Description

The instant invention concerns centre-filled chewing gum composition and chewing gum piece wherein the centre-fill is a dry powder.

Centre-filled chewing gum pieces are well-known in the art. US—A—810210 discloses a chewing gum piece filled with a liquid such as a fruit syrup, or with a semi-liquid such as a paste or jelly. US—A—3894154 discloses a chewing gum piece having an enclosed cavity formed therein and a liquid fill in the cavity. The liquid fill includes an aqueous solution having a dissolved solids portion and glycerin for retarding increases in viscosity of the liquid fill.

The present invention is directed toward a chewing gum piece having a dry, powdered centre-fill, which is required to be in solid form. The instant dry powdered centre-filled gum pieces therefore do not suffer from the disadvantages of the prior art liquid centre since there is no need to worry about liquid bleeding from the core or hardening due to moisture level changes.

US—A—4269860 discloses a chewing gum having an outer shell defining a central cavity which may contain, as a centre-fill, a granular composition comprising a sweetener.

According to a first aspect of the present invention there is provided a chewing gum piece which comprises an outer shell defining an enclosed cavity, which cavity contains, as a centre fill, a powder comprising one or more sweetener, characterised in that the centre-fill further includes a lubricant in an amount of from 0.75% to 1.0% by weight of the centre-fill.

The centre-fill is a powder or dry particulate granulation having a varied particle size. The centre-fill is generally present in the chewing gum piece in the range of about 10% to about 20% by weight of the gum piece and preferably about 15% to about 19% by weight of the gum piece.

According to a second aspect of the present invention there is provided a process for producing a chewing gum piece which comprises an outer shell defining an enclosed cavity containing a filling, the process comprising:

extruding through a first orifice a hollow rope of chewing gum from an extruder head;

feeding, by means of a conduit tube, a stream of said filling through a second orifice to the hollow centre of the rope of chewing gum downstream of the second orifice; and venting air from the hollow centre prior to entry of the filling into the hollow centre;

characterised in that the filling is a powder comprising one or more sweetener and a lubricant in an amount of from 0.75% to 1.0% by weight of the centre fill and in that the conduit tube extends from the reservoir into the extruder head and is not concentric with the extruder.

The gum piece comprises an outer shell, which is in turn comprised of a variety of well-known ingredients standard in the art, and a powdered centre-fill contained in the cavity of the outer-shell comprising at least one sweetener, a lubricant in an amount of from 0.75—1.0% by weight of the centre fill, and optionally a flavour, colour and filler.

By the term "chewing gum piece", the applicant is referring to finished product, i.e., the powdered center-filled chewing gum. The chewing gum piece is comprised of the outer shell and the powdered center-fill. The outer-shell may be referred to as the "chewing gum composition" since it may be formed from ingredients and formulations known in the art, and may be used as a chewing gum piece without the center-fill.

The gum pieces of the instant invention have the outer-shell formulated to give the desired chewing gum type. For instance, if a bubble gum type is intended, the chew characteristics, film forming ability and texture is balanced to produce good bubbles. If a regular or different chewing gum type is desired, the formulation would reflect the intended physical properties sought. The instant gum pieces may be sugar or sugarless, or a combination thereof. For example, a sugarless powdered center-fill may be contained in a sugar containing outer-shell, and the converse is also true. Non-adhesive outer-shell formulations are contemplated, as well as a variety of other chewing gum compositions known in the art. The specific formulation of the outer-shell is not critical to an understanding and appreciation of the invention, provided it allows for proper processing and center-filling and exhibits acceptable stability and shelf-life.

The chewing gum pieces having a powder center-fill of the instant invention are preferably of the bubble gum type; that is, the formulation for the outer-shell of the gum piece is formulated to allow good bubbles to be blown. The gum piece shape is preferably of the "chunk" or "pillow" configuration, although shape is a function of processing convenience and market feasibility and thus may view accordingly over the years.

More particularly, the dry powdered center-fill of the instant invention comprises at least one sweetener selected from the group consisting of water-soluble agents, water soluble artificial sweeteners, dipeptide based sweeteners and combinations thereof. Among the water-soluble sweeteners useful are the monosaccharides, disaccharides, and polysaccharides such as sugar, sucrose, xylose, ribose, glucose, mannose, galactose, fructose, dextrose, meltose; and the polyhydric sugar alcohols such as sorbitol, xylitol, mannitol, and hydrogenated starch hydrolysate, and mixtures thereof.

Additionally, the water-soluble artificial sweeteners useful include, among others, the soluble saccharine salts, i.e., sodium or calcium saccharin salts, cyclamate salts, acesulfame-K and the like and the free acid form of saccharin.

Dipeptide based sweeteners such as L-aspartyl-L-phenylalanine methyl ester and material described in U.S. Patent No. 3,492,131 and the like may also be employed.

Most preferably the sweeteners of the powdered center-fill comprises granulated or powdered sugar. Artificial sweeteners may be admixed with the sugar as well as to adjust the desired level of sweetness.

The sweetener is generally present in the center-fill from about 80% to about 98% by weight of the center-fill. In the instance where the sweetener is sugar, it is preferably present in the amounts of about 90% to about 99% by weight of the center-fill and most preferably from about 95% to about 98%.

The centre-fill also includes at least one lubricant which is present in an amount of from 0.75% to 1.0% by weight of the centre-fill. Examples of lubricants useful in the instant powdered centre-fills are magnesium stearate and compounds of the silicate family such as talc and cab-o-sil.

Other ingredients which may be added to the instant centre-fill mixtures include flavours, acidulents, fillers and colours. These ingredients while preferred, are not critical to the understanding of the instant invention. Flavours which are useful include those well known to the chewing gum art. These flavoring agents may be chosen from synthetic flavor oils/flavoring aromatics and/or oils, oleo resins and extracts derived from plants, leaves, flowers, fruits and so forth, and combinations thereof. Representative flavor oils includes: spearmint oil, cinnamon oil, oil of wintergreen (methylsalicylate) and peppermint oils.

Also useful are artificial, natural or synthetic fruit flavors such as citrus oil including lemon, organe, grape, lime and grapefruit and fruit essences including apple, strawberry, cherry, pineapple and so forth.

The amount of flavoring agent employed is normally a matter of preference subject to such factors as flavor type, gum base type and strength desired. In general, amounts of about 0.2% to about 1.5% by weight of the powdered center-fill. The flavors are in dry particulate form, as are all of the ingredients in the center-fills of the instant invention. As will be discussed below, the instant invention offers a means of delivering several flavors at once, since the powdered center-fill may be one flavor, while the outer chewing gum shell may be of the same or different flavor.

Acidulents or food acids, when present in the powdered center-fills of the instant invention are generally present in amounts of about 0.5% to about 3.0% by weight of the center-fill; the preferred range being from about 1.5% to about 2.5% by weight of the center-fill. Among those acidulents useful include citric acid, malic acid, tartaric acid and the like, as well as mixtures thereof. In cases where the outer shell of the gum piece is a fruit or citrus flavor, it may be most desirable to include one of these acidulents in the powdered center-fill mixture to further impart a tartness to the overall taste of the chewing gum. Thus, the fruitiness, for example, of a citrus flavored outer-shell is supported by the tartness of the center-fill. The most preferred of the above-mentioned food acids are citric acid and malic acid and mixtures thereof.

Fillers may be added to the center-fill and are selected from those well known to the art, with the exception of the carbonate salts. Such salts would generally have an adverse affect on the instant center-fills since they would be expected to react with acidulents or other ingredients and produce gas. Among the useful fillers for the center-fill are dextrins, malto dextrins, polydextrose and dicalcium phosphate. Malto dextrins have the additional advantage of providing enhanced sweetness, thereby complementing the sweetening agent already present. Polydextrose is generally understood in the art to be a randomly cross-linked polymer of all types of glucosidic bonds. Sorbitol end groups and monoester bonds with citric acid are ordinarily present in the polymer as well. Small amounts of residual reactants such as glucose, sorbitol and citric acid may be present in commercially available polydextrose. The filler is primarily added for the purpose of contributing bulk to the center-fill, particularly when the sweetener is of the artificial variety.

Should it be desirable to have a centre-fill be a particular colour, for aesthetic reasons or for coordination with the flavour perception, any food grade colour which is compatible may be employed. For example, the FD & C colors are of particular utility and are generally present in trace amounts, i.e., from about 0.003% to about 0.08% by weight of the center-fill. The preferred colors are FD & C red #40 and #3, among others.

The outer-shell of the chewing gum piece may be formulated from standard ingredients and by known methods in the art. The shell is comprised of a gum base and such additional additives which would ordinarily be included to comprise a chewing gum composition, i.e., corn syrup, sugar, flavor and fillers and the like.

The amount of gum base employed will vary greatly depending on various factors such as the type of base used, consistency desired and other components used to make the final product. In general, amounts of about 5% to about 45% by weight of the final chewing gum composition are acceptable for use in chewing gum compositions with preferred amounts of about 15% to about 25% by weight. The gum base used in this invention may be any water-insoluble gum base well known in the art. Illustrative examples of suitable polymers in gum bases include both natural and synthetic elastomers and rubbers. For example, those polymers which are suitable in gum bases include, without limitation, substances of vegetable origin such as chicle, jelutong, gutta percha and crown gum. Synthetic elastomers such as butadiene-styrene copolymers, isobutylene-isoprene copolymers, polyethylene, polyisobutylene and polyvinylacetate and mixtures thereof, are particularly useful.

The gum base composition may contain elastomer solvents to aid in softening the rubber component. Such elastomer solvents may comprise methyl, glycerol or pentaerythritol esters of rosins or modified rosins, such as hydrogenated, dimerized or polymerized rosins or mixtures thereof. Examples of elastomer

Solvents suitable for use herein include pentaerythritol ester of partially hydrogenated wood rosin, pentaerythritol ester of wood rosin, glycerol ester of partially dimerized rosin, glycerol ester of polymerized rosin, glycerol ester of tall oil rosin, glycerol ester of wood rosin and partially hydrogenated wood rosin, and partially hydrogenated methyl ester of rosin and mixtures thereof. The solvent may be employed in an amount ranging from about 10% to about 75% and preferbaly about 45% to about 70% by weight of the gum base.

A variety of traditional ingredients used as plasticizers or softeners such as lanolin, stearic acid, sodium stearate, potassium stearate, glyceryl triacetate, glycerine, lecithin, and glyceryl monostearate and the like, may also be incorporated into the gum base to obain a variety of desirable textures and consistency properties. These additional materials are generally employed in amounts of up to about 30% by weight and preferably in amounts of from about 3% to about 7% by weight of the final gum base composition.

The chewing gum compositions employing the instant gum bases generally contain sweetening agents. The sweetening agent may be selected from a wide range of materials including water-soluble agents, water-soluble artificial sweeteners, and dipeptide based sweeteners, including mixtures thereof. Without being limited to particular sweeteners, representative illustrations encompass:

A. Water-soluble sweetening agents such as monosaccharides, disaccharides and polysaccharides such as xylose, ribose, glucose, mannose, galactose, fructose, dextrose, sucrose, sugar, maltose, partially hydrolyzed starch or corn syrup solids and sugar alcohols such as sorbitol, xylitol, mannitol, hydrogenated starch hydrolysate and mixtures thereof.

B. Water-soluble artificial sweeteners such as the soluble saccharin salts, i.e., sodium or calcium saccharin salts, cyclamate salts, acesulfam-K and the like, and the free acid form of saccharin.

C. Dipeptide based sweeteners such as L-aspartyl-L-phenylalanine methyl ester and materials described in U.S. Patent No. 3,492,131 and the like.

In general, the amount of sweetener will vary with the desired amount of sweetener selected for a particular chewing gum composition. This amount will normally be 0.01% to about 90% by weight when using an easily extractable sweetener. The water-soluble sweeteners described in category A above, are preferably used in amounts of about 25% to about 75% by weight, and most preferably from about 50% to about 65% by weight of the final chewing gum composition. In contrast, the artificial sweeteners described in categories B and C are used in amounts of about 0.005% to about 5.0% and most preferably about 0.05% to about 2.5% by weight of the final chewing gum composition. These amounts are ordinarily necessary to achieve a desired level of sweetness independent from the flavor level achieved from flavor oils.

The chewing gum composition of this invention may additionally include the conventional additives of coloring agents such as titanium dioxide; emulsifiers such as lecithin and glyceryl monostearate; and fillers such as aluminum hydroxide, alumina, aluminum silicates, talc, dicalcium phosphate, calcium carbonate, and combinations thereof. Preferably the amount of fillers are about up to 25% by weight of the gum base.

Flavoring agents well known to the chewing gum art may be added to the chewing gum compositions of the instant invention. These flavoring agents may be chosen from synthetic flavor oils and flavoring aromatics, and/or oils, oleo resins and extracts derived from plants, leaves, flowers, fruits and so forth, and combinations thereof. Representative flavor oils include; spearmint oil, cinnamon oil, oil of wintergreen (methylsalicylate) and peppermint oils. Also useful are artificial, natural or synthetic fruit flavours such as citrus oil including lemon, orange, grape, lime and grapefruit and fruit essences including apple, strawberry, cherry, pineapple and so forth.

The amount of flavouring agent employed in the chewing gum shell is normally a matter of preference subject to such factors as flavour type, gum base type and strength desired. In general, amounts of about 0.5% to about 3.0% by weight of the final chewing gum composition are useable with amounts of about 0.3% to about 1.5% being preferred and about 0.7% to about 1.2% being most preferred.

The method of forming liquid centre-filled chewing gums is well known. US—A—3857963 to A. Graff describes a means of filling a chewing gum rope using concentric conduits and extruding therefrom. The instant invention uses similar steps comprising extruding a hollow rope of chewing gum through a first orifice, feeding a stream of powdered centre-fill through a second orifice to the hollow centre downstream of the first orifice and venting air from the hollow centre prior to entry of the centre-fill stream therein. For details on the general method of centre-filling chewing gums, see US—A—3857963.

The present invention modifies the above process, however, since the conduit for feeding the centre-fill into the rope is not concentric with the extruder, but is fed from a reservoir into the extruder head via a conduit tube.

Reference will now be made to the following Examples.

Examples

Six chewing gum formulations were prepared using standard procedures known in the art. These formulations were used to form the outer-shell of the chewing gum piece. Thus, the outer-shell of the gum piece would serve as a vehicle for delivering the powdered center-fill. Table I discloses six formulations used for the outer-shell.

As is apparent from the Table, the first three formulations A—C, are similar to the last three, D—F, with

the exception of the flavor. Each of these formulations was processed by conventional means and filled with the powdered center-fill mixtures disclosed in Table II.

TABLE I
Outer-shell formulation

Ingredient	% by weight of outer-shell formulation					
	A	B	C	D	E	F
Gum base	19	19	19	19	19	19
Corn syrup	13	16	17	13	16	17
Softener	4	3	2	4	3	2
Citric acid	1	1	1	1	1	1
Sugar	62	60	60	62	60	60
Color	0.13	0.13	0.13	0.13	0.13	0.13
Flavor—grape	0.8	0.8	0.8	0.8	0.8	0.8
—cherry	0.8	0.8	0.8	0.8	0.8	0.8

TABLE II
Center-fill

Ingredient	% by weight of center-fill formulation					
	I	II	III	IV	V	VI
Sugar	95	96	97	96	97	98
Grape flavor	0.8	0.9	1.0	—	—	—
Cherry flavor	—	—	—	0.46	0.47	0.48
Citric acid	2.1	2.2	2.3	1.8	1.9	2.1
Ascorbic acid	—	0.061	—	—	0.061	—
Color (#40 red)	—	0.003	—	—	0.003	—
Magnesium stearate	—	0.75	—	—	0.75	—
Talc	—	—	0.5	—	—	0.5
Cab-o-sil	1.0	—	—	1.0	—	—
Salt	—	0.21	—	—	0.24	—

Gum pieces were thus informed from the various combinations of the outer-shell formulations from Table I with the various center-fill formulations in Table II. Thus, for example, outer-shell formulation A and center-fills I—IV were used to form chewing gum pieces; formulation B was similarly combined to make chewing gum pieces using each of the center-fill formulations. The result was a total of thirty-six chewing gum pieces which either differences in chew, differences in shell flavor and center-fill flavor and differences in texture. The outer-shell formulations were specifically designed to have excellent film-forming and bubble blowing capabilities and thus the gum pieces formed were found to have excellent bubble gum characteristics. The powdered-center-fill of the bubble gum pieces was effectively delivered upon

mastication and provided a unique mouthfeel and texture heretofore not known to the chewing gum industry.

The gum pieces prepared in the above example each had 17% powdered center-fill by weight of the total gum piece in the cavity of the outer-shell. As is apparent from the examples, a grape flavored outer-shell may be combined with a cherry flavored center-fill to provide a gum piece which is capable of delivering a mixture of flavors, while maintaining each in a separate portion of the gum piece. Upon mastication each individual flavor is readily recognizable and distinct.

Claims

1. A chewing gum piece which comprises an outer shell defining an enclosed cavity, which cavity contains, as a centre fill, a powder comprising one or more sweetener characterised in that the center-fill further includes a lubricant in an amount of from 0.75% to 1.0% by weight of the centre-fill.

2. A chewing gum piece according to Claim 1, wherein the powder is present to an extent of from 10% to 20%, preferably from 15% to 19%, by weight of the gum piece.

3. A chewing gum piece according to Claim 1 or 2, wherein the sweetener is chosen from one or more of the following:

water-soluble sweetening agents, for example, monosaccharides, disaccharides, polysaccharides, or sugar; or polyhydric sugar alcohols, preferably sorbitol, mannitol, xylitol, hydrogenated starch hydrolysate;

water-soluble artificial sweetening agents;

dipeptide-based sweeteners, preferably L-aspartyl-L-phenyl-alanine methyl ester.

4. A chewing gum piece according to Claim 1, 2 or 3, wherein the powder further comprises one or more flavouring agent and one or more colouring agent.

5. A chewing gum piece according to Claim 4, wherein the one or more flavouring agent, which is preferably present to an extent of from 0.2% to 1.5% by weight of the powder, is a synthetic flavour oil, a natural flavour oil or essence or an artificial flavour, and is preferably chosen from the following: spearmint oil, cinnamon oil, oil of wintergreen (methylsalicylate), peppermint oils, lemon oil, orange oil, grape oil, lime oil, grapefruit oil, apple essence, strawberry essence, cherry essence, and pineapple essence.

6. A chewing gum piece according to Claim 4, wherein the colouring agent is FD & C (Food, Drug and Cosmetic approved dye) Red No. 40.

7. A chewing gum piece according to any preceding claim, wherein the powder further comprises an acidulent to an extent of from 0.5% to 3.0%, preferably from 1.5% to 2.5%, by weight of the powder.

8. A chewing gum piece according to any preceding claim, wherein the lubricant is chosen from magnesium stearate, talc and colloidal silica.

9. A chewing gum piece according to any preceding claim, wherein the lubricant is magnesium stearate.

10. A chewing gum piece according to any preceding claim, wherein the powder further comprises one or more filler which may be chosen from dextrins, malto-dextrins, polydextrose, dextrose and dicalcium phosphate, and is more preferably chosen from maltodextrin and polydextrose.

11. A chewing gum piece according to any preceding claim, wherein the outer-shell comprises a gum base, preferably to an extent of from 10% to 45%; corn syrup, preferably to an extent of from 8% to 25%, a softener, preferably to an extent of from 0.2% to 6%; and sugar.

12. A chewing gum piece according to Claim 11, wherein the gum base comprises a natural or synthetic elastomer, a filler and an elastomer solvent.

13. A process for producing a chewing gum piece which comprises an outer shell defining an enclosed cavity containing a filling, the process comprising:

extruding through a first orifice a hollow rope of chewing gum from an extruder head;

feeding, by means of a conduit tube, a stream of said filling through a second orifice to the hollow centre of the rope of chewing gum downstream of the second orifice; and

venting air from the hollow centre prior to entry of the filling into the hollow centre;

characterised in that the filling is a powder comprising one or more sweetener and a lubricant in an amount of from 0.75% to 1.0% by weight of the centre fill and in that the conduit tube extends from the reservoir into the extruder head and is not concentric with the extruder.

Patentansprüche

1. Kaugummistück mit einer äussern Schale, welche einen Hohlraum umschliesst, welche als innere Füllung ein Pulver, mit einem oder mehreren Süssstoffen, enthält, dadurch gekennzeichnet, dass die innere Füllung zudem, bezogen auf das Gewicht der Füllung, 0,75% bis 1,0% Gleitmittel enthält.

2. Kaugummistück nach Anspruch 1, welches, bezogen auf das Gewicht des Kaugummistücks, 10% bis 20%, vorzugsweise 15% bis 19% Pulver enthält.

3. Kaugummistück nach Anspruch 1 oder 2, bei dem der Süssstoff aus einem oder mehreren der folgenden Stoffe gewählt ist:

mastication and provided a unique mouthfeel and texture heretofore not known to the chewing gum industry.

The gum pieces prepared in the above example each had 17% powdered center-fill by weight of the total gum piece in the cavity of the outer-shell. As is apparent from the examples, a grape flavored outer-shell may be combined with a cherry flavored center-fill to provide a gum piece which is capable of delivering a mixture of flavors, while maintaining each in a separate portion of the gum piece. Upon mastication each individual flavor is readily recognizable and distinct.

Claims

1. A chewing gum piece which comprises an outer shell defining an enclosed cavity, which cavity contains, as a centre fill, a powder comprising one or more sweetener characterised in that the centre-fill further includes a lubricant in an amount of from 0.75% to 1.0% by weight of the centre-fill.

2. A chewing gum piece according to Claim 1, wherein the powder is present to an extent of from 10% to 20%, preferably from 15% to 19%, by weight of the gum piece.

3. A chewing gum piece according to Claim 1 or 2, wherein the sweetener is chosen from one or more of the following:

water-soluble sweetening agents, for example, monosaccharides, disaccharides, polysaccharides, or sugar; or polyhydric sugar alcohols, preferably sorbitol, mannitol, xylitol, hydrogenated starch hydrolysate;

water-soluble artificial sweetening agents;

dipeptide-based sweeteners, preferably L-aspartyl-L-phenyl-alanine methyl ester.

4. A chewing gum piece according to Claim 1, 2 or 3, wherein the powder further comprises one or more flavouring agent and one or more colouring agent.

5. A chewing gum piece according to Claim 4, wherein the one or more flavouring agent, which is preferably present to an extent of from 0.2% to 1.5% by weight of the powder, is a synthetic flavour oil, a natural flavour oil or essence or an artificial flavour, and is preferably chosen from the following: spearmint oil, cinnamon oil, oil of wintergreen (methylsalicylate), peppermint oils, lemon oil, orange oil, grape oil, lime oil, grapefruit oil, apple essence, strawberry essence, cherry essence, and pineapple essence.

6. A chewing gum piece according to Claim 4, wherein the colouring agent is FD & C (Food, Drug and Cosmetic approved dye) Red No. 40.

7. A chewing gum piece according to any preceding claim, wherein the powder further comprises an acidulent to an extent of from 0.5% to 3.0%, preferably from 1.5% to 2.5%, by weight of the powder.

8. A chewing gum piece according to any preceding claim, wherein the lubricant is chosen from magnesium stearate, talc and colloidal silica.

9. A chewing gum piece according to any preceding claim, wherein the lubricant is magnesium stearate.

10. A chewing gum piece according to any preceding claim, wherein the powder further comprises one or more filler which may be chosen from dextrins, malto-dextrins, polydextrose, dextrose and dicalcium phosphate, and is more preferably chosen from maltodextrin and polydextrose.

11. A chewing gum piece according to any preceding claim, wherein the outer-shell comprises a gum base, preferably to an extent of from 10% to 45%; corn syrup, preferably to an extent of from 8% to 25%, a softener, preferably to an extent of from 0.2% to 6%; and sugar.

12. A chewing gum piece according to Claim 11, wherein the gum base comprises a natural or synthetic elastomer, a filler and an elastomer solvent.

13. A process for producing a chewing gum piece which comprises an outer shell defining an enclosed cavity containing a filling, the process comprising:

extruding through a first orifice a hollow rope of chewing gum from an extruder head;

feeding, by means of a conduit tube, a stream of said filling through a second orifice to the hollow centre of the rope of chewing gum downstream of the second orifice; and

venting air from the hollow centre prior to entry of the filling into the hollow centre;

characterised in that the filling is a powder comprising one or more sweetener and a lubricant in an amount of from 0.75% to 1.0% by weight of the centre fill and in that the conduit tube extends from the reservoir into the extruder head and is not concentric with the extruder.

Patentansprüche

1. Kaugummistück mit einer äussern Schale, welche einen Hohlraum umschliesst, welche als innere Füllung ein Pulver, mit einem oder mehreren Süssstoffen, enthält, dadurch gekennzeichnet, dass die innere Füllung zudem, bezogen auf das Gewicht der Füllung, 0,75% bis 1,0% Gleitmittel enthält.

2. Kaugummistück nach Anspruch 1, welches, bezogen auf das Gewicht des Kaugummistücks, 10% bis 20%, vorzugsweise 15% bis 19% Pulver enthält.

3. Kaugummistück nach Anspruch 1 oder 2, bei dem der Süssstoff aus einem oder mehreren der folgenden Stoffe gewählt ist:

wasserlösliche Süsstoffe, wie Monosaccharide, Disaccharide, Polysaccharide oder Zucker; oder Polyalkoholzucker, vorzugsweise Sorbit, Mannit, Xylit, hydriertes Stärke-Hydrolysat;

wasserlösliche, künstliche Süsstoffe;

dipeptidische Süsstoffe, vorzugsweise L-Aspartyl-L-Phenyl-Alanin Methyl-Ester.

4. Kaugummistück nach einem der Ansprüche 1, 2 oder 3, bei dem das Pulver weiter einen oder mehrere Aromastoffe und einen oder mehrere Farbstoffe enthält.

5. Kaugummistück nach Anspruch 4, bei dem der eine oder die mehreren Aromastoffe, welche, bezogen auf das Gewicht des Pulvers 0,2% bis 1,5% ausmachen, ein synthetisches Aromaöl, ein natürliches Aromaöl oder eine natürliche Essenz, oder ein künstlicher Aromastoff und vorzugsweise ausgewählt ist aus:

Oel der Grünen Minze, Zimtöl, Gaultheriaöl (Methylsalicylat), Pfefferminzölen, Zitroneöl, Orangenöl, Traubenöl, Limettöl, Grapefruitöl, Apfelessenz, Erdbeeressenz, Kirschessenz und Ananasessenz.

6. Kaugummistück nach Anspruch 4, bei dem der Farbstoff FD & C-Rot Nr. 40 (zugelassener Lebensmittel-, Arznei- und Kosmetikfarbstoff) ist.

7. Kaugummistück nach einem der vorhergehenden Ansprüche, bei welchem das Pulver, bezogen auf das Gewicht des Pulvers, 0,5% bis 3,0%, zorzugsweise 1 5% bis 2,5% eines säuernden Mittels enthält.

8. Kaugummistück nach einem der vorhergehenden Ansprüche, bei dem das Gleitmittel aus der Gruppe Magnesium-Stearat, Talk und kolloidale Kieselerde gewählt ist.

9. Kaugummistück nach einem der vorhergehenden Ansprüche, bei dem das Gleitmittel Magnesium-Stearat ist.

10. Kaugummistück nach einem der vorhergehenden Ansprüche, bei dem das Pulver weiter einen oder mehrere Füllstoffe enthält, die aus der Gruppe Dextrine, Malto-Dextrine, Polydextrose, Dextrose und Di-Calziumphosphat, vorzugsweise Malto-Dextrin und Polydextrose, gewählt ist.

11. Kaugummistück nach einem der vorhergehenden Ansprüche, bei dem die äussere Schale

Gummibasis im Umfang von vorzugweise 10% bis 45%;

Mais-Sirup im Umfang von vorzugweise 8% bis 25%,

einen Weichmacher im Umfang von vorzugsweise 0,2% bis 6%; und

Zucker enthält.

12. Kaugummistück nach Anspruch 11, dessen Gummimasse ein natürliches oder synthetisches Elastomer, einen Füllstoff und ein Lösungsmittel für das Elastomer enthält.

13. Verfahren zum Herstellen eines Kaugummistücks, mit einer ausseren Schale, die einen Hohlraum bildet, welcher eine Füllung enthält, wobei das Verfahren umfasst:

das Extrudieren eines Hohlstrangs aus Kaugummi aus einer ersten Düse eines Spritzkopfs;

das Zuführen eines Stroms der genannten Füllung, mit Hilfe eines Führungsrohrs, durch eine zweite Düse, in das hohle Innere des Hohlstrangs aus Kaugummi, in Flussrichtung betrachtet nach der zweiten Düse; und

das Ablassen von Luft aus dem hohlen Innern, vor dem Eintritt der Füllung in das hohle Innere

dadurch gekennzeichnet, dass die Füllung ein Pulver mit einem oder mehreren Süsstoffen und ein Gleitmittel ist, die bezogen auf das Gewicht der Füllung 0,75% bis 1,0% ausmachen, und dass das Führungsrohr vom Behälter zum Spriztkopf reicht und zum Extruder nicht konzentrisch ist.

Revendications

1. Morceau de chewing-gum comprenant une enveloppe externe délimitant une cavité fermée, cette cavité contenant, comme garniture centrale, une poudre comprenant un ou plusieurs édulcorants, caractérisé en ce que la garniture centrale comprend en outre un lubrifiant, en une quantité de 0.75 à 1,0% en poids de la garniture centrale.

2. Morceau de chewing-gum selon la revendication 1, caractérisé en ce que la poudre est présente en une quantité de 10 à 20%, de préférence de 15 à 19% en poids du morceau de chewing-gum.

3. Morceau de chewing-gum selon la revendication 1 ou 2, caractérisé en ce que l'édulcorant est choisi parmi un ou plusieurs des produits suivants:

agents édulcorants solubles dans l'eau, par exemple, monosaccharides, disaccharides, polysaccharides ou sucres, ou sucres-alcools polyhydriques, de préférence sorbitol, mannitol, xylitol, hydrolysat d'amidon hydrogéné,

agents édulcorants artificiels solubles dans l'eau,

édulcorants à base de dipeptide, de préférence L-aspartyl-L-phényl-alanine méthyl ester.

4. Morceau de chewing-gum selon la revendication 1, 2 ou 3, caractérisé en ce que la poudre comprend en outre un ou plusieurs agents aromatisants et un ou plusieurs agents de coloration.

5. Morceau de chewing-gum selon la revendication 4, caractérisé en ce que le/ou les agent(s) aromatisant(s), présent de préférence à raison de 0,2 à 1,5% en poids de la poudre, est une huile aromatisante synthétique, une huile ou une essence aromatisante naturelle ou un arôme artificiel, et est choisi de préférence parmi les produits suivants: huile de menthe verte, de canneile, de wintergreen (salicylate de méthyle), huiles de menthe poivrées, huile de citron, d'orange, de raisin, de lime, de pamplemousse, essence de pomme, essence de fraise, essence de cerise et essence d'ananas.

6. Morceau de chewing-gum selon la revendication 4, caractérisé en ce que l'agent colorant est de rouge N° 40 FD & C (colorant homologué "Food, Drug and Cosmetic").

7. Morceau de chewing-gum selon l'une des revendications précédentes, caractérisé en ce que la poudre comprend en outre un produit acidulé, à raison de 0,5 à 3,0%, de préférence de 1,5 à 2,5% en poids de la poudre.

8. Morceau de chewing-gum selon l'une des revendications précédentes, caractérisé en ce que le lubrifiant est choisi à partir du stéarate de magnésium, du talc et de la silice colloïdale.

9. Morceau de chewing-gum selon l'une des revendications précédentes, caractérisé en ce que le lubrifiant est le stéarate de magnésium.

10. Morceau de chewing-gum selon l'une des revendications précédentes, caractérisé en ce que la poudre comprend en outre une ou plusieurs charges qui peuvant être choisies à partir des dextrines, malto-dextrines, polydextrose, dextrose et phosphate dicalcique, et de préférence à partir de la maltodextrine et de la polydextrose.

11. Morceau de chewing-gum selon l'une des revendications précédentes, caractérisé en ce que l'enveloppe externe comprend une gomme base, de préférence à raison de 10 à 45%, du sirop de maïs, de préférence à raison de 8 à 25%, un ramollissant, de préférence à raison de 0,2 à 6%, et du sucre.

12. Morceau de chewing-gum selon la revendication 11, caractérisé en ce que la gomme base comprend un élastomère naturel ou synthétique, une charge et un solvant élastomère.

13. Procédé de production d'un morceau de chewing-gum comprenant une enveloppe externe délimitant une cavité fermée contenant une garniture, ce procédé consistant à extruder à travers un premier orifice un cordon creux de chewing-gum en provenance d'une tête d'extrusion, à introduire, par l'intermédiaire d'une tube servant de conduit, un courant de ladite garniture à travers un second orifice, dans le centre creux du cordon de chewing-gum en aval du second orifice, et à chasser l'air du centre creux, avant l'admission de la garniture dans ce centre, caractérisé en ce que la garniture est une poudre comprenant un ou plusieurs édulcorants et un lubrifiant, en une quantité comprise entre 0,75 et 1,0% en poids de la garniture centrale, et en ce que le tube servant de conduit s'étend du réservoir dans la tête d'extrusion et n'est pas concentrique avec l'extrudeuse.