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E. S. D.

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COD:08

RE.: SOLICITUD DE PATENTE EN COLOMBIA

EXPEDIENTE N° **04106910**

TITULO: GOMA DE MASCAR EN FORMA DE POLVO Y UN
MÉTODO DE PREPARACIÓN

SOLICITANTE: GUM BASE CP.SPA

FECHA SOLICITUD: 25 DE OCTUBRE DE 2008

ASUNTO: RESPUESTA A OPOSICIÓN PRESENTADA POR COLOMBINA S.A.

DILIA RODRIGUEZ D'ALEMAN, en mi condición de apoderada de la sociedad solicitante, por el presente escrito doy respuesta a su auto notificado por estado de 21 de julio de 2006 y vence el 17 de octubre de 2006 y me permito presentar las siguientes aclaraciones:

En primer lugar, subrayamos que el memorial del opositor carece de argumentos técnicos que demuestren la falta de novedad o nivel inventivo de la presente solicitud. Dicho memorial se limita a citar algunos apartes que el Tribunal Andino ha mencionado sobre el concepto de invención y sobre el nivel inventivo. Así las cosas, no hay una comparación entre las pruebas que suministra el opositor y el método que se reclama en la solicitud **CO 04106910** que permita establecer por qué el opositor considera que la invención de la presenta solicitud no es patentable.

Hemos revisado cada una de las pruebas presentadas por el solicitante y en ninguna de ellas hay indicación o enseñanzas sobre los pasos específicos del proceso para la producción de goma de mascar en forma de polvo que divulga y se reclama en la presente invención.

El catálogo de Cafosa es un listado comercial de productos elaborados por dicha

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empresa, donde se muestran diferentes empaques y marcas de los distintos productos que dicha compañía ofrece, pero no dice nada ni se sugiere ni se enseña información relacionada con el proceso o el producto reivindicados en la solicitud **CO 04106910**. Además, este documento no establece una fecha que permite identificarlo como estado del arte previo al 5 de abril de 2002.

La información técnica del producto divulga ciertas formulaciones particulares, características y aplicaciones ofrecidas por CAFOSA. Pero nuevamente, el documento guarda silencio respecto a sugerencias o enseñanzas que se refieran al método o al producto de la presente invención. Al igual que en el caso anterior, este documento carece de una fecha que permita identificarlo como estado del arte previo al 5 de abril de 2002.

El artículo del señor Douglas P. Fritz está orientado a la maquinaria y el equipo para producir una goma de mascar. A pesar que el artículo fue publicado en una fecha previa la fecha de prioridad de la solicitud **CO 04106910**, sus enseñanzas se dirigen a la maquinas de aglomeración o briqueteado y de tableteado para formar piezas de diferentes formas y tamaño a partir de polvo o gránulos de gomas de mascar comprimidos o compactados. Como se puede observar este proceso es sustancialmente diferente al proceso de la presente solicitud.

Recopilando las tres evidencias suministradas por el opositor es claro que aunque las pruebas muestran que CAFOSA ha producido gomas de mascar en forma de polvo, dicha evidencia no tiene incidencia sobre la novedad y el nivel inventivo un procedimiento distinto y novedoso para la producción de otras gomas de mascar en forma de polvo.

La presente solicitud no reivindica en general las gomas de mascar en forma de polvo, estas han sido conocidas por décadas, como son las gomas de mascar que al parecer produce COLOMBINA. El objeto cubierto en esta solicitud es una nueva goma de mascar en forma de polvo, la cual tiene mejor palatabilidad y masticabilidad que las tradicionales gomas masticables en forma de polvo, debido a su método de producción.

Adicionalmente, consideramos importante resaltar que el catálogo de Canosa no tiene



una fecha establecida. Lo único que indica es que "All-in gum" fue lanzada en Interpack 2002; dicha exhibición fue llevada acabo en Milán del 24 al 30 de abril de 2002 (como se puede verificar en Internet, página www.italiainballaggio.it/italiainballaggio/04_02/sezioni/02_facts/art1_facts.html, una impresión anexa a este memorial) fecha posterior a la fecha de prioridad reivindicada en la presente solicitud, (5 de abril de 2002).

Ahora bien, en cuanto a la declaración del señor John Jairo Lenis encontramos que su numeral 3 indica "Aunque desconocemos los detalles del proceso de elaboración utilizado por Cafosa Gum S.A. se nos ha ofrecido en el pasado uno de sus productos denominado como concepto "ALL IN GUM", como un producto para elaboración de chicles por compresión, tal y como se desprende en el documento anexo de la presente comunicación..." Llamamos la atención sobre el hecho que la presente solicitud reivindica un método para la producción de goma de mascar caracterizado específicamente por 6 pasos específicos y el producto obtenido mediante dicho proceso. En este orden de ideas, el señor Lenis ~~sin conocer~~ el proceso de elaboración de Cafosa Gum S.A. afirma que el proceso reclamado por GUM BASE CO, S.p.A es el mismo ~~que el no conoce~~ y extrapola dicho hecho afirmando que el producto reivindicado, que ~~se caracteriza~~ por haber sido producido por el proceso que ~~desconocía~~ el señor Lenis no es novedoso. De la información anterior, se desprende que no es posible que el señor Lenis quien no conoce el proceso desarrollado por Cafosa Gum S.A pueda hacer, basándose en una información que el supone, un análisis que evidencie la ~~falta~~ de novedad que el ~~concluye~~ y la falta de nivel inventivo a que hace referencia el memorial del opositor.

Continuando con la declaración se encuentra que el señor Lenis establece que los gránulos de polvo obtenidos por el proceso reivindicado en la presente solicitud tienen una dimensión de malla 10. Esto no es cierto. Ellos pueden ser mucho más pequeños y tener una granulometría inferior al tamaño de malla 14, como se indica en las reivindicaciones (ver reivindicación 3).

Finalmente, a título ilustrativo, pues somos concientes de que cada país es independiente en la toma de decisiones sobre la patentabilidad o no de una invención, se destaca el hecho que solicitud equivalente fue concedida por la Oficina Europea de

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Patentes (EPO) bajo el número EP1427282B1. Anexamos copia de dicho documento.

Ante estos hechos es evidente que la solución planteada en la invención reclamada en la totalidad de las reivindicaciones de la solicitud CO 04106910 no solo cumplen con el requisito de novedad, sino que no es evidentemente derivada del estado de la técnica y por ende, cumple con el requisito de nivel inventivo requerido en virtud del artículo 14 y definido en el artículo 18 de la Decisión 488 de la Comisión de la Comunidad Andina.

Por lo tanto, se solicita respetuosamente a la Oficina de Patentes Colombiana declarar infundada la oposición presentada por COLOMBINA y conceder el privilegio de patente.

Agradezco continuar con el presente trámite.

Señor Jefe,



DILIA RODRIGUEZ D'ALEMAN

MRO/srch



Facts & Figures

Oscar & Oscar

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Oscar nominations

Marketing & Design

La passione di Martina
Martina's passion

New(s)papers
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Ortofrutta: scenari e consumi
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Momenti di storia
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M&D News



Facts & Figures

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In the offing... Interpack

...Il menu della festa
... holiday menu

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Il DNA del 2002
The DNA of 2002

Arriva



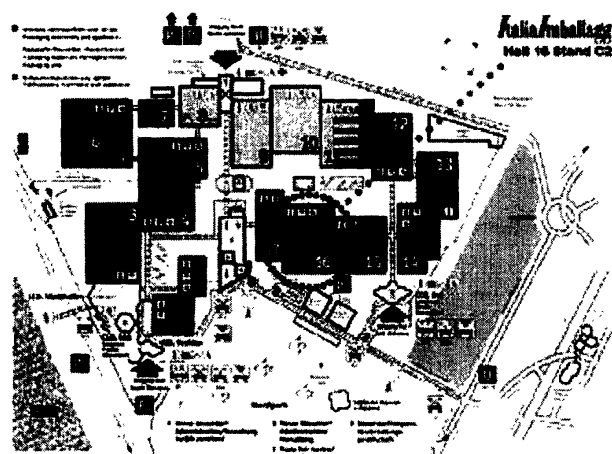
La lunga, e impegnativa, preparazione è ormai al termine e ci si ritrova tutti a Düsseldorf, dove sono in molti ad annunciare novità grandi e piccole. Gli organizzatori ne anticipano i contenuti, accennando i mega trend di sviluppo, con qualche indicazione sul valore del mercato.

A cura della redazione

In the offing....

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Site: Fairground Düsseldorf,
24-30 April 2002
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Entry: North, South, East

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WO 2003/084338 (18.10.2003 Gazette 2003/42)

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(54) CHEWING GUM IN POWDER FORM AND A METHOD OF PREPARATION
PULVERFÖRMIGES KAUGUMMI UND HERSTELLUNGSVERFAHREN
CHEWING-GUM EN POUDRE ET PROCEDE DE PREPARATION

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20121 Milano (IT)

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(58) References cited:
EP-A- 0 427 806 WO-A-99/17818
WO-A-99/28485 WO-A-02/051258
DE-A- 2 806 180 US-A- 2 280 120
US-A- 4 000 321 US-A- 4 181 844
US-A- 4 405 847 US-A- 4 688 682
US-A- 4 698 223 US-A- 4 753 805
US-A- 4 948 596 US-B1- 6 322 828

(43) Date of publication of application:
16.08.2004 Bulletin 2004/26

(73) Proprietor: Gum Base Co. S.p.A.
20020 Lainate (MI) (IT)

• PATENT ABSTRACTS OF JAPAN vol. 008, no.
087 (C-218), 29 March 1984 (1984-03-29) & JP 58
820656 A (LOTTE KK), 22 December 1983
(1983-12-22)

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• ALLASIA, Fabio
I-20098 San Giuliano Milanese (IT)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The subject of the present invention is a novel chewing gum in tablet form, which can be produced by direct compression of a gum formulation in powder form; the chewing gum thus obtained is characterized by a pleasant chewability which remains unchanged throughout the chewing period without hardening like most conventional chewing gums.

BACKGROUND OF THE INVENTION

[0002] Examples of chewing gums in compressed form produced by direct compression of mixtures in powder form have been known in the art for several years and various types are available commercially. However, the compressed-powder gums which are currently available are unpleasant to chew because to avoid technical difficulties in the production process they have been produced from hardbasic gums. It is in fact known that it is much easier to grind and compress hard and dry materials and that the compression of powders is more complex the softer they are; up to now, the need to have starting mixtures or materials which are sufficiently hard or dry to be granulated and compressed easily has led to the production of chewing gums which are hard and friable, with the risk of some of the gum accidentally being swallowed.

[0003] Various chewing gums produced by the compression of powdered ingredients are described in the literature. As early as 1942, United States patent US-2,290,120 described, for example, the preparation of chewing gums by cold grinding of basic gum and glucose syrup (at about -20°C) and subsequent mixing and compression thereof; however, the basic gums used in this patent contain natural gums which, owing to their known limitations with regard to performance, quality of supply, and technical problems of use, have now been almost completely abandoned and replaced by other, synthetic ingredients.

[0004] United States patent US-4,763,806 describes the granulation and subsequent compression of a chewing-gum composition having a moisture percentage of between 2 and 8%, with the use of various technological coadjuvants such as anti-agglutination agents and granulation coadjuvants (alkali-metal phosphates, alkaline-earth metal phosphates, maltodextrins, or mixtures thereof).

[0005] European patent EP-0221850 describes chewing-gum formulations which are suitable for being formed into tablets and which are produced by mixing the basic gum with dry ingredients, including the aromatic portion, without the plasticization due to the oils of the flavourings, subsequent cooling of the mixture to above the freezing point of water (5-10°C), dry granulation, and compression.

[0006] United States patent US-4,000,321 describes a chewing gum with characteristics of softness during chewing and light weight. This result is achieved by cold granulation of a chewing-gum mixture, followed by spontaneous adhesion by heating of the granulate. A chewing gum which contains bubbles and which cannot be mixed with other ingredients is thus obtained.

[0007] WO 98/2503 describes a process which provides for the preparation of a chewing-gum mass in powder form in which the basic gum is cooled to a temperature of between 0 and -35°C; the mass thus cooled is then granulated, supplemented with the necessary additives and active ingredients, and then compressed.

[0008] United States patent US-4,588,582 describes a method of preparing chewing gums containing from 70 to 96% by weight of granulated sugar. The granulated sugar, previously heated to a temperature of between 51 and 83°C, is mixed with the basic gum at a temperature of between 54 and 121°C. The product thus obtained can then be used as it is or transformed into a granular product, after cooling to a temperature of between -8 and -40°C.

[0009] US-4,181,544 describes a method of preparing chewing gum which provides for sugars to be mixed with a basic gum, heated to a temperature of 60-120°C; the temperature is then reduced to between 30 and -5°C and the mass thus obtained is granulated. The method in question provides for the use of "building agents" such as gum arabic, pectin, or other similar additives; as is well known, these ingredients are soluble in water and, as such, will be ingested after brief chewing, together with the sugars, thus leaving a bolus of harder consistency; the object proposed is thus achieved only partially, providing chewing which is extremely variable over time.

[0010] A process for manufacturing a chewing gum in powder form is disclosed in DE2808160A.

[0011] Finally, International patent application WO 01/18206 describes a particularly laborious method of preparing chewing gum, requiring a pretreatment of the basic gum mixture which is reduced to pellets of relatively small particles which in turn are then cooled to extremely low temperatures, i.e. below -40°C, by the addition of dry ice. Even when operation takes place in special, greatly dehumidified environments (with consequent greater economic expense and reduced practicality), this selection easily leads to the formation and accumulation of condensation on the dry ice intimately mixed with the gum composition, with the formation of lumps and agglutinations.

[0012] As mentioned above, however, the methods described in the above-mentioned patent documents have considerable drawbacks such as, for example, the production of chewing gum with poor chewability.

DESCRIPTION OF THE INVENTION

[0013] A method has now been discovered which permits the production of a chewing gum in powder form which is transformed, simply by compression, into a gum tablet with chewability and softness characteristics similar to or better than those of good-quality, conventionally-produced chewing gums, particularly with regard to optimal palatability throughout the chewing period.

[0014] A further advantage of the present invention is the ability to produce pharmaceutical or medicated chewing gums containing one or more active ingredients which are sensitive to heat; in fact, in contrast with conventional techniques, the mixing of the gum in powder form with the active ingredients and its subsequent transformation into the finished product does not require heating.

[0015] Another advantage offered by the process of the present invention is that R allows to produce a chewing gum in various forms and shapes other than the conventional ones, including tablets and micropellets of less than 0.8 grams (which would be very hard to produce with traditional means) simply by replacing the punches in a press.

[0016] A method for manufacturing miniature chewing gums is disclosed in WO 02/094032, filed by Wrigley, and it is substantially based in the extrusion of the chewing gum in the liquid filled chamber of a so-called "underwater pebbletizer", as for instance that manufactured by Gala Industries and disclosed in WO 01/2137.

[0017] The method according to WO 02/094032 presents however a drawback which cannot be neglected: due to the technical characteristics of the underwater pelletizer, the amount of bulk sweetener in the chewing gum must be kept quite low; consequently, in case a sweet chewing gum is desired, the gum center extruded by the underwater pelletizer has to be surrounded by a coating which comprises at least 50% by weight of the coated chewing gum and which contains the necessary amount of bulk sweetener, as for instance disclosed in WO 02/094032, also filed by Wrigley.

[0018] On the contrary, the method according to the present invention permits to manufacture micropellet chewing gums independently of the amount of bulk sweetener required.

[0019] Another advantage which will become clear from the following description is that the chewing-gum formulation in powder form can be packaged, dispatched, and preserved, even for prolonged periods of time, without losing its properties, in fact remaining completely in the granulated state.

[0020] Finally, another advantage offered by the present invention is that it is possible to produce a chewing gum in various forms other than the conventional forms and shapes, simply by recasting the punches in a tablet press.

[0021] In contrast with the prior art described in the literature, in order to prepare the powdered chewing-gum mixture, it is not necessary to use exclusively dry ingredients or to mix frozen ingredients in powder form without liquid ingredients or other forms of plasticization such as, for example, liquid flavourings, to avoid softening the mixture. In fact, one of the main characteristics of the present invention is the fact that it is possible to operate initially in accordance with the usual preparation method which is used for the preparation of conventional chewing gums (that is, those which are not in powder form).

[0022] Moreover, the method according to the present invention can be implemented without the aid of granulation coadjuvants such as, for example, alkali-metal phosphates, alkaline-earth metal phosphates, multodextrins, or mixtures thereof, and/or without the aid of "binding agents" such as, for example, gum arabic or pectin.

[0022] Another advantage of the following preparation method consists in the complete use and recovery of the product which thus permits an absence of processing losses or waste.

[0024] One of the elements which characterizes the present invention is the use of "soft" basic gums which give rise to products having a pleasant chewing profile, comparable with, if not better than, that of conventional products. It has in fact been discovered that, in contrast with the prior art, it is possible to produce complete chewing-gum mixtures in powder form, ready to be compressed and thus also comprising the flavouring portion in the desired percentage, with the use of soft starting basic gums.

[0025] The method for the production of chewing gum in powder form according to the present invention is characterized in that it comprises the following steps:

- a) mixing of a soft basic gum, i.e. a gum base, with at least one sweetener and, optionally, at least one other typical chewing-gum ingredient, at a temperature of between about 35 and 75°C,
- b) cooling of the mixture thus obtained to a temperature of between about 0 and -40°C and, preferably, between -10 and -40°C,
- c) grinding and subsequent screening of the mixture thus obtained to a particle size of less than about 10 mesh,
- d) mixing of the powder thus obtained with at least one anti-agglutination agent,
- e) optional compression of the mixture thus obtained.

[0026] The mixing (step a) is preferably performed at a temperature of between about 40 and 50°C for a period of about 10-30 minutes, preferably 20 minutes.

[0027] The grinding (step c) is preferably performed until particles having a size of less than about 10 mesh and preferably less than 14 mesh are obtained.

[0028] Within the scope of the present invention, "soft basic gum" is intended to define a basic gum characterized by a penetration index, in 1/10 mm, which is greater than about 15 and, preferably, greater than 18 (measured in accordance with the "Standard method for Needle Penetration of Petroleum Waxes", ASTM D1321-87).

[0029] In particular, the soft basic gum preferably used for the implementation of the present invention will have the following qualitative/quantitative composition:

- from about 8 to 18% of one or more elastomers, preferably selected from the group comprising polyisobutylene, isobutylene/isoprene copolymer, and vinyl acetate/vinyl laurate copolymer,
- from about 12 to 18% of polyvinyl acetate,
- from about 14 to 30% of resin preferably to be selected from the group comprising vegetable resin esters, resins produced by synthesis, and/or terpene resins,
- from about 10 to 22% of hydrogenated or partially hydrogenated vegetable oils,
- from about 0 to 7% of waxes selected from the group comprising vegetable waxes, waxes derived from petroleum, and/or synthetic waxes,
- from about 5 to 8% of emulsifiers and technological assistants, more precisely, but not exclusively, glycerol mono-oleate, acetylated monoglycerides, lecithin, sugar esters and triacetin,
- from about 15 to 40% of inert mineral fillers,
- up to about 0.1% of antioxidants.

[0030] The soft basic gum may be mixed in the usual manner with one or more polyols or with sugar, with or without the presence of polyol syrups or glucose syrup, with or without the presence of intensive sweeteners, and with or without the presence of liquid flavourings and other additives such as food acids, softeners, etc.

[0031] The selection of the specific ingredients does not alter the principle of the invention and is appropriate for the use of the product, particularly when the gum mixture in powder form is marketed as such and the purchaser intends to enrich it with further flavourings in powder form, intensive sweeteners, or dietary, functional, pharmaceutical, or cosmetic active ingredients, before forming tablets.

[0032] If the sweeteners and the other typical chewing-gum ingredients usable in step a) of the present invention are used in the solid state, they normally have a particle size of less than 200 μm and preferably less than 150 μm .

[0033] The term "typical chewing-gum ingredients" is intended to define intensive sweeteners, flavourings and other additives. In particular, intensive sweeteners typically used are aspartame, acesulfame and salts and derivatives thereof, saccharine, neohesperidin dihydrochalcone, sucralose, neotame, thaumatococin, monelline etc. The term "flavourings" is intended to define any mixture of natural or synthetic aromatic oils or of individual active flavouring ingredients, taken individually or in combination, refreshing substances, etc., in solution or carried by a suitable vehicle by means of one or more of the known techniques.

[0034] The additives usable in the present invention are all of those commonly used in the production of conventional chewing gum and thus comprise colorants, food acids, softeners, flavourings, etc.

[0035] As is known in the art, the basic gum may be mixed with the use of preheated gum or gum at ambient temperature, according to its format, i.e., the use of 8-10 kg blocks of basic gum in fact requires preheating which is not necessary for formats which can be metered in pellets or drops. The basic gum is thus mixed with the ingredients selected as described above at a conventional temperature of between 35 and 75°C, most preferably between 40 and 55°C, for a period of time of between 10 and 30 minutes, with the use of one of the techniques known in the art. Upon completion of this mixing, the mixture is discharged and conditioned at a temperature of between -40 and 0°C. In particular, it is possible to operate discontinuously with prolonged cooling to temperatures between -30 and 0°C and, preferably between -15 and -25°C; alternatively, it is possible to use methods which ensure continuous cooling to temperatures of between -40 and -10°C.

[0036] The mixture is then ground by means of a blade mill. A percentage of the mass will be obtained with a satisfactory particle size straight away, whereas the portion with a particle-size greater than that desired is subsequently ground in a mill, optionally cooled to a temperature of between -40 and 0°C, and then recycled, thus achieving a 100% yield. Should it also be necessary to have a lower particle-size limit, the portion separated can be entirely reprocessed, thus also permitting complete recovery of the product in this case; the powder thus obtained preferably has a particle size greater than 100 mesh and, even more preferably, greater than 80 mesh.

[0037] Anti-agglutination agents such as, for example, metal salts of fatty acids, precipitated silica, sugar esters, polyols of the type most suitable for compression, for example, isomalt and xylitol, are added to the powder thus obtained.

[0038] Additionally one or more intensive sweeteners such as aspartame, acesulfame and salts and derivatives thereof, saccharine, neohesperidin dihydrochalcone, sucralose, neotame, thaumatococin, monelline etc., aromatic active

Ingredients or flavourings in powder form or carried by encapsulation etc., food acids, or other additives with specific functional and pharmaceutical or nutritional active ingredients such as vitamins, amino-acids, polypeptides or other substances with functional or cosmetic activity may also be added at this stage.

[0039] The chewing-gum mixture in powder form thus obtained has the advantage that it can be used directly or can be packaged, stored and dispatched to a purchaser who can thus simply proceed with tablet-forming, possibly preceding this operation with an additional mixing with further flavourings in powder form, encapsulated flavourings etc., and/or dietary, functional, pharmaceutical or cosmetic active ingredients, as required. The pharmaceutical industry is in fact not normally equipped with the machinery used for processing chewing gums, and can give form and consistency to the finished product solely by compression of a powder. Up to now, these limitations have led to an underestimation of the possibilities of chewing gum as a release vehicle.

[0040] The final stage of the processing consists in forming into tablets or pills in a very wide selection of formats and dimensions by a tablet or a pill press or a tablet-forming machine; the tablets or pills thus obtained may therefore be packaged straight away in the desired format, i.e. in blister packs, sticks, etc. or sugar-coated, optionally also incorporating one or more flavourings, sweeteners and active ingredients in the coating, and then packaged.

[0041] A particular embodiment of the present invention is represented by chewing gums obtained by coating micropellets obtainable through the described process. Such coated micropellet chewing gums having a gum center surrounded by a coating and a total weight of less than 1.2 grams, preferably less than 0.8 grams, even more preferably less than 0.5 grams and/or a diameter lower than 10mm, preferably lower than 8mm.

[0042] The coating will essentially consist of bulk sweeteners and it may comprise up to about 55%, preferably up to 45% by weight of the coated chewing gum; more than about 80% by weight of the preferred coating will normally consist of bulk sweeteners, more preferably from 85 to 95%.

[0043] The micropellets used as gum centers will normally contain from about 80 to 90% by weight of basic gum and from about 5 to 25% by weight of bulk sweeteners, preferably from 10 to 20% of bulk sweeteners, together with customary ingredients (such as intensive sweeteners, flavourings, anti agglutination agents and vegetable extracts). A preferred embodiment of the gum center which can be used for manufacturing the micropellet chewing gums according to the invention is disclosed in example 10 (and table 3).

[0044] Further aspects of the invention will become clear from the following experimental and comparative sections which should not, however, be considered as limiting of the invention.

EXPERIMENTAL SECTION

Example 1

[0045] The following description refers to the preparation of a gum in powder form having the qualitative composition given in Example 1 in Table 1.

[0046] Initially, 29.3 parts by weight, which was the entire quantity of basic gum, was mixed, in a sigma mixer, heated to a temperature of between 40 and 50°C, with 13.47 parts of sorbitol in powder form, which was one third of the sorbitol quantity, and with 8.7 parts of mannitol. After a few minutes, a second portion of sorbitol in powder form, again of one third of the total was added, together with 0.4 parts of intensive sweeteners, mixing was continued for a few minutes, and the remaining sorbitol was then added, together with 2.2 parts selected from flavourings in liquid and powder form, homogenization of the mixture being continued for a further few minutes.

[0047] It is useful to point out that the quantity of flavouring which is in powder form could also be added after grinding.

[0048] 10-30 minutes after the start of the mixing, the mixture thus obtained was discharged and left to condition at a temperature of about -20°C.

[0049] After a period of about 24 hours, the chewing-gum mixture thus treated was ground in a blade mill with a 4 mm² grating and the ground material was screened.

[0050] After screening, a mixture which had a particle size of less than 10 mesh and 80% of which had a particle size of less than 14 mesh was obtained.

[0051] 3.6 parts of anti-agglutination mixture and 17.5 parts of leamalt of the type commonly marketed for applications in the tablet-forming field were added to 78 parts of the chewing-gum mixture in powder form thus obtained. The chewing-gum mixture in powder form was then compressed.

[0052] The method described above may also be applied to the preparation of gums in powder form having a composition other than that of Example 1, such as the compositions of Examples 2-5 of Tables 1 and 2.

Example 6

[0053] The following description refers to the preparation of a gum in powder form having the qualitative composition given in Example 6 in Table 2. In the first step, 27 parts of soft basic gum, 36.8 parts of sorbitol, 5.3 parts of mannitol,

8.8 parts of isomalt, 2.3 parts of sorbitol syrup, 0.3 parts of intensive sweetener, 0.3 parts of liquid flavouring, and 0.2 parts of additive were mixed by methods similar to those described in the preceding example. In this example, the term "additive" means a plasticizer selected from those commonly used in chewing gum, in view of the low percentage of liquid flavouring used.

[0054] The mixture was discharged, conditioned, ground and, in the final step, 3 parts of anti-agglutination mixture and 16 parts of vegetable extracts were added to 81 parts of the mixture in powder form thus obtained. The chewing-gum mixture thus obtained could then be compressed.

Example 8

[0055] The following description refers to the preparation of a gum in powder form having the qualitative composition given in Example 8 in Table 2. A method similar to that of the preceding example was used but, in this example, the quota of isomalt, which was equal to 21.5 parts, was composed of 8.5 parts of conventional isomalt for chewing gum, which was added in the first mixing step, and by 15 parts of isomalt of a type suitable for compression, which was added to the mixture in powder form, in the second step.

Example 10

[0056] The following description refers to the preparation of a gum in powder form having a quantitative composition given in Example 10 in Table 3). A method similar to that of previous examples was used. Chewing gums obtained under this example are particularly suited to be coated in order to obtain products with a weight lower than 1.2 grams, preferably lower than 0.8 grams, even more preferably less than 0.6 grams. It is worth of note that the softness characteristics of the basic gum are such that the chewing gum tablets thus obtain have pleasant chewing properties substantially identical to that of conventional chewing gums also when using high percentages of gum base.

[0057] The preferred coating for surrounding the compressed chewing gum obtained according to the present example will have the following by weight composition:

- Intensive sweetener 1.4 %
- Flavour 3.5 %
- Colour (preferably TiO_2) 1.8 %
- Bulk sweetener (preferably maltitol) 87.5 %
- Other additives (preferably anibic gum) 6.0 %

Total 100.0 %

Table 1

	Example No. 1	Example No. 2	Example No. 3	Example No. 4	Example No. 5
Basic gum	29,3	48,5	48,0	29,5	30,8
Sorbitol	40,4	47,5	48,5	39,7	50,3
Mannitol	8,7			8,9	4,4
Isomalt	17,5			17,0	7,0
Citric acid				0,8	
Additive				0,5	0,8
Intensive sweetener	0,4			0,3	0,3
Liquid flavouring	0,8			1,0	1,8
Flavouring in powder form	1,8			2,0	
Plasticizer			1,5		
Anti-agglutination mix	3,5	4,0	4,0	2,5	6,0
Total	100,0	100,0	100,0	100,0	100,0

Table 2

		Example No. 6	Example No. 7	Example No. 8		Example No. 9
5	Basic gum	27,0	32,1	25,3	Basic gum	20,2
	Sorbitol	38,8	37,8	32,2	Glucose syrup	2,9
	Mannitol	5,3	5,8	5,8	Sucrose	71,2
10	Isomalt	8,8	4,1	21,5		—
	Sorbitol syrup	2,3	2,5	2,1		—
	Citric acid			0,7		—
15	Additives	0,2	0,1	0,1	Additives	1,0
	Intensive sweetener	0,3	0,3	0,3		—
	Liquid flavouring	0,3	1,3	0,4	Liquid flavouring	0,7
20	Flavouring in powder form		2,0	0,7	Flavouring in powder form	—
	Anti-agglutination mix	3,0	3,0	8,4	Anti-agglutination mix	4,0
	Vegetable extracts	18,0	11,0	2,7	Active ingredient	—
25	Total	100,0	100,0	100,0	Total	100,0

Table 3

		Example No. 10
30	Basic Gum	70.0
	Sorbitol	—
	Mannitol	—
35	Isomalt	18.0
	Sorbitol syrup	—
	Citric acid	—
40	Additives	—
	Intensive sweetener	0.2
	Liquid flavouring	0.4
	Flavouring in powder form	8.4
45	Anti agglutination mix	5.0
	Vegetable extracts	—
	Total	100.0

50 [0058] According to requirements, it is thus possible to add one or more intensive sweeteners such as aspartame, acesulfame and salts and derivatives thereof, saccharine, neohesperidin dihydrochalcone, sucralose, etc., aromatic active ingredients or flavourings in powder form or carried by encapsulation, etc., food acids, or other additives with specific functions, and pharmaceutical active ingredients or nutritional active ingredients such as vitamins, amino-acids, polypeptides, or other substances with functional or cosmetic activity.

55 [0059] Naturally, the addition of flavourings, encapsulated or otherwise carried, and the addition of heat-sensitive active ingredients takes place after the grinding in the stabilization step carried out with the use of one or more anti-agglutination agents known in the art and commonly used for this purpose, such as, for example, magnesium stearate,

silica, talc, polyols of the type most suitable for compression, for example, isomalt, xylitol, etc.

[0060] After being formed into tablets or pills, the chewing gum thus obtained can thus also be sugar-coated as a normal chewing-gum or confectionary product, including intensive sweeteners, flavourings and active ingredients as described above in the coating.

COMPARATIVE SECTION

[0061] Despite constant attempts to apply instrument-based assessment methods to the study of chewing gum and the identification of its properties, the determining factor in the assessment of the chewing properties of a chewing gum is still subjective assessment by the chewer. The typical chewing sensation in fact includes the perception, prolonged over time, of odour, flavour, taste, colour, consistency, palatability and aftertaste.

[0062] Although qualitative and quantitative analytical methods exist for establishing the residual content of flavouring, active ingredients, and sweeteners or sugar in a chewing gum at a specific moment during chewing, there is not yet a method of assessing the perception of the pleasantness of the release of the flavouring and of the sweetness or the duration of both.

[0063] There are also objective parameters which may enable individual properties of the chewing gum to be assessed but, at the moment, there is no technique which is sufficiently sophisticated and complete to assess the combination of chewing properties defined as a whole in English as "mouth feel", which consists of a perception of various factors such as softness, resilience, alppariness, and consistency of the bolus, which constitutes the palatability of a chewing gum.

[0064] In order to assess the innovative aspects of the present invention, sensory assessment by a panel of chewers was therefore used and, in parallel, at least one significant parameter was assessed by performing a test measurement by means of a penetrometer.

[0065] The sensory assessment of the performance of a chewing gum and of the basic gum used to prepare it is generally based on three consecutive stages, referred to as (a) the first biting or chewing stage, (b) the intermediate biting or chewing stage, and (c) the final biting or chewing stage. To look at the assessment of a gum in greater detail, the first stage (a) or "first bite" corresponds to the first seconds of chewing in which the chewing gum is placed in the mouth and bitten into. At this stage, the chewing gum should respond to quite precise requirements such as the correct degree of compliance under the teeth, and should avoid breaking up into minute parts which might even involuntarily be ingested, which typically occurs with commercially-available compressed chewing gums. At the same time, however, in order for chewing to be pleasant from the very first moments, the chewing gum should not be particularly hard or stiff, which is another property that is lacking in currently available products of this type.

[0066] The second stage (b), known as the "intermediate" stage, is of longer duration and corresponds, to the period of 30-60 seconds during which most of the sugar or sweeteners go into solution owing to the effect of the saliva and the product simultaneously releases most of the flavour. In this stage, it is particularly important for chewing to be uniform, in other words, for the physical drop in consistency due to the dissolving to be slight and not too noticeable, thus maintaining so-called "linear" behaviour.

[0067] The third or "final" stage (c) starts about one minute after the start of chewing and continues throughout the remaining time for which the gum is chewed. After most of the sugar or sweeteners have dissolved, a flavouring portion and a residue of sugars are still present and the gum is partially hydrated. During this stage, the characteristics of the basic gum are fundamental since it represents almost the whole of the residual bolus. With gums of a particular firmness which are used because they are more easily broken up, even if the intrinsic hardness is not perceived in the first two stages, possibly by virtue of some expedients, it will inevitably become apparent at this stage, rendering chewing difficult and unpleasant and, as such, not at all appealing.

[0068] Amongst the various parameters indicative of the performance of a chewing gum which can be measured objectively, that which relates to the chewing stage (a) or "first bite" is certainly indicative, though not exhaustively, of the quality of the product. The force necessary for a tooth initially to penetrate a sugar-coated pill or a tablet is in fact proportional to the hardness of the pill or tablet and can therefore give a measurement of how pleasant chewing may be. For tablets, hardness is proportional to friability and to the tendency to crumble during the first bites. The harder the product is, and hence the easier it is to grind and compress, the more marked will be its tendency to break up into minute bits which might even be ingested involuntarily. To demonstrate this, some measurements have been made on commercially-available products, experimental test pieces, and samples available commercially at trade fairs, with the use of a penetrometer (Sommer & Runge KG, Berlin) which is commonly used in the industry for assessing the hardness of plastic materials such as waxes which, as is well known, are also ingredients used in the preparation of the basic gum.

[0069] The measurements made, which were performed in parallel with sensory assessments, gave results indicative of the superior chewing characteristics of the samples produced in accordance with the present invention. Table 4 gives the results obtained for two commercial products, indicated as brand A and brand B, respectively, a product distributed at a trade fair, indicated as brand C, and two samples produced in accordance with the present invention.

Table 4

	Sensory assessment upon: "first bite"	Penetration Index (values in 1/10 mm)
Brand A*	Hard and friable in the mouth	1 - 3
Brand B*	Hard and friable in the mouth	3 - 3.5
Brand C*	Very hard and markedly friable in the mouth	1.5 - 3
Example 8	Soft. Not friable	8 - 7.5
Example 9	Quite soft. Not friable	8 - 7.5

*: The products indicated as BRAND A, B and C are compressed powder chewing gums corresponding respectively to:
BRAND A: Göttschke Propol-younge, "Gum Tech"®; lemon taste, ascribed by D. ULBRICH SpA, Torino.
BRAND B: "Vitamine vitaminizzate e minerali Gold", mint taste, ascribed by GUARBER, Forno, Italia.
BRAND C: Compressed chewing gum tablets made with Bafin® I gum base manufactured by L.A. Drayfus Company.

[0070] As can be seen, the experimental measurement confirms the judgement with regard to the sensory assessment of the specific parameter.

[0071] The performance claimed in the present invention is achieved with the use of "soft" gums which give rise to products with a pleasant chewing profile which is comparable with, if not better than, that of conventional products.

[0072] It is important to stress that the values given above are significant only to the above examples and variations in the composition of the basic gum may lead to appreciably different results. Although basic gums having formulations other than that given above are used conventionally for the preparation of high-quality chewing-gum products by conventional methods in conventional formats, i.e., sticks, or dragées, they do not have the characteristics of softness possessed by basic gums with the formulation given above.

[0073] In particular, it can easily be shown that high-quality basic gums in which only two of the categories of ingredients indicated above differ from those of the gums of the present invention have clearly different characteristics in terms of softness. Two basic gums, identified as gum 1 and gum 2, given by way of example in Table 5, have the following differences in comparison with the formulation described above.

Table 5

	gum 1	gum 2	gum 3
waxes selected from the group comprising vegetable waxes and waxes derived from petroleum or produced by synthesis	30 - 32 %	30 - 32 %	0 - 7 %
Inert mineral filler products	10 - 12 %	10 - 12 %	15 - 40 %

[0074] To confirm what has been stated and the difference described, a test measurement by penetrometer was also used in this case to assess the consistency and hardness of the basic gum samples, by comparing the two samples described above with a third identified as: gum 3 which had a formulation corresponding to that described above. The results are given in Table 6.

Table 6

	gum 1	gum 2	gum 3
Penetration in 1/10 mm (values of three readings)	8 / 9.5 / 9.5	10.5 / 9.5 / 9.5	21 / 21.5 / 22
Penetration in 1/10 mm (calculated average of three readings)	9	9.8	21.5

[0075] A further parameter commonly used by the industry to characterize a basic gum is the softening point. This measurement, which is performed by the so-called "ring & ball" technique, provides for the measurement of the initial softening temperature of the basic gum and the temperature at which it actually passes through, with the use of a standard body, once the softening point is reached. Two temperatures and the respective interval are thus obtained and provide extremely useful information on the characteristics of the gum. In the specific case of the gums given by way of example, the temperatures measured are given in Table 7.

Table 7

	gum 1	gum 2	gum 3
Initial softening temperature (°C)	77	78	47
Softening Point (°C)	79	79	56
Softening interval (°C)	2	1	9

5

10 [0076] It is clear from the data set out above that the difference between the examples, gum 1 and gum 2, on the one hand and gum 3, on the other, is not only in the macroscopic difference in the absolute values of the softening temperatures which would themselves be a significant indicator; in fact, the extent of the softening interval is also in direct correlation with the characteristics of greater plasticity and softness in gum 3 in comparison with the greater stiffness of gum 1 and gum 2.

15 [0077] It is thus clear that the use of a soft basic gum is a particularly important parameter for the production of chewing gums in powder form which have palatability characteristics comparable with, if not better than, those of conventional chewing gums.

20 **Claims**

1. Method of producing chewing gum in powder form, constituted by the following steps:
- 25 a) mixing of a soft basic gum with at least one sweetener and, optionally, at least one other typical chewing-gum ingredient, at a temperature of between about 35 and 75°C
- b) cooling of the mixture thus obtained to a temperature of between about 0 and -40°C,
- c) grinding and subsequent screening of the mixture thus obtained to give a powder having a particle size less than about 10 mesh,
- 30 d) mixing of the powder thus obtained with at least one anti-agglutination agent,
- e) optional mixing of the powder thus obtained with one or more of sweeteners, flavourings, colourings, food acids, or other additives,
- f) optional compression of the mixture thus obtained.
2. Method according to Claim 1, characterized in that the cooling is performed to a temperature of between about 35 -10 and -40°C.
3. Method according to Claim 1, characterized in that step c) is performed to give a powder having a particle size of less than about 14 mesh.
- 40 4. Method according to Claim 1, characterized in that the soft basic gum is characterized by a penetration index, in 1/10 mm, which is greater than about 15 when measured in accordance with the "Standard method for Needle Penetration of Petroleum Waxes", ASTM D1321-97, preferably greater than 18.
5. Method according to Claim 1, characterized in that the soft basic gum has the following composition by weight: 45 from about 8 to 16 % of at least one elastomer, from about 12 to 19% of polyvinyl acetate, from about 14 to 30% of resin, from about 10 to 22% of at least one hydrogenated and/or partially hydrogenated vegetable oil, from about 0 to 7% of wax, from about 5 to 9% of at least one emulsifier and/or a technological assistant, from about 15 to 40% of inert mineral fillers, and up to about 0.1% of antioxidant, in which the sum of the various components amounts to 100.
- 50 6. Method according to Claim 5, characterized in that the elastomer is selected from polyisobutylene, isobutylene/isoprene copolymer, and vinyl acetate/vinyl laurate copolymer.
7. Method according to Claim 5, characterized in that the resin is selected from vegetable resin esters, resins produced by synthesis, and/or terpene resins.
- 55 8. Method according to Claim 5, characterized in that the wax is selected from vegetable waxes, waxes derived from petroleum, and/or synthetic waxes.

9. Method according to Claim 5, characterized in that the emulsifier is selected from glycerol monoacetate, sugar esters, and lecithin, and the technological assistant is selected from acetylated monoglycerides and triacetin.
10. Method according to Claim 1, characterized in that, if the sweetener and the other ingredient of step a) are used in the solid state, they have a particle size of less than about 200 μm .
11. Method according to Claim 1, characterized in that the sweetener of step a) is selected from sucrose or glucose syrup, or one or more polyols such as, for example sorbitol, mannitol, lactitol, isomalt, xylitol, or syrups thereof.
12. Method according to Claim 1, characterized in that the typical chewing-gum ingredient is selected from: intensive sweeteners, flavourings, one or more additives, colourings, or mixtures thereof.
13. Method according to Claim 12, characterized in that the intensive sweetener is selected from: aspartame, acesulfame and salts and derivatives thereof, saccharine, neohesperidin dihydrochalcone, sucralose, neotame, thaumatin and monellina or mixtures thereof.
14. Method according to Claim 1, characterized in that the anti-agglutination agent is selected from magnesium stearate, silica, talc, sugar esters and/or polyols.
15. Method according to Claim 1, characterized in that it is performed in the absence of granulation coadjuvants such as alkali-metal phosphates, alkaline-earth metal phosphates, maltodextrine or mixtures thereof, and/or in the absence of building agents such as, for example, gum arabic or pectin.
16. Method according to any one of Claims 1-15, characterized in that the powder obtained in step (d) is mixed with at least one pharmaceutical, cosmetic and/or nutritional active ingredient and/or with at least one of sweeteners, flavourings, colourings, and other additives, prior to being subjected to the compression step.
17. Method according to any one of Claims 1-16, characterized in that said anti-agglutination agent is isomalt.
18. Chewing gum in powder form obtainable by the method according to any one of Claims 1-17.
19. Compressed chewing gum obtainable by the method according to any one of Claims 1-17.
20. Compressed chewing gum according to claim 18 characterized by containing from about 60 to 90% of the total weight of basic gum and from about 5 to 25% of the total weight of bulk sweeteners.
21. Compressed chewing gum according to claim 20 characterized by containing from about 80 to 90% of the total weight of basic gum and from about 10 to 20% of the total weight of bulk sweeteners.
22. Compressed chewing gum according to claims 19-21 characterized by having a weight lower than about 1.2 grams, preferably lower than 0.8 grams, even more preferably less than 0.5 grams.
23. Compressed chewing gum according to claims 19-22 characterized by having a diameter lower than about 10 mm, preferably lower than 8 mm.
24. A coated chewing gum product comprising a gum center and a coating, characterized in that the gum center is a compressed chewing gum according to claims 19-23.
25. A coated chewing gum product according to claim 24, characterized in that the coating comprises up to about 55 by weight of the coated chewing gum.
26. A coated chewing gum product according to claim 25, characterized in that the coating comprises up to about 46% by weight of the coated chewing gum.
27. A coated chewing gum product according to claims 24-26, characterized in that more than about 80% by weight of the coating consists of bulk sweeteners, preferably from 85 to 96%.

Patentansprüche

1. Verfahren zur Herstellung von Kaugummi in Pulverform, umfassend die folgenden Schritte:

- 5 a) Mischen einer weichen Gummibasis mit mindestens einem Süßungsmittel und gegebenenfalls mindestens einem anderen typischen Kaugummi-Bestandteil bei einer Temperatur zwischen etwa 35 und 75°C,
 - b) Kühlen der so erhaltenen Mischung auf eine Temperatur zwischen etwa 0 und -40°C,
 - c) Mahlen und anschließendes Sieben der so erhaltenen Mischung, um ein Pulver mit einer Teilchengröße von weniger als etwa 10 mesh zu ergeben,
 - 10 d) Mischen des so erhaltenen Pulvers mit mindestens einem Antiklebmittel,
 - e) gegebenenfalls Mischen des so erhaltenen Pulvers mit einem oder mehreren Süßungsmitteln, Geschmacksstoffen, farbgebenden Mitteln, einer oder mehreren Lebensmittel säuren oder anderen Additiven,
 - f) gegebenenfalls Pressen der so erhaltenen Mischung.
- 15 2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass das Kühlen auf eine Temperatur zwischen etwa -10 und -40°C erfolgt.
3. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass Schritt c) durchgeführt wird, um ein Pulver mit einer Teilchengröße von weniger als etwa 14 mesh zu ergeben.
- 20 4. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass die weiche Gummibasis gekennzeichnet ist durch einen Penetrationsindex, in 1/10 mm, der größer ist als etwa 15, gemessen entsprechend der "Standard Method for Needle Penetration of Petroleum Waxes", ASTM D1321-67, bevorzugt größer als 18.
- 25 5. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass die weiche Gummibasis die folgende Zusammensetzung, bezogen auf das Gewicht, aufweist: etwa 8 bis 18% mindestens eines Elastomers, etwa 12 bis 19% Polyvinylacetat, etwa 14 bis 30% Harz, etwa 10 bis 22% mindestens eines hydrierten und/oder teilweise hydrierten pflanzlichen Öls, etwa 0 bis 7% Wachs, etwa 5 bis 9% mindestens eines Emulgators und/oder eines technischen Hilfsstoffs, etwa 15 bis 40% inerte mineralische Füllstoffe und bis zu etwa 0,1% Antioxidationsmittel, wobei die Summe der verschiedenen Komponenten 100 ausmacht.
- 30 6. Verfahren nach Anspruch 5, dadurch gekennzeichnet, dass das Elastomer aus Polyisobutylen, Isobutylen/Isopren-Copolymer und Vinylacetat/Vinylaurat-Copolymer ausgewählt ist.
- 35 7. Verfahren nach Anspruch 5, dadurch gekennzeichnet, dass das Harz aus pflanzlichen Harzestern, durch Synthese hergestellten Harzen und/oder Terpenharzen ausgewählt ist.
8. Verfahren nach Anspruch 5, dadurch gekennzeichnet, dass das Wachs aus pflanzlichen Wachsen, von Erdöl abgeleiteten Wachsen und/oder synthetischen Wachsen ausgewählt ist.
- 40 9. Verfahren nach Anspruch 5, dadurch gekennzeichnet, dass der Emulgator aus Glycerinmonostearat, Zuckerestern und Lecithin ausgewählt ist und das technische Hilfsmittel aus acetylierten Monoglyceriden und Triacetin ausgewählt ist.
- 45 10. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass wenn das Süßungsmittel und der andere Bestandteil von Schritt a) in festem Zustand verwendet werden, sie eine Teilchengröße von weniger als etwa 200 µm aufweisen.
11. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass das Süßungsmittel von Schritt a) aus Sucrose oder Glucose sirup oder einem oder mehreren Polyolen wie z.B. Sorbit, Mannit, Lactit, Isomalt, Xylit oder Sirupen davon ausgewählt ist.
- 50 12. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass der typische Kaugummi-Bestandteil aus intensiv schmeckenden Süßungsmitteln, Geschmacksstoffen, einem oder mehreren Additiven, farbgebenden Mitteln oder Mischungen davon ausgewählt ist.
- 55 13. Verfahren nach Anspruch 12, dadurch gekennzeichnet, dass das intensiv schmeckende Süßungsmittel aus Aspartam, Acesulfam und Salzen und Derivaten davon, Saccharin, Neohesperidinhydrochalcin, Sucralose, Neotam, Thaumatin und Monellin oder Mischungen davon ausgewählt ist.

14. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass das Antiklebmittel aus Magnesiumstearat, Siliciumdioxid (Silica), Talkum, Zuckerestern und/oder Polyolen ausgewählt ist.
15. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass es in Abwesenheit von Granulierungs-Coadjuvantien wie Alkalimetallphosphaten, Erdalkalimetallphosphaten, Maltodextrinen oder Mischungen davon und/oder in Abwesenheit von Ballaststoffen wie z.B. Gummi arabicum oder Pektin ausgeführt wird.
16. Verfahren nach irgendeinem der Ansprüche 1 bis 15, dadurch gekennzeichnet, dass das in Schritt (d) erhaltene Pulver mit mindestens einem pharmazeutischen, kosmetischen und/oder nährenden Wirkstoff und/oder mit mindestens einem Mittel aus Süßungsmitteln, Geschmacksstoffen, farbgebenden Mitteln und anderen Additiven gemischt wird, bevor es dem Pressschritt unterworfen wird.
17. Verfahren nach irgendeinem der Ansprüche 1 bis 16, dadurch gekennzeichnet, dass das Antiklebmittel Isomalt ist.
18. Kaugummi in Pulverform, erhältlich durch das Verfahren nach irgendeinem der Ansprüche 1 bis 17.
19. Geprägter Kaugummi, erhältlich durch das Verfahren nach irgendeinem der Ansprüche 1 bis 17.
20. Geprägter Kaugummi nach Anspruch 19, dadurch gekennzeichnet, dass er etwa 80 bis 90% des Gesamtgewichtes an Gummibasis und etwa 5 bis 25% des Gesamtgewichtes an Bulk-Süßungsmitteln enthält.
21. Geprägter Kaugummi nach Anspruch 20, dadurch gekennzeichnet, dass er etwa 80 bis 90% des Gesamtgewichtes an Gummibasis und etwa 10 bis 20% des Gesamtgewichtes an Bulk-Süßungsmitteln enthält.
22. Geprägter Kaugummi nach den Ansprüchen 19 bis 21, dadurch gekennzeichnet, dass er ein Gewicht von weniger als etwa 1,2 g, bevorzugt weniger als 0,8 g und noch bevorzugter weniger als 0,5 g besitzt.
23. Geprägter Kaugummi nach den Ansprüchen 19 bis 22, dadurch gekennzeichnet, dass er einen Durchmesser von weniger als etwa 10 mm und bevorzugt weniger als 8 mm aufweist.
24. Kaugummiprodukt mit Überzug umfassend einen Gummikern und einen Überzug, dadurch gekennzeichnet, dass der Gummikern ein geprägter Kaugummi nach den Ansprüchen 19 bis 23 ist.
25. Kaugummiprodukt mit einem Überzug nach Anspruch 24, dadurch gekennzeichnet, dass der Überzug bis zu etwa 55 Gew.-% des Kaugummis mit Überzug umfasst.
26. Kaugummiprodukt mit Überzug nach Anspruch 25, dadurch gekennzeichnet, dass der Überzug bis zu etwa 45 Gew.-% des Kaugummis mit Überzug umfasst.
27. Kaugummiprodukt mit Überzug nach den Ansprüchen 24 bis 26, dadurch gekennzeichnet, dass mehr als etwa 80 Gew.-% des Überzugs aus Bulk-Süßungsmitteln bestehen, bevorzugt 85 bis 95%.

43 Revendications

1. Procédé de production d'une pâte à mâcher sous forme de poudre, constitué des étapes suivantes :
 - a) mélange d'une gomme molle de base avec au moins un édulcorant et le cas échéant, au moins un autre ingrédient typique de pâte à mâcher, à une température allant d'environ 35 à 75°C,
 - b) refroidissement du mélange ainsi obtenu jusqu'à une température allant d'environ 0 à -40°C,
 - c) broyage et ensuite, criblage du mélange ainsi obtenu pour donner une poudre ayant une taille des particules inférieure à environ 10 mesh,
 - d) mélange de la poudre ainsi obtenue avec au moins un agent anti-agglutinant,
 - e) le cas échéant, mélange de la poudre ainsi obtenue avec un ou plusieurs édulcorants, arômes, colorants, acides alimentaires ou autres additifs,
 - f) le cas échéant, compression du mélange ainsi obtenu.

2. Procédé selon la revendication 1, caractérisé en ce que le refroidissement est réalisé à une température allant d'environ -10 à environ -40°C.
3. Procédé selon la revendication 1, caractérisé en ce que l'étape c) est réalisée pour donner une poudre ayant une taille des particules inférieure à environ 14 mesh.
4. Procédé selon la revendication 1, caractérisé en ce que la gomme molle de base est caractérisée par un indice de pénétration, en 1/10 mm, qui est supérieur à environ 15 lorsqu'il est mesuré selon le « Standard Method for Needle Penetration of Petroleum Waxes », ASTM D1321-97, de préférence supérieur à 18.
5. Procédé selon la revendication 1, caractérisé en ce que la gomme molle de base a la composition suivante, en poids : d'environ 8 à 18% d'au moins un élastomère, d'environ 12 à 18% de poly(acétate de vinyle), d'environ 14 à 30% de résine, d'environ 10 à 22% d'au moins une huile végétale hydrogénée et/ou partiellement hydrogénée, d'environ 0 à 7% de cire, d'environ 5 à 9% d'au moins un émulsifiant et/ou d'un assésant technologique, d'environ 15 à 40% de charges minérales inertes et jusqu'à environ 0,1% d'un antioxydant, où la somme des différents composants s'élève à 100.
6. Procédé selon la revendication 5, caractérisé en ce que l'élastomère est choisi parmi le polyisobutylène, un copolymère isobutylène/isoprène, et un copolymère acétate de vinyle/laurate de vinyle.
7. Procédé selon la revendication 5, caractérisé en ce que la résine est choisie parmi les esters de résine végétale, les résines produites par synthèse et/ou les résines terpéniques.
8. Procédé selon la revendication 5, caractérisé en ce que la cire est choisie parmi les cires végétales, les cires dérivées du pétrole et/ou les cires synthétiques.
9. Procédé selon la revendication 5, caractérisé en ce que l'émulsifiant est choisi parmi le monostéarate de glycérol, des esters de sucre, et la lécithine et l'assésant technologique est choisi parmi les monoglycérides acétylés et la triacétine.
10. Procédé selon la revendication 1, caractérisé en ce que si l'édulcorant et l'autre ingrédient de l'étape a) sont utilisés à l'état solide, ils ont une taille des particules inférieure à environ 200 µm.
11. Procédé selon la revendication 1, caractérisé en ce que l'édulcorant de l'étape a) est choisi parmi le sirop de sucrose ou de glucose, ou un ou plusieurs polyols comme par exemple, le sorbitol, le mannitol, le lactitol, l'isomalt, le xylitol ou leurs sirops.
12. Procédé selon la revendication 1, caractérisé en ce que l'ingrédient typique de pâte à mâcher est choisi parmi : des édulcorants intensifs, des arômes, un ou plusieurs additifs, des colorants ou leurs mélanges.
13. Procédé selon la revendication 12, caractérisé en ce que l'édulcorant intensif est choisi parmi : l'aspartame, l'acésulfame et leurs sels et dérivés, la saccharine, la néohespéridine, le dihydrochalcone, le sucralose, le néotame, la thaumatococine et la monelline ou leurs mélanges.
14. Procédé selon la revendication 1, caractérisé en ce que l'agent anti-agglutinant est choisi parmi le stéarate de magnésium, la silice, le talc, des esters de sucre et/ou des polyols.
15. Procédé selon la revendication 1, caractérisé en ce qu'il est réalisé en l'absence de coadjuvants de granulation comme des phosphates de métal alcalin, des phosphates de métal alcalino-terreux, des malto-dextrines ou leurs mélanges, et/ou en l'absence d'agents de charge comme par exemple, la gomme arabique ou la pectine.
16. Procédé selon l'une quelconque des revendications 1 à 15, caractérisé en ce que la poudre obtenue à l'étape (d) est mélangée avec au moins un ingrédient actif pharmaceutique, cosmétique et/ou nutritionnel et/ou avec au moins un des édulcorants, arômes, colorants et autres additifs, avant d'être sujét à l'étape de compression.
17. Procédé selon l'une quelconque des revendications 1 à 16, caractérisé en ce que ledit agent anti-agglutinant est l'isomalt.

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18. Pâte à mâcher sous forme de poudre, pouvant être obtenu par le procédé selon l'une quelconque des revendications 1 à 17.
19. Pâte à mâcher compressée, pouvant être obtenue par le procédé selon l'une quelconque des revendications 1 à 17.
20. Pâte à mâcher compressée selon la revendication 19, **caractérisée en ce qu'elle** contient d'environ 60 à 90% du poids total de gomme de base et d'environ 5 à 25% du poids total d'édulcorants forts.
21. Pâte à mâcher compressée selon la revendication 20, **caractérisée en ce qu'elle** contient d'environ 60 à 90% du poids total de gomme de base et d'environ 10 à 20% du poids total d'édulcorants forts.
22. Pâte à mâcher compressée selon les revendications 19 à 21, **caractérisée en ce qu'elle** a un poids inférieur à environ 1,2 g, de préférence inférieur à environ 0,8 g, de manière plus préférée inférieur à 0,5 g.
23. Pâte à mâcher compressée selon les revendications 19 à 22, **caractérisée en ce qu'elle** a un diamètre inférieur à environ 10 mm, de préférence inférieur à 8 mm.
24. Produit de pâte à mâcher enrobé, comprenant un centre en gomme et un enrobage, **caractérisé en ce que** le centre en gomme est un pâte à mâcher compressée selon les revendications 19 à 23.
25. Produit de pâte à mâcher enrobé selon la revendication 24, **caractérisé en ce que** l'enrobage compose jusqu'à environ 55% en poids du pâte à mâcher enrobé.
26. Produit de pâte à mâcher enrobé selon la revendication 25, **caractérisé en ce que** l'enrobage compose jusqu'à environ 45% en poids de la pâte à mâcher enrobée.
27. Produit de pâte à mâcher enrobé selon les revendications 24 à 26, **caractérisé en ce que** plus d'environ 80% en poids de l'enrobage consiste en des édulcorants forts, de préférence de 85 à 95%.