



Figure 18.6 Tempering procedures.

remain. These are the stable type and act as a template when the chocolate is re-cooled to set it.

Figure 18.6 shows the procedure each type of chocolate must go through to get a good temper. The more non-cocoa fat containing ingredients that are added to the chocolate the harder it is for the cocoa butter to form a network of crystals to hold the solid particles together and the more cooling is required. Whilst each chocolate has a different temperature range, they all behave in a similar fashion.

### 18.7.2 Hand-tempering methods

Several methods can be used to successfully temper chocolate:

#### Slab tempering

Needed:

- A bowl of 500 g of melted chocolate;
- A chocolate thermometer;
- A marble slab;
- A scraper;
- A spoon.

Using this method is ideal for batches of chocolate of at least 500g.

- 1 Melt the chocolate so that all the crystals are broken down, 47°C (118°F) for dark chocolate, 46°C (115°F) for milk chocolate and 45°C (113°F) for white chocolate. Chocolate can be melted in the microwave on a moderate heat or in a bowl over a saucepan of hot water (plastic bowls work most effectively). Use a chocolate thermometer to measure the temperature of the chocolate.

- 2 Pour two-thirds of the bowl of chocolate onto the marble slab, and use the scraper to cool the chocolate down on the marble slab, keep piling it together so that the heat is evenly distributed throughout the chocolate as it cools. The chocolate will become thicker, less glossy and more resistant. This stage cools the chocolate down so it reaches its setting temperature, mixing the chocolate stimulates the crystals to form evenly throughout the chocolate.
- 3 Scrape the chocolate off of the marble slab and place back into the bowl with the remaining, much warmer chocolate. Mix the chocolates together thoroughly, so that the cold chocolate contains the necessary formed crystals but is too cold to work with and the warm chocolate contains heat but lacks the correct crystal structure. By mixing the two together the properties of both are shared to produce a bowl of chocolate with the correct concentration of crystals but enough warmth to make it thin enough to work with.

### Seed tempering

Needed:

- A bowl of 350 g of melted chocolate;
- A bowl of 150 g of finely cut, small chocolate pieces or shavings;
- A chocolate thermometer;
- A wooden spoon;

This method is ideal for larger batches where space is not available for the slab method of chocolate tempering.

- 1 As previously melt the chocolate so that all the crystals are melted, 47°C (118°F) for dark chocolate, 46°C (115°F) for milk chocolate and 45°C (113°F) for white chocolate. Use a chocolate thermometer to measure the temperature.
- 2 Slowly pour a spoonful of the finely cut chocolate pieces in, one at a time. The “seeds” should be thoroughly stirred into the warmer chocolate each time. The cold chocolate contains all the necessary crystals that have melted out of the warm chocolate. By adding them back into the liquid chocolate the whole bowl of chocolate is cooled down. This process needs to continue with spoon full of chocolate until the chocolate starts to thicken and gives a resistance while stirring, at this point the chocolate should be in the region of 26°C (80°F) in temperature. If the desired temperature is reached before all the chocolate has been added then do not add any more. Or if all chocolate is added and it is still too warm, more chocolate must be added to introduce sufficient of the right crystals.
- 3 The chocolate must be gently warmed again by a few degrees to ensure it can be worked most effectively. This can be done easily with a few moments over a pan of hot water or by using a heat gun or hair dryer to gently add enough heat to remove some but not all of the crystals.

The above methods are required if working with chocolate that has bloomed already. The crystal structure is completely removed and then brought back by cooling the chocolate on the marble slab or by adding well crystallised chocolate to seed the melted chocolate.