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Recipes for sponge biscuits

8.1 Introduction

Sponge confections usually make one think of cakes and certainly we are on the borders of biscuits and cakes with these products. However, as they are manufactured by biscuit producers it seems appropriate to include a few examples here.

Sponge products derive their aeration from air contained in a batter which is a foam. The stability of the foam is from egg and the quantity of egg in the recipe is much higher than in any other biscuit product.

If the product is baked to a low moisture content it is hard and has a long shelf-life as for other biscuits. If the sponge is softer, as for example in Jaffa cakes, the composition of the total product should have a water content sufficiently low to preclude mould growth. The moisture-proof wrapping of high moisture sponge products must stop them from drying rather than from picking up moisture from the atmosphere as with other biscuits.

8.2 Recipes for sponge drop biscuits

Recipe no. Type product	121 Langues de Chat	122 sponge drops	123 Jaffa cake	124 Jaffa cake	125 boudoir
flour, weak	100.00	100.00	100.00	100.00	90.32
cornflour					9.68
granulated sugar				56.50	
icing sugar		150.00			
caster sugar	100.00		86.59	43.50	100.00
cane syrup 80%					0.77
glucose syrup 80%			6.95	6.50	
dough fat		70.00			
butter	100.00				
oil			2.57		
SMP		5.00			
fresh egg	80.00	70.00	69.52	97.80	90.30
amm. bic.			0.64		
soda			0.50	1.09	3.23
ACP			0.50		
SAPP				0.54	3.23
salt		1.25		0.06	
glycerine			3.09	2.17	
colour*			0.10	0.10	
Added water	0	25	3	5	0

* This ingredient is not represented by an accurate quantity.

Critical ingredients The quality of the egg is important and it is usual to use either freshly shelled whole eggs or carefully thawed frozen fresh eggs. The egg entrains the air and the batter is then pumped to a depositor. In the more luxurious products such as Langues de Chat the fat contributes greatly to the taste and eating texture so butter is used. The syrups and glycerine are used as humectants to prevent the baked product from drying too much and to maintain a softer eating texture.

Mixing This is usually done in two stages. Firstly, all the ingredients are blended together as a batch operation. This is followed by vigorous beating when air is incorporated to give a lower density. This latter stage is usually achieved as a continuous operation by passing the blended batter through a very high shear mixer inside a water cooled barrel under pressure (for example, an Oakes mixer). Air is injected into the mixer at a given rate and pressure to give a batter density of about 0.88 g/cc at around 19°C. A back pressure valve at the exit of the mixer barrel gives better control of the pressure during mixing.

Dough handling The aerated batter is pumped without delay to the depositing head.

Batter drop forming By intermittent opening of nozzles in the depositing head measured volumes of batter are placed either on a steel oven band or into cavities in steel trays for baking. The pressure drops across the depositing head so nozzle aperture adjustment is necessary to maintain even weights delivered from all the nozzles.

As most sponge batters are low in fat and high in sugar there is a great tendency for the drops to stick firmly to the baking surface during baking. It is therefore necessary to oil or grease the band before depositing the batter. However, as the batter also tends to spread as it gets warm in the oven, before the heat sets the egg proteins, it is necessary to use a band greasing material that not only prevents sticking but also controls the amount of spread. If this critical part of the process is neglected the size and shape of the baked drops are very irregular. The band greasing is therefore usually of a special oil (with or without emulsifier) spread evenly and in a very thin film or a mixture of fat or oil and a cereal like wheat flour or starch which is also spread very evenly. In other cases the film of oil is evenly dusted with a trace of flour before the batter is deposited.

The shape of the drop is determined by the relative speed of the depositor head and the band during the time when the nozzles are open. Thus Jaffa drops are round because the head moves at the same speed as the band and deposits for boudoir consist of long fingers in trays because the head is stationary and the tray moves beneath the head as the nozzles deliver the batter. A dressing of granulated sugar or nut pieces may be dusted over the drops before baking.

Baking Most sponge drops are baked on a normal flat steel oven band.

Boudoir and sponge boats are baked in formed trays which are fed onto chains to be passed through the oven. After baking these trays of product are cooled and then inverted and knocked to release the baked biscuits. Thorough cleaning and regreasing are necessary before reuse.

Bake times are about 7–8 minutes with a temperature profile of 200, 200, 150°C. After leaving the oven the products are soft or delicate. It is necessary to allow them to cool and set before removal from the band. A roller may be used to depress, a little, the tops of the biscuits while they are still hot and thereby control the thickness.

Removal from the band is a critical operation. The biscuits must not be damaged and if a stripping knife is used it may collect messy band dressing materials which will be transferred to the edges of the biscuits and soil them. The use of wire fingers in place of a knife is recommended.

The oven band must be well cleaned before returning to be regreased and receiving new drops of batter.

Boudoir biscuits are also known as lady fingers, savoirdi and champagne biscuits.