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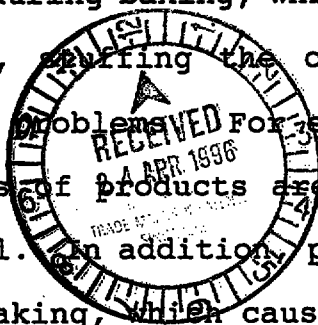
CENTER MATERIAL FOR DOUGHS OR BATTERS AND BAKERY PRODUCTS USING THE SAME

Field of the Invention

The present invention relates to a center material for doughs or batters and bakery products using them. More specifically, it relates to a center material to be stuffed into doughs or batters for bakery products such as bread and cakes before baking them which do not cause dripping or oozing from the products due to melting by baking, and bakery products using the center material.

Backgrounds of the Invention

Bakery products wherein chocolate is stuffed into cakes and bread as their center materials have been marketed. In many of these cakes and bread, chocolate as a center material is stuffed after baking because, when chocolate is incrustated with doughs or batters before baking, chocolate is melted during baking, which results in insufficient products. However, stuffing the center material after baking causes various problems. For example, stuffing takes time and the surfaces of products are apt to be stained with the center material. In addition, products cannot be packed immediately after baking, which causes disadvantages in quality from the view points of sanitary and preservation.



Recently, in order to increase baking resistance of chocolate, addition of starch, soybean proteins, "okara" (residue of extraction of soy milk from defatted soybeans) powder or the like has been proposed (JP-A 62-122547, JP-A 62-122548, JP-A 62-122557). In addition, chip chocolate and solid chocolate for bread and cookies have been developed and marketed as baking resistance chocolate and they have smooth mouthfeel because of their fine particles.

These chocolate can be used as a center material to be stuffed into doughs or batters before baking and there are various types such as sweet chocolate type, milk type, white type and the like. However, their tastes and flavors are chocolate and uniform with lacking in variety. Then, it has been desired to develop a center material which can be incrustrated or stuffed with boughs or batters before baking and can provide bakery products having a variety of tastes and flavors.

Objects of the Invention

One object of the present invention is to develop a chocolate center material having baking resistance and to be stuffed into doughs or batters before baking which is a molded product of a mixture of ingredients for chocolate, can be readily incrustrated with the doughs or batters before baking and, can provide bakery products having a variety of tastes and flavors.

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Another object of the present invention is to develop a molded center material to be stuffed into doughs or batters before baking which is a fat composition having a taste and flavor different from chocolate and which can be readily molded and can be incrustrated with doughs or batters before baking.

These objects as well as other objectives and advantages of the present invention will become apparent to those skilled in the art from the following description with reference to the accompanying drawings.

Brief Explanation of the Drawings

Fig. 1 is a schematic plan view of the chocolate center material containing nuts produced in Example 1 hereinafter.

Fig. 2 is a schematic cross section of the bakery product containing the chocolate center produced in Example 1 hereinafter.

Fig. 3 is a schematic plan view of the center material having soybean flour type taste produced in Example 4 hereinafter.

Fig. 4 is a schematic cross section of the bakery product containing the center material having strawberry yogurt type taste produced in Example 7 hereinafter.

Summary of the Invention

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The present inventors have studied to solve the above problems in the prior art and have found that, when small masses of a filler such as broken pieces of nuts, rice puffs or the like are dispersed in chocolate, heat resistance of chocolate is improved and, simultaneously, mouthfeel of chocolate is also improved. In addition, it has been found that a fat composition containing a certain amount of a fat ingredient and having certain viscosity of which taste and flavor is other than chocolate is suitable for a center material to be stuffed into doughs and batters before baking.

That is, according to the present invention, there is provided a center material for doughs or batters which is a molded product of a mixture of ingredients for chocolate and in which small masses of filler are dispersed therein.

The present invention further provides a center material for doughs or batters which is a molded product of a fat composition containing 28 to 45% by weight of a fat ingredient, having viscosity of 50 to 350 poise upon measuring by a BM type viscometer (manufactured by Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m. and having a taste other than chocolate.

The present invention further provides bakery products incrusting the center material of the present invention.

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The center material of the present invention can be readily molded and stuffed into doughs or batters for bakery products such as bread and cakes. In addition, even if it is stuffed before baking them, it does not cause dripping or oozing from the products due to melting by baking. Then, in comparison with bakery products wherein center materials are stuffed after baking, the production thereof can be carried out more readily and quality from the view points of sanitary and preservation can be improved. Furthermore, since tastes other than chocolate and various colors can be provided, bakery products which are rich in variety can be obtained.

Detailed Disclosure of the Invention

The chocolate to be used in the present invention may be tempering-type chocolate or non-tempering-type chocolate. However, tempering-type chocolate is preferred because of facilitation of molding.

The chocolate is melted and small masses of filler such as broken pieces of nuts are added to melted chocolate, followed by mixing and molding. Chocolate itself has relatively fine particles and shows smooth mouthfeel. By admixing the small masses of filler with chocolate, variety of mouthfeel, for example, crispy or crunchy mouthfeel in the case of nuts, can be provided to bakery products. In addition, for example, in the case that a bakery product is bread, the small masses of filler are chewed at the same time



of chewing bread, recognition of their existence can be impressed.

Examples of the small masses of filler to be used in the present invention include nuts, puffs, cookies, rice cracker crumbs, dried fruits, candies, broken potato skins and the like. Examples of nuts include peanuts, cashew nuts, almond nuts, pistachio nuts, walnuts, hazelnuts, macadamia nuts, coconuts and the like. Examples of puffs include rice puffs and wheat puffs. Dried fruits include cut products of raisin, apricot, pine apple and the like, and freeze-dried granulated products of strawberry, banana, lemon, orange and the like. Examples of candies include soft caramels, hard caramels and the like. These fillers can be used alone or in combination thereof.

These nuts and the like can be used as they are or, preferably, they can be used in the form of broken pieces having suitable size. For breaking nuts, a suitable pulverizer can be used. As suitable size of broken pieces, for example, in the case of almond nuts, $1/4$ to $1/8$ broken pieces are most preferred in view of both moldability and mouthfeel. In general, suitable particle size of these small masses of filler is such that the major axis of respective particles of the masses is 2 to 25 mm, preferably 3 to 12 mm.

In the present invention, as indicated above, these small masses of filler are admixed with chocolate. In the

case of tempering-type chocolate, after tempering, a predetermined amount of the small masses of filler are added to a melted mixture of ingredients of chocolate and uniformly dispersed therein. Of course, tempering treatment can be carried out after admixing the small masses of filler.

The size of the small masses of filler and the ratio thereof in a mixture of ingredients of chocolate largely effect on recognition of existence of the small masses of filler. The size is as indicated above. The ratio is 40 to 99% by weight of chocolate and 60 to 1% by weight of the small masses of filler to be admixed, preferably, 60 to 95% by weight of chocolate and 40 to 5% by weight of the small masses of filler.

Molding of a mixture of ingredients of chocolate with which the small masses of filler have been admixed can be appropriately carried out by an extruder to extrude from a extruder die having predetermined shape and bore. If necessary, the extrudate is cut into a suitable length and quickly cooled. Size and shape of this type of center material suitable for incrusting with bread dough is, for example, a semicylindrical shape of 14 mm diameter and 130 mm long. Alternatively, for molding into such a shape, a mixture of ingredients of chocolate can be pressed out from a pressing bag having a suitable orifice such as that for decorating cakes with cream. When an extrudate in the shape of a bar is

allowed to stand for a while, it changes into a semicylindrical shape.

As doughs and batters used in the present invention, for example, there are bread doughs for Danish pastry, "croissant (French)", brioche, muffin, butter roll and the like.

Thus, the bakery products obtained by baking after incrusting the chocolate center material with doughs or batters have, in addition to tastes of doughs or batters and mellow chocolate flavor, aromatic flavor and crunchy mouthfeel of the small masses of filler such as nuts and the like.

The molded chocolate in the present invention includes various types of chocolate such as sweet chocolate, milk chocolate, white chocolate and the like. When one or more additional ingredients selected from the group consisting of starch, in particular, modified starch, especially, cold water soluble starch and soybean proteins and/or "okara" powder are added to a mixture of ingredients of chocolate in an amount of about 0.5 to 20% by weight, the heat resistance of chocolate is more improved and therefore this is preferred.

The fat ingredient to be used in the fat composition center material of the present invention is suitably known hard butter. The fat ingredient may be a tempering-type fat ingredient or a non-tempering-type fat ingredient and it is preferred to use a fat ingredient having good release

characteristics from a mold. Such fat ingredient is used in an amount 28 to 45% by weight based on the total weight of the fat composition.

As tastes other than chocolate, for example, there are fruit tastes or flavors such as orange, strawberry, lemon, citron and the like, tastes or flavors of Japanese-style confection such as soybean flour taste, plum, Japanese apricot and the like, tastes or flavors of fermentation products such as yogurt, cheese and the like, tastes and flavors of table luxuries such as coffee, black tea, powdered green tea and the like and tastes and flavors of seasonings such as curry, pizza and the like.

Materials to be used for providing these tastes and flavors may be known materials and, as to tastes and flavors of fruits, table luxuries and the like, appropriate freeze-dried or spray-dried products can be used. For example, strawberry flavor can be prepared by using a strawberry flavor in combination with freeze-dried strawberry. In addition, powders used for providing tastes or flavor of Japanese-style confection, fermentation products and seasonings can be pulverized with a roll to form fine particles or the desired fine particles can be added afterwards.

The fat ingredient, a material for providing the desired taste or flavor and, if necessary, sugar, lactose, a milk product powder (whole milk powder, skimmed milk powder),

a coloring agent and the like are mixed and the entire taste or flavor and color are arranged to obtain a fatty mixture. Then, like chocolate production, the fatty mixture is subjected to treatment with a roll refiner and a conching machine according to a conventional manner to produce the fat composition. The fat composition thus produced is appropriately molded so that it can be readily used as a center material. For facilitating molding, viscosity of the fat composition is adjusted to 50 to 350 poise upon measuring by a BM type viscometer (manufactured by Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m. When viscosity exceeds 350 poise, although good heat resistant shape retention is maintained, viscosity increases during a tempering operation and air bubbles are hardly removed during mold filling, which causes difficulty in deaeration.

Sometimes, white or colored center materials having viscosity of not more than 300 poise show less resistance to stick in cavity after baking bread and therefore the center materials are apt to soak or scatter into bread. For preventing this, it is preferred to add starch. Starch to be used is not specifically limited and examples thereof include naturally occurring starch such as sweet potato starch, potato starch, wheat starch, corn starch, rice starch, arrowroot starch, bracken starch, dogtooth violet starch and the like, their modified starch and various starch derivatives.

In addition to these starch, soybean proteins and "okara" powder can be added. Like the chocolate center material, when one or more of these materials are added to the fat composition in an amount of 0.5 to 20% by weight based on the total weight of the composition, shape retention and heat resistance can be improved even if viscosity of the composition is low. Then, this is preferred.

The shape of the molded composition is not specifically limited and any shape, for example, triangle, square, circle or the like, can be selected according to particular shape and size of bakery products. Molding is carried out by a conventional molding line. Suitably, cut molding is a plastic belt manufactured by Delver. When the molded product is too small, its existence is lost. On the other hand, when it is too large, taste of the center material becomes too much. Then, suitably, the weight of the molded product is about 5 to 25 g.

Doughs and batters for incrusting the fat composition center material can be the same as that exemplified with respect to the above chocolate center material. The fat composition center material can be incrustated with doughs or batters before baking by an appropriate method.

The bakery products obtained by incrusting the fat composition center material with doughs or batters and then baking the doughs or batters have very nice tastes and flavors

of the doughs or batters in harmony with tastes and flavors of the center material, for example, Japanese or Western style tastes and flavors. And, different from uniform chocolate flavor, their tastes and flavors are rich in variety. Regarding colors, the bakery products are colorful such as green, yellow, white, red and the like and have pleasant appearance.

The following Examples further illustrate the present invention in detail but are not to be construed to limit the scope thereof. In the following Examples, all the "percents" and "parts" are by weight, unless otherwise stated.

Example 1

Preparation of chocolate

Thirty four parts of cacao mass, 49 parts of sugar, 5 parts of modified starch, 12 parts of cocoa butter, 0.4 part of lecithin and 0.03 part of vanillin were subjected to roll-refining and conching according to a conventional method to prepare a mixture of ingredients of chocolate.

Preparation of nut pieces

After dry-roasting almond nuts at 180°C, they were broken into about 1/6 size with a granulator to obtain nut pieces having 8 to 12 mm average major axis of predominant pieces.

Preparation of molded chocolate

After melting and tempering 80 parts of the mixture of ingredients of chocolate prepared above, 20 parts of the above-prepared almond nut pieces were added thereto and mixed to obtain a uniform mixture. The mixture was placed in a pressing bag having a round orifice of 14 mm diameter and pressed out through the orifice to mold into a rod shape. The rod was cut into about 130 mm long to obtain a semicylindrical molded chocolate as shown in Fig. 1, wherein the nuts 1 were uniformly dispersed in the chocolate 2.

Preparation of baked bread

Danish pastry dough was prepared according to the following formulation and production conditions.

Formulation

Ingredients	Parts
Wheat flour (high-protein)	100
Sugar	15
Salt	1.5
Yeast food	0.1
Yeast	4
Whole egg	12
Margarine ¹⁾	8
Water	45
Sheet type margarine ²⁾	50

1): Margarine for bread manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Pandora".

- 2): Sheet type margarine for Danish pastry manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Artpia 330".

Production conditions

According to the above formulation, Danish pastry was produced by straight-dough technique under the following conditions.

Mixing time: 2 minutes at low rate → addition of fatty ingredients → 3 minutes at low rate and 5 minutes at medium rate

Mixing temperature: 25°C

Floor time: 30 minutes

First retard time: 60 minutes

Retard temperature: -15°C

Folding: three-fold, twice

Final sheeting thickness: 3 mm

Proofing time: 50 minutes

Proofing temperature/humidity: 32°C/75%

Baking temperature (upper flame): 210°C

Baking temperature (lower flame): 190°C

The chocolate center material containing nuts was placed on the center of the above-prepared dough (130 mm x 130 mm). The center material was incrustated with the dough by folding the dough and the resultant dough was baked to produce a Danish pastry as shown in Fig. 2, wherein the chocolate center 2 containing nuts 1 was incrustated with the dough 3.

Upon eating, it provided crunchy mouthfeel of almond nuts and had very nice taste and flavor of Danish pastry in harmony with chocolate taste and flavor.

Example 2

Preparation of chocolate

Fourteen parts of cacao mass, 45 parts of sugar, 15 parts of whole milk powder, 4 parts of lactose, 22 parts of tempering type hard butter (New-SS 7 manufactured by Fuji Oil Co., Ltd.), 0.3 part of lecithin and 0.03 part of vanillin were subjected to roll-refining and conching according to a conventional method to prepare a mixture of ingredients of chocolate.

Preparation of nut pieces

After dry-roasting almond nuts at 180°C, they were broken into about 1/10 size with a granulator to obtain nuts pieces having 3 to 7 mm average major axis of predominant pieces.

Preparation of molded chocolate

After melting and tempering 90 parts of the mixture of ingredients of chocolate prepared above, 10 parts of the above-prepared almond nut pieces were added thereto and mixed to obtain a uniform mixture. The mixture was cast in a square-pillared mold (12 mm height x 9 mm width x 92 mm long) to obtain molded chocolate.

Preparation of baked bread

"Croissant" dough was prepared according to the following formulation and production conditions.

Formulation

Ingredients	Parts
Wheat flour (high-protein)	70
French powder	30
Sugar	12
Salt	1.6
Whole egg	20
Margarine ¹⁾	10
Kneading cream ²⁾	12
Yeast	5
Food for freezing A	0.1
Food for freezing B	0.1
Water	about 45
Sheet type margarine ³⁾	60

- 1): Margarine for bread manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Panfriend".
- 2): Cream for kneading manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Bakery Cream".
- 3): Sheet type margarine for Danish pastry manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Artpia Soft 880".

Production conditions

Mixing time: 3 minutes at low rate and 2 minutes at medium rate

Mixing temperature: 15°C

Dividing weight: 45 to 50 g (at the time of molding)

Proofing temperature/humidity: 32°C/75%

Proofing time: about 40 minutes

Baking temperature: 200°C

Baking time: about 15 to 17 minutes

After mixing and kneading dough, it was sufficiently cooled and three-fold folding operation was carried out twice. Then, after cooling, three-fold operation was carried out once and the dough was retard overnight at 0 to 5°C. The dough was sheeted to 2.5 mm thickness and cut into an isosceles triangular shape weighing 45 to 50 g.

The chocolate center material containing nuts prepared was placed on the above-prepared "croissant" dough and rolled according to a known manner to incrust the center with the dough. The resultant dough was baked to produce "croissant", wherein the chocolate center containing nuts was incrustated with the dough. Upon eating, it provided crunchy mouthfeel of almond nuts and had very nice taste and flavor of "croissant" in harmony with chocolate taste and flavor. The chocolate maintained its good shape retention after baking.

Example 3

Preparation of chocolate

Twenty eight parts of whole milk powder, 8 parts of lactose, 5 parts of modified starch, 32 parts of sugar, 2

parts of cocoa butter, 25 parts of non-tempering type hard butter (manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Merano H-1000), 0.4 part of lecithin and 0.05 part of vanillin were subjected to roll-refining and conching according to a conventional method to prepare a mixture of ingredients of white chocolate.

Preparation of desiccated coconuts

Embryos of coconuts were removed and the coconuts were dried, cut, sifted and roasted at 120°C to prepare desiccated coconuts having 2 to 5 mm average major axis.

Preparation of molded chocolate

After melting 90 parts of the mixture of ingredients of white chocolate prepared above, 10 parts of the above-prepared desiccated coconuts were added thereto and mixed to obtain a uniform mixture. The mixture was cast in a mold (82 mm long x 43 mm width x 3.5 mm thickness) to obtain molded white chocolate.

Preparation of baked bread

Danish roll dough was prepared according to the following formulation and production conditions.

Formulation

Ingredients	Parts
Wheat flour (high-protein)	70
French powder	30
Sugar	12

Salt	1.6
Whole egg	20
Bakery cream	12
Yeast	5
Food for freezing A	0.1
Food for freezing B	0.1
Water	about 30
Sheet type margarine ¹⁾	60

- 1): Sheet type margarine for Danish pastry manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Artpia Soft 880".

Production conditions

Mixing time: 5 minutes at low rate and 6 minutes at medium rate

Mixing temperature: 20 to 23°C

Proofing temperature/humidity: 33°C/80%

Proofing time: about 70 minutes

Baking temperature: 200°C

Baking time: about 15 minutes

After mixing and kneading dough, it was sufficiently cooled and three-fold folding operation was carried out twice. Then, after cooling for 30 minutes, three-fold operation was carried out once and the dough was retard overnight at 0 to 5°C. The dough was sheeted to 2.5 mm thickness and cut into a ribbon of about 25 mm width. This was wound about a metal

cylinder to form a spiral, placed in a small loaf mold and subjected to proofing.

The chocolate center material containing nuts prepared was incrustated with the above-prepared Danish roll dough and baked to produce a Danish roll, wherein the chocolate center containing nuts was incrustated with the dough. Upon eating, it provided crunchy mouthfeel of coconuts and had very nice taste and flavor of Danish roll in harmony with white chocolate taste and flavor. The white chocolate maintained its good shape retention even after baking.

Example 4

Preparation of fat composition (soybean flour tasted)

Twenty parts of soybean flour (low bacterial contamination product), 38 parts of sugar, 13 parts of lactose, 9 parts of cocoa butter, 20 parts of tempering type hard butter (New-SS 7 manufactured by Fuji Oil Co., Ltd.), 0.4 part of lecithin and 0.1 part of salt were subjected to roll-refining and conching according to a conventional method to prepare a soybean flour-tasted fat composition.

The particle size of this composition was 24 μ (measured with a micrometer) and viscosity at 45°C was 250 poise (measured by a BM type viscometer (manufactured by Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m.

Preparation of center material

The above-prepared soybean flour-tasted fat composition was melted and, after tempering, the composition was cast into a plate mold (43 mm long x 80 mm width x 5 mm thickness) to obtain a molded soybean flour-tasted center material 4 as shown in Fig. 3.

Preparation of baked bread

Danish pastry dough was prepared according to the following formulation and production conditions.

Formulation

Ingredients	Parts
Wheat flour (high-protein)	70
French powder	30
Sugar	12
Salt	1.6
Whole egg	20
Panfriend	10
Bakery cream	12
Yeast	5
Food for freezing A	0.1
Food for freezing B	0.1
Water	about 45
Folding fat	
Sheet type margarine ¹⁾	60 for flour

- 1): Sheet type margarine for Danish pastry manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Artpia Soft 880".

Production conditions

Mixing time: 5 minutes at low rate and 6 minutes at medium rate

Mixing temperature: 20 to 23°C

After mixing and kneading dough, it was sufficiently cooled and three-fold folding operation was carried out twice. Then, after cooling for about 30 minutes, three-fold operation was carried out once and the dough was retard overnight at 0 to 5°C. The dough was sheeted to 2.5 mm thickness and cut into a square of 10 cm x 10 cm.

The above-prepared soybean flour-tasted center material was incruised with the above-prepared Danish pastry dough and placed in a proof box (temperature/humidity: 33°C/80%) for about 70 minutes. Baking was carried out in an oven at 200°C for about 15 minutes. The Danish pastry wherein the soybean flour-tasted fat composition center material was incruised with the dough had rich soybean flour taste in harmony with very nice taste and flavor of Danish pastry. In addition, the center material had good shape retention even after baking. There was no substantial difference in shape retention between a 5% modified starch added product and the product containing no modified starch.

Example 5

Preparation of fat composition (powdered green tea tasted)

Two parts of powdered green tea (low bacterial contamination product), 42 parts of sugar, 8 parts of lactose, 14 parts of whole milk powder, 5 parts of modified starch, 9 parts of cocoa butter, 20 parts of tempering type hard butter (New-SS 7 manufactured by Fuji Oil Co., Ltd.), 0.4 part of lecithin, 0.03 part of vanillin and 0.1 part of powdered green tea flavor were subjected to roll-refining and conching according to a conventional method to prepare a powdered green tea-tasted fat composition.

The particle size of this composition was 23 μ (measured with a micrometer) and viscosity at 45°C was 230 poise (measured by a BM type viscometer (manufactured by Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m.

Preparation of center material

The above-prepared powdered green tea-tasted fat composition was melted and, after tempering, the composition was cast into a plate mold (12 mm long x 95 mm width x 9 mm thickness) to obtain a molded composition.

Preparation of baked bread

"Croissant" dough was prepared according to the following formulation and production conditions.

Formulation

Ingredients	Parts
Wheat flour (high-protein)	70
French powder	30

Sugar	12
Salt	1.6
Whole egg	20
Panfriend	10
Bakery cream	12
Yeast	5
Food for frozen cake A	0.1
Food for frozen cake B	0.1
Water	about 45
Folding fat	
Sheet type margarine ¹⁾	60 for flour

- 1): Sheet type margarine for Danish pastry manufactured and sold by Fuji Oil Co., Ltd. under the trade name of "Artpia Soft 880".

Production conditions

Mixing time: 3 minutes at low rate and 2 minutes at medium rate

Mixing temperature: 15°C

After mixing and kneading dough, it was sufficiently cooled and three-fold folding operation was carried out twice. Then, after cooling, three-fold operation was carried out once and the dough was retard overnight at 0 to 5°C. The dough was sheeted to 2.5 mm thickness and cut into an isosceles triangular shape weighing 45 to 50 g.

The above-prepared powdered green tea-tasted center material was incrustated with the above-prepared "croissant"

dough and placed in a proof box (temperature/humidity: 33°C/80%) for about 40 minutes. Baking was carried out in an oven at 200°C for about 15 to 17 minutes. The "croissant" wherein the center material was incrustated with the dough had powdered green tea taste in harmony with very nice taste and flavor of "croissant". In addition, the center material had good shape retention even after baking.

Example 6

Preparation of fat composition (strawberry tasted)

One part of powdered strawberry, 17 parts of whole milk powder, 5 part of modified starch, 9 parts of lactose, 38 parts of sugar, 5 parts of modified starch, 8 parts of cocoa butter, 22 parts of tempering type hard butter (New-SS 7 manufactured by Fuji Oil Co., Ltd.), 0.4 part of lecithin, 0.3 part of red beet color, 0.2 part of citric acid and 0.2 part of strawberry flavor were subjected to roll-refining and conching according to a conventional method to prepare a strawberry-tasted fat composition.

The particle size of this composition was 21 μ (measured with a micrometer) and viscosity at 45°C was 150 poise (measured by a BM type viscometer (manufactured by Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m.

Preparation of center material and baked bread

According to the same manner as described in Example 5, a center material was prepared from the above-prepared

composition and the center material was incrustated with Danish pastry dough. As a result, like Example 5, good Danish pastry was obtained.

Example 7

Preparation of fat composition (strawberry yogurt tasted)

Three parts of powdered strawberry, 35 parts of sugar, 5 parts of lactose, 17 parts of whole milk powder, 5 parts of modified starch, 5 parts of fermented milk powder, 30 parts of cocoa butter, 0.4 part of lecithin, 0.2 part of citric acid, 0.1 part of strawberry flavor and 0.1 part of yogurt flavor were subjected to roll-refining and conching according to a conventional method to prepare a strawberry yogurt-tasted fat composition.

The particle size of this composition was 20 μ (measured with a micrometer) and viscosity at 45°C was 190 poise (measured by a BM type viscometer (manufactured by Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m.

Preparation of center material

The above-prepared strawberry yogurt-tasted fat composition was melted and, after tempering, the composition was cast into a sheet of 4 mm thickness and cut into 25 mm x 130 mm size.

Preparation of baked bread

Danish pastry dough was prepared according to the following formulation and production conditions.

Formulation

Ingredients	g
Wheat flour (high-protein)	400
Wheat flour (low-protein)	100
Sugar	40
Salt	8
Whole egg	50
Milk	250
Dried yeast	10
Milk for dispersing yeast	80
Folding fat	
Butter	250

Production conditions

Wheat flour (high-protein) and wheat flour (low-protein) were mixed and sifted twice. Butter was softened at room temperature. Dried yeast was scattered to 80 g of milk warmed to 36°C and a small amount of sugar was added thereto. After about 1 minute, the mixture was stirred and then allowed to stand. Egg was broken and beaten. Milk was heated and, just prior to boiling, heating was stopped and milk was allowed to cool.

Sugar, salt, milk and egg were placed in a bowl and lightly kneaded. To the mixture was added the yeast solution

by portions and they were sufficiently mixed. After completion of mixing, the mixture was placed on a table, sufficiently kneaded and beaten. When stickiness to the table was lost, the mixture was rounded and leavened in a bowl (the finishing temperature: about 27°C). Then, the mixture was placed in a proof box at 32°C for about 1 hour. After degassing, the mixture was sheeted in a rectangular shape and allowed to stand at -3 to 0°C for 1 hour.

The cooled dough thus obtained was again sheeted once and butter was folded. Three-fold folding operation was carried out twice and the dough was allowed to stand in a refrigerator for 1 hour. Again, three-fold folding operation was carried out and the dough was allowed to stand in a refrigerator for 2 hours. Then, the dough was sheeted in 2.5 mm thickness and cut into a square of 13 cm x 13 cm.

The above-prepared strawberry yogurt-tasted center material was incrustated with the above-prepared Danish pastry dough and placed in a proof box (temperature/humidity: 33°C/80%) for about 55 minutes. Baking was carried out in an oven at 210°C for about 15 minutes. The resultant Danish pastry had the cross section as shown in Fig. 4, wherein the center material 5 was incrustated with the dough 6. This had good strawberry taste and nice acidic taste of yogurt in harmony with very nice taste and flavor of Danish pastry and

had a bright color of strawberry. In addition, the center material had good shape retention even after baking.

As described hereinabove, the present invention provides molded chocolate containing small masses of filler such as nuts and the like, which is a novel center material for doughs or batters of bakery products and has good handling characteristics. Therefore, it is possible to provide bakery products which have both rich aroma of chocolate and mouthfeel varying according to particular small masses of filler such as crunchy mouthfeel of nuts and the like.

Furthermore, the present invention provides molded center material for doughs or batters of bakery products, which is novel and characterized by a taste of flavor different from chocolate. This center material has good moldability and good baking resistance and can be stuffed into doughs or batters before baking. Thus, when using the center material tasted by a Japanese style material such as soybean flour or powdered green tea, bakery products having a variety of tastes and flavors and colors can be produced.



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What is claimed is:

1. A center material for doughs and batters which is a molded product of a mixture of ingredients for chocolate and in which small masses of filler are dispersed therein.

2. A center material according to claim 1, wherein the filler is one or more member selected from the group consisting of nuts, puffs, cookies, rice crackers, dried fruits, candies and potato skins.

3. A center material according to claim 1, wherein a major axis of the filler is 2 to 25 mm.

4. A center material according to claim 1, wherein the center material is molded in a semicylindrical shape.

5. A center material according to claim 1, wherein the center material is molded by extrusion.

6. A center material according to claim 1, wherein the mixture of ingredients of chocolate contains one or more additional ingredients selected from the group consisting of starch, soybean proteins and powdered "okara".

7. A center material according to claim 1, wherein the dough is bread dough.

8. A center material for doughs or batters which is a molded product of a fat composition containing 28 to 45% by weight of a fat ingredient, having viscosity of 50 to 350 poise upon measuring by a BM type viscometer (manufactured by

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Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m. and having a taste other than chocolate.

9. A center material according to claim 8, wherein the taste other than chocolate is one or more tastes selected from the group consisting of tastes and flavors of fruits, Japanese style confection, fermented products, table luxuries and seasonings.

10. A center material according to claim 8, wherein the fat composition contains one or more ingredients selected from the group consisting of starch, soybean proteins and powdered "okara".

11. A center material according to claim 8, wherein the center material is molded by molding.

12. A center material according to claim 8, wherein the center material is molded by a cut line.

13. A center material according to claim 8, wherein the dough is bread dough.

14. A bakery product incrusting the center material according to claim 1.

15. A bakery product incrusting the center material according to claim 8.

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FIG 1

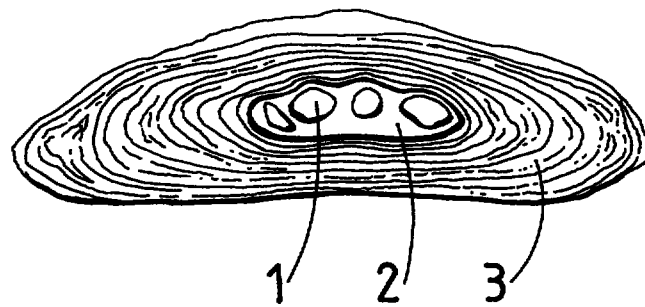
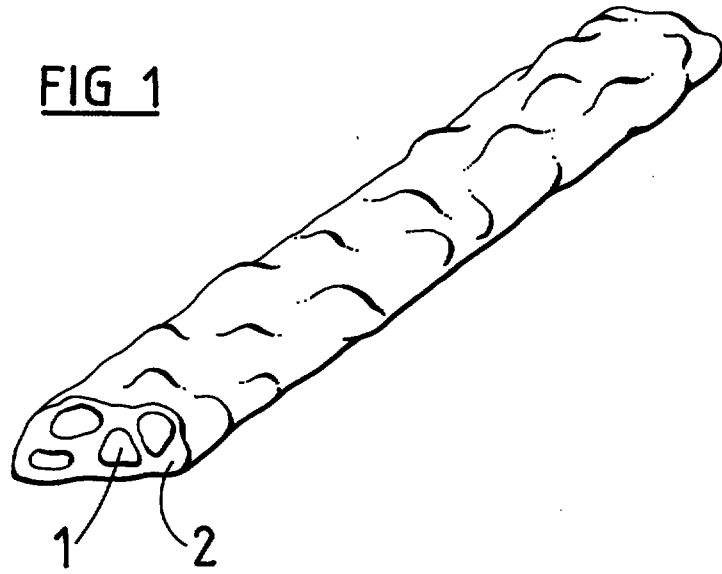


FIG 2

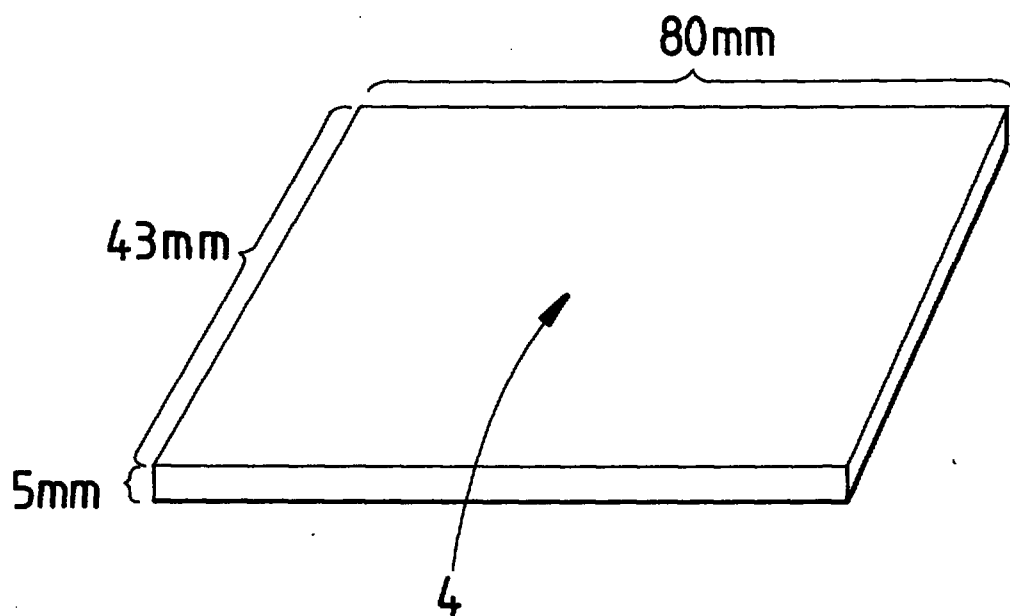


FIG 3

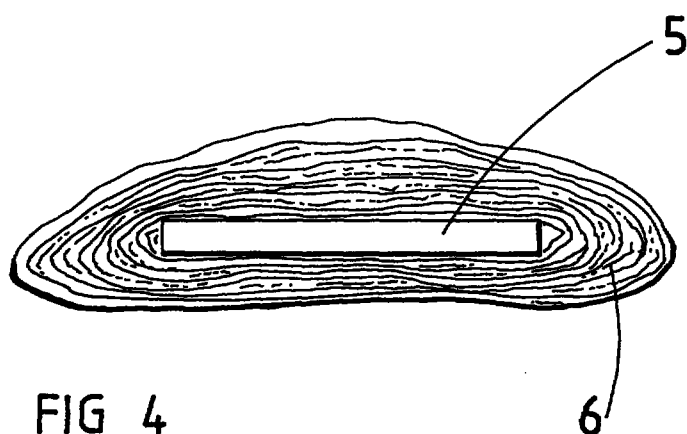


FIG 4

Abstract of the disclosure

CENTER MATERIAL FOR DOUGHS OR BATTERS AND
BAKERY PRODUCTS USING THE SAME

There is disclosed a center material for doughs and batters which is a molded product of a mixture of ingredients for chocolate and in which small masses of filler are dispersed therein. A center material which is a molded product of a fat composition containing 28 to 45% by weight of a fat ingredient, having viscosity of 50 to 350 poise and having a taste other than chocolate is also disclosed. In addition, bakery products incrusting the center material is also disclosed.

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☒ Drawing(s) :	paged to paged	
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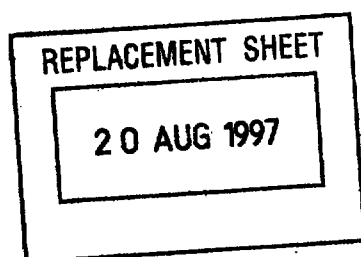
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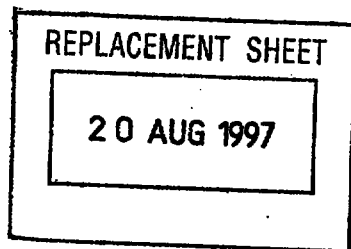
Recently, in order to increase baking resistance of chocolate, addition of starch, soybean proteins, "okara" (residue of extraction of soy milk from defatted soybeans) powder or the like has been proposed (JP-A 62-122547, JP-A 62-122548, JP-A 62-122557). In addition, chip chocolate and solid chocolate for bread and cookies have been developed and marketed as baking resistance chocolate and they have smooth mouthfeel because of their fine particles.

These chocolates can be used as a center material to be stuffed into doughs or batters before baking and there are various types such as sweet chocolate type, milk type, white type and the like. However, their tastes and flavours are chocolate and uniform with lacking in variety. Then, it has been desired to develop a center material which can be incrustrated or stuffed with doughs or batters before baking and can provide bakery products having a variety of tastes and flavours.

Object of the Invention

An object of the present invention is to develop a chocolate center material having baking resistance and to be stuffed into doughs or batters before baking which is a molded product of a mixture of ingredients for chocolate, can be readily incrustrated with the doughs or batters before baking and, can provide bakery products having a variety of tastes and flavours.





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This object as well as other objectives and advantages of the present invention will become apparent to those skilled in the art from the following description with reference to the accompanying drawings.

Brief Explanation of the Drawings

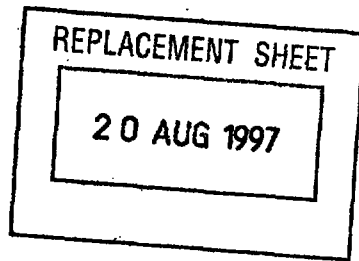
Fig. 1 is a schematic plan view of the chocolate center material containing nuts produced in Example 1 hereinafter.

Fig. 2 is a schematic cross section of the bakery product containing the chocolate center produced in Example 1 hereinafter.

Fig. 3 is a schematic plan view of the center material having soybean flour type taste produced in Example 4 hereinafter.

Fig. 4 is a schematic cross section of the bakery product containing the center material having strawberry yogurt type taste produced in Example 7 hereinafter.

Summary of the Invention



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The present inventors have studied to solve the above problems in the prior art and have found that, when small masses of a filler such as broken pieces of nuts, rice puffs or the like are dispersed in chocolate, heat resistance of chocolate is improved and, simultaneously, mouthfeel of chocolate is also improved.

That is, according to the present invention, there is provided a center material for doughs and batters which is a chocolate molded product in which small masses of filler are dispersed, said filler being one or more member selected from the group consisting of nuts, puffs, cookies, rice crackers, dried fruits, candies and potato skins, and a major axis of said filler being 2 to 25 mm.

The present invention further provides bakery products incrusting the center material of the present invention.

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The center material of the present invention can be readily molded and stuffed into doughs or batters for bakery products such as bread and cakes. In addition, even if it is stuffed before baking them, it does not cause dripping or oozing from the products due to melting by baking. Then, in comparison with bakery products wherein center materials are stuffed after baking, the production thereof can be carried out more readily and quality from the view points of sanitary and preservation can be improved.

Detailed Disclosure of the Invention

The chocolate to be used in the present invention may be tempering-type chocolate or non-tempering-type chocolate. However, tempering-type chocolate is preferred because of facilitation of molding.

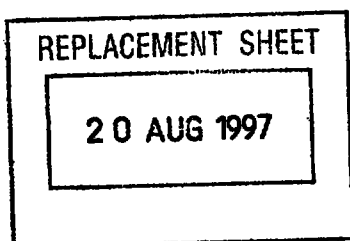
The chocolate is melted and small masses of filler such as broken pieces of nuts are added to melted chocolate, followed by mixing and molding. Chocolate itself has relatively fine particles and shows smooth mouthfeel. By admixing the small masses of filler with chocolate, variety of mouthfeel, for example, crispy or crunchy mouthfeel in the case of nuts, can be provided to bakery products. In addition, for example, in the case that a bakery product is bread, the small masses of filler are chewed at the same time



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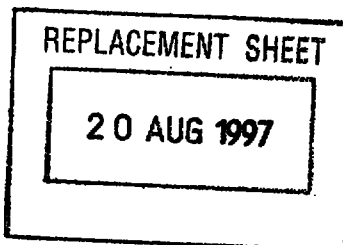
What is claimed is:

1. A center material for doughs and batters which is a chocolate molded product in which small masses of filler are dispersed, said filler being one or more member selected from the group consisting of nuts, puffs, cookies, rice crackers, dried fruits, candies and potato skins, and a major axis of said filler being 2 to 25 mm.
2. A center material according to claim 1, wherein the center material is molded in a semicylindrical shape.
3. A center material according to claim 1 or claim 2, wherein the center material is molded by extrusion.
4. A center material according to any one of claims 1 to 3, wherein the mixture of ingredients of chocolate contains one or more additional ingredients selected from the group consisting of starch, soybean proteins and powdered "okara".
5. A center material according to anyone of claims 1 to 4, wherein the dough is bread dough.
6. A bakery product incrusting the center material according to any one of claims 1 to 5.





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Tokyo Keiki, Japan) with No. 4 rotary bob at 12 r.p.m. and having a taste other than chocolate.

9. A center material according to claim 8, wherein the taste other than chocolate is one or more tastes selected from the group consisting of tastes and flavors of fruits, Japanese style confection, fermented products, table luxuries and seasonings.

10. A center material according to claim 8, wherein the fat composition contains one or more ingredients selected from the group consisting of starch, soybean proteins and powdered "okara".

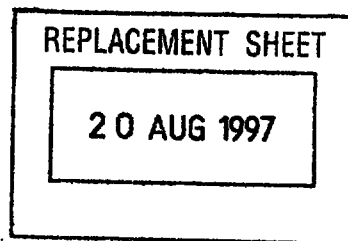
11. A center material according to claim 8, wherein the center material is molded by molding.

12. A center material according to claim 8, wherein the center material is molded by a cut line.

13. A center material according to claim 8, wherein the dough is bread dough.

14. A bakery product incrusting the center material according to claim 1.

15. A bakery product incrusting the center material according to claim 8.



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Abstract of the disclosure

**CENTER MATERIAL FOR DOUGHS OR BATTERS AND
BAKERY PRODUCTS USING THE SAME**

There is disclosed a center material for doughs and batters which is a molded product of a mixture of ingredients for chocolate and in which small masses of filler are dispersed therein. In addition, bakery products incrusting the center material is also disclosed.