



(12) PATENTANSØGNING

Patent- og
Varemærkestyrelsen

(51) Int.Cl.⁷: A 23 G 3/30

(21) Patentansøgning nr: PA 2004 01196

(22) Indleveringsdag: 2004-08-06

(24) Løbedag: 2004-08-06

(41) Alm. tilgængelig: 2004-08-06

(71) Ansøger: Gumlink A/S, Dandyvej 19, 7100 Vejle, Danmark

(72) Opfinder: Rikke Mikkelsen, Grejsdalsvej 394, 7100 Vejle, Danmark
Kaj Hovhave Nielsen, Skovgyden 43, 5450 Otterup, Danmark
Niels Ravn Schmidt, Barrit Langgade 100, 7150 Barrit, Danmark
Per Henrik Ertebjerg Christensen, Kragemosen 68, 5250 Odense SV, Danmark

(74) Fuldmægtig: Internationalt Patent-Bureau A/S, Høje Taastrup Boulevard 23, 2630 Taastrup, Danmark

(54) Benævnelse: A method for producing chewing gum granules and compressed gum products, and a chewing gum granulating system

(57) Sammendrag:

The invention relates to a method for producing chewing gum granules. The method comprises at least the steps of feeding a gum composition including at least gum base into an extruder (2), pressurizing the gum composition in the extruder, extruding the gum composition through a die plate (5), and cutting the extruded gum composition in a liquid filled chamber (4). The extruded gum composition comprises at least 71 % Wt. gum base and the cut granules are included in compressed gum tablets. The invention further relates to a chewing gum product, and to a chewing gum granulating system.

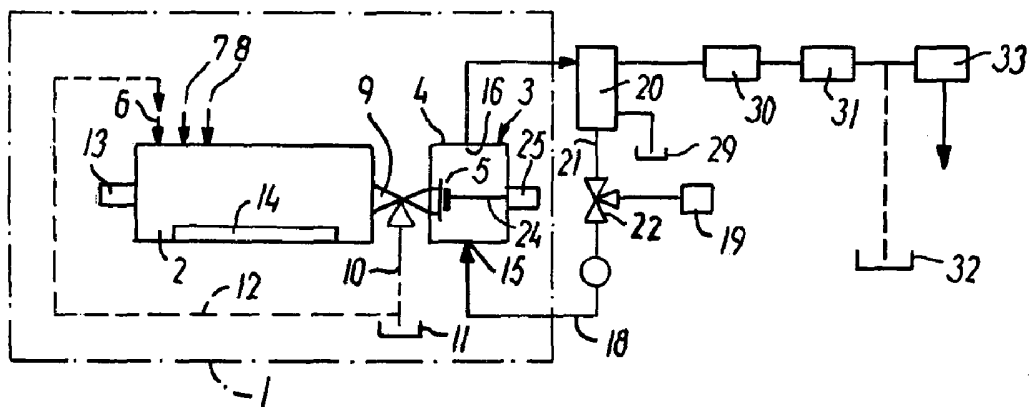


FIG. 1

P A T E N T C L A I M S

1. A method for producing chewing gum granules and compressed gum products, which method comprises at least the steps of:

- 5 a) feeding a gum composition including at least gum base into an extruder;
- b) pressurizing the gum composition in the extruder;
- c) extruding the gum composition through a die
10 plate;
- d) cutting the extruded gum composition in a liquid filled chamber, characterized in that the cut gum granules include at least gum base in the range of 71 - 99% Wt. based on the total weight of the
15 granules together with at least sweetener and/or flavour in the range of 0.1 - 29% Wt. based on the total weight of the granules and; conveying at least the extruded gum granules to a tabletting machine; and pressing at least the gum granules into
20 compressed chewing gum tablets in the tablet pressing machine.

2. A method according to claim 1, wherein the gum granules include gum base in the range of 86 - 99% Wt. based on the total weight of the granule,
25 preferably gum base in the range of 91 - 99% Wt. based on the total weight of the granule.

3. A method according to claim 1 or 2 wherein the gum composition in step a) is gum base.

4. A method according to any one of claims 1 to
30 3, wherein the gum composition is mixed with flavour during step b).

5. A method according to any one of claims 1 to 4, wherein the gum composition is mixed with sweetener, preferably an intense sweetener, during step b).

5 6. A method according to any one of the preceding claims, wherein the granules comprise sweetener in the range of 0.1 - 15% Wt., preferably in the range of 0.2 - 10% Wt., and suitably in the range of 0.5 - 4.9% Wt., based on the total weight of
10 the granules.

7. A method according to any one of the preceding claims, wherein the granules comprise flavour in the range of 0.1 - 15% Wt., preferably in the range of 1 - 10% Wt., and suitably the range of 2
15 - 5% Wt., based on the total weight of the granules.

8. A method according to any one of the preceding claims, wherein the average diameter of the cut granules is in the range from 0.1 mm to 3.1 mm, preferably from 0.25 to 2.5 mm, suitable in the range
20 of 0.3 to 2.1 mm.

9. A method according to any one of the preceding claims, wherein the gum composition in step c) is extruded through die openings in a die plate having openings of at least two different sizes to
25 simultaneously obtain granules with different average diameters.

10. A method according to claim 9, wherein a first fraction of the extruded granules has a first average diameter, and a second fraction of the
30 extruded granules has a second average diameter larger than said first average diameter.

11. A method according to claim 10, wherein the first average diameter is in the range from 0.1 to 0.95 mm, preferably from 0.25 to 0.9 mm, and the second average diameter is in the range from 0.6 to 1.9 mm, preferably from 0.8 to 1.4 mm.

12. A method according to any one of the preceding claims comprising the further step of substantially removing surface liquid from the extruded granules.

10 13. A method according to any one of the preceding claims, comprising the further step of classifying the extruded granules.

14. A method according to any one of the preceding claims comprising the further step of
15 mixing the extruded granules with one or more ingredients selected from the group comprising flavours, sweeteners, intense sweeteners, colouring agents, fillers, and tableting aids.

15. A method according to any one of the
20 preceding claims wherein the tablets comprise gum base in the range from 28 to 70% Wt., preferably in the range from 30 to 45% Wt., and suitably in the range from 31 to 39% Wt., based on the total weight of the tablets.

25 16. A method according to any one of the preceding claims 1-14, wherein the tablets comprise gum base in the range from 28 to 70% Wt., preferably in the range from 35 to 63% Wt., and suitably in the range from 45 to 60% Wt., based on the total weight
30 of the tablets.

17. A method according to any one of the

preceding claims, comprising the further step of coating the compressed tablets, the coating preferably comprises one or more coatings or ingredients selected from the groups comprising
5 cornstarch, sugar compounds, polyols, cellulose ethers, hydroxypropylmethylcellulose, acrylic polymers and copolymers, sugarless/sugarfree coatings, sweeteners, flavours, waxes, or colours.

18. A method according to any one of the
10 preceding claims, comprising the further step of coating the granules, the coating preferably comprises one or more coatings or ingredients selected from the groups comprising magnesium stearate, cornstarch, sugar compounds, polyols,
15 cellulose ethers, acrylic polymers and copolymers, sugarless/sugarfree coatings, sweeteners, flavours, waxes, or colours.

19. Use of the methods according to any one of claims 1 to 18 in the production of a chewing gum
20 product, preferably compressed chewing gum tablets.

20. A chewing gum product obtained by any of the methods according to any one of the claims 1-19.

21. A chewing gum product comprising compressed gum composition granules wherein a first fraction of
25 the gum composition granules has a first average diameter, and at least a second fraction of the gum composition granules has a second average diameter larger than said first average diameter.

22. A chewing gum product according to claim 21
30 wherein the chewing gum product further comprises granules of flavour and/or sweetener.

23. A chewing gum granulating system for use in producing compressed chewing gum products and comprising an extruder with a feeding device for feeding gum composition to the extruder, said
5 extruder communicating with a liquid filled granulating chamber via a die device having a plurality of openings, characterised in that the die device has a first plurality of openings with a first size and at least a second plurality of openings with
10 a second size larger than said first size.

24. A chewing gum granulating system according to claim 23, wherein the die device comprises openings with substantially circular cross-section including a first set of openings having a first
15 diameter, and a second set of opening having a second diameter larger than said first diameter.

25. A chewing gum granulating system according to claim 24, wherein the first diameter is in the range of 0.07 to 0.7 mm, preferably in the range of
20 0.15 to 0.6 mm, and the second diameter is in the range of 0.4 to 2.1 mm, preferably in the range of 0.7 to 1.9 mm.

26. A chewing gum granulating system according to any one of the claims 23 to 25, wherein the system
25 further comprises a drying device adding powder sweetener to the granulates in a final drying step, said powder sweetener preferably being added while moisture is remaining on the surface of the granulates.

30 27. A chewing gum granulating system according to any one of the claims 23 or 26, wherein the system

further comprises one or more sieves adapted for removing granules with average diameters above 2.55 mm.

28. A chewing gum granulating system according
5 to any one of claims 23 to 27, wherein the system further comprises a tabletting machine.

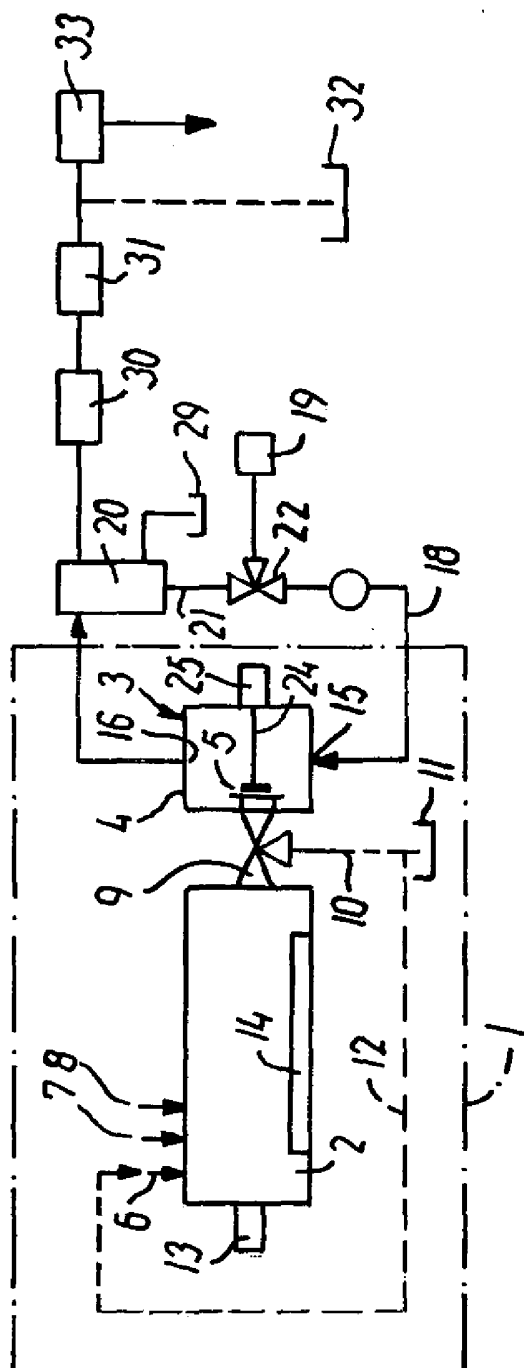


FIG. 1

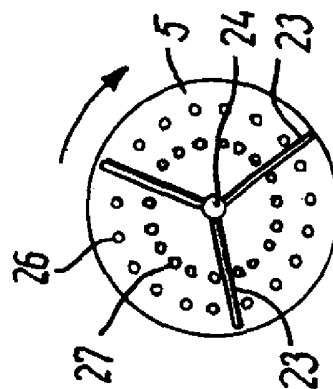


FIG. 2