

# Tempering Chocolate

An excerpt from The Professional Pastry Chef by Bo Friberg



## Tempering Chocolate

To achieve the desired high gloss and hard, brittle texture, and to make the chocolate more resistant to warm temperatures, it is necessary to temper it. The cocoa butter in chocolate consists of many fat groups with melting points that vary between approximately 60°F and 110°F (16°C and 43°C). Cocoa butter actually melts a few degrees below this, but we warm it slightly higher to make sure. The fats that melt at the higher temperature are also the first ones to solidify as the melted chocolate cools. These fats, when distributed throughout, are what give the chocolate its gloss and solidity (a properly tempered chocolate should break with a crisp snap). One might say that these high-melting point fats act as a starting point around which the remaining chocolate solidifies.

There are various methods used to temper chocolate by hand. They all consist of three basic steps: **melting, cooling and rearming**. The more commonly used methods are tabliering and seeding. Many busy chefs today prefer to speed up the process by cooling the chocolate over ice water, referred as the cold water method.

### 3 steps in tempering chocolate:

#### Dark Chocolate

1. Melt & heat to 115°F to 120°F (46°C to 49°C)
2. Cool to 80°F to 82°F (26°C to 28°C)
3. Warm slowly to 87°F to 90°F (30°C to 32°C)

#### Milk or White Chocolate

1. Melt and heat to 110°F to 115°F (43°C to 46°C)
2. Cool to 78°F to 80°F (25°C to 26°C)
3. Warm slowly to 85°F to 87°F (29°C to 30°C)

## Tabliering Method

1. Cut the chocolate into small pieces ( a serrated knife works great for this) and place it in a bowl over hot water to melt. Stir it constantly to avoid overheating or burning; this is especially important if you are working with milk chocolate, which tends to get lumpy if over heated.

***Stirring is essential when melting white chocolate, which can become grainy and useless very quickly.***

To completely melt all of the fats, heat the chocolate between 115°F and 120°F (46°C to 49°C) for dark chocolate or between 110°F and 115°F (43°C and 46°C) for milk or white chocolates.

2. Cool the melted chocolate to approximately 95°F (34°C) by removing it from the heat (continue to stir as you do this) and pour approx. one-third (or up to two-thirds, if you are more experienced) of it onto a marble slab.



Using a metal spatula in combination with a metal scraper, spread the chocolate out and scrape it back together until it cools and shows signs of thickening (the high-melting-point fats are starting to crystallize) Before the chocolate sets completely, stir it back into the remaining melted chocolate, continuing to stir until it forms a homogeneous mass. Check the temperature.

If it is near 80°F to 82°F (26°C to 28°C), just continue stirring until it reaches that temperature. If it is quite a bit warmer, pour a portion of the chocolate off and repeat the scraping together and cooling process, add this back and test again. When the chocolate is smooth and homogeneous and the temperature registers between 80°F and 82°F (26°C and 28°C) for dark chocolate or 78°F and 80°F (25°C and 26°C) for milk or white chocolate, proceed to the next step.

The chocolate is now too thick to use and must be warmed before it can be utilized. However, there is no point in warming it to the working temperature before you test the temper. To test, dip the corner of a small piece of baking paper into the chocolate. Fold the dipped part of the paper back onto the clean area and let the chocolate cool at a room temperature of 64°F to 68°F (18°C to 20°C). Within 5 minutes, the chocolate should have set to the point that it is not sticky when you pull the folded paper apart and, if scraped with a knife, it should roll up like a chocolate curl. You can expediate the test by placing the paper with chocolate in the refrigerator; the chocolate should break in half with a clean snap after 1 to 2 minutes. If the chocolate passes this test, proceed to warm it as follows. If not, repeat steps 1 and 2.

3. Warm the tempered chocolate slowly over hot water to the correct working temperature: 87°F to 90°F (30°C to 32°C) for dark chocolate and 85°F to 87°F (29°C to 30°C) for milk or white chocolate. If the chocolate is too thick to use for a particular purpose at this temperature, this it by adding a small amount of cocoa butter. Great care must be taken in this final (third) step. If you let the chocolate get just a few degrees above the recommended temperature, too much fat will melt and the chocolate will require a longer time to set. It also will not be as attractive, as part of the fat will separate and show on the surface in the whitish pattern known as *bloom*.

## Seeding

1. Cut the chocolate into pieces and melt over a water bath, as described in the tabling method. Remove the bowl from the heat source and cool to 95°F (34°C), stirring frequently.

2. Stir in grated, shaved or finely chopped chocolate at a rate of 5 to 10 percent of the total weight of the melted chocolate, stirring the seeding chocolate in gradually and waiting until each addition is completely incorporated before adding the next.

### Example regarding the amount of seeding chocolate to use:

For 2 pounds, 8 ounces or 40 ounces (1 kg 135g) melted chocolate, use 2 to 4 ounces (55 to 115 g) seeding chocolate.

3. When the chocolate is perfectly smooth and the temperature has dropped to 88°F to 90°F (30°C to 32°C) for dark chocolate or 85°F to 87°F (29°C to 30°C) for white or milk chocolate, hold the chocolate at this temperature, stirring constantly, for at least 2 minutes. Test as described in Step 2 of the tabling method. The tempered chocolate should be ready go use. When using this method, it is important that the seeding chocolate was originally tempered before it was set up.

## Using a Microwave Oven to Temper Chocolate

A microwave oven can be used to melt the chocolate, as described in “Using Pretempered Chocolate” or it can be used to melt or rewarm chocolate that has not set up completely after it has been tempered using any of the methods discussed in this section. It takes some trial and error to learn what power setting to use and the time required for the amount and type of chocolate you are working with. In all instances, you should start with a low power setting and be careful that the chocolate never exceeds the maximum temperature specified for the particular type of chocolate in each of the methods.

To use a microwave oven, melt the chocolate pellets to the point that approx. two-thirds of the chocolate pellets are melted. Stir the chocolate at room temperature until all the pellets have melted and the chocolate has reached the correct temperature.



## Using Pretempered Chocolate

Because all commercial chocolate is tempered at the factory before packaging and shipping, it is possible to use it without going through any of the tempering procedures described here, provided that you are able to melt and warm the chocolate to its correct working temperature without allowing any part of it to exceed 90°F (32°C) for dark chocolate or 85°F to 87°F (29°C to 30°C) for white or milk chocolate. To achieve this, the water in the bain-marie should not exceed 140°F (60°C) and you must stir the chocolate constantly. Because the part closest to the heat source will always be hotter than the remainder, you must monitor the temperature very closely.

If you have a special thermostatically controlled bain-marie and no need to use the chocolate in a hurry (*this process can take up to 12 hours*), it is also possible to melt pretempered chocolate very slowly and omit the cooling process, provided that the temperature never exceeds the guidelines mentioned above at any time.

When melting pretempered chocolate in a microwave you should use chocolate that is produced by the manufacturer in small pellets or buttons (*also known as pistols or rondos*), and the chocolate must be stirred frequently. It is impossible to chop the chocolate into perfectly even pieces by hand and smaller pieces will overheat before larger pieces are melted.



## Tempering Tips

### Testing the tempered chocolate

Before starting to work with the product, it is always a good idea to check whether or not the chocolate has been tempered correctly, regardless of the method used, see step 2 of the tabling method.

### Warming tempered chocolate

If you are working with tempered chocolate and it starts to cool down and set up, heat it gently, using a hairdryer or a heat gun or add warm melted and tempered chocolate to restabilize the cocoa butter and make the chocolate more fluid. Add the warm chocolate all at once (*estimating what you consider will be enough*), then stir the two together. A natural inclination might be to add a slow stream of chocolate while stirring and to continue to add chocolate until you reach the desired consistency, but adding chocolate slowly will actually *destabilize* the temper.