



Aromatic

A brand by Bakels

Aromatic Booklet

AN INDUSTRIAL CAKE MANUFACTURING GUIDE

 **BAKELS**

BAKERY INGREDIENTS SINCE 1904

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BASICS

CAKE QUALITY

Cake quality is defined by a number of parameters: **Volume** • **Texture** • **Shelf life**.

VOLUME
TEXTURE
SHELF LIFE

In order to understand how these parameters can be optimally improved it is necessary to take a closer look at the cake batter (microstructure) and how it changes during manufacturing.

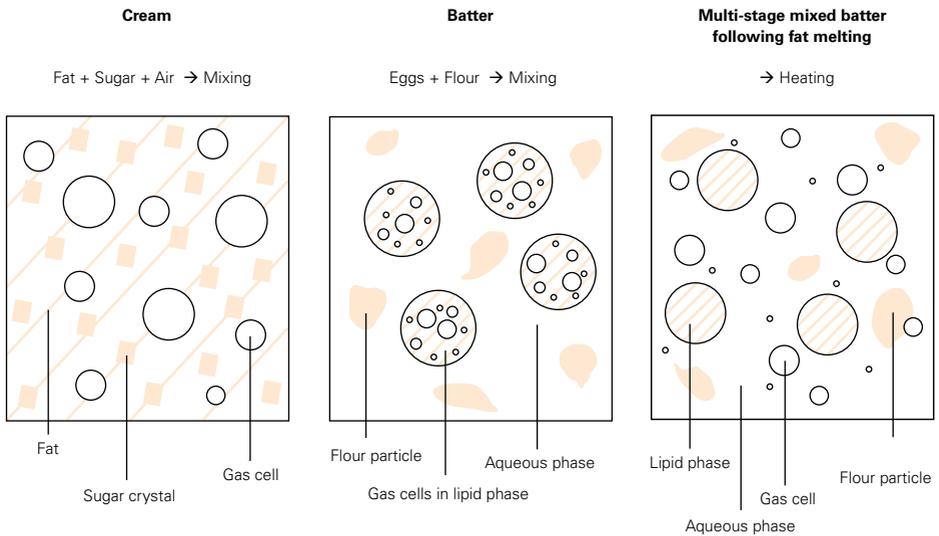


MICROSTRUCTURE OF A CAKE

The cake baking process consists of three important stages: **Whipping** • **Baking** • **Storage**.



WHIPPING



After mixing all ingredients together, the cake batter is whipped to incorporate air. The cake batter is now an aerated emulsion of a fat in an aqueous phase.

In high fat batters, the air is included into the fat phase, which in turn is dispersed in the water phase. In low/no fat batters like sponge cakes the air is incorporated directly into the aqueous phase.

The number and size of the air bubbles in the batter have a strong influence on the volume and final texture. For an optimal texture and volume the bubbles should be evenly distributed and stable to prevent from coalescence. Further, improving the batter viscosity retards bubble movement, which also contributes to stability and therefore improves volume and texture.



BAKING

During the baking stage the batter temperature rises, and the liquid emulsion phase is transformed. In high fat batters the shortening melts and the air migrates into the water phase. To achieve an optimal texture it is important, that the shortening gets finely dispersed in the water phase and does not coalesce. The viscosity of the mass changes and the air bubbles start to expand.

For an optimal volume the stability of the bubbles and a uniform expansion are crucial. Finally, moisture is lost and the internal and external cake structures are set.

STORAGE

During storage, the cake structure undergoes changes due to a number of processes known as staling. One of these processes is starch retrogradation where the amylose and amylopectin molecules of gelatinised starch realign themselves causing recrystallization. As a result the starch partially releases the physically bound water and the texture of the cake significantly changes by means of softness and moistness.

Further, as moisture evaporates the cake again loses softness and moistness. Finally yet importantly mould growth can occur over time which makes the cake unfit for consumption. The shelf life of a cake can be strongly improved by slowing down or preventing the above-mentioned effects.

CAKE GELS

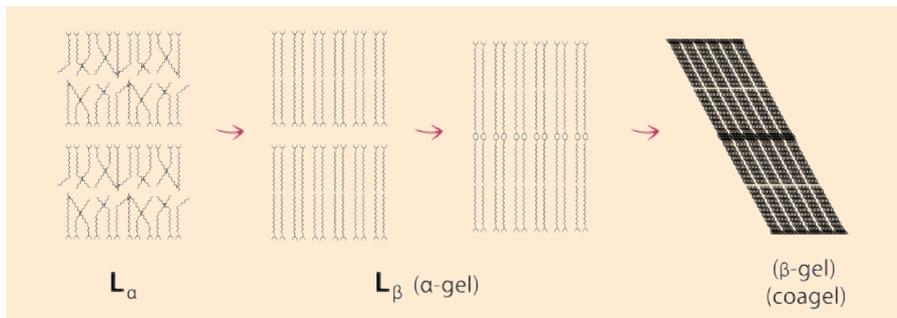
MAIN APPLICATION

Cake Gels are mainly used to produce cakes with a high volume and improved freshness, while ensuring a highly stable product, a reliable production, and a consistent baking quality.

COMPOSITION

The Aromatic Cake Gels are specific monoglyceride-based emulsifiers (E471) in alpha-form, which means that they build a sandwich structure of alternating surfactant and aqueous layers, a so-called alpha gel phase. This alpha form is highly functional as it is really flexible and rearranges easily during heating.

However, alpha gels are unstable and to prevent them from changing their structure complementary emulsifiers like PGE (E475) or PGMS (E477) are added. These have the potential to preserve the alpha stability and also bring further advantages to achieve an optimal cake quality.



Mechanism of formation of the crystalline monoglyceride emulsion droplet walls, from the hydrated lamellar (L_α) phase above the Krafft (i.e., chain-melting) temperature of the monoglyceride, to an L_β phase (the "alpha-gel"), to a dehydrated L_β phase, and eventually to an anhydrous crystalline phase.

GENERAL BENEFITS OF A CAKE GEL

WHIPPING

The advantage of using a Cake Gel instead of a powder-based emulsifier is that the gel is easier to mix with the remaining ingredients in the recipe. The gel activates immediately and all ingredients can be added at the same time according to the all-in-one method. Therefore, the mixing time can be reduced.

Cake Gels have an outstanding aeration potential, which strongly favours the production of a large number of small, uniform, and stable air bubbles. As a result, the crumb structure is finer which leads to a good texture.

BAKING

Cake Gels form flexible and protective films around the dispersed phase (air and oil) and preserve the emulsion. Due to this protective film the stability of the emulsion and the batter viscosity are maintained during the baking process. Further, the air bubbles are stabilised and they expand uniformly which results in a good volume.

STORAGE

The Cake Gel interacts with the starch and delays starch retrogradation. As a result, the process of staling is delayed and therefore the shelf life and freshness are improved.

DOSAGE ON BATTER WEIGHT

0.5 – 2%

PRODUCT RANGE - CAKE GELS

AROMATIC JILK

Aromatic Jilk is a versatile Cake Gel that is suitable for craft bakeries due to its convenient packaging and durability when used regularly. It promotes volume, stability, and contributes to a more flexible baking process. It is ideal for all kinds of baking powder-based products and particularly suitable for open mixing machines.

AROMATIC JILK 60

Aromatic Jilk 60 is a premium Cake Gel for outstanding volume, stability and production reliability. It is ideal for the use within industrial production of all varieties of soft cake and it is particularly developed for warm climates.

AROMATIC COLCO

Aromatic Colco is a premium Cake Gel for outstanding volume and stability while at the same time contributing to a more secure and flexible production process. It is ideal for the industrial production of all types of soft cakes that use baking powder. Aromatic Colco is the most concentrated emulsifier in the Cake Gel range, producing excellent results with lower doses. Also discover Colco Mono which contain only one e-number that needs to be declared.

EMULSIONS

MAIN APPLICATION

Emulsions specifically target the ageing process in cake products to retain freshness and softness throughout the shelf life.

COMPOSITION

In addition to their primary functions of forming and stabilising emulsions, food emulsifiers can provide further functionalities. The Bakels Emulsions are composed of water, oil and specific emulsifiers (E471, E481).

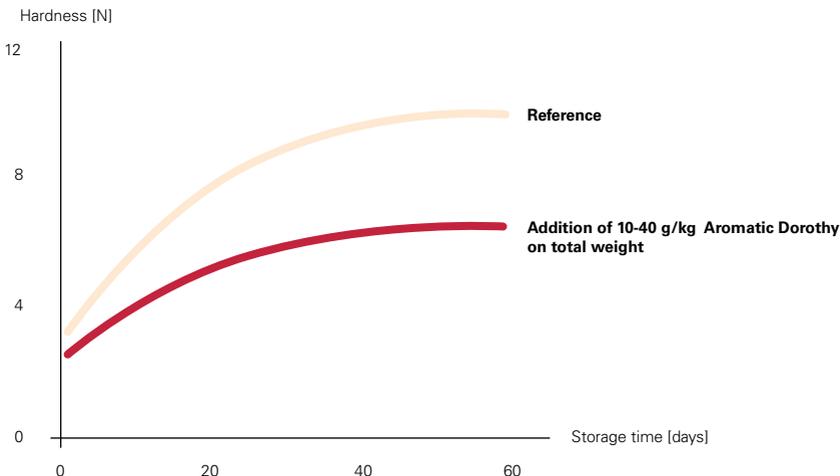
Aromatic Emulsions are developed to form a complex with starch through the incorporation of the fatty acid into the amylose helix, thus preventing starch retrogradation and staling. As a result, the ageing process can be slowed down and softness, tenderness and moistness can be retained throughout the shelf life.

GENERAL BENEFITS OF AROMATIC EMULSIONS

MIXING/WHIPPING

The Emulsion helps to reduce the overall size of the air bubbles in the batter and improves their stability also during baking.

AROMATIC DOROTHY PUT TO TEST



BAKING

The small, stabilised, and evenly distributed air bubbles result in a very tender, fine and uniform cake texture during baking. The finer texture favours also a brighter crumb.

STORAGE

The Emulsions interact with the starch and delay starch retrogradation. As a result, the staling process is slowed down and the shelf life, freshness, and moisture retention are improved. Therefore, the softness of the baked good is improved, especially over time and the eating quality is significantly better.

DOSAGE ON BATTER WEIGHT

1 – 3%

PRODUCT RANGE - CAKE IMPROVERS

AROMATIC DOROTHY

Aromatic Dorothy is our classic Cake Improver Emulsion, which maintains the softness and freshness in soft cakes during storage. It is suitable for all types of baking powder-based cakes regardless of their fat content. It can also be used in combination with a Cake Gel.

AROMATIC AROSOFT CAKE

Aromatic Arosoft Cake is a premium all-round Cake Improver Emulsion, explicitly targeting the ageing process in cake products to retain freshness and especially softness throughout the shelf-life. It is particularly effective in baking powder-based products with high-fat content such as pound cake and muffins.

SHELF LIFE EXTENDERS

MAIN APPLICATION

Our liquid Shelf Life Extenders are used to prevent antimicrobial growth and therefore prolong the shelf life of your products.

COMPOSITION

Mould occurs almost everywhere and spreads easily through the air, therefore products quickly get contaminated and it is important to inhibit mould growth especially if the product is stored over a longer time period. The key factors influencing mould growth are the availability of nutrients, temperature, the available water (a_w), and the pH value.

Since baked goods always provide sufficient nutrients and mould growth can occur between -10 °C and 60 °C it's crucial to control the water activity and pH. Mould can hardly grow if the water activity is lowered below 0.78. However, in many cake recipes it is not possible to lower the a_w below 0.78 without affecting the eating quality i.e. the softness and moistness.

Consequently, the pH has to be lowered and as an additional hurdle, preservatives are frequently used to further prevent mould growth. It is important to mention that preservatives need a certain pH in order to develop their antimicrobial effect. If the pH in the product is not low enough, the preservative will have little or no effect on microorganisms.

FUNCTIONAL INGREDIENTS

The Aromatic Shelf Life Extenders are liquid and contain a combination of functional ingredients making them to powerful shelf life improver systems that keep cakes fresh and protect them against mould growth.

- **To control water activity:** mainly glycerol (E422) or propylene glycol (E1520).
- **To lower the pH:** sodium diacetate (E262b / E262ii) or a combination of sodium acetate (E262i) and acetic acid (E260), sorbic acid (E200).
- **Preservative with antimicrobial effect:** sodium propionate (E281), potassium sorbate (E202), calcium propionate (E282), sorbic acid (E200).

Additionally, the Aromatic Shelf Life Extender contains flavours for great taste.



GENERAL BENEFITS OF AROMATIC SHELF LIFE EXTENDERS

MIXING/WHIPPING

The Shelf Life Extenders can be added together with other liquid ingredients such as egg, water, oil etc. They are very easily dispersible and only a small amount is needed.

BAKING

Aromatic Shelf Life Extenders have a slight influence on the colour of the product but not on volume or texture.

STORAGE

Aromatic Shelf Life Extenders enables a longer shelf life of cakes up to 6-12 month. They control the water activity and pH, which in combination with highly effective preservatives inhibits mould growth and ensures the microbiological safety of the product. Further, they help to retain the moisture and keep the product soft and moist during long storage periods.

DOSAGE ON BATTER WEIGHT

1 – 2%

PRODUCT RANGE - SHELF LIFE EXTENDERS

AROMATIC K-LINE: K2000, K3000, K6000

The Aromatic K-Line contains no preservatives (except for K2000 that contains propylene glycol whose application quantity is therefore limited in the EU and Switzerland). The K-Line products exhibit a rather low pH of 5-6 that favours the antimicrobial effect.

K2000

- Contains preservatives
- Limited use in EU and CH as it contains propylene glycol

K3000

- No preservatives
- Less strong than K6000

K6000

- No preservatives
- Stronger than K3000

AROMATIC GL-LINE: GL22, GL24, GL 24 SPECIAL

The Aromatic GL-Line contains preservatives that add an extra hurdle for microbial growth. The products themselves exhibit a rather high pH and therefore it is advisable to use citric acid to lower the pH in the final product as the preservatives need a low pH to be effective. Target pH in the cake should be between 6.0 and 6.8, depending on application and total shelf life.

GL22

- Only effective at pH < 7
- Can be used with good effect in bread.

GL24

- Only effective at pH < 7

GL24 SPECIAL

- Only effective at pH < 7
- Has a lower pH than the other GL products
- Limited use in EU and CH as it contains propylene glycol

AROMATIC AROFLAVE VANILLA

Aroflave Vanilla is a combination of K2000 and real vanilla flavour to mask any undesired, chemical taste caused by the use of preservatives. Aroflave Vanilla can also be used in combination with the Aromatic GL-Line to get maximum mould protection and a very good eating quality due to the vanilla taste.

Aromatic

TOP-CLASS FLAVOURS

You will find a wide range of high quality flavours, in a number of different compositions. Our flavours are created with the goal of giving the consumer a taste experience beyond the ordinary.

The raw materials for our flavours come from around the world, always with the highest standard, for a great quality product. In our production, certain raw materials are refined further to give the product a greater taste. The quality of production is carefully monitored both during and after the manufacturing process.

*Produced
in Sweden.
Sold worldwide.*



Baking problems SOLVED BY AROMATIC SOLUTIONS

SPONGE CAKE AS LAYER CAKE

A sponge cake is a light cake made with eggs, flour and sugar. Usually, it is leavened with beaten eggs, optionally baking powder can be used.

CRAFT BAKERY

Issue

Long mixing time of 8-10 min when working with powder mixes.



Solution

By adding 1-3% **Aromatic Jilk** the mixing time can be reduced from 8 min to 3-4 min.

High costs because a cake mix is used.



By using **Aromatic Jilk** the recipe can be easily made from scratch which lowers the ingredient costs. A standard sponge cake recipe can be found below.

SPONGE CAKE – A typical craft recipe

Ingredients	%	Method
Egg	32.7	All-in-one method.
Water	6.36	Mix for 2-3 min at highest speed.
<u>Aromatic Jilk</u>	1.82	Fill 550 g into a 24 cm ring or 350 g in a 20 cm ring.
Sugar	28.16	
Wheat flour	26.34	Baking temperature: 210-200 °C, draught open.
Potato starch	4	
Baking powder	0.36	Baking time: 25-30 min.
Salt	0.27	

INDUSTRY

Issue

High costs due to a high egg content.



Solution

By adding 1-2% **Aromatic Jilk 60** or **Aromatic Colco** the egg content can be reduced by 10-20%.

Not enough aeration and too high specific gravity.



By adding 1-2% **Aromatic Jilk 60** or **Aromatic Colco** the aeration can be significantly improved which results in an optimal specific gravity.

The sponge cake is not soft or fresh enough.



By adding 1-3% **Aromatic Dorothy** or **Aromatic Arosoft Cake** the sponge cake becomes softer and will stay fresh for much longer.

The cake volume or layer height is too low after baking.



Adjust the oven profile and checking the density of the cake batter.

The cake is too dry after baking (moisture content < 18%).



By increasing the oven temperature the baking time can be reduced and the cake tends to dry out less. Further 1-2% **Aromatic K2000** or **Aromatic Dorothy** can be added to the recipe, which both are binding water, preventing the cake from getting dry fast.

The sponge cake exhibits an undesired chemical taste.



By adding 1.5-2% **Aromatic Aroflave Vanilla** the chemical taste can be masked and the sorbates and citric acid can be reduced.

The shelf life (mould-free period) is too short.



By adding a Shelf Life Extenders from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24, GL24 Special, K6000, K2000, Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

LAYER CAKE CHOCOLATE – A typical industrial recipe

Ingredients	%	Method
Wheat flour	24.26	Mix for 3-4 min at high speed all ingredients except of wheat flour, corn starch, cocoa powder and baking powder components.
Cocoa powder 420 dp11	2.85	
Citric acid	0.16	Add flour, starch, cocoa powder and baking powder and mix for 2-3 min at medium to high speed.
Eggs	18	
<u>Aromatic Colco</u>	0.98	Continuously pump the aerator/depositor and measure the specific gravity.
Glycerol	1.97	
Glucose syrup	4.33	Specific gravity: 0,75-0,55 depending on line equipment and desired texture.
Potassium sorbate	0.2	
Skimmed milk powder	0.66	Baking temperature: 240-190 °C depending on oven system.
Salt	0.3	
SAPP	0.36	Baking time: 6-10 min.
Sodium bicarbonate	0.26	
Sugar	18.98	Shelf life: 6-9 months.
Xanthan gum	0.02	
Vegetable oil	2.95	
Water	9.18	
Invert Syrup	7.67	
<u>Aromatic Dorothy</u>	1.97	
<u>Aromatic Aroflave Vanilla</u>	1.97	
<u>Aromatic Chocolate Flavour</u>	0.98	
Corn starch	1.97	



SPONGE CAKE AS SWISS ROLL

A sponge cake is a light cake made with eggs, flour and sugar. Usually, it is leavened with beaten eggs, optionally baking powder can be used. A Swiss roll is a type of sponge cake roll filled with whipped cream, jam, or icing.

CRAFT BAKERY

Issue

Long mixing time of 8-10 min when working with powder mixes.



Solution

By adding 0,5-2,0% **Aromatic Jilk 60** the mixing time can be reduced from 8 min to 3 min.

High costs because a cake mix is used.



By using **Aromatic Jilk** the recipe can be easily made from scratch which lowers the ingredient costs. A standard sponge cake recipe can be found below.

The cake breaks when rolled.



By adding gums like xanthan gum or carboxymethyl cellulose (CMC) the flexibility of the cake can be improved.

The cake is not soft enough.



By adding **Aromatic Dorothy**, the softness can be improved.

SWISS ROLL SPONGE CAKE – A typical craft recipe

Ingredients	%	Method
Egg	32.7	All-in-one method.
Water	7.87	Mix for 2-3 min at highest speed.
<u>Aromatic Jilk</u>	1.97	Spread the batter evenly and with a thickness of 6-7 mm.
Sorbitol, liquid	3.94	
Sugar	27.56	Baking:
Wheat flour	26.25	Bake for 4-7 min at 240-250 °C, draught open.
Salt	0.26	

INDUSTRY

Issue

The cake breaks when rolled, lack of flexibility.



Solution

By adding 1-2% milk powder the cake becomes more flexible due to the milk proteins. Further 0,05-0,15% of xanthan gum can be added and the baking time can be reduced to increase the flexibility.

High costs due to a high egg content.



By adding 1-2% **Aromatic Jilk 60** or **Aromatic Colco** the egg content can be reduced by 10-20%.

The sponge cake is not soft or fresh enough.



By adding 0,5% **Aromatic Dorothy** or **Aromatic Arosoft Cake** the sponge cake becomes softer and will stay fresh for much longer.

The cake volume or layer height is too low after baking.



Adjust the oven profile and check the density of the cake batter.

The cake is too dry after baking (moisture content < 18%).



By increasing the oven temperature the baking time can be reduced and the cake tends to dry out less. Further **Aromatic K2000** or **Aromatic Dorothy** can be added to the recipe, both of which the water, preventing the cake from quickly drying out.

The sponge cake exhibits an undesired chemical taste.



By adding 1.5-2% **Aromatic Aroflave Vanilla** the chemical taste can be masked and the sorbates and citric acid can be reduced.

The shelf life (mould-free period) is too short.



By adding a Shelf Life Extenders from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24**, **GL24 Special**, **K6000**, **K2000**, **Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

MINI SWISS ROLLS VANILLA – A typical industrial recipe

Ingredients	%	Method
Wheat flour	25.37	Mix all ingredients except baking powder, starch and flour – for 3 min at medium speed.
Corn starch	2.77	
Citric acid	0.16	Add flour, starch and baking powder. Mix for 2 min at medium speed.
Eggs	20.61	
<u>Aromatic Jilk 60</u>	1.19	Specific gravity: 0,75
Glycerol	0.99	
Glucose	3.17	Baking temperature: 240-190 °C, depending on oven system
<u>Aromatic GL 24 Special</u>	0.99	
Skimmed milk powder	1.59	Baking time: 6-10 min.
Salt	0.24	
Baking powder	0.79	Shelf life: 6 months.
Sugar	21.8	
Xanthan gum	0.12	
Vegetable oil	1.59	
Water	6.34	
Invert Syrup	9.51	
<u>Aromatic Dorothy</u>	0.79	
<u>Aromatic Vanilla Flavour</u>	1.19	



CUPCAKE

A cupcake is a small cake designed to serve one person, which may be baked in a small thin paper or aluminum cup. A standard cupcake uses the same basic ingredients as standard-sized cakes: butter, sugar, eggs and flour. The amount of sugar and butter is higher than in muffins. Further, the cake batter used for cupcakes may be flavoured or have other ingredients stirred in, such as raisins, berries, nuts or chocolate chips.

In comparison to muffins, the cake batter is mixed significantly longer to create a light and fluffy batter with small and uniformly distributed air bubbles throughout the cupcake. The final cupcake has a flat top and is usually decorated with creamy frosting and other cake decorations such as fruit and candy.

CRAFT BAKERY

Issue

Long mixing time of 8-10 min when working with powder mixes.



Solution

By adding **Aromatic Jilk 60**, the mixing time can be reduced from 8 min to 3 min.

High costs because a cake mix is used.



By using **Aromatic Jilk 60** the recipe can be easily made from scratch which lowers the ingredient costs. A standard cupcake recipe can be found below.

CUPCAKE – A typical craft recipe

Ingredients	%	Method
Cake flour	27.33	All-in-one method. Slow speed for 2 min, then fast speed for 2 min. Whipping volume [g/L] 800-850. Scale 40-50 g and bake at 180 °C for approx. 25 min.
Sugar	23.33	
Salt	0.27	
Baking powder	1	
Skimmed milk powder	1	
Eggs	18.67	
Water	6.67	
Butter/vegetable oil	20	
<u>Aromatic Jilk 60</u>	0.67	
<u>Aromatic Vanilla Flavour</u>	1.07	

INDUSTRY

Issue

Solution

High costs due to a high egg content.



By adding **Aromatic Jilk 60** or **Aromatic Colco**, the egg content can be reduced up to 25%.

Not enough aeration.



By adding 1% **Aromatic Jilk 60** or **Aromatic Colco** the aeration can be significantly improved.

The sponge cake is not soft or fresh enough.



By adding **Aromatic Dorothy** or **Aromatic Arosoft Cake** the sponge cake becomes softer and will stay fresh for much longer.

The crumb texture is coarse and not fine or uniform enough as it is desired for a cupcake.



By replacing a part of the flour with starch and by reducing the mixing speed and time to avoid gluten development the texture can be optimized.

The sponge cake exhibits an undesired chemical taste.



By adding 1.5-2% **Aromatic Aroflave Vanilla** the chemical taste can be masked and the sorbates and citric acid can be reduced.

The surface is cracked.



Adjust the oven profile to a lower temperature and/or by decrease the density of the cake batter with the addition of **Aromatic Jilk 60** or **Aromatic Colco**.

The surface is too dark/brown.



Reduce the oven temperature and increase the density of the cake batter.

The cupcake is fragile when releasing from the baking trays.



By adding gums the breakage can be reduced. Further, the fat/oil content can be reduced.

The shelf life (mould-free period) is too short.



By adding a Shelf Life Extenders from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24**, **GL24 Special**, **K6000**, **K2000**, **Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

CUPCAKE VANILLA – A typical industrial recipe

Ingredients	%	Method
Eggs	16.98	Mix all ingredients except oil, baking flour and whey powder – for 4 min at medium speed.
Water	4.99	
Citric acid	0.13	Add oil – mix for 1 min at slow speed.
Glycerol	1	Add flour, baking powder and whey powder. Mix for 2 min at medium speed.
<u>Aromatic GL 24 Special</u>	1	
Sorbitol	1,4	Specific gravity: 0,76-0,84
Oil	17.98	
Invert sugar	0.3	Baking temperature: Convection oven 170 °C Deck oven 210-200 °C
<u>Aromatic Vanilla Flavour</u>	1.2	
<u>Aromatic Jilk 60</u>	1	Baking time: 18-23 min.
Salt	0.3	
Xanthan gum	0.1	Shelf life: 6 months.
Whey powder	3	
Baking powder	0.5	
Cake flour	26.96	
<u>Aromatic Dorothy</u>	1.5	

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needs and requirements.



MUFFIN

A muffin is a cupcake-like quickbread basically made of flour, eggs, butter or vegetable oil and sugar that is chemically leavened and then baked in a mold. The cake batter is mixed slowly and briefly which results in a dense baked good that exhibits a dome after baking. Muffins may have a sugared top or a very thin glaze.

CRAFT BAKERY

Issue

The muffin is not fresh enough to be sold unpacked for 3 days.



Solution

By adding 3-5% **Bakels Arosoft Cake** or 2-4% **Aromatic Dorothy** the freshness can be strongly improved.

High costs because a cake mix is used.



By using **Aromatic Jilk 60** the recipe can be easily made from scratch which lowers the ingredient costs. A standard sponge cake recipe can be found below.

The shelf life (mould-free period) is too short.



By adding a Shelf Life Extenders from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24**, **GL24 Special**, **K6000**, **K2000**, **Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.





MUFFIN – A typical craft recipe

Ingredients	%
Eggs	14.14
Water	10.1
Oil	18.18
Sugar	21.97
<u>Aromatic Vanilla Flavour</u>	1.01
Salt	0.25
Baking powder	1.26
Modified starch	0.76
Wheat flour	27.78
<u>Aromatic Arosoft Cake</u>	4.55

Method

All-in-one method, medium speed for 4 min.

Scale 120-140 g in paper cups.

Bake.

INDUSTRY

Issue

Solution

The muffin has no dome.



Increase the density of the mass. The specific gravity should be approx. 1-1.05.

The texture is not open enough.



Increase the batter viscosity by adding e.g. modified starch, gums, more baking powder. Further, the mixing time and speed can be increased.

The sponge cake is not soft or fresh enough.



By adding **Aromatic Dorothy** or **Aromatic Arosoft Cake**, the sponge cake becomes softer and will stay fresh for much longer.

The muffin is too crumbly.



Add xanthan gum or modified starch.

The chocolate chunks/raisins sink to the bottom.



Add 0.1% xanthan gum or 1.5% modified starch to the mass.

The muffin batter is too much aerated and has a spongy texture.



By mixing the batter slower and shorter. Target specific gravity for a muffin is 0.95-1.10.

The shelf life (mould-free period) is too short.



By adding a Shelf Life Extenders from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24, GL24 Special, K6000, K2000, Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

MUFFIN – A typical industrial recipe

Ingredients	%	Method
Egg	15.41	All-in-one method – mix all ingredients together for 5 min at slow speed.
Sugar	21.47	
Vegetable oil	17.62	Deposit the desired weight in paper cups or muffin trays.
Water	8.26	
Full cream milk powder	0.44	Bake at 215-185 °C for 25-30 min.
Salt	0.28	
Sodium bicarbonate	0.33	
SAPP	0.47	
Glucose syrup	1.65	
Sorbitol	1.10	
Glycerine	1.10	
Potassium sorbate	0.15	
Citric acid	0.19	
Xanthan gum	0.06	
Wheat flour	24.77	
<u>Aromatic Aroflave Vanilla</u>	1.98	
<u>Aromatic Arosoft Cake</u>	2.97	
<u>Aromatic Aropro Butter Flavour</u>	0.10	
Invert syrup	1.65	

POUND CAKE / SLICED CAKE

Pound cake is a type of cake traditionally made with a pound of each of four ingredients: Flour, butter, eggs, and sugar. Pound cakes are generally baked in either a loaf pan or a bundt mold, and served either dusted with powdered sugar, lightly glazed, or sometimes with a coat of icing.

CRAFT BAKERY

Issue

The cake is not fresh enough to be sold unpacked for 3-5 days.



Solution

By adding 3-5% **Aromatic Arosoft Cake** or 2-4% **Aromatic Dorothy** the freshness can be strongly improved.

The shelf life and freshness for packed cakes and single slices is < 3 weeks.



Add **Aromatic K6000** (for EU where the limit for propylene glycol is low) or **Aromatic K2000** (for all markets without limits for propylene glycol).

High costs because a cake mix is used.



By using **Aromatic Jilk 60** the recipe can be easily made from scratch which lowers the ingredient costs. A standard sponge cake recipe can be found on the next page.





LEMON POUND CAKE – A typical craft recipe

Ingredients	%	Method
Wheat flour	24.51	<p>Mix all the ingredients at low speed for 3 min.</p> <p>Whip at medium speed for 1 min.</p> <p>Fill 360 g into each mould.</p> <p>Bake at 185 °C for 30 min, draught closed.</p> <p>Bake at 180 °C for 20 min, draught open.</p>
Sugar	23.65	
Baking powder	0.8.	
Potato starch	3.73	
Skimmed milk powder	0.53	
Salt	0.21	
Egg	16.2	
Water	6.07	
Sunflower oil	15.24	
<u>Aromatic Natural Lemon Flavour</u>	1.86	
<u>Aromatic Arosoft Cake</u>	4.9	
<u>Aromatic Jilk</u>	0.37	
<u>Aromatic K6000</u>	1.92	

INDUSTRY

Issue

Solution

High costs due to a high egg content.



By adding **Aromatic Jilk 60** or **Aromatic Colco**, the egg content can be reduced up to 25%.

The sponge cake is not soft or fresh enough.



By adding **Aromatic Dorothy** or **Aromatic Arosoft Cake** the sponge cake becomes softer and will stay fresh for much longer.

The shelf life (mould-free period) is too short.



By adding a Shelf Life Extender from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24**, **GL24 Special**, **K6000**, **K2000**, **Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

The cake exhibits an undesired chemical taste.



By adding flavours from Aromatic or 1-2% **Aromatic Aroflave Vanilla** the chemical taste can be masked.

The surface of the cake is oily.



By adding **Aromatic Dorothy** or **Aromatic Arosoft Cake**, a part of the oil/fat can be replaced which results in a less oily surface during storage time.

The cake is too crumbly.



Add xanthan gum, modified starch, or carboxymethyl cellulose (CMC).

The crumb texture is coarse and the bubbles are too open.



Replace a part of the flour with starch. Further, **Aromatic Dorothy** can be added.

SLICED CAKE – A typical industrial recipe

Ingredients	%	Method
Wheat Flour	27.20	Add all liquids and powders except of oil, flour and baking powder. Mix for 4 min at medium speed.
Sugar	22.97	
Salt	0.30	Add oil and mix for 1 min at slow speed.
Sodium bicarbonate	0.27	Add flour, baking powder and milk powder. Mix for 2 min at medium speed.
SAPP	0.37	
Skimmed milk powder	0.48	
Xanthan gum	0.06	Specific gravity: 0,87
Fresh eggs	15.71	Scaling: 800 g (53 g per 1 slice).
Water	6.93	Baking temperature: 175 °C
Vegetable oil	14.83	Baking time: 72 min.
Glycerol	1.81	pH: 6,2
Sorbitol	1.81	Water Activity: 0,77
Glucose Syrup	1.45	
Citric acid	0.12	
Potassium sorbate	0.18	
<u>Aromatic Jilk 60</u>	0.30	
<u>Aromatic Dorothy</u>	3.22	
<u>Aromatic Aroflave Vanilla</u>	1.99	

SNACK CAKES

Snack cakes are a type of baked dessert confectionery made with cake, sugar, and icing. Often referred to as donut cake, bear cake or long cake.

INDUSTRY

Issue

The shelf life is < 12 months.



Solution

By adding a Shelf Life Extender from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24, GL24 Special, K6000, K2000, Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

The cake is not soft or fresh enough.



By adding **Aromatic Dorothy** or **Aromatic Arosoft Cake** the cake becomes softer and will stay fresh for longer.

High costs due to a high egg content.



By adding 1-2% **Aromatic Jilk 60** or **Aromatic Colco** the egg content can be reduced by 10-25%.

The cakes break during the release from the trays.



Add gums or modified starch.

The surface of the cake is oily.



By adding **Aromatic Dorothy** or **Aromatic Arosoft Cake** a part of the oil can be replaced which results in a less oily surface. Further, they improve the emulsification which minimise the risk for an oily surface.

The cake exhibits an undesired chemical taste.



By adding flavours from Aromatic or 1-2% **Aroflave Vanilla** the chemical taste can be masked.

The water activity is too high.



By adding **Aromatic GL24/24 Special**, additional glycerol, sorbitol, glucose syrup, invert syrup, or sugar the water activity can be reduced. The extension of the baking time and the addition of less water additionally supports a lower water activity.

SNACK CAKE – A typical industrial recipe

Ingredients	%	Method
Eggs	17.32	Mix all the ingredients except the wheat flour and baking powder, for 3-4 min at high speed.
Sugar	18.2	
Vegetable oil	16.85	Add flour and baking powder. Mix for 2 min at medium to high speed.
Water	5.05	
Whey powder	2.7	Continuously pump the aerator/depositor and measure the specific gravity.
Salt	0.3	
Baking powder	0.57	Specific gravity: 0,86-0,72 depending on line equipment and desired texture.
Skimmed milk powder	0.47	
<u>Aromatic Vanilla Flavour</u>	0.13	Baking temperature: 220-180 °C depending on oven system.
<u>Aromatic K2000 Lemon</u>	1.01	
<u>Aromatic Jilk 60</u>	1.21	Baking time: 18-20 min.
Sorbitol	1.42	
Glycerol	2.02	Shelf life: 6-9 months.
Potassium sorbate	0.17	
Citric acid	0.13	
Xanthan gum	0.08	
Wheat flour	27.3	
Invert syrup	3.03	
<u>Aromatic Dorothy</u>	2.02	

CREAMS AND FILLINGS IN SNACK CAKES

Fillings are a part of modern long life snack cakes, injected directly after baking as a jam filling or fluffy fat- and waterbased cream filling. To preserve fillings for several months, preservatives in form of Aromatic Shelf Life Extenders and pasteurisation of water based fillings will ensure the microbiological safety. Most of industrial manufacturers are producing these injectable fillings from scratch and are adding emulsifiers to whipp and stabilise a fluffy cream filling.

INDUSTRY

Issue

The shelf life (mould-free period) is not long enough.



Solution

By adding a Shelf Life Extender from Aromatic which acts as a liquid preservative, the shelf life can be extended. Recommended products: **GL24, GL24 Special, K6000, K2000, Aroflave Vanilla**. When using GL products, a pH adjustment towards a lower value is necessary as the products themselves increase the pH.

The cream is not fluffy or soft enough.



Add 1-2% **Aromatic Jilk 60** or **Aromatic Colco** after the pasteurisation of the cream to improve the aeration.

The cake exhibits an undesired chemical taste.



By adding flavours from Aromatic or 1-2% **Aromatic Aroflave Vanilla** the chemical taste can be masked.

Preservation of water based cream fillings for injection in long shelf-life snack cakes or cupcakes with a minimum shelf-life of 6 months +.



By pasteurising water based creams with a water content of max. 12-15% in combination with 2% **Aromatic K2000 Lemon**, 2% **Aromatic Aroflave Vanilla** or 1,4% **Aromatic GL24 Special**.





VANILLA CREAM FILLING – A typical industrial recipe

Ingredients	%	Method
Water	11.85	Add all liquids and solids except for the shortening.
Milk powder	9.09	
Salt	0.2	Mix for 2 min.
Powdered sugar	23.7	Add the shortening and heat up to 65 °C.
Glucose	19.75	Mix for 1 min.
<u>Aromatic Jilk 60</u>	1.5	Add to buffer tank.
<u>Aromatic K2000</u>	1.98	
Shortening	27.65	
Citric acid	0.1	
Glycerol	2.96	
Potassium sorbate	0.2	
<u>Aromatic Vanilla Flavour</u>	1.03	

BAKELS AROUND THE WORLD

Bakels is active worldwide on all continents and supplies customers in every sector of the bakery ingredients market.



BAKERY INGREDIENTS SINCE 1904

The best baked goods are a product of the right ingredients and craftsmanship. That is something we specialise in at Bakels. We have refined and developed bakery ingredients for the industry since 1904. Our work is driven by consumer trends and market needs. We continue to explore raw materials and solutions to find new and innovative ways to enhance the flavour, function and quality of bakery and patisserie products. Our experience and knowledge provides you with the best conditions to succeed.

BAKELS GROUP IN NUMBERS

38

Bakels Companies in the world.

120

Number of countries where our products are available through distributors & agents.

2750

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2000+

Bakery products.



A LONG HERITAGE OF PRODUCING AROMATIC FUNCTIONAL SOLUTIONS

We have a vast experience in producing functional solutions under the well known brand Aromatic.

Bakels Sweden is the center of competence in the Bakels Group when it comes to cake emulsifiers/improvers. Our team consists of competent food engineers and technical experts.

As a customer of ours, you get access to our entire technical team who help with the implementation of ingredients and improve your production.



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Our products are developed and produced by Bakels Sweden. We have a modern and large-scale production in Gothenburg, Sweden.

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YOU GET ACCESS TO A WHOLE TEAM THAT WILL SUPPORT YOU WITH:

- Technical solutions and product advising.
- Implementation on-set.
- Fine-tuning of ingredients and recipes.
- Ideas and inspiration for applications and recipes.
- Unique product development together with your team for your unique needs if desired.
- Support and guidance

TEAM BAKELS



DARE TO TRY US MODEL - FREE OF CHARGE



Palm free alternatives!

Palm free alternatives are available in our Aromatic product range.

These products are derived from pure vegetable sources, entirely produced from raw materials other than palm.

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 **BAKELS**

BAKERY INGREDIENTS SINCE 1904

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