape along the underside of the mould to take off excess chocolate. Use the edge of the bowl, tray or bowl of tempering machine to scrape the excess choc off the scraper, and run the scraper on the underside of mould to neaten. Turn the mould the right way up to check the quality of the cast, then I usually place the mould on its narrow side so that as the choc sets up, air can circulate well. If you've been careful about getting as much chocolate as possible out of the mould, then the chocolate shouldn't pool when the mould is on its side.
5. As you begin to see the chocolate set up at room temperature, place in a normal fridge for 5 minutes to start the all-important contraction, then keep at cool room temperature until required.
6. The mould is now ready to be filled with ganache, but as I've said, there's no need to fill straight away. Wrap cast mould in cling film and keep handy for when needed, several weeks is fine! Make sure it is kept at room or cool room temperature away from strong smells and humidity.

TOP TIP – if you have a small tempering machine which has a smaller diameter than the mould, you can cast half of the mould, empty out the excess, wait for it to just semi set (not fully contract or you'll have problems!), then cast the other half. This saves having to empty the chocolate on to a tray or parchment then scraping back in to the machine.

GANACHE

Essentially, a ganache made with liquid and chocolate is a 'fat in water' emulsion – the liquid can be cream, water, alcohol, or an infusion in a liquid to impart flavour. It can be used to fill premade chocolate shells or cast moulds, it can be made into a slab to be cut up and hand dipped, it can be piped, or hand rolled to make truffles. Not forgetting it is great for a quick chocolate sauce or for use on patisserie!

Butter ganache however, because of the lower water content and higher fat content, is a water in fat emulsion. It is usually piped on to discs and coated in chocolate or set in a slab, cut and dipped. We'll cover that in the future!



As you'd expect, the more chocolate there is as compared to liquid, the firmer the ganache will be. The use of different base chocolates and cocoa solid contents create different textured filled chocolates. Bear in mind that my ganache recipes use specifically white, milk or dark chocolate (or a combination), so changing to a different colour of chocolate will affect the final consistency. Make sure, if you are changing them, you experiment first.

The general method for making cream/water ganache

- Weigh the chocolate pieces/Callets in to a plastic bowl,
- Heat the liquid to boiling point (I like to use a pan on the stove best – as opposed to a microwave- so I can see exactly when it comes to the boil). Too cool a liquid or too much evaporation can cause problems! The liquid should be at 85°C – if making a small amount of ganache, because the surface area of the liquid is large, it cools very quickly, so if making the quantities in these recipes, bring liquid to the boil and pour immediately over the chocolate. If however you are making large amounts, test the liquid (it has a smaller surface area per volume) temperature after bringing to boil, with a probe thermometer and leave to cool to 85°C before adding to chocolate in the bowl. This enables the ganache to be 'tempered', where the crystals stay in the correct form which prevents the ganache from becoming brittle and crumbly.
- Sometimes the hot liquid will not melt all the chocolate, so what you can do is warm it in very SHORT blasts on full heat in the microwave to encourage the last bits of chocolate to melt. It is very important that you don't over heat it at this stage as the ganache will become untampered and when it sets, it will not be a smooth texture, so you only want the last bits of chocolate to slowly melt in while you mix it.
- Add any butter in the recipe next, to slowly emulsify in to the ganache (ideally at 33°C to avoid the ganache texture altering when it sets).
- Lastly add any alcohol (unless it has been used to make the initial ganache), oils or other flavourings, depending on the recipe.
- For piping into spheres or cast moulds, the ganache should be at a maximum of 28°C. It sometimes depends upon the texture of the ganache too though, so a very liquid ganache could be piped cooler, but a thicker ganache will be too hard to pipe without causing problems at lower temperatures. If it is too warm, it may melt the chocolate spheres or casings, or take them out of temper. Use disposable piping bags for piping - for ease of filling, support your piping bag in a tumbler with the top folded down. If your ganache is very liquid, cut a very small amount off the end of the bag, and if thick, a bigger hole will be required. You will have better control this way. A clever way to get as much out of the piping bag as possible (always annoying when you get nearly to the end of a mould or cast shells and you need one more filling!), is to flatten the bag down on the worktop and use a plastic scraper to push the ganache down to the end...you'll be surprised how much is in there!

SHELF LIFE OF CHOCOLATES

Shelf life of filled chocolates varies depending on the recipe, ingredients used, processing/storage environment, and hygiene.

The recipes I have online and teach on the courses often use glucose and butter to lower the 'water activity' (Aw). Water activity refers to the amount of water available/free in a foodstuff that bacteria, yeast and moulds can use to grow and multiply (it doesn't however refer to actual water content – ganache contains water, but it is how it is bound with the other ingredients that matters). If we add butter, glucose, alcohol, invert sugar, citric acid, sorbitol and preservatives such as Potassium Sorbate (the balance of chocolate itself within a recipe contributes too), this lengthens shelf life by making the water less available to micro-organisms for growth.

Many people think (understandably) that since ganache contains cream, which has a short shelf life itself, the chocolates will only last as long as the 'use by' date on the cream, but this is not the case. The chocolate and other ingredients mentioned above, bind the water contained in the cream and makes it less available for microbial growth. **Therefore, the chocolates I make often have a 'best before' date of 3-4 weeks at cool room temperature (depending on storage, ingredients and processing).**

It is very often the flavours that will be affected first rather than there being, for example, mould growing, but micro-organisms can cause illness, so care must be taken at all times.

Longer shelf life chocolates, often bought in supermarkets for example, are more likely to contain preservatives such as potassium sorbate and higher levels of sugars, sorbitol and other humectants (water binding/holding products), which can affect flavour. Some people can have sensitivities to them too. You may detect in some cases that the favours are sweeter and more artificial as compared to artisan shorter shelf life chocolates. They will also have been processed and packaged in completely controlled environments (oxygen, nitrogen, humidity, temperature levels), this enables shelf life to be determined far more easily with use of water activity meters due to the fact that all the other variables are always the same.

Because air carries moisture and micro-organisms, it is important to seal chocolates well (eg. capping moulded chocolates so there are no holes for air to get in and also make sure when piping ganache, especially into hollow spheres, that there are no air pockets inside which could lead to spoilage of the ganache. This leads back to the importance of fluidity of ganache for piping - thick, non-flowing ganache is very likely to have air pockets).

Hygiene is a factor in shelf life, so all equipment must be very clean and appropriately cared for, ingredients should be from a reputable supplier or producer with high standards of hygiene and food handlers must abide by personal hygiene rules to minimise the risk of introducing microorganisms which can multiply and cause deterioration of the product and/or illness.

STORAGE

Handmade chocolates are best stored at 14-16C, in a chocolate fridge, but I realise that many won't own a chocolate fridge! Normal fridges are too cold, see the previous temperature and humidity section.

So, a wine fridge which sits at around 14C is great, then next best is cool room temperature.

Air-tight or not? Because of the humidity control in my chocolate fridge, some of my chocolates store best not in an airtight container, but if for example a wine fridge has no humidity control, I recommend storing in airtight containers. For artisan chocolates, their presentation boxes will not be airtight which is fine as they are not expected to last for months on end anyway, like a fully sealed commercial brand.

Chocolates can be scuffed or marked easily, so handle carefully (with disposable gloves) and avoid stacking them up.

PRICING OF CHOCOLATES

There are so many factors which affect selling price of filled chocolates. They can be sold in weight or per item, per box or bag depending on your circumstances. As you can see from the below list of expenses, it is a huge challenge to cover costs, never mind making a profit! Everybody's situation is different, so the costings would be unique to you.

If chocolate production is going to be focused on entirely, high volumes of popular flavours would need to be sold continuously. I've chosen to mix some chocolate production with patisserie and chocolate tuition and naked and semi naked wedding cakes. As a rough guide, I currently sell my assortments for the following: box of 6 for £7.50, box of 12 for £14 and box of 24 for £28.

Location and competition play a huge role in costing and often is a leading factor. And obviously initial outlay for equipment

Fixed overheads which should be taken in to consideration are for example:

- rent/mortgage of premises or home if a home business
- rates/council tax
- insurances – liability, employment,
- salaries
- fixed utilities – eg, fixed water/waste charges
- advertising – website, subscriptions
- vehicle expenses and insurance

Variable expenses also to be accounted for, for example:

- variable utilities bills – heating, gas, electric, phone
- cost of ingredients and disposables (eg piping bags, parchment, guitar sheets)
- packaging is a significant cost which is often overlooked in costing
- chocolate wastage – a lot of chocolate coats all your utensils and bowls even if scraped well, so around 5-10% is washed away. Larger businesses who don't for example clean a machine after each use, and do continuous production, will lose less % than a small business doing on and off chocolate work cleaning bowls and machines out on a regular basis.
- wages
- variable utilities – eg heating, cooking, lighting
- travel/fuel

As a side note, packaging often comes flat packed, so requires a lot of time to assemble and label (although take up less space to store), so do take this in to consideration. Fully made up boxes are more expensive, take up more storage space, but then your time working on them is reduced.

Labelling

Labelling of chocolates is an intricate subject and must be legally done. Packaging and labelling are a huge element time and cost wise of your creations, and coupled with admin, this ends up at least, if not more, of the time put in to making the chocolates themselves.

The complexities of labelling depend on how you sell your chocolates:

- Loose – people can choose from a presentation cabinet from your shop and are placed in a box or bag in front of the customer
- Pre-packaged for direct sale – people buy a bag or box of sealed chocolates from your shop off the shelf.
- Distance selling – boxes of chocolates sold online or as wholesale via another outlet.

Bespoke orders which have been discussed and ingredients approved in advance with a customer, while they don't carry as many regulations, I certainly wouldn't hand over without allergen information and storage instructions and best before date in case handed to a second party.

Links for info Scotland/UK can be found here, BUT YOU MUST FOLLOW GUIDANCE FOR YOUR OWN COUNTRY AND AREA. Your local trading standards officer and environmental health officer are the services to contact for inspection, information and advice.

<https://www.gov.uk/guidance/food-labelling-loose-foods>

[https://www.foodstandards.gov.scot/downloads/Guidance on the Labelling of Food Sold Prepacked for Direct Sale.pdf](https://www.foodstandards.gov.scot/downloads/Guidance_on_the_Labelling_of_Food_Sold_Prepacked_for_Direct_Sale.pdf)

https://www.food.gov.uk/sites/default/files/media/document/advice-to-businesses-selling-food-online_0.pdf

I hope you found this informative and I look forward to sharing more details in the future!